Board of Governors, State University System of Florida
Request to Offer a New Degree Program
(Please do not revise this proposal format without prior approval from Board staff)

University of West Florida **University Submitting Proposal**	**Fall 2018** **Proposed Implementation Term**
Hal Marcus College of Science and Engineering **Name of College(s) or School(s)**	**Computer Science** **Name of Department(s)/ Division(s)**
Computer Science **Academic Specialty or Field**	**Bachelor of Science in Computer Science** **Complete Name of Degree**
11.0701 **Proposed CIP Code**	

The submission of this proposal constitutes a commitment by the university that, if the proposal is approved, the necessary financial resources and the criteria for establishing new programs have been met prior to the initiation of the program.

Date Approved by the University Board of Trustees		**President**	**Date**
Signature of Chair, Board of Trustees	**Date**	**Provost and Senior Vice President**	**Date**

Provide headcount (HC) and full-time equivalent (FTE) student estimates of majors for Years 1 through 5. HC and FTE estimates should be identical to those in Table 1 in Appendix A. Indicate the program costs for the first and the fifth years of implementation as shown in the appropriate columns in Table 2 in Appendix A. Calculate an Educational and General (E&G) cost per FTE for Years 1 and 5 (Total E&G divided by FTE).

Implementation Timeframe	Projected Enrollment (From Table 1)		Projected Program Costs (From Table 2)				
	HC	FTE	E&G Cost per FTE	E&G Funds	Contract & Grants Funds	Auxiliary Funds	Total Cost
Year 1	150	96.87	3,241	313,960	0	0	313,960
Year 2	150	96.87					
Year 3	160	103.33					
Year 4	160	103.33					
Year 5	170	109.79	3,426	376,087	0	0	376,087

Note: This outline and the questions pertaining to each section must be reproduced within the body of the proposal to ensure that all sections have been satisfactorily addressed. Tables 1 through 4 are to be included as Appendix A and not reproduced within the body of the proposals because this often causes errors in the automatic calculations.

INTRODUCTION

I. Program Description and Relationship to System-Level Goals

A. Briefly describe within a few paragraphs the degree program under consideration, including (a) level; (b) emphases, including concentrations, tracks, or specializations; (c) total number of credit hours; and (d) overall purpose, including examples of employment or education opportunities that may be available to program graduates.

The University of West Florida (UWF) seeks to offer a stand-alone Bachelor of Science in Computer Science degree program (BSCS). The undergraduate degree program of 120 semester credit hours will be delivered in traditional, face-to-face format on the main Pensacola campus. The BSCS degree program will have two concentrations, one in artificial intelligence and one in software engineering. The Computer Science Department at UWF currently offers a specialization in Computer Science in the Computing and Information Sciences degree program. The stand-alone BSCS degree program will replace in purpose and resource use the current Computer Science specialization.

The BSCS degree program is broadly designed to prepare students who seek entry-level work in the rapidly expanding field of Computer Science and Information Technology. The stand-alone BSCS degree program results from a departmental reorganization of degree programs.

The change from a Computer Science specialization in the Computing and Infromation Systems degree program (CIP code 11.0101) to a stand-alone Computer Science degree program (CIP code 11.0701) is proposed for the following reasons:

1. Making the BSCS a stand-alone degree program allows the department to pursue accreditation with the Accreditation Board for Engineering and Technology, Incorporated (ABET).
2. Students and employers are often confused by specializations. A stand-alone BSCS degree program is well understood and well respected by students and employers.
3. There is high demand by the public and private sector for graduates with a BSCS degree with universities not producing enough graduates to meet demand.

The Florida Board of Governors has recognized the need to expand Computer Science education and research within the state and in response, established the concept of Programs of Strategic Emphasis. The BSCS degree program meets all criteria pertaining to Programs of Strategic Emphasis.

B. Please provide the date when the pre-proposal was presented to CAVP (Council of Academic Vice Presidents) Academic Program Coordination review group. Identify any concerns that the CAVP review group raised with the pre-proposed program and provide a brief narrative explaining how each of these concerns has been or is being addressed.

During its October 5, 2017, conference call, the CAVP workgroup expressed no concerns with the BSCS degree program in Computer Science, 11.0701.

C. If this is a doctoral level program please include the external consultant's report at the end of the proposal as Appendix D. Please provide a few highlights from the report and describe ways in which the report affected the approval process at the university.

Not applicable, the BSCS degree program is an undergraduate degree.

D. Describe how the proposed program is consistent with the current State University System (SUS) Strategic Planning Goals. Identify which specific goals the program will directly support and which goals the program will indirectly support (see link to the SUS Strategic Plan on the resource page for new program proposal).

Specific sections from the SUS Strategic Plan 2012-2025 that apply to the program, and to the reason for the change from a specialization to a stand-alone degree program, include the following:

Quality Assurance through Academic Program Review and Accreditation

A strategic goal of the Board of Governors is to assure high quality programs through program review and accreditation. On this topic, the Board of Governors' website (http://www.flbog.edu/board/office/asa/apra.php) reads:

"Well aligned with regional and discipline-specific accreditation expectations, program review processes in the State University System must emphasize the assessment of student learning outcomes and continuous program improvement."

This statement is perfectly congruent with the aims of ABET accreditation for the stand-alone degree program. The program's ultimate attainment of ABET accreditation will formalize ongoing processes of careful assessment of student learning outcomes and continuous program improvements. A curriculum cannot initially become ABET accredited nor can it maintain ABET accreditation without careful assessment and continuous improvement.

Teaching and Learning – Increase the Number of Degrees Awarded in STEM:

The BSCS degree program is being created from a specialization, and is listed in the State University System of Florida (SUS) Programs of Strategic Emphasis under Science, Technology, Engineering, and Math (STEM). The BSCS degree program is clearly aligned with the SUS Strategic Planning Goals. The program will give students an extensive background in computer science. The BSCS degree program will provide students with preparation for entry into graduate school studies and it will afford substantial employment opportunities in government, industry, and with non-governmental organizations.

State universities seek to respond to workforce demands for graduates with specific knowledge and skills. Specifically, university goals are being set to increase the number of graduates with degrees in the STEM fields. The BSCS degree program directly supports this goal.

Florida must become more competitive in the national and global economy. To accomplish this goal, the state must increase the educational attainment levels of its citizens and the state universities must respond by awarding more degrees in specific high demand programs, particularly the STEM disciplines. As a STEM discipline, the BSCS degree program helps the state accomplish this goal.

Strategic Priorities for a Knowledge Economy

As a part of its previous strategic planning activities, the Florida Board of Governors, in conjunction with Florida's leading economic and workforce councils, approved areas of programmatic strategic emphasis for targeting degree programs in the State University System. This list of programs includes certain Science, Technology, Engineering, and Math (STEM) programs and programs with critical and/or economic development needs or emerging technologies that serve to assist the state universities in planning for a degree program array that addresses both workforce and student demands.

E. If the program is to be included in a category within the Programs of Strategic Emphasis as described in the SUS Strategic Plan, please indicate the category and the justification for inclusion.

The program provides preparation for entry into Computer Science and Information Technology employment. The BSCS degree program, CIP code 11.0701, is listed in the Programs of Strategic Emphasis (PSE) under:

3 Science, Technology, Engineering, and Math (STEM).

Please see the Programs of Strategic Emphasis (PSE) methodology for additional explanations on program inclusion criteria at the resource page for new program proposal.

F. Identify any established or planned educational sites at which the program is expected to be offered and indicate whether it will be offered only at sites other than the main campus.

The program will be offered in the traditional, face-to face format, on UWF's main Pensacola campus.

INSTITUTIONAL AND STATE LEVEL ACCOUNTABILITY

II. Need and Demand

A. Need: Describe national, state, and/or local data that support the need for more people to be prepared in this program at this level. Reference national, state, and/or local plans or reports that support the need for this program and requests for the proposed program which have emanated from a perceived need by

agencies or industries in your service area. Cite any specific need for research and service that the program would fulfill.

As the BSCS degree program is replacing in purpose and resource use an existing undergraduate specialization, it is not addressing a new need and is not a new program beyond those currently being offered. The Computer Science field in general is projected as one of major growth in the future.

National

According to the United States Bureau of Labor Statistics, career opportunities for graduates with a bachelor's degree in Computer Science are projected to grow nationwide by 19% from 2014 to 2024. The growth is projected to come from government and industries that require software developers to accommodate the increased demand for application and system software. Due to the high growth rate of job opportunities in the field, it has been an ongoing challenge for universities to keep up with the growing demand for graduates with bachelor's degrees in Computer Science.

State

In the same time period, 2014 to 2024, the State of Florida is projecting a higer rate of growth than the nation at 24% in career opportunities for Computer Science majors. Mean annual salaries in Florida for software system developers are $99,000. In Florida, there were more than 15,000 new computer science job openings recorded from July 2015 through June 2016, yet there were not enough job seekers to fill all of these openings. (http://www.floridajobs.org/labor-market-information/data-center/statistical-programs/employment-projections):

Local

Northwest Florida is home to numerous military bases and military contractors as well as a variety of companies and government agencies with high-tech needs such as software development. The Florida Department of Economic Opportunities projects a 20% growth rate in software developer careers for Escambia and Santa Rosa Counties for which a bachelor's degree is necessary. Mean salaries for Escambia and Santa Rosa County for software system developers are $78,000 and $100,000 respectively. From these data the university expects a steady stream of students who will have a positive impact on the local economy once they graduate and pursue career opportunities in the Northwest Florida region.

B. Demand: Describe data that support the assumption that students will enroll in the proposed program. Include descriptions of surveys or other communications with prospective students.

As the BSCS degree program is replacing in purpose and resource use an existing specialization in Computer Science, there are data from past years. Table 1 shows the steady enrollment of students in the Computer Science Specialization.

Table 1. *Four-year enrollment in the Department of Computer Science and in the Computer Science Specialization.*

Semester	All Department of Computer Science Majors	Computer Science Specialization Majors
Fall 2014	398	145
Fall 2015	426	144
Fall 2016	464	148
Fall 2017	463	140

As the Computer Science department reorganizes, faculty anticipate students will migrate into the BSCS degree program from the former Software Engineering specialization which is being rolled into the Computer Science degree.

C. If substantially similar programs (generally at the four-digit CIP Code or 60 percent similar in core courses), either private or public exist in the state, identify the institution(s) and geographic location(s). Summarize the outcome(s) of communication with such programs with regard to the potential impact on their enrollment and opportunities for possible collaboration (instruction and research). In Appendix C, provide data that support the need for an additional program.

Because of the strong nationwide demand for computer professionals, Computer Science degree programs are prevalent in the SUS. Nine other SUS Institutions currently offer degrees in Computer Science primarily in CIP Code 11.0101:

- University of South Florida (USF) M.S.
- Florida A&M University BS & MS
- Florida Atlantic University BS, MS, & PhD
- Florida International University BS, MS, & PhD
- Florida State University BS, MS, & PhD
- University of Central Florida BS, MS, & PhD
- University of Florida BS, MS, & PhD
- University of North Florida BS & MS
- University of South Florida BS

The nearest SUS institution, Florida State University, is 200 miles from the University of West Florida.

As the BSCS degree program is replacing in purpose and resource use an existing Computer Science specialization, the current request is not to create an additional program in Computer Science. Rather it is to change the surrounding administrative structure of an existing specialization with the goal of attaining ABET accreditation. Students in the current specialization will be transitioned into the new program. Additionally, the BSCS degree program will be offered on campus primarily in the face-to-face format. Consequently, no communication with other institutions has been undertaken.

D. Use Table 1 in Appendix A (1-A for undergraduate and 1-B for graduate) to categorize projected student headcount (HC) and Full Time Equivalents (FTE) according to primary sources. Generally undergraduate FTE will be calculated as 40 credit hours per year and graduate FTE will be calculated as 32 credit hours per year. Describe the rationale underlying enrollment projections. If students within the institution are expected to change majors to enroll in the proposed program at its inception, describe the shifts from disciplines that will likely occur.

A description of headcount predictions based on historical enrollment data is in Section II. B. Table 1. *Four-year enrollment in the Department of Computer Science and in the Computer Science Specialization.* Year one enrollment is 150 with an FTE of 96.87 and E&G cost per FTE of $3,241. (Appendix A Table 1).

E. Indicate what steps will be taken to achieve a diverse student body in this program. If the proposed program substantially duplicates a program at FAMU or FIU, provide, (in consultation with the affected university), an analysis of how the program might have an impact upon that university's ability to attract students of races different from that which is predominant on their campus in the subject program. <u>The university's Equal Opportunity Officer shall review this section of the proposal and then sign and date Appendix B to indicate that the analysis required by this subsection has been completed</u>.

Consistent with its mission, UWF has admissions policies that balance attention to access, inclusiveness, and quality. In addition, UWF encourages applications from all qualified persons and does not discriminate on the basis of age, color, disability, gender (including gender identity and sex), marital status, national origin, race, religion, sexual orientation, or veteran status. Also, UWF's New Academic Program Approval Policy requires that programs appropriately address diversity. Therefore, the university and its degree programs take proactive measures to achieve a diverse student body.

To ensure the desired outcome for student diversity, recruiting efforts initially focus on the university's eight-county service area: Escambia, Santa Rosa, Okaloosa, Walton, Holmes, Washington, Bay, and Gulf. Recruitment efforts also extend to other geographic regions having larger underrepresented populations of prospective students.

The proposed BSCS degree program will be marketed to multiple student segments: first-time-in-college, entering freshmen and transfer students, professionals desiring to enhance their credentials, and military personnel desiring to enhance their skills and enter the civilian workforce. Program faculty and staff will use multiple outreach methods to ensure diversity in the program. The faculty have and will continue to attend new student orientations to showcase UWF's BSCS degree program and discuss coursework and career goals with new students. The Hal Marcus College of Science and Engineering will implement a comprehensive marketing campaign to promote the proposed BSCS degree program to the aforementioned student segments.

The Hal Marcus College of Science and Engineering currently attracts a diverse student body to the Department of Computer Science, and program coordinators anticipate a continued trend of increasing diversity of students in the new degree program (Figure 1).

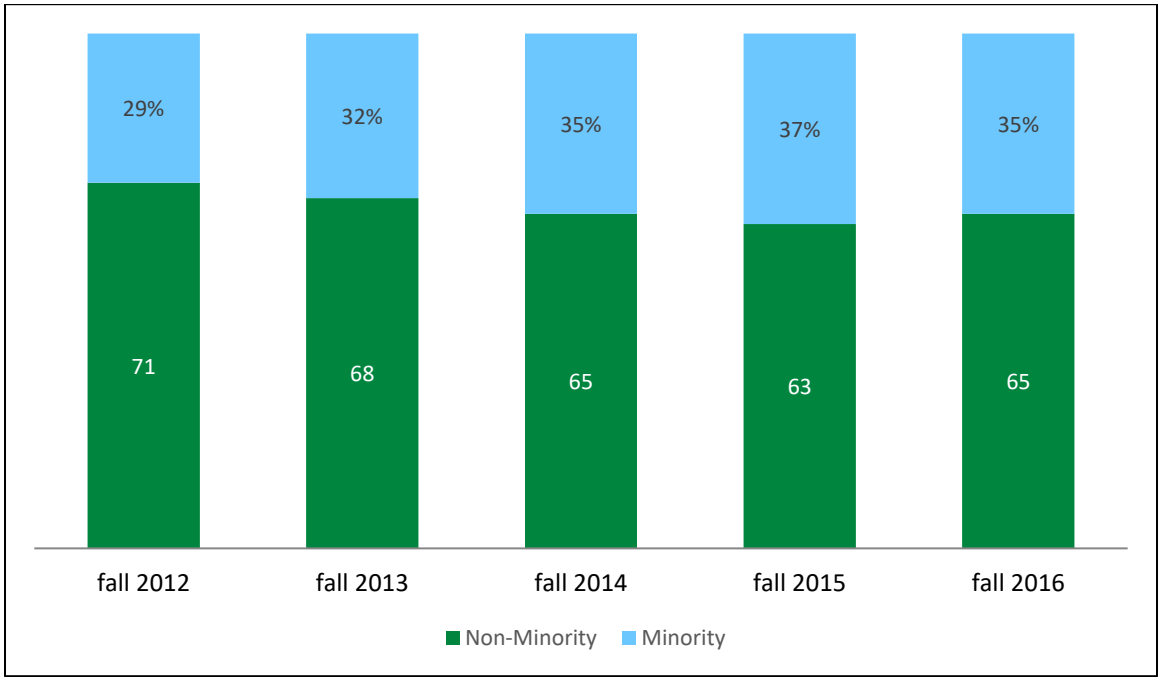

Figure 1. Five-year comparison of diversity in UWF's current Computer Science degree program.

III. Budget

A. Use Table 2 in Appendix A to display projected costs and associated funding sources for Year 1 and Year 5 of program operation. Use Table 3 in Appendix A to show how existing Education & General funds will be shifted to support the new program in Year 1. In narrative form, summarize the contents of both tables, identifying the source of both current and new resources to be devoted to the proposed program. (Data for Year 1 and Year 5 reflect snapshots in time rather than cumulative costs.)

The BSCS degree program is replacing in purpose and resource use an existing Computer Science specialization. The funds currently being utilized for the Computer Science specialization will be reallocated for use in the BSCS degree program. No shift in funds from other programs will be necessary.

The total reallocated funds are $313,960 with the largest portion being faculty salaries and benefits for year one at $276,674. The BSCS degree program will assume one third of the office administrator salary and benefits for year one at $10,500. The other expenses to be reallocated from the specialization to the BSCS degree program are one third of the department’s expenses

at $2,536. The portion of the library expenses that cover the Department of Computer Science as well as the Department of Electrical and Computer Engineering is $2,000.

Special Category expenses are $2,250 in year one to cover the initial ABET accreditation and $875 to cover annual dues in year five. The department's adjunct faculty expense for years one and five remains consistent at $20,000 per year. All other expenses and salaries are projected to increase at a rate of five percent per annum. Year five expenses are anticipated to be $376,087. All of these expenses will be covered by E&G funds.

B. Please explain whether the university intends to operate the program through continuing education on a cost-recovery basis, seek approval for market tuition rate, or establish differentiated graduate-level tuition. Provide a rationale for doing so and a timeline for seeking Board of Governors' approval, if appropriate. Please include the expected rate of tuition that the university plans to charge for this program and use this amount when calculating cost entries in Table 2.

Not applicable.

C. If other programs will be impacted by a reallocation of resources for the proposed program, identify the impacted programs and provide a justification for reallocating resources. Specifically address the potential negative impacts that implementation of the proposed program will have on related undergraduate programs (i.e., shift in faculty effort, reallocation of instructional resources, reduced enrollment rates, greater use of adjunct faculty and teaching assistants). Explain what steps will be taken to mitigate any such impacts. Also, discuss the potential positive impacts that the proposed program might have on related undergraduate programs (i.e., increased undergraduate research opportunities, improved quality of instruction associated with cutting-edge research, improved labs and library resources).

As the BSCS degree program is replacing in purpose and resource use an existing Computer Science specialization, no other programs will be impacted by a reallocation of resources. The resources currently being utilized for the Computer Science specialization will be used for the BSCS degree program.

D. Describe other potential impacts on related programs or departments (e.g., increased need for general education or common prerequisite courses, or increased need for required or elective courses outside of the proposed major).

As the BSCS degree program is replacing in purpose and resource use an existing Computer Science specialization, no related programs or departments will be impacted.

E. Describe what steps have been taken to obtain information regarding resources (financial and in-kind) available outside the institution (businesses, industrial organizations, governmental entities, etc.). Describe the external resources that appear to be available to support the proposed program.

As the BSCS degree program is replacing in purpose and resource use an existing Computer Science specialization, resources in place for the current program will transfer to the new program. Support for students is already in place.

IV. Projected Benefit of the Program to the University, Local Community, and State

Use information from Tables 1 and 2 in Appendix A, and the supporting narrative for "Need and Demand" to prepare a concise statement that describes the projected benefit to the university, local community, and the state if the program is implemented. The projected benefits can be both quantitative and qualitative in nature, but there needs to be a clear distinction made between the two in the narrative.

The stand-alone degree program will prepare students for entry level work in the field of Computer Science. According to the United States Bureau of Labor Statistics, career opportunities in Florida for graduates with a bachelor's degree in Computer Science are projected to grow by 24% from 2014 to 2024. The highly employable graduates of UWF's BSCS degree program will contribute to the state and local economy with high salaries. For example, the mean Florida salary for a software system developer is $99,000.00. Northwest Florida is home to numerous military bases and military contractors as well as a variety of companies and government agencies with high-tech needs.

V. Access and Articulation – Bachelor's Degrees Only

A. If the total number of credit hours to earn a degree exceeds 120, provide a justification for an exception to the policy of a 120 maximum and submit a separate request to the Board of Governors for an exception along with notification of the program's approval. (See criteria in Board of Governors Regulation 6C-8.014)

Not applicable, the BSCS degree program is 120 semester credit hours.

B. List program prerequisites and provide assurance that they are the same as the approved common prerequisites for other such degree programs within the SUS (see link to the Common Prerequisite Manual on the resource page for new program proposal). The courses in the Common Prerequisite Counseling Manual are intended to be those that are required of both native and transfer students prior to entrance to the major program, not simply lower-level courses that are required prior to graduation. The common prerequisites and substitute courses are mandatory for all

institution programs listed, and must be approved by the Articulation Coordinating Committee (ACC). This requirement includes those programs designated as "limited access."

If the proposed prerequisites are not listed in the Manual, provide a rationale for a request for exception to the policy of common prerequisites. NOTE: Typically, all lower-division courses required for admission into the major will be considered prerequisites. The curriculum can require lower-division courses that are not prerequisites for admission into the major, as long as those courses are built into the curriculum for the upper-level 60 credit hours. If there are already common prerequisites for other degree programs with the same proposed CIP, every effort must be made to utilize the previously approved prerequisites instead of recommending an additional "track" of prerequisites for that CIP. Additional tracks may not be approved by the ACC, thereby holding up the full approval of the degree program. Programs will not be entered into the State University System Inventory until any exceptions to the approved common prerequisites are approved by the ACC.

As the majority of the SUS undergraduate degree programs are in CIP Code 11.0101, UWF submitted a common prerequisite application for the BSCS CIP Code 11.0701 on October 6, 2017. The prerequisites for the proposed BSCS CIP Code 11.0701 are the same as for CIP Code 11.0101 programs.

Table 2. *Program CIP 11.0701 Common Prerequisites*

Course Prefix and Number	Title of Course	Semester Credit Hours (SCH)
COPXXXX	Introductory Programming in C, C++, Java, or equivalent language	3
MACX311	Analytic Geometry & Calculus I	4
MACX312	Analytic Geometry & Calculus II	4
PHYX048L	University Physics I and Lab	4
PHYX049L	University Physics II and Lab	4
XXXXXXX	Science Course for Science Majors	3
XXXXXXX	Science Course for Science Majors	3

C. If the university intends to seek formal Limited Access status for the proposed program, provide a rationale that includes an analysis of diversity issues with respect to such a designation. Explain how the university will ensure that Florida College System transfer students are not disadvantaged by the Limited Access status. NOTE: The policy and criteria for Limited Access are identified in Board of Governors Regulation 6C-8.013. Submit the Limited Access Program Request form along with this document.

Not applicable, the BSCS degree program will not be limited access.

D. If the proposed program is an AS-to-BS capstone, ensure that it adheres to the guidelines approved by the Articulation Coordinating Committee for such programs, as set forth in Rule 6A-10.024 (see link to the Statewide Articulation Manual on the resource page for new program proposal). List the prerequisites, if any, including the specific AS degrees which may transfer into the program.

Not applicable, the BSCS degree program will not be an AS-to-BS capstone.

INSTITUTIONAL READINESS

VI. Related Institutional Mission and Strength

A. Describe how the goals of the proposed program relate to the institutional mission statement as contained in the SUS Strategic Plan and the University Strategic Plan (see link to the SUS Strategic Plan on the resource page for new program proposal).

Our mission at UWF is to:

- Provide high-quality undergraduate and graduate education,
- Conduct teaching and research that services the body of knowledge, and
- Contribute to the needs of professions and society.

The BSCS degree program provides the background for entry into careers in Computer Science and is fulfilling UWF's goal of contributing to the needs of professions and society. Additionally, increasing the university's graduates with degrees in a STEM discipline provides high-quality undergraduate education and services the body of knowledge for the profession, the region, and the state of Florida.

B. Describe how the proposed program specifically relates to existing institutional strengths, such as programs of emphasis, other academic programs, and/or institutes and centers.

UWF's Department of Computer Science also offers degree programs in Cybersecurity and in Computer Information Systems. Faculty in the Computer Science Department teach courses that are taken by students in all majors and specializations, and are available as mentors for undergraduate research experiences in all degrees and specializations. Due to the broad background required in science, students in the BSCS degree program will also interact with faculty in the Departments of Physics, Mathematics, and other natural sciences.

Students in Computer Science have a long history of successfully attaining internships and permanent employment locally, for example, with the Institute for Human and Machine Cognition (IHMC) in Pensacola. IHMC is a 501C3 nonprofit research organization that began at UWF. IHMC values the Department of Computer Science for its ongoing role in providing well

educated students and permanent employees.

C. Provide a narrative of the planning process leading up to submission of this proposal. Include a chronology in table format of the activities, listing both university personnel directly involved and external individuals who participated in planning. Provide a timetable of events necessary for the implementation of the proposed program.

As the BSCS degree program is replacing in purpose and resource use an existing Computer Science specialization, the basic structure of the program is already in place. The planning process included consultation with Computer Science faculty and the Hal Marcus College of Science and Engineering's Dean's Office. The major planning steps included:

- Defining how the Computer Science department will reorganize its specializations into separate degree programs.
- Reviewing the Computer Science curriculum to ensure that it is clearly distinctive from the other proposed programs.
- Collecting background data for completion of the Request to Offer a New Program application.

Table 3. *Planning Process for UWF's Computer Science Degree Program*

Date	Participants	Planning Activity
Fall 1991	Computer Science Faculty	Launch of the Computer Science specialization
Fall, 2015 – present	Computer Science Faculty	Planning and assessment in preparation for ABET accreditation. A review of curriculum was carried out to ensure that all ABET requirements can be met
June 2017 - September 2017	Computer Science faculty and members of ASPIRE	Pre-proposal, CAVP proposal, and discussion of changes from Computer Science specialization to Computer Science Program
August, 2017 - December 2017	Computer Science faculty and members of ASPIRE	Preparation of the Request to Offer the new degree program
October, 5 2017	Vice Provost	CAVP Conference call and approval

Table 4. *Events Leading to Implementation*

Date	Implementation Activity
September 2017	CAVP review and comments on pre-proposal
January-February 2018	Dean's Office and Provost's office review
February, 2018	University of West Florida, BOT Education Subcommittee approval (prospective)
March 2018	University of West Florida, BOT approval (prospective)
June, 2018	Florida BoG approval (prospective)
August 2018	Start of fall 2018 semester with new program (prospective)

VII. Program Quality Indicators - Reviews and Accreditation

Identify program reviews, accreditation visits, or internal reviews for any university degree programs related to the proposed program, especially any within the same academic unit. List all recommendations and summarize the institution's progress in implementing the recommendations.

The Department of Computer Science has been working since fall, 2015, on the process of gaining ABET accreditation for the Computer Science program. Seeking such accreditation is a major impetus for the creation of the stand-alone BSCS degree program. Creating a stand-alone program for Computer Science will streamline the ABET accreditation process.

Faculty in the Computer Science department have done extensive work to identify the student learning outcomes that will be assessed as part of the ABET accreditation process. They have identified multiple performance indicators for each student learning outcome. Faculty have created a schedule for the collection of assessment data and individuals have been collecting assessment data since spring, 2016.

The department hosted a two-day workshop with an ABET representative in spring, 2017. At the time of this writing, the department is participating in an ABET accreditation Readiness Review and it has completed a preliminary Self Study. The department will complete the official ABET Self-Study document that the department anticipates will lead to accreditation during 2018. Efforts made to date place the program on schedule for accreditation by fall, 2018, should this program be approved.

VIII. Curriculum

A. Describe the specific expected student learning outcomes associated with the proposed program. If a bachelor's degree program, include a web link to the Academic Learning Compact or include the document itself as an appendix.

See Appendix C for the Academic Learning Compact.

Student Learning Outcomes

UWF Computer Science graduates should be able to do the following:

Content

- Identify, analyze, and employ algorithmic concepts, principles, and theories in the design, implementation, and evaluation of computing systems.

Critical Thinking

- Employ computing strategies to analyze and solve problems.

Communication

- Create and deliver effective oral presentations and written reports with appropriate tools and technologies.

Integrity/Values

- Describe ethical issues and responsibilities that relate to a computing professional.

Project Management

- Employ effective project-management skills to develop computing solutions either individually or through interdisciplinary teams within a global and societal context.

B. Describe the admission standards and graduation requirements for the program.

The BSCS degree program is a traditional undergraduate degree with no special considerations for admission other than those used by the University of West Florida. The department requires a grade of C- in all courses in the major to satisfy the 120 credit hours for graduation. Admission and graduation requirements are available from the University of West Florida Catalog. (Appendix E; University of West Florida. (2016). *2016-2016 University Catalog*. Retrieved from http://catalog.uwf.edu)

C. Describe the curricular framework for the proposed program, including number of credit hours and composition of required core courses, restricted electives, unrestricted electives, thesis requirements, and dissertation requirements. Identify the total numbers of semester credit hours for the degree.

The BSCS degree requires a total of 120 semester credit hours of coursework.

Table 5. *Major Courses in the BSCS Degree Program*

Computer Science Major

CDA 3101	Introduction to Computer Organization +	3
COT 3100	Discrete Structures +	3
CEN 3031	Software Engineering I+	3
CIS 4592	Capstone Project +	3
COP 4710	Database Systems +	3
COP 3014	Algorithm and Program Design +	3
COP 3530	Data Structures and Algorithms I +	3
COP 4020	Programming Languages +	3
COP 3022	Intermediate Programming +	3
COP 4534	Data Structures and Algorithms II +	3
COP 4634	Systems & Networks I +	3
COP 4635	Systems & Networks II +	3
COT 4420	Theory of Computation +	3
COP 4027	Advanced Computer Programming+	3
List of pre-approved concentration courses available in the department *, +		6
Computer Science Electives		**6**
Total Hours		**54**

+ Courses included in the major GPA

Major-Related

STA 4321	Introduction to Mathematical Statistics I	3
	Mathematics Elective	3

D. Provide a sequenced course of study for all majors, concentrations, or areas

of emphasis within the proposed program.

The following is a four-year degree plan for the BSCS degree program.

Table 6. *Four-year Degree Plan for the BSCS Degree Program*

Freshman Year					
Semester 1			Semester 2		
Course No.	Course Name	SCH	Course No.	Course Name	SCH
ENC1101	English Comp. I	3	ENC1102	English Comp. II	3
MAC1105	College Algebra	3	MAC1147	Pre-calculus	4
Gen. Education	Humanities	3	COPXXXX	Intro to Programming	3
Gen. Education	Social Science	3			
Gen. Education	Natural Science (science for science major)	3	Gen. Education	Natural Science (science for science major)	3
			Gen. Education	Humanities	3
		15			16*
Sophomore Year					
Semester 3			Semester 4		
Course No.	Course Name	SCH	Course No.	Course Name	SCH
COP4710	Database Systems	3	MAC2312	Calculus II	4
MAC2311	Calculus I	4	PHY2048-L	Physics + Lab	4
COP3014	Alg & Program Design	3	COP3530	Data Structures I	3
			COT3100	Discrete Structures	3
COP3022	Intermediate Programming	3	Elective	Elective**	1
Gen. Education	Multicultural	3			
		16*			15
Junior Year					
Semester 5			Semester 6		
Course No.	Course Name	SCH	Course No.	Course Name	SCH
CEN 3031	Software Engineering I	3	COP 4534	Data Structures II	3
			Elective	Math Upper-Level	3
STA 4321	Intro Math Stat	3	Elective	Computer Science	3
CDA 3101	Computer Organization	3		Elective	
			Gen. Education	Social Science	3
COT 4420	Theory of Computation	3	Gen. Education	Elective	3
PHY 2049-L	Physics II + Lab	4			
		16*			15
Senior Year					
Semester 7			Semester 8		
Course No.	Course Name	SCH	Course No.	Course Name	SCH

COP 4027	Advanced Programming	3	COP 4635	Systems and Networks II	3
Elective	Computer Science Track Elective	3	COP 4020	Programming Languages	3
COP 4634	Systems & Networks I	3	CIS 4592	Capstone Project	3
Elective	Computer Science Elective	3	Elective	Computer Science Track Elective	
Elective	Computer Science Elective	3			
		15			12
Total = 120 SCH					
*Students who enter UWF with less than 60 semester hours must complete nine hours of summer semester enrollment at an SUS institution.					
**A sample of 1 semester hour courses are listed in Section VIII E.					

E. Provide a one- or two-sentence description of each required or elective course.

The following is a listing by course prefix from the catalog (non-science general education courses not listed):

Required

CDA3101 Introduction to Computer Organization
Introduction to the organization and operation of a digital computer including the internal representation of data and instructions, processor design and execution along with bus and I-O subsystems and assembly language programming.

CEN3031 Software Engineering I
Preparation of software planning, specifications, design, coding, testing and maintenance. Familiarization with the team approach to large software system development with an emphasis on software process and methodology.

CIS4592 Capstone Project
Follows up on Software Engineering I requiring students to apply the developed skills to design, implement, and evaluate a software product that addresses a complex, real-world problem. The course provides additional software engineering concepts and skills that students learned in Software Engineering I focusing on best practices and methods for building software. Students will work individually or as teams to develop a project plan, multiple prototypes, and a final software system for the project topic. Students will be required to prepare a final presentation on their project and a report that describes their achievements and provides a critical assessment of their work and final product.

COPXXXX Introductory programming in Java, C, C++ or equivalent language

Introduction to computer programming: variables, control constructs, functions or methods, file input and output, arrays.

COP3014 Algorithm and Program Design
An introduction to designing solutions to scientific problems. Emphasis on the use of basic programming constructs to create correct, efficient algorithms.

COP3022 Intermediate Programming
Fundamental ideas behind object-oriented programming, including encapsulation, inheritance, and polymorphism. Applications will focus on extracting objects from a problem domain, designing problem solutions based on message-passing between objects, and documenting object-oriented design. Implementations will be done in a current object-oriented language.

COP3530 Data Structures and Algorithms I
A first course in Data Structures and Algorithms. Topics will include traditional data structures with a major focus on design and analysis of algorithms and will include projects that stress mathematics and science.

COP4020 Programming languages
Programming language theory and practice, including language design and implementation, theoretical foundations, language translation, and exposure to a variety of programming paradigms.

COP4027 Advanced Computer Programming
Addresses advanced topics including multi-threaded programs, generic programming, basic client-server programming, reflection, automated unit testing, regular expressions, standard information interchange formats such as XML and JSON and web-based applications.

COP4534 Data Structures and Algorithms II
A second course in Data Structures and Algorithms. Topics include mathematical properties of algorithms (complexity, correctness), heaps, height-balanced trees, graphs, greedy algorithms, dynamic programming, and proof techniques pertaining to computational complexity.

COP4634 Systems & Networks I
This course reviews fundamental principles of modern operating systems and relates them to computer programming. Students learn about the design of various components of operating systems and the services they provide to end users and application developers.

COP4635 Systems & Networks II
This course is a continuation of topics discussed in System & Networks I, focusing on fundamental principles of modern computer networks and network programming. The course will study the structure of networks, networking devices, network protocol stacks, congestion and flow control analysis and algorithms, network routing algorithms and protocols, and network traffic analysis.

COP4710 Database Systems
Introduction to database systems and database management system architectures. Various

database models are discussed with an emphasis on the relational model and relational database design.

COT3100 Discrete Structures
Foundations of Discrete Math with applications to modeling, programming and data structures. Propositional and predicate logic, sets, functions, sequences, summations, algorithms, analysis of algorithms, combinatorics, graphs.

COT4420 Theory of Computation
Theoretical foundations of computer science. Classification of formal languages, grammars, and automata. Parsing and recognition of syntactic expressions. Turing Machines and random access machines. Church-Turing thesis. Insolvability of the halting problem.

MAC2311 Analytic Geometry and Calculus I
Differential and Integral Calculus of Algebraic, Trigonometric, and Transcendental functions of single variables.

MAC2312 Analytic Geometry and Calculus II
Application of the Definite Integral. Hyperbolic and Inverse Trigonometric Functions. Methods of Integration. Sequences and Infinite Series.

PHY2048+L University Physics I (+Lab)
Linear and rotational motion of objects in 1, 2, and 3 dimensions, concepts of work and energy, oscillations and waves, heat and thermodynamics. Selected experiments in mechanics, oscillatory motion, and heat.

PHY2049+L University Physics II (+Lab)
Continuation of PHY 2048. Electrostatics and magnetism; basic electric circuits; optics; selected topics in modern physics. The topics covered will be electricity and magnetism, basic electric circuits, electromagnetic waves, and optics.

STA4321 Introduction to Mathematical Statistics
Probability, conditional probability, distributions of random variables, distribution of functions of random variables, limiting distributions, multivariate probability distributions.

Electives

CAP4601 Artificial Intelligence
Introduction to Artificial Intelligence principles and techniques. Students will learn about core AI techniques for solving complex problems, including search strategies, knowledge-based techniques, and agent-based systems.

CAP4770 Data Science and Mining
Exposes students to data mining concepts and techniques and different data mining software. Covers data pre-processing and cleaning, concept hierarchy generation, attribute relevance analysis, association rule mining, classification algorithms, and cluster analysis.

CEN3032 Software Engineering II
Focus on software design, implementation, and testing. Students will work in teams to develop software systems using the design principles discussed in class.

CEN4053 Software Engineering Management
Reviews concepts and principles related to the management of software engineering projects. Focus is on both heavyweight and lightweight processes.

COP3813 Server-Side Programming
A course in principles of server-side technologies that form the core of classical three-tier applications. This course provides a solid foundation for the concepts of server-side programming, using a current server-side programming/scripting language.

COP4864 Client-Side Programming
A course in principles of client-side technologies that form the complement of server-side applications. This course provides a solid foundation for the concepts of client-side programming and an introduction into client-side frameworks.

COP4XXX– Big Data Analytics
This course introduces students to the handling of Big Data on Hadoop's MapReduce environment. Advanced Data Mining/Machine Learning applications created using Spark.

CEN4078 Secure Software Development
Examines the importance of building security into the design, implementation and testing phases of software development. Covers coding techniques that avoid known vulnerabilities and test strategies that can uncover previously unknown weaknesses. Includes discussion of security policies and design principles.

COP3665 Mobile Programming
Concepts and skills related to programming mobile devices, with specific emphasis on iOS devices -- the iPad, iPhone, and iPod Touch.

Examples of One Semester Credit Hour Electives

CIS3949 Cooperative Education
Alternating full-time or consecutive parallel terms of practical experience in the intended field.

DAA3004 Dance Styles I
Dance styles in the area of ballet and classical forms of dance.

MUN1360 Chamber Choir
Select mixed choral ensemble performing a cappella and chamber music. Open to all students by audition.

MUN2210 Symphony Orchestra

A college level orchestra which performs great literature of the past and present. Open to all majors with prior orchestral experience.

MUO3503 Advanced Opera Studio
Study of the techniques of characterization, dramatic analysis, and ensembles singing in English and foreign languages.

PEM2444 Shotokan karate
While learning self-defense techniques through physical practice and training, the student will learn the significance of mental discipline and health benefits involved in the practice of Shotokan Karate.

SLS 1109 Foundations for Academic Success
Introduces students to campus resources and provides skills and tools that will help them to be successful. Faculty will use High Impact approaches to getting students engaged and connected on campus.

THE2925 Play Production
Study and participation in the preparation and production of plays and/or musicals.

F. For degree programs in the science and technology disciplines, discuss how industry-driven competencies were identified and incorporated into the curriculum and indicate whether any industry advisory council exists to provide input for curriculum development and student assessment.

The Department of Computer Science has convened and will continue to meet with an ABET Advisory Board comprised of alumni, and representatives of local industry, government and non-governmental organizations. The purpose of the board is to aid in planning for ABET accreditation and to provide input on curriculum generally. The course of study in place when the proposed BSCS program was a specialization met all ABET specifications for mathematics, science, and computer science knowledge units. Suggestions developed in ABET Advisory Board meetings have been addressed in refinements to the curriculum.

G. For all programs, list the specialized accreditation agencies and learned societies that would be concerned with the proposed program. Will the university seek accreditation for the program if it is available? If not, why? Provide a brief timeline for seeking accreditation, if appropriate.

Gaining accreditation by the Accrediting Board for Engineering and Technology (ABET) is the main impetus for the initiative to convert the Computer Science specialization into a stand-alone BSCS degree program. The Department of Computer Science has been working toward ABET accreditation since 2015. So far, the department has defined student learning outcomes and performance indicators needed for student assessment and has gone through two rounds of course assessment. The department has also staged a two-day workshop with a representative of ABET to learn about the process.

Drs. Sikha Bagui (former department chair), Thomas Reichherzer (current department chair), and Bernd Owsnicki (department assessment coordinator), have attended ABET workshops. The department participated in a Readiness Review in fall, 2017. ABET accreditation is anticipated for fall, 2018, the first semester in which the Computer Science program will be official, if this request is approved.

H. For doctoral programs, list the accreditation agencies and learned societies that would be concerned with corresponding bachelor's or master's programs associated with the proposed program. Are the programs accredited? If not, why?

Not applicable, the BSCS degree program is an undergraduate degree program.

I. Briefly describe the anticipated delivery system for the proposed program (e.g., traditional delivery on main campus; traditional delivery at branch campuses or centers; or nontraditional delivery such as distance or distributed learning, self-paced instruction, or external degree programs). If the proposed delivery system will require specialized services or greater than normal financial support, include projected costs in Table 2 in Appendix A. Provide a narrative describing the feasibility of delivering the proposed program through collaboration with other universities, both public and private. Cite specific queries made of other institutions with respect to shared courses, distance/distributed learning technologies, and joint-use facilities for research or internships.

The BSCS degree program will be offered in traditional face-to-face delivery on UWF's main Pensacola campus. No specialized services will be necessary. Since the BSCS degree program is replacing in purpose, resource use, and course structure an existing Computer Science specialization, no new queries have been made of other institutions.

IX. Faculty Participation

A. Use Table 4 in Appendix A to identify existing and anticipated full-time (not visiting or adjunct) faculty who will participate in the proposed program through Year 5. Include (a) faculty code associated with the source of funding for the position; (b) name; (c) highest degree held; (d) academic discipline or specialization; (e) contract status (tenure, tenure-earning, or multi-year annual [MYA]); (f) contract length in months; and (g) percent of annual effort that will be directed toward the proposed program (instruction, advising, supervising internships and practica, and supervising thesis or dissertation hours).

Please refer to Appendix A Table 4.

B. Use Table 2 in Appendix A to display the costs and associated funding resources for existing and anticipated full-time faculty (as identified in Table

2 in Appendix A). Costs for visiting and adjunct faculty should be included in the category of Other Personnel Services (OPS). Provide a narrative summarizing projected costs and funding sources.

The BSCS degree program will use the same faculty and same faculty workload as the existing Computer Science specialization.

As listed in Appendix A Table 2, the primary cost for the BSCS degree program is faculty salaries and benefits ($276,674 year 1), and adjunct expenses ($20,000 year 1), all of which are based on current use in the Computer Science specialization. These costs are paid from E&G funds. The projected costs for year five include a 5 percent per annum increase in faculty salaries and benefits ($336,299). Adunct expenses ($20,000) remain consistent.

C. Provide in the appendices the abbreviated curriculum vitae (CV) for each existing faculty member (do not include information for visiting or adjunct faculty).

See Appendix D for the following faculty curricula vitarum:
Sikha Bagui, Ed.D.
John Coffey, Ed.D.
Brian Eddy, Ph.D.
Eman El-Sheikh, Ph.D.
Carolyn John, M.S.
Ezhil Kalaimannan, Ph.D.
Amitabh Mishra, Ph.D.
Anthony Pinto, M.S.
Bernd Owsnicki-Klewe, Ph.D.
Thomas Reichherzer, Ph.D.

D. Provide evidence that the academic unit(s) associated with this new degree have been productive in teaching, research, and service. Such evidence may include trends over time for average course load, FTE productivity, student HC in major or service courses, degrees granted, external funding attracted, as well as qualitative indicators of excellence.

In fall 2017, the department of Computer Science had in excess of 600 majors across all of the undergraduate and graduate programs. In that same term, Computer Science faculty conducted a total of 63 individual sections of online and face-to-face courses at the undergraduate level for all four Computer Science specializations. In spring 2017, faculty conducted a total of 69 individual sections of online and face-to-face courses at the undergraduate level for the various Computer Science specializations. The department faculty also teach master's level graduate courses and thesis hours.

In academic year 2016-2017, ten faculty members of the department were involved in published research. For 2016-2017, faculty produced a total of nine journal publications, one book, three book chapters, eight conference proceedings, and eight conference presentations. Many of the

publications and conference presentations included students at both the undergraduate and masters level.

In recent years, service activities of faculty have included extensive work on curricula including updating the Computer Science specialization and program discussed here, significant work and progress toward ABET accreditation of the Computer Science curriculum, participation in numerous departmental, college-level and university-level committees, service to the profession as reviewers, and community outreach. Details are available in Appendix D faculty curriculum vitarum.

Faculty in the Department of Computer Science have a robust history of grant activity. Table 7 lists grants that have been attained in the last two years.

Table 7. *2016-2017 Department of Computer Science Grant Activity*

Faculty	**Grant Name**	**Grant Amount**
Thomas Reichherzer	Florida Cybersecurity Center Collaborative Seed Grant	$40,000
Anthony Pinto	NSA-DHS CAE Regional Resource Center for the South-Eastern Region	$200,000
	NSA GenCyber Summer Camp	$90,000
Two-Year Total		**$330,000**

X. Non-Faculty Resources

A. Describe library resources currently available to implement and/or sustain the proposed program through Year 5. Provide the total number of volumes and serials available in this discipline and related fields. List major journals that are available to the university's students. Include a signed statement from the Library Director that this subsection and subsection B have been reviewed and approved.

The University of West Florida libraries shelve more than 800,000 print volumes and house an extensive microforms collection. Electronic resources include more than 160,000 e-books and access to approximately 80,000 journals and other serial titles available through a discovery system. An analysis of holdings in relevant Library of Congress classifications for computer science indicate that UWF has approximately 5,000+ books related to this field. Additionally, the library has access to over 1,200 relevant e-journals.

Indexing, abstracting and full text databases relevant to computer science include IEEE/Xplore, Computer Database, and Computer Science Collection. More general resources supporting computer science are Science Direct, ProQuest Central, and Engineering Village. Full-text dissertations and theses are available through ProQuest Dissertations and Theses. Using their Argonet accounts, students and faculty may access electronic resources any time from any place.

Some current library resources available to support Computer Science as it moves to a stand-alone degree program through year 5 include:

Databases

- ACM Digital Library
- Computer Database (GALE)
- Computer Science Collection (ProQuest)
- Engineering Collection (ProQuest)
- Engineering Village
- IEEE/IET Electronic Library (IEL) (IEEE Xplore)
- Inspec (FLVC)
- SciFinder (CAS)
- Telecommunications (ProQuest)

Each academic discipline is assigned a Reference Librarian to serve as a department liaison, providing library instruction, collection development, and reference assistance for the students and faculty in that discipline. To support the needs of online learners, students may also schedule a research consultation with their liaison via in-person, LibChat, or telephone. The liaison for Computer Science is Jane C. Daugherty.

The library provides an Online Learners Library Guide (http://libguides.uwf.edu/online) outlining services and resources that support the increasing number of online learners. The library has also been responsive to the needs of clients who prefer to work from home. In addition to being able to access databases and materials in full-text online, UWF students and faculty may also take advantage of these online library services:

- Read course-required readings on electronic reserves
- Request books and articles from Interlibrary Loan
- Request Intercampus Loan (to/from the Fort Walton Beach Campus library)
- Renew books
- Submit a reference question via text, email, or chat
- Request priority cataloging of an item that is on order
- Suggest the purchase of a particular book or journal
- Request an item to be recalled for use
- Have UWF and Interlibrary Loan books delivered to your home address if you live over 50 miles from campus

B. Describe additional library resources that are needed to implement and/or sustain the program through Year 5. Include projected costs of additional library resources in Table 3 in Appendix A. Please include the signature of the Library Director in Appendix B.

No additional library resources are anticipated to sustain the BSCS degree program through year Five.

C. Describe classroom, teaching laboratory, research laboratory, office, and other

types of space that are necessary and currently available to implement the proposed program through Year 5.

As the BSCS degree program is replacing in purpose and resource use an existing Computer Science specialization, the same classroom, laboratory, office, and other spaces currently utilized will be used.

The spaces in building 4 on the main campus of the University of West Florida currently available include:

Classrooms

Classroom – Room 349

- 1120 square feet of floor space
- 40 Dell PCs

Classroom – Room 348

- 1120 square feet of floor space
- 40 Mac PCs

In addition to these two classrooms, which are controlled by the Computer Science department, the department has access to other classrooms in bldg. 4, all equipped with smart podiums and projectors.

Physical Laboratories

Computer Science Laboratory – Room 250

- 580 square feet of floor space
- 24 Dell PCs plus two instructor PCs

Multiplatform Laboratory – Room 221

- 930 square feet of floor space
- 24 Dell PCs

Computing Research Laboratory – Room 247

- 1120 square feet of floor space
- 24 Dell PCs
- 8 electronics workbenches with each containing an oscilloscope, power supply, waveform generator, signal filter, multi-meter, and Dell PC
- 36 Cisco Catalyst 2900XL Switches
- 12 Cisco 3600 Routers
- 18 Cisco 2500 Routers

Virtual Laboratories

UWF has license agreements with VMWare and Microsoft that allow our students to install VMWare and Microsoft applications as needed to create virtual environments on their own hardware and work with Microsoft software tools.

COP2253 Java Programming utilizes a virtual lab administered by Towson University http://cis1.towson.edu/~cssecinj/

Other Workspaces

Server Room – Room 144: The server room hosts database servers and Linux servers that allow students to work on class assignments, projects, and experiments from anywhere on campus (see details below).

Data Center – Room 235: The data center provides the infrastructure for an isolated network in the Computer Science laboratory. This network allows testing, competitions, and assignments to be conducted without causing harm to the campus computer network and the Internet (see details below).

Departmental and Faculty Offices – The Computer Science department shares an office suite that includes space for the department chair and for academic advisors. All full-time faculty have private offices. The department has an adjunct office.

D. Describe additional classroom, teaching laboratory, research laboratory, office, and other space needed to implement and/or maintain the proposed program through Year 5. Include any projected Instruction and Research (I&R) costs of additional space in Table 2 in Appendix A. Do not include costs for new construction because that information should be provided in response to X (E) below.

No additional classroom or laboratory space needs are anticipated for the BSCS degree program through Year Five.

E. If a new capital expenditure for instructional or research space is required, indicate where this item appears on the university's fixed capital outlay priority list. Table 2 in Appendix A includes only Instruction and Research (I&R) costs. If non-I&R costs, such as indirect costs affecting libraries and student services, are expected to increase as a result of the program, describe and estimate those expenses in narrative form below. It is expected that high enrollment programs in particular would necessitate increased costs in non-I&R activities.

No additional expenses are anticipated for the BSCS degree program through Year Five.

F. Describe specialized equipment that is currently available to implement the proposed program through Year 5. Focus primarily on instructional and research requirements.

No additional specialized instructional and research equipment expenses are anticipated for the BSCS degree program through Year Five.

Server Room – Room 144:

- 6 Dell R210 Rack-mounted Servers
- 1 Dell R720 Rack-mounted Server
- 4 Custom Built ASUS Rack-mounted Servers (dual 12-core AMD Opteron w/ 128GB RAM & 12TB HDD)
- 1 Custom Built SuperMicro Rack-mounted Server (dual 8-core Intel w/256GB RAM & 12TB HDD)

- 1 Dell Precision T5500 Server
- 1 Dell PowerEdge 6400 Server
- 3 Apple Mac Pro 1st Generation (Mid 2007) Servers
- 2 Dell Vostro 430 Desktops
- 1 HP 5500 48-port Switch
- 1 Cisco 3560-E 24-port Switch
- 2 Cisco 3560 24-port Switches

Data Center – Room 235:

- 341 square feet of floor space
- 1 Dell R210 Rack-mounted Server
- 1 Dell R415 Rack-mounted Servers
- 3 Custom Built ASUS Rack-mounted Servers (dual 12-core AMD Opteron w/ 128GB RAM & 12TB HDD)
- 1 NetApp SAN (16TB)
- Dell Hadoop Cluster (6 Dell PowerEdge R720xd nodes, 3 Dell PowerEdge R720 nodes and 2 Force10 S60 Switches)
- 1 Cisco Nexus 5010 48-port Switch
- 1 HP 5500 48-port Switch
- 1 HP A5120 24-port Switch
- 3 HP V1910 24-port Switches

Other equipment is listed above in the descriptions of the classrooms and other work spaces.

G. Describe additional specialized equipment that will be needed to implement and/or sustain the proposed program through Year 5. Include projected costs of additional equipment in Table 2 in Appendix A.

No additional specialized equipment needs are anticipated for the BSCS degree program through Year Five.

H. Describe any additional special categories of resources needed to implement the program through Year 5 (access to proprietary research facilities, specialized services, extended travel, etc.). Include projected costs of special resources in Table 2 in Appendix A.

No additional special categories of resources equipment needs are anticipated for the BSCS degree program through Year Five.

I. Describe fellowships, scholarships, and graduate assistantships to be allocated to the proposed program through Year 5. Include the projected costs in Table 2 in Appendix A.

The Computer Science department at UWF administers three scholarships specific to Computer Science degree programs. Summer research scholarships currently available to students in the

Computer Science specialization will be available to students in the BSCS degree program. As this is an undergraduate program, graduate assistantships are not applicable.

J. Describe currently available sites for internship and practicum experiences, if appropriate to the program. Describe plans to seek additional sites in Years 1 through 5.

Internships and practica are not required for the BSCS degree program. However, students are encouraged to seek co-operative education opportunities and internships. Opportunities exist at a variety of local businesses and governmental organizations. For example, students in Computer Science have a long history of successfully attaining internships at the Institute for Human and Machine Cognition (IHMC) in Pensacola. IHMC is a 501C3 nonprofit research organization that began at UWF.

APPENDIXES

Appendix A

Table 1a Projected Headcount from Potential Sources (Baccalaureate Degree Program)

Table 2 Projected Costs and Funding Sources

Table 3 Anticipated Reallocation of E&G Funds

Table 4 Anticipated Faculty Participation

APPENDIX A

TABLE 1-A
PROJECTED HEADCOUNT FROM POTENTIAL SOURCES
(Baccalaureate Degree Program)

Source of Students (Non-duplicated headcount in any given year)*	Year 1		Year 2		Year 3		Year 4		Year 5	
	HC	FTE	HC	FTE	HC	FTE	HC	FTE	HC	FTE
Upper-level students who are transferring from other majors within the university**	10	6.46	10	6.46	10	6.46	10	6.46	10	6.46
Students who initially entered the university as FTIC students and who are progressing from the lower to the upper level***	93	60.06	93	60.06	98	63.29	98	63.29	105	67.81
Florida College System transfers to the upper level***	30	19.37	30	19.37	35	22.6	35	22.6	38	24.54
Transfers to the upper level from other Florida colleges and universities***	10	6.46	10	6.46	10	6.46	10	6.46	10	6.46
Transfers from out of state colleges and universities***	7	4.52	7	4.52	7	4.52	7	4.52	7	4.52
Other (Explain)***	0	0	0	0	0	0	0	0	0	0
Totals	**150**	**96.87**	**150**	**96.87**	**160**	**103.33**	**160**	**103.33**	**170**	**109.79**

* List projected annual headcount of students enrolled in the degree program. List projected yearly cumulative ENROLLMENTS instead of admissions.
** If numbers appear in this category, they should go DOWN in later years.
*** Do not include individuals counted in any PRIOR CATEGORY in a given COLUMN.

APPENDIX A

TABLE 2
PROJECTED COSTS AND FUNDING SOURCES

Instruction & Research Costs (non-cumulative)	Year 1 Funding Source								Year 5 Funding Source						
	Reallocated Base* (E&G)	Enrollment Growth (E&G)	New Recurring (E&G)	New Non-Recurring (E&G)	Contracts & Grants (C&G)	Philanthropy Endowments	Enterprise Auxiliary Funds	**Subtotal coulumns 1+...+7**	Continuing Base** (E&G)	New Enrollment Growth (E&G)	Other*** (E&G)	Contracts & Grants (C&G)	Philanthropy Endowments	Enterprise Auxiliary Funds	**Subtotal coulumns 9+...+ 14**
Columns	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Faculty Salaries and Benefits	276,674	0	0	0	0	0	0	**$276,674**	336,299	0	0	0	0	0	**$336,299**
A & P Salaries and Benefits	10,500	0	0	0	0	0	0	**$10,500**	13,400	0	0	0	0	0	**$13,400**
USPS Salaries and Benefits	0	0	0	0	0	0	0	**$0**	0	0	0	0	0	0	**$0**
Other Personal Services	20,000	0	0	0	0	0	0	**$20,000**	20,000	0	0	0	0	0	**$20,000**
Assistantships & Fellowships	0	0	0	0	0	0	0	**$0**	0	0	0	0	0	0	**$0**
Library	2,000	0	0	0	0	0	0	**$2,000**	2,431	0	0	0	0	0	**$2,431**
Expenses	2,536	0	0	0	0	0	0	**$2,536**	3,082	0	0	0	0	0	**$3,082**
Operating Capital Outlay	0	0	0	0	0	0	0	**$0**	0	0	0	0	0	0	**$0**
Special Categories	2,250	0	0	0	0	0	0	**$2,250**	875	0	0	0	0	0	**$875**
Total Costs	**$313,960**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$313,960**	**$376,087**	**$0**	**$0**	**$0**	**$0**	**$0**	**$376,087**

*Identify reallocation sources in Table 3.

**Includes recurring E&G funded costs ("reallocated base," "enrollment growth," and "new recurring") from Years 1-4 that continue into Year 5.

***Identify if non-recurring.

Faculty and Staff Summary

Total Positions	Year 1	Year 5
Faculty (person-years)	1.65	1.65
A & P (FTE)	0.3	0.3
USPS (FTE)	0	0

Calculated Cost per Student FTE

	Year 1	Year 5
Total E&G Funding	$313,960	$376,087
Annual Student FTE	96.87	109.79
E&G Cost per FTE	$3,241	$3,426

Table 2 Column Explanations

Reallocated Base* (E&G)	1	E&G funds that are already available in the university's budget and will be reallocated to support the new program. Please include these funds in the Table 3 – Anticipated reallocation of E&G funds and indicate their source.

Enrollment Growth (E&G)	2	Additional E&G funds allocated from the tuition and fees trust fund contingent on enrollment increases.
New Recurring (E&G)	3	Recurring funds appropriated by the Legislature to support implementation of the program.
New Non-Recurring (E&G)	4	Non-recurring funds appropriated by the Legislature to support implementation of the program. Please provide an explanation of the source of these funds in the budget section (section III. A.) of the proposal. These funds can include initial investments, such as infrastructure.
Contracts & Grants (C&G)	5	Contracts and grants funding available for the program.
Philanthropy Endowments	6	Funds provided through the foundation or other Direct Support Organizations (DSO) to support of the program.
Enterprise Auxiliary Funds	7	Use this column for continuing education or market rate programs and provide a rationale in section III.B. in support of the selected tuition model.
Subtotal coulumns 1+…+7	8	Subtotal of values included in columns 1 through 7.
Continuing Base** (E&G)	9	Includes the sum of columns 1, 2, and 3 over time.
New Enrollment Growth (E&G)	10	See explanation provided for column 2.
Other*** (E&G)	11	These are specific funds provided by the Legislature to support implementation of the program.
Contracts & Grants (C&G)	12	See explanation provided for column 5.
Philanthropy Endowments	13	See explanation provided for column 6.
Enterprise Auxiliary Funds	14	Use this column for continuing education or market rate programs and provide a rationale in section III.B. in support of the selected tuition model.
Subtotal coulumns 9+…+ 14	15	Subtotal of values included in columns 9 through 14.

APPENDIX A

TABLE 3
ANTICIPATED REALLOCATION OF EDUCATION & GENERAL FUNDS*

Program and/or E&G account from which current funds will be reallocated during Year 1	Base before reallocation	Amount to be reallocated	Base after reallocation
Reallocation from Computer Science	313,960	313,960	**$0**
Specialization to the stand-alone degree program	0	0	
	0	0	
	0	0	
	0	0	
	0	0	
Totals	$313,960	$313,960	**$0**

*** If not reallocating funds, please submit a zeroed Table 3**

APPENDIX A

TABLE 4
ANTICIPATED FACULTY PARTICIPATION

Faculty Code	Faculty Name or "New Hire" Highest Degree Held Academic Discipline or Speciality	Rank	Contract Status	Initial Date for Participation in Program	Mos. Contract Year 1	FTE Year 1	% Effort for Prg. Year 1	PY Year 1	Mos. Contract Year 5	FTE Year 5	% Effort for Prg. Year 5	PY Year 5
A	Sikha Bagui, Ed.D. C&I Software Engineering	Professor	Tenured	Fall 2018	9	0.75	0.10	0.08	9	0.75	0.10	0.08
A	John Coffey, Ed.D. C&I Computer Science	Professor	Tenured	Fall 2018	9	0.75	0.50	0.38	9	0.75	0.50	0.38
A	Brian Eddy, Ph.D. Computer Science	Assistant Professor	Tenure Earning	Fall 2018	9	0.75	0.40	0.30	9	0.75	0.40	0.30
A	Eman El-Sheikh, Ph.D. Academic Discipline	Professor	Tenured	Fall 2018	9	0.75	0.10	0.08	9	0.75	0.10	0.08
A	Carolyn John, M.S. Electrical & Computer Engineering	Lecturer	Non-Tenure Earning	Fall 2018	9	0.75	0.50	0.38	9	0.75	0.50	0.38
A	Ezhil Kalaimannan, Ph.D. Computer Engineering	Assistant Professor	Tenure Earning	Fall 2018	9	0.75	0.15	0.11	9	0.75	0.15	0.11
A	Amitabh Mishra, Ph.D. Computer Science	Assistant Professor	Tenure Earning	Fall 2018	9	0.75	0.35	0.26	9	0.75	0.35	0.26
A	Anthony Pinto, M.S. Computer Science	Lecturer	Non-Tenure Earning	Fall 2018	9	0.75	0.10	0.08	9	0.75	0.10	0.08
A	Bernd Owsnicki-Klewe, Ph.D. Computer Science	Lecturer	Non-Tenure Earning	Fall 2018	9	0.75	0.33	0.25	9	0.75	0.33	0.25
	Thomas Reichherzer, Ph.D. Computer Science	Associate Professor	Tenured	Fall 2018	12	1.00	0.20	0.20	12	1.00	0.20	0.20
	Total Person-Years (PY)							**1.65**				**1.65**

Faculty Code		Source of Funding	PY Workload by Budget Classsification Year 1	Year 5
A	Existing faculty on a regular line	Current Education & General Revenue	1.65	1.65
B	New faculty to be hired on a vacant line	Current Education & General Revenue	0.00	0.00
C	New faculty to be hired on a new line	New Education & General Revenue	0.00	0.00
D	Existing faculty hired on contracts/grants	Contracts/Grants	0.00	0.00
E	New faculty to be hired on contracts/grants	Contracts/Grants	0.00	0.00
		Overall Totals for	**Year 1 1.65**	**Year 5 1.65**

Worksheet Table 4 Faculty

Appendix B

Signatures

Please include the signature of the Equal Opportunity Officer, Vice President of Academic Engagement (General Education), and the Dean of University Libraries.

1/5/18

Kim LeDuff, PhD
Equal Opportunity Officer/ Vice President
Division of Academic Engagement

Date

2018 January 4

Robert Dugan
Dean of University Libraries

Date

This appendix was created to facilitate the collection of signatures in support of the proposal. Signatures in this section illustrate that the Equal Opportunity Officer has reviewed section II. E. of the proposal, the VP Division of Academic Engagement has reviewed sections on General Education III. D., V. A. and VIII. B. & D. and the Library Director has reviewed sections X. A. and X. B.

UWF also requires that a Request to Offer a New Degree Program is reviewed by the Chief Technology Officer.

1/4/2018

Melanie Haveard
Chief Technology Officer

Date

Appendix C

Academic Learning Compact, Student Learning Outcomes, and Curriculum Map

COMPUTER SCIENCE

Mission Statement

The mission of the Department of Computer Science is to provide a high-quality, student-oriented educational experience to our undergraduate and graduate students. The department prepares students for successful computing careers by empowering them with the knowledge and skills to contribute responsibly and creatively to a complex and ever-changing world, and to continue professional development and life-long learning.

The Department of Computer Science offers a Bachelor's of Science in Computer Science, Cybersecurity, and Software Design & Development.

Program Description

The B.S. in Computer Science (CS) degree program emphasizes analytical thinking and problem solving involving scientific applications. The degree includes the theoretical foundations of computer science in the study of algorithms, data structures, computer architecture, programming languages, and net-centric computing. Concentration areas include intelligent systems and software engineering.

Student Learning Outcomes

Student learning outcomes for students in the Computer Science program are listed below. UWF Computer Science graduates should be able to do the following:

Content

- Identify, analyze, and employ algorithmic concepts, principles, and theories in the design, implementation, and evaluation of computing systems.

Critical Thinking

- Employ computing strategies to analyze and solve problems.

Communication

- Create and deliver effective oral presentations and written reports with appropriate tools and technologies.

Integrity/Values

- Describe ethical issues and responsibilities that relate to a computing professional.

Project Management

- Employ effective project-management skills to develop computing solutions either individually or through interdisciplinary teams within a global and societal context.

Assessment of Student Learning Outcomes

Students pursuing the undergraduate Computer Science program will demonstrate skills specific to their degree program. Several upper-level courses will give students the opportunity to identify and reflect on degree content, critical thinking, communication, integrity, and project management skills through the completion of assignments that meet departmental standards and integrate what the students have learned. Opportunities to showcase student work will become available as the study progresses, and these include the opportunity to participate in undergraduate research projects with faculty, or to present the results of student work at university or external events.

Job Prospects for Computer Science Graduates

Programmer
Computer scientist
designer
Software engineer
Software consultant
systems tester
Software development project manager
Embedded systems programmer
Scientific engineer/programmer
Systems architect
architect
Network administrator
Network programmer Systems
Applications programmer
Database administrator
Database developer Software
Data analyst
Application systems analyst
Operations manager
Network manager
Project manager Web
Web developer

Find Out More about Computer Science at UWF: http://uwf.edu/computerscience/

Appendix D

Computer Science Faculty Curricula Vitarum

CURRICULUM VITAE

DR. SIKHA S BAGUI

PHONE (850)474-3022 (Office) Email: bagui@uwf.edu

PERSONAL INFORMATION

Citizenship: US citizen

ACADEMIC BACKGROUND

Ed.D, Curriculum and Instruction. ***Major: Math/Stat/Science/Computer Science***, University of West Florida, Pensacola, Florida, December, 2000.

MBA, ***IS specialization***, University of Toledo, Toledo, Ohio, August, 1986.
BS, Cuttington University, Monrovia, Liberia, January 1984.

(Also completed one year (1990-1991) in Ph.D. program at Kent State University, Kent, Ohio, MIS specialization).

ACADEMIC EXPERIENCE

Professor, Department of Computer Science, University of West Florida, Pensacola, Florida (August 2013 – present)

Associate Professor, Department of Computer Science, University of West Florida, Pensacola, Florida (August 2008 – August 2013).

Assistant Professor, Department of Computer Science, University of West Florida, Pensacola, Florida (August 2004 – Aug 2008).

Lecturer, Department of Computer Science, University of West Florida, Pensacola, Florida (August 1999-August 2004).

Adjunct Instructor, Department of Computer Science, University of West Florida, Pensacola, Florida (Jan 1992-August 1999).

Graduate Teaching Assistant, Department of Management Information Systems, Kent State University, Kent, Ohio, (August 1990-June 1991).

Instructor, Department of Information Systems, University of Toledo, Toledo, Ohio (June 1986-August 1990).

ADMINISTRATIVE EXPERIENCE

Chair, Department of Computer Science, University of West Florida, Pensacola, FL (August 2012 – August 2017)

Founding Director, Center for Cybersecurity, University of West Florida, Pensacola, FL (January 2014 – March, 2015)

Interim Associate Chair, Department of Computer Science, University of West Florida, Pensacola, Florida (January 2011 – July 2012).

Program Director, CIS/IT, MSA/DBA, MS/CS-DB, Department of Computer Science, University of West Florida, Pensacola, Florida (Fall 2007 – August 2012).

COURSES TAUGHT

Database Systems, Data Mining, Database Administration, Advanced Database Systems, Seminar in SOA, Java Programming, Data Structures and Algorithms, Advanced Visual Programming, Visual Programming, Systems Documentation, Multimedia Systems, Business Systems Design, Microcomputer Application Packages, Introduction to Management Information Systems, COBOL I, COBOL II.

COURSES TAUGHT BY SEMESTER AT UWF

Summer 2017:
COT6931 -- Project

Spring 2017:
COP5725 – Database Systems
COT6931 – Project

Fall 2016:
COP5725 – Database Systems

Spring 2016:
COP5725 – Database Systems

Fall 2015:
COP5725 – Database Systems

Fall 2013:
COP5725 – Database Systems

Spring 2013:
COP5725 – Database Systems

Fall 2012:

COP5725 – Database Systems

Summer 2012:

COP5725/COP4710 – Database Systems
CAP4770/CAP5771 – Data Mining

Spring 2012:

COP5725 – Database Systems
CAP5771 – Data Mining

Fall 2011:

COP5725 – Database Systems (2 sections)
CAP4770/5771 – Data Mining

Summer 2011:

COP4710 – Database Systems
CGS3464 – Visual Programming

Spring 2011:

COP5725 – Database Systems
CAP5771 – Data Mining

Fall 2010:

COP5725 – Database Systems (2 sections)
CAP4770/5771 – Data Mining

Summer 2010:

COP4710 – Database Systems (2 sections)
CGS3464 – Visual Programming

Spring 2010:

COP5725 – Database Systems
CAP4770 – Data Mining

Fall 2009:

CAP4770 – Data Mining (Undergraduate)
CAP5771 – Data Mining (Graduate)
COP5725 – Database Systems

Summer 2009:

COP4710/COP5725 – Database Systems
CGS3559 - Exploring the Internet

Spring 2009:

COP4710 – Database Systems
COP6727 – Advanced Database Systems
COP5725 – Database Systems

Fall 2008:

COP4710 – Database Systems (online) – 2 sections
COP5725 – Database Systems (online) – 2 sections
CAP4770 – Data Mining
CAP5771 – Data Mining

Spring 2008:

COP4723/5775 – Database Administration (online)
COP5990 – Seminar in SOA (online)

Fall 2007:

CAP4770 – Data Mining (online)
COP4710 – Database Systems
CSG3464 – Visual Programming

Summer 2007:

COP4710 – Database Systems (online)

Spring 2007:

COP4710 – Database Systems
COP5715 – Advanced Databases (Developed and delivered online)
COP4173 – Advanced Visual Programming (in Visual Basic 2005)

Fall 2006:

COP4710 – Database Systems
COP4710 – Database Systems (Developed and delivered online)
CGS3464 – Visual Programming Using Visual Basic.NET

Summer 2006:

COP4710 – Database Systems

Spring 2006:

COP5715 – Advanced Databases
COP4710 – Database Systems
COP4173 – Advanced Visual Programming (in VB.NET)

Fall 2005:

COP5715 – Advanced Databases
CGS3464 – Visual Programming Using Visual Basic.NET

COP2253 – Java Programming

Summer 2005:

COP4710 – Database Systems
CGS3464 – Visual Programming Using Visual Basic.NET

Spring 2005:

COP4710 – Database Systems
COP5715 – Advanced Database Systems
COP2253 – Java Programming

Fall 2004:

COP2253 – Java Programming (3 sections)

Summer 2004:

COP4710 – Database Systems
CGS3464 – Visual Programming Using Visual Basic.NET

Spring 2004:

COP4710 – Database Systems
CGS 3464 – Visual Programming Using Visual Basic.NET
COP5715 – Advanced Databases and Data Mining

Fall 2003:

COP4710 – Database Systems
CGS3464 – Visual Programming Using Visual Basic.NET

Summer 2003:

COP4710 – Database Systems
CGS3464 – Visual Programming Using Visual Basic.NET

Spring 2003:

COP4710 – Database Systems (3 sections)
COP5715 – Advanced Databases and Data Mining.

Fall 2002:

COP4710 – Database Systems (2 sections)
COP3530 – Data Structures and Algorithms (in C++)
ISM4113 – Business Systems Design

Summer 2002:

COP4710 – Database Systems
COP3530 – Data Structures and Algorithms (in C++)

Spring 2002:

COP4710 – Database Systems (2 sections)
COP4990 – Advanced Visual Programming (in Visual Basic)
COP5715 – Advanced Database Systems

Fall 2001:

COP4710 – Database Systems (2 sections)
COP3530 – Data Structures and Algorithms (in C++)

Summer 2001:

COP4710 – Database Systems
COP3530 – Data Structures and Algorithms (2 sections) (in C++)

Spring 2001:

COP 3530 – Data Structures and Algorithms (2 sections) (in C++)
COP 4710 – Database Systems
CGS 3464 – Visual Programming (in Visual Basic)

Fall 2000:

COP 3530 – Data Structures and Algorithms (2 sections) (in C++)
COP 4710 – Database Systems (2 sections)

Summer 2000:

COP 3530 – Data Structures and Algorithms (in C)
COP 4710 – Database Systems

Spring 2000:

COP 3530 – Data Structures and Algorithms (2 sections) (in C)
COP 4710 – Database Systems
CIS 3512 – Systems Documentation

Fall 1999:

COP 3530 – Data Structures and Algorithms (in Pascal)
COP 4710 – Database Systems
CGS 3800 – Multimedia Systems
CGS 3464 – Visual Programming (in Visual Basic)

RESEARCH INTERESTS

Database and SQL, database design and architecture, object-oriented databases, web databases, data mining, pattern recognition, statistical computing, computers in Education.

PUBLICATIONS

Books

1. Earp, R. and **Bagui, S**. (2003). *Learning SQL: A Step-by-Step Guide using Oracle*, Addison Wesley, ISBN: 0-201-77363-5.

2. **Bagui, S.** and Earp, R. (2003). *Database Design Using ER Diagrams*, CRC Press, Auerbach Publications, ISBN: 0-8493-1548-4.

3. **Bagui, S**. and Earp, R. (2004). *Learning SQL: A Step-by-Step Guide using Access*, Addison Wesley, ISBN: 0-321-11904-5.

4. Earp, R., and **Bagui, S.** (2006). *Advanced SQL Functions in Oracle 10g*, Wordware Publishing, ISBN: 13: 978-1-59822-021-6.

5. **Bagui, S**. and Earp, R. (2006) *Learning SQL Using SQL Server 2005*, O'Reilly Publishers, ISBN: 0-596-10215-1.

6. Earp, R. and **Bagui, S**. (2008). *Practical Guide to Using SQL in Oracle*, Wordware Publishing, ISBN: 13:978-1-59822-063-6.

7. **Bagui, S**. and Earp, R. (2009). *SQL Essentials in Access*, Linus Publications, ISBN: 13:978-1-60797-040-8.

8. **Bagui, S**. and Earp, R. (2011). *Essential of SQL Using SQL Server 2008*, Jones and Bartlett, ISBN: 978-0-7637-8138-5.

9. **Bagui, S.** and Earp, R. (2012). *Database Design Using ER Diagrams*, 2nd edition, Taylor and Francis. ISBN: 9781439861769.

10. **Bagui, S.,** and Earp, R. (2015). *SQL Server 2014: A Step by Step Guide to Learning SQL*, Nova Publishers. ISBN: 978-1-63463-543-1. E-book version ISBN: 978-1-63463-554-7.

11. **Bagui, S**. and Earp, R. (2015). *Practical Guide to Using SQL in Oracle*, 2nd edition, BVT Publishing. ISBN: 978-1-62751-647-1 (e-Book) or ISBN: 978-1-62751-648-8 (loose leaf version).

International Editions (books)

12. Earp, R. and **Bagui, S**. (2003). *Learning SQL: A Step-by-Step Guide using Oracle*, Pearson Education Asia Limited and Tsinghua University Press, EISBN 0-201-77363-5 and ISBN: 7-302-06755-4 (In Chinese language).

13. **Bagui, S**. and Earp, R. (2004). *Learning SQL: A Step-by-Step Guide using Access*, Addison Wesley, ISBN: 0-321-21075-1 (International Edition).

14. **Bagui, S.** and Earp, R. (2007). *Naucite SQL na SQL Serveru 2005*, O'Reilly Publishers, ISBN: 978-86-7555-309-0.

Journal Articles (Published/Accepted)

1. **Bagui, S**. (1998). Reasons for increase in learning with multimedia, *The Journal of Educational Multimedia and Hypermedia*, **7**(1), 03-18.

2. Bagui, S.C., **Bagui, S.,** Pal, K., and Pal, N. (2003). Breast Cancer detection using Rank Nearest Neighbor Classification Rule, *Pattern Recognition*, **36**(1), 25-34.

3. **Bagui, S**. and Rodgers, E. (2003). Impact of Kolb's Learning Style on Selection of Media During Authoring of Multimedia, *Journal of Interactive Instruction and Development*, **15**(4), 3-11.

4. **Bagui, S**. (2003). Achievements and Weakness of Object-Oriented Databases, *Journal of Object Technology*, **2**(4), 29-41.

5. **Bagui, S**. and Rodgers, E. (2003). Correlation between Kolb's Experiential Learning Style and Selection of a Structure in Multimedia Authoring, *Journal of Interactive Instruction and Development*, **16**(2), 10-24.

6. **Bagui, S**. and Bagui, S.C. (2004). An Algorithm and Code for Computing Exact Critical Values for the Kruskal-Wallis Nonparametric One-Way ANOVA, *Journal of Modern Applied Statistical Methods*, **3**(1), 498-503.

7. **Bagui, S**. and Rodgers, E. (2005). Relationship between Kolb's Experiential Learning Style and Use of Navigational Features during the Authoring of Multimedia Projects, *Journal of Interactive Instruction and Development*, **17**(3), 3-14.

8. **Bagui, S**. and Bagui, S.C. (2005). An Algorithm and Code for Computing Exact Critical Values for Friedman's Nonparametric ANOVA, *Journal of Modern Applied Statistical Methods*, **4**(1), 312-318.

9. **Bagui, S**. (2006). An Approach to Mining Crime Patterns, *International Journal of Data Warehousing and Mining*, **2**(1), 50-80.

10. Bagui, S.C., **Bagui, S.,** Chatterjee, A., and Mehra, K.L. (2006). Classification with repeated independent measurements under separate sampling scheme, *Statistical Methodology*, **3**, 234-251.

11. **Bagui, S**., (2006). Rules for Migrating from Entity Relationship (ER) diagrams to Object Relationship (OR) diagrams, *Computing Letters*, **2**(4), 177-191.

12. **Bagui, S**. and Bagui, S.C. (2006). Computing Percentiles of Skew-Normal Distributions, *Journal of Modern Applied Statistical Methods*, **5**(2), 575-588.

13. **Bagui, S**., Mink, D., and Cash, P. (2007). Data Mining Techniques to Study Voting Patterns in the US, *Data Science Journal*, **6**, 46-63.

14. **Bagui, S**., (2007). A Formal Definition for Translating XML Documents to the ER Model, *International Journal of Metadata, Semantics and Ontologies*, **2**(1), 54-66.

15. **Bagui, S.**, Bagui, S.C., Pal, N.R., and Matin, M.A. (2007). Comparison between *k*-NN and *k*-RNN Classification Rules: A Monte Carlo Simulation Study, *Journal of Statistical Research*, **41**(1), 69-79.

16. **Bagui, S**., (2007). Mapping XML Schema to Entity Relationship and Extended Entity Relationship Models, *International Journal of Intelligent Information and Database Systems*, **3**(4), 325-345.

17. **Bagui, S.** Just, J., and Bagui, S. (2009). Deriving Strong Association Mining Rules Using a Dependency Criteria, the Lift Measure, *International Journal of Data Analysis Techniques and Strategies (IJDATS)*, **1**(3), 297-312.

18. **Bagui, S.** and Loggins, A. (2009). Generating Join Queries for Large Databases and Web Services, *International Journal of Information Technology and Web Engineering* (IJITWE), **4**(2), 54-72.

19. **Bagui, S.** and Ter Haar, L. (2009). Database Education in the New Millenium, *The Journal of Computing Sciences in Colleges*, **24**(4), 80-87.

20. **Bagui, S**. (2009). Mapping OWL to the Entity Relationship and Extended Entity Relationship Models, *International Journal of Knowledge and Web Intelligence (IJKWI)*, **1**(1/2), 125-149.

21. Caffrey, J. M., Landing, W. M., Nolek, S. D., Gosnell, K., **Bagui, S. S.,** and Bagui, S.C. (2010). Atmospheric Deposition of Mercury and Major Ions to the Pensacola (Florida) Watershed: spatial, seasonal and inter-annual variability, *The Journal of Atmospheric Chemistry and Physics*, 10, 4593-4616.

22. **Bagui, S.** Just, J., Bagui, S, and Hemasinha, R. (2010). Using a Cosine-type Measure to Derive Strong Association Mining Rules, *International Journal of Knowledge Engineering and Data Mining (IJKEDM)*, **1**(1), 69-83.

23. **Bagui, S.** and Musgrove, C. (2010). Optimizing Outerjoins in Large Databases Using Cluster Based Partitioning. *International Journal of Data Analysis and Information Systems (IJDAIS)*, **2**(2), 55-65.

24. **Bagui, S.** Islam, M., and Bagui, S. (2011). An Architecture for Query Optimization Using Association Rule Mining. *International Journal of Knowledge Based Organizations* (IJKBO), 1(4), 32-55.

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26. **Bagui, S**. and Sweetman, R. (2012). Modeling Service Data Objects (SDO's) To the Entity-Relationship (ER) Model, by Bagui and Sweetman. *International Journal of Information Technology and Web Engineering (IJITWE)*, 7(3), 14-36.

27. **Bagui, S.,** Spratlin, S., and Bagui, S. (2013). Calculating Support, Confidence and Lift in Multi-relational XML Data, *International Journal of Data Analysis and Information Systems* (IJDAIS), Vol. 5(1), 13-27.

28. Goehring, G., Reichherzer, T., El-Sheikh, E., Snider, D., Wilde, N., **Bagui, S**., Coffey, J., White, L.J. (2013). A Knowledge-Based System Approach for Extracting Abstractions from Service Oriented Architecture Artifacts in *International Journal of Advanced Research in Artificial Intelligence (IJARAI)*, Vol. 2(3), 44-52.

29. Bagui, S.C., **Bagui, S.**, and Hemasinha, R. (2013). Nonrigorous proofs of stirling's formula, *Mathematics and Computer Education*, Vol. 47(2), 115–125.

30. El-Sheikh, E., Reichherzer, T., White, L., Wilde, N., Coffey, J., **Bagui, S.**, Goehring, G., Baskin, A. (2013). Towards Enhanced Program Comprehension for Service Oriented Architecture (SOA) Systems, *Journal of Software Engineering and Application (JSEA)* Vol. 6(9), 435-445.

31. **Bagui, S.** and Zaynako, A. (2014). Determining Approximate Functional Dependencies using Association Rule Mining, *International Journal of Research in Computer Applications and Management (IJRCM)*, Vol. 4(1), 10-17.

32. **Bagui, S.,** and Bouressa, J. (2014). Mapping RDF and RDF-Schema to the Entity Relationship Model, *Journal of Emerging Trends in Computing and Information Sciences*, Vol. 5(12), 953-961.

33. Gonen, B., Fang, X., El-Sheikh, E., **Bagui, S.,** Wilde, N., Zimmerman, A. (2014). Ontological Support for the Evolution of Future Services Oriented Architectures, *Transaction on Machine Learning and Artificial Intelligence (TMLAI)*, Vol. 2(6), 77-90.

34. **Bagui, S.,** and Nguyen, L. (2015). Database Sharding: To provide fault tolerance and scalability of Big Data on the Cloud, *International Journal of Cloud Applications and Computing (IJCAC)*, Vol. 5(2), 36-52.

35. Fridge, E., and **Bagui, S.** (2016). Impact of Automated Software Testing Tools on Reflective Thinking and Student Performance in Introductory Computer Science and Programming Classes, *International Journal of Information and Communication Technology Education (IJICTE)*, 12(1), 24-40.

36. Bagui, S., **Bagui, S**, and Hemasinha, R. (2016). The Statistical Classification of Breast Cancer Data, *International Journal of Statistics and Applications*, 6(1), 15-22.

37. **Bagui, S.,** and Spratlin, S. (2017). A Review of Data Mining Algorithms on Hadoop's MapReduce, *International Journal of Data Science,* in press.

38. **Bagui, S.,** Xingang, F., Kalaimmanan, E., Bagui, S., and Sheehan, J. (2017). Comparison of Machine Learning Algorithms for classification of VPN and non-VPN Network Traffic Flow Using Time-Related Features, *Journal of Cyber Security Technology*, 1(2), 108-126.

39. **Bagui, S.,** Xingang F. and Bagui, S. (2017). "Improving Virtual Screening Predictive Accuracy of Human Kallikrein 5 inhibitors using Machine Learning Models, *Computational Biology and Chemistry*, 69, 110-119.

40. Cox, A., Guzman, I., Crommer, K., **Bagui, S.** Virtual world, Virtual Reality, and Augmented Reality: Different Types, Different Users, Different Purchase Intentions, submitted to *Journal of Virtual Worlds Research.*
41.

Refereed Publication in Encyclopedia

1. **Bagui, S**. (2006). Generalizations and Specializations and Categories in ER Diagrams, *Encyclopedia of Database Technologies,* Idea Group Publishing, 233-239.

Refereed Proceedings

1. **Bagui, S.** (2005). Rules for Migrating from ER and EER diagrams to Object-Relationship (OR) diagram, *Proceedings of the 43rd ACM Southeast Conference*, **1**, 243-244, Kennesaw, GA, March 18-20 (acceptance rate – about 28%).

2. **Bagui, S.** and Walker, D. (2006). A Java Based Parser Software for Converting XML Documents to the ER Model and Relational Databases, *Proceedings of the 2006 International Conference on Semantic Web and Web Services*, 166-169, Las Vegas, Nevada, June 26-29 (acceptance rate – approx.. 32%).

3. **Bagui, S.** (2007). Developing a conceptual model for XML Schema, *Proceedings of the 2007 International Conference on Semantic Web and Web Services*, 69-71, Las Vegas, Nevada, June 25-28 (acceptance rate – about 32%).

4. Prayaga, L., White, L., **Bagui, S.** (2009). Innovative Strategies to Build IT Workforce, *Proceedings of 22nd Conference on Software Engineering Education and Training*, 202-209.

5. **Bagui, S**. Mohammad, I. (2010). Query optimization in large databases using Association Rule Mining, *Proceedings of the 48th ACM Southeast Conference*, Oxford, MS, April 15-17.

6. El-Sheikh, E., **Bagui, S.,** Firesmith, D., Petrov, I., Wilde, N., Zimmermann, A. (2013). Towards Semantic-Supported SmartLife System Architectures for Big Data Services in the Cloud.

Proceedings of the 5th International Conferences on Advanced Service Computing, May 27-June 1, Valencia, Spain, IARIA XPS Press.

7. Zimmermann, A., Gonen, B., Schmidt, R., El-Sheikh, E., **Bagui**, **S**., and Wilde. N. (2014). Adaptable Enterprise Architectures for Software Evolution of SmartLife Ecosystem. Proceedings of IEEE EDOC – SoEA4EE 2104: *The Sixth Workshop on Service oriented Enterprise Architecture for Enterprise Engineering*, Sept. 1-5, 2014, Ulm, Germany.

8. Gonen, B., Fang, X., El-Sheikh, E., **Bagui, S.,** Wilde, N., Zimmermann, A., and Petrov, I. (2014). Maintaining SOA Systems of the Future: How Can Ontological Modeling Help? Proceedings of KEOD 2014: *The International Conference on Knowledge Engineering and Ontology Development,* October 21 – 24, 2014, Rome, Italy.

Book Chapters

1. Earp, R. and **Bagui, S.** (2000). Building An Entity Relationship Diagram: A Software Engineering Approach, *Data Management Handbook,* CRC Press, Auerbach Publications, **22-10-41**, Dec., 1-16.

2. Earp, R. and **Bagui, S**. (2001). Extending Relationships in the Entity Relationship Diagram, *Data Management Handbook,* CRC Press, Auerbach Publications, **22-10-42**, May, 1-14.

3. Earp, R. and **Bagui, S**. (2002). Binary Relationships in Entity Relationships in Entity Relationship (ER) Diagrams, *Data Management Handbook,* CRC Press, Auerbach Publications, **22-10-43**, April, 1-17.

4. **Bagui, S**. and Earp, R. (2003). Ternary and Higher-Order ER Diagrams, *Data Management Handbook*, CRC Press, Auerbach Publications, **22-10-44**, June, 1-21.

5. Wilde, N., **Bagui, S**., Coffey, J., El-Sheikh, E., Reichherzer, T., White, L., Goehring, G., Terry, C., Baskin, A. (2013). Interoperable Systems and Software Evolution: Issues and Approaches, *Digital Enterprise Design and Management 2013, Advances in Intelligent Systems and Computing*, Volume 205, 2013, chapter 10, 45-56, Springer Berlin Heidelberg, doi={10.1007/978-3-642-37317-6_5}.

Other Publications

1. Earp, R., and **Bagui, S**. (2000). Oracle's Joins, *Oracle Internals*, **2**(3), 6-14.

2. Earp, R. and **Bagui, S**. (2001). Oracle's Triggers, *Oracle Internals,* **2**(10), 14-20.

3. Earp, R. and **Bagui, S**. (2001). An In-depth look at Oracle's Correlated Subqueries, *Oracle Internals*, **3**(4), 2-8.

4. **Saha, Sikha** (1988). Software Review of ENABLE, *Journal of Computer Based Instruction*, **15**(1).

5. **Saha, Sikha**, (1988). Book Review, Files and Databases, An Introduction, *Interfaces*, **18**(3).

Papers re-printed as Book Chapters

1. Earp, R., and **Bagui, S**. (2004). Oracle's Joins, *Oracle Internals: Tips, Tricks, and Techniques for DBAs,* edited by Donald K. Burleson, Auerbach Publications, Taylor and Francis Group.

2. Earp, R. and **Bagui, S**. (2004). Oracle's Triggers, *Oracle Internals: Tips, Tricks, and Techniques for DBAs,* edited by Donald K. Burleson, Auerbach Publications, Taylor and Francis Group.

3. Earp, R. and **Bagui, S**. (2004). An In-depth look at Oracle's Correlated Subqueries, Oracle SQL Training and CBO Internals, edited by Kimberly Floss, Rampant Press.

4. Earp, R., and **Bagui, S**. (2004). Oracle's Joins, Oracle SQL Training and CBO Internals, edited by Kimberly Floss, Rampant Press.

5. **Bagui, S**. (2008). An Approach to Mining Crime Patterns, *Data Warehousing and Mining: Concepts, Methodologies, Tools, and Applications,* edited by John Wang, IGI Global Publications.

6. **Bagui, S.** (2009). An Approach to Mining Crime Patterns, *Selected Readings on Database Technologies and Applications*, edited by Terry Halpin, IGI Global Publications.

7. **Bagui, S.** (2009). Mapping Generalizations and Specializations and Categories to Relational Databases, *Handbook of Research on Innovations in Database Technologies and Applications: Current and Future Trends*, edited by Viviana E. Ferraggine, Jorge H. Doorn, Laura C. Rivero, Information Science Reference. ISBN-13: 9781605662428, 1-11.

8. **Bagui, S.** and Loggins, A. (2011). Automating the Generation of Joins in Large Databases and Web Services, *Web Engineered Applications for Evolving Organizations: Emerging Knowledge,* edited by Ghazi, I. Alkhatib, IGI Global Publications. ISBN: 978-1-60960-523-0.

9. **Bagui, S**., Islam, M., and Bagui, S. (2012). An Architecture for Query Optimization Using Association Rule Mining, *Intelligence Methods and Systems Advancements for Knowledge-Based Business*, IGI Global.

10. **Bagui, S.,** and Nyugen, L. (2015). A Key Based Database Sharding Implementation for Big Data Analytics, *Advanced Research on Cloud Computing Design and Applications*, IGI Global (in press).

Workshops

1. Bilal Gonen, Xingang Fang, Eman El-Sheikh, Sikha Bagui, Norman Wilde, Semantic Traversing Documents by Using Semantic Relationships, *Workshop on Grand Challenges in Engineering and Applied Sciences,* Princeton University, Princeton, NJ, May 15-18, 2014.

Grant Reports

1. Caffrey, J., Landing, W., **Bagui, S**., Bagui, S. (2009). *Atmospheric Deposition of Mercury or Trace Metals to the Pensacola Bay Watershed*, February 15, 2009.

Submittals/In preparation

42. **Bagui, S.,** Devulapalli, K., Coffey, J., "A Heuristic Approach for Load Balancing the FP-Growth Algorithm on MapReduce, submitted to *IEEE* Transactions on Big Data, July 23, 2017.
43. **Bagui, S.,** Devulapalli, K., Sharon, J. "MapReduce Implementation of a Mixed and Multinomial Naïve Bayes Classifier," submitted to *IEEE* Transactions on Big Data, August 1, 2017.
44. **Bagui, S**. and Devulapalli, K. "A Comparison of Hive's Optimization Techniques," submitted to International Journal of Big Data Intelligence, revised and submitted, August 13, 2017.

Series Editor for "Foundation for Database Design Books" for CRC press.

Books in this series:

1. Garmany, J, Walker, J., and Clark, T. (2005). *Logical Database Design Principles*, CRC Press, Auerbach Publications, ISBN: 0-8493-1853-X.
2. Chao, L. (2005). *Database Development and Management*, CRC Press, Auerbach Publications, ISBN: 0-8493-3318-0.

Editorial Board member:

i. *International Journal of Data Analysis Techniques and Strategies (IJDATS).*
ii. World of Computer Science and Information Technology Journal (WSCIT).
iii. Universal Journal of Computer Science and Engineering Technology (UniCSE).
iv. Inventi Journals, http://www.inventi.in
v. Amity Journal of Engineering and Technology.
vi. Journal of Technologies (http://www.mdpi.com/journal/technologies, ISSN 2227-7080).
*vii. Journal of Applied Information Science (*http://submission.publishingindia.com/index.php/JAIS)
viii. International Journal of Technology in Computer Science and Engineering (IJTCSE).

2. Associate Editor:

i. International Journal of Advanced Computer Science and Applications (IJACSA).

Technical Committee Member

International Conference on Intelligent Systems and Control (ISCO'2013).

REVIEWED

Articles for

IEEE Transactions for Data and Knowledge Engineering
IEEE Transactions for Parallel and Distributed Computing
Data and Knowledge Engineering
Pattern Recognition Letters
International Business Schools Computing Quarterly

Encyclopedia of Database Technologies and Applications
Iranian Journal of Electrical and Computer Engineering (IJECE)
Handbook for Technology Management
ACMSE
International Journal of Data Analysis Techniques and Strategies (IJDATS)
International Journal of Knowledge Engineering and Data Mining (IJKEDM)
Consortium for Computing Sciences in Colleges (CCSC)
International Journal of Computer Engineering Research (IJCER)
Data Science Journal
Journal of Systems and Software
International Journal of Intelligent Information and Database Systems (IJIIDS)
International Journal of Advanced Computer Science and Applications (IJACSA)
IEEE Computer
Intelligent Systems and Control (ISCO 2013)
8th International Conference on Knowledge Generation, Communication and Management: KGCM 2014.
Florida Consortium of Cybersecurity (FC2) Seed Grant Program, 2014-2015.
Information.

Grants for

1. Kentucky Science and Engineering Foundation, 2007; April 2012.
2. Kentucky Science and Engineering Foundation. Grant title: Tools for reusing data modeling patterns: Development and evaluation, 2008.
3. NSF Database Grant for Kennesaw State University, titled: Animated Database Courseware (ADbC), 2009.
4. Florida Consortium in Cybersecurity, 2014.

Books

1. *Data Structures and Algorithms in C++* (2002), by Goodrich, Tamassia, & Mount, for John Wiley & Sons.
2. *Oracle – Physical Database Design* by Don Burleson, for CRC Press.
3. *GO Series in Microsoft Office, 2003,* for Prentice Hall.
4. *Quick, Simple MicroSoft Office 2000*, by Erickson, for Prentice Hall.

SELECTED CITATIONS

1. Dusick, D. (1998). Learning Effectiveness and Educational Technology. *Educational Technology Review*, **10**.
2. Szabo, M. and Kanuka, H. (1998). Effects of Violating Screen Design Principles of Balance, Unity, and Focus on Recall Learning, Study Time, and Completion Rate. *Journal of Educational Multimedia and Hypermedia*, **8**(1), 23-42.
3. Rochet, B (1998). Analyse de The Rhythm of French. *The Rhythm of French*, **1**(2), 171-177.
4. Reilly, A. (1998). Reading and Listening: issues in the use of displayed text and recorded speech in educational multimedia. *MA dissertation*, Middlesex University, England.
5. Szabo, M. and Kanuka, H. (1999). Conducting Research on Visual Design and Learning: Pitfalls and Promises. *Canadian Journal of Educational Communication*, **27**(2), 105-123.
6. Kadijevich, D. (1999). An approach to learning mathematics through knowledge engineering. *Journal of Computer Assisted Learning*, **15**(4), 291-301.
7. Hick, S. (2000). New Technology in the Human Services. *New Technology in the Human Service*, **11**(4), 1-10.
8. Alvarez, O. (2000). Dominio de vocabulario, uso del diccionario, analisis contextual, y comprension lectora de textos en formato hipermedial e impreso. *Vian del Mar – Chile*.
9. Stout, P. A., Villegas, J., and Kim, H. (2001). Enhancing learning through use of interactive tools on health-related websites, *Health Education Research*, **16**(6), 721-733.
10. Steffey, C. (2001). The Effects of Visual and Verbal Cues in Multimedia Instruction. *Ph.D. dissertation.* Virginia Polytechnic Institute and State University.
11. Dias, P., Aedo, I, and Panetsos, F. (2001). Modeling the Dynamic Behavior of Hypermedia applications. *IEEE Transactions on Software Engineering*, **27**(6), June, 550-572.
12. Karoulis, A., and Pombortsis, A. (2003). The Cognitive Transfer and the Tutor's Role in a CBL Environment, *Informatics in Education*, **2**(2), 214-256.
13. Wallace, M., Tsapatsoulis, N., and Kollias, S. (2005). Intelligent initialization of resource allocating RBF networks. *Neural Networks*, **18**(2), 117-122.
14. Khalil , M.K., Johnson , T.E., and Lamar, C.H. (2005). Comparison of computer-based and paper-based imagery strategies in learning anatomy. *Clinical Anatomy*, **18**(6), 457-464.
15. Odiase, J.I., and Ogbonmwan, S.M. (2005). Exact Permutation Critical Values for the Kruskal-Wallis One-Way ANOVA, *Journal of Modern Applied Statistical Methods*, **4**(2), 609-620.
16. Orozco, M., Crispi, T., Toro-Almenares, D. (2006). Training of Multilayer Perceptron Neural Networks by Using Cellular Genetic Algorithms., *Lecture Notes in Computer Science,* Vol. **4225,** 389-398.
17. Tan, T.Z., Quek, C., Ng, G.S., Ng, E.Y.K. (2007). A novel cognitive interpretation of breast cancer thermography with complementary learning fuzzy neural memory structure, *Expert Systems with Applications*, **33**(3), 652-666.
18. Shams, L., and Seitz, A.R. (2008). Benefits of multisensory learning, *Trends in Cognitive Sciences*, **12**(11), 411-417.
19. Zhan, J. Z., Matwin, S. and Chang, L. (2010). Privacy-preserving multi-party decision tree induction, *International Journal of Business Intelligence and Data Mining*, **2**(2), 197-212.
20. Buczak, A.L. and Gifford C.M. (2010). Fuzzy Association Rule Mining for Community Crime Pattern Discovery, *Proceedings of ISI-KDD, ACM SIGKDD Workshop on Intelligent and Security Informatics.*

21. Scime, A., Murray, G. R., Hunter, L. Y. (2010). Testing Terrorism Theory with Data Mining, *International Journal of Data Analysis Techniques and Strategies*, **2**(2), 122-139.
22. Medeiros, C.B., Baumann, P., Jucovschi, C. (2010). Introducing Multi-disciplinary Thinking in Computer Engineering: A New Way of Teaching Database Systems, *Education Engineering (EDUCON) 2010 IEEE*, 523-530.
23. Jain, R., VanLeer, M., Chandrasekaran, A. (2011). A Framework for Requirements Engineering Method Selection, *International Journal of Industrial and Systems Engineering*, **8**(2), 198-214.

24. And many more not listed here…

HONORS & AWARDS

Research Awards

1. Recipient of ***2012 Distinguished Research and Creative Activities Award***, UWF.
2. Recipient of ***2007 Distinguished Research and Creative Activities Award***, UWF.

Teaching Awards

1. Recipient of ***Excellence in Teaching and Advising Award***, 2012, UWF.
2. Recipient of ***Excellence in Undergraduate Teaching and Advising Award***, 2006, UWF.
3. Recipient of ***Teaching Incentive Program (TIP***) Award, 2002-2003, UWF.
4. Recipient of ***Excellence in Undergraduate Teaching and Advising Award***, 2001-02, UWF.

Other

Nominated for *Distinguished Teaching Award* by Student Government, 2000-01, UWF.
Recipient of Special Summer Graduate *Scholarship*, 1999, UWF.
Recipient of Delores A. Auzenne Graduate *Fellowship*, 1999, UWF.

GRANTS RECEIVED

1. NSF funded travel grant for Sixth Annual Winter Workshop: Data Mining, Statistical Learning and Bioinformatics, UF Gainesville, January 2004, $400.00.
2. Recipient of University Summer 2005 Research Award of $6250, for proposal entitled, *Pattern Classification in Breast Cancer Data: A Data Mining Approach.*
3. Grant recipient of Graduate Research Assistant, from Graduate Office, UWF, Spring 2006, $1,500.00.
4. Workshop: *Advanced SQL Server (Database) Training*, Operations IT Staff from Saufley Field, US Navy, L3 group (Summer 2005), conducted at ATC, UWF, $5,000.
5. **Senior Key Personnel,** Electric Power Research Institute (EPRI) Grant, titled: "*Atmospheric deposition of mercury and trace metals in the Pensacola Bay Watershed Phase II*", 2009, for $287,020.
6. **Co-PI,** Florida's Great North West Workforce Innovation Consortium Grant, North West Florida Computing and Engineering Training Scholarship Program (Fall 2009 – Dec 2010), $1,000,000.
7. **Senior Key Personnel,** Electric Power Research Institute (EPRI) Grant, titled: "*Atmospheric deposition of mercury and trace metals in the Pensacola Bay Watershed Phase III*", 2010, for $287,020.

GRANTS SUBMITTED (Not funded)

1. PI, *Mining Breast Cancer Data,* grant submitted to Department of Defense, for approx. $300,000 for 3 years. Submitted: 2002.
2. PI, Developing a Java Based Parser Software for Converting XML Documents to the ER and EER model and relational databases, for approx $186.800, for 2 years. Submitted: August 2006.
3. Co-PI, STEP Grant: *Building Sustainable Futures Through STEM Program Initiative*, $994,029, NSF 0856031, 5 years. Submitted: September 2008.
4. Co-PI, PRISM Grant: *PRISM Through Early Engagement of Introductory Level Students in Discovery and Research*, for $960,625. NSF: 08-596 IRF, 3 years. Submitted: February 2009.
5. PI, Longitudinal Study of Multiple Lipid Indices to Predict Cardiovascular Disease, NIH Challenge Grants, RFA-OD-09-003, $246,413, 1 year. Submitted: April 2009.
6. Senior Key Personnel for Synthesis and investigation of superconducting semiconductors and approach for a new generation of electronic components, submitted to AFOSR. Total: ~ $1,500,000 in total for 5 years. Submitted: Summer 2009.
7. Co-PI, S-STEM Grant: Scholarships to Promote Interdisciplinary Undergraduate STEM Research, NSF Proposal Number: 1060363: $598,785, 5yrs. Submitted: Summer 2010.
8. PI, TAACCCT, Department of Labor (DOL) Consortium grant, $500,000, June 2014
9. Co-PI, H1b Grant, DOL Consortium grant, $500,000, June 2014.
10. UWF PI, NSF Grant: Big Data Spokes SPOKE: SOUTH: Collaborative: The Academic and Professional Learning Initiative for Applied Data Science, $400,000, February, 2016.

PRESENTATIONS

International Conferences

1. *A Java Based Parser Software for Converting XML Documents to the ER Model and Relational Databases,* World Congress in Computer Science, WORLDCOMP 2007, Computer Engineering, and Applied Computing, Las Vegas, NV, June, 2006.
2. *Developing a Conceptual Model for XML Schema,* World Congress in Computer Science, WORLDCOMP 2007, Computer Engineering, and Applied Computing, Las Vegas, NV, June, 2007.
3. *Optimizing Outerjoins in Large Databases using Cluster-based partitioning*, World Multiconference on Systemics, Cybenetics and Informatics (WMSCI) 2010, Orlando, FL June 29-July 2, 2010.
4. *Role of Climate and Local Emission Sources in the Wet Deposition of Mercury and Major Ions in the Pensacola Region,* 10th International Conference on Mercury as a Global Pollutant (ICMGP), Halifax, Nova Scotia, July 24-29, 2011.
5. *Temporal and Spatial Variability of Mercury, pH, and Non-Sea Salt Sulfate Fluxes Associated with Changes in Anthropogenic Emissions in the Pensacola Bay Region*, Eighth National Monitoring Conference, April 30 – May 4, 2012, Portland, Oregon.
6. *Interoperable Systems and Software Evolution:Issues and Approaches,* Digital Enterprise Design & Management (DED&M), Paris, France, February, 2013.

7. *Towards Semantic-Supported SmartLife System Architectures for Big Data Service in the Cloud*, SERVICE COMPUTATION 2013, The Fifth International Conferences on Advanced Service Computing, Valencia, Spain, May/June, 2013, http://www.iaria.org/conferences2013.
8. *Ontology-Based SmartLife Enterprise Services Architectures for Big Data in the Cloud*, ESOCC 2013, Malaga, Spain, September 11 – 13, 2013.
9. Bilal Gonen, Xingang Fang, Eman El-Sheikh, Sikha Bagui, Norman Wilde, Alfred Zimmermann and Ilia Petrov, Semantic Search to Support the Evolution of SmartLife Applications, *9th International Joint Conference on Software Technologies*, Vienna, Austria, August 29-31, 2014.
10. Alfred Zimmermann, Bilal Gonen, Rainer Schmidt, Eman El-Sheikh, **Sikha Bagui**, and Norman Wilde, Adaptable Enterprise Architectures for Software Evolution of SmartLife Ecosystems, *The 18th IEEE International EDOC Conference (EDOC 2014) "The Enterprise Computing Conference*", Ulm, Germany, September 1-5, 2014.
11. Kalaimannan, E., Mitchell, C., **Bagui, S.** and Bagui, S. (2015). *An Automated Method of Classifying and Analyzing Malware based Operating System Calls*, Annual Computer Security Applications Conference, December 2015, Los Angeles, CA.

National Conferences

1. *"Discovering Crime Patterns in a State Database"*, presented at University of Florida Sixth Annual Winter Workshop: Data Mining, Statistical Learning and Bioinformatics, January 2004.
2. *"Rules for Migrating from Entity Relationship (ER) and Extended Entity Relationship (EER) diagrams to Object Relationship (OR) diagrams*," presented at ACMSE 2005, Kennesaw, GA, March 18-20, 2005.
3. "*Database Education in the New Millenium*", presented at Consortium for Computing Sciences in Colleges (CCSC), Hammond, LA, April 24-25, 2009.
4. Bilal Gonen, Xingang Fang, Eman El-Sheikh, Sikha Bagui, Norman Wilde, Semantic Traversing Documents by Using Semantic Relationships, Workshop on Grand Challenges in Engineering and Applied Sciences, Princeton University, Princeton, NJ, May 15-18, 2014.

Regional Conferences/Symposiums

1. "*Database Development for Atmospheric Deposition in Pensacola Bay Watershed*", Center for Environmental Diagnostics and Bioremediation (CEDB), University of West Florida, Pensacola, FL., Nov 6th, 2008.
2. "*Some Aspects of Skew-Normal Distribution*", Presented at Mathematics Association of America (MAA) Florida Chapter Meeting, The University of West Florida, Pensacola, FL., Nov. 21, 2008.
3. *"Designing a Relational Database for tracking and analysis of Atmospheric Deposition of Mercury and Trace Metals in the Pensacola Bay Watershed",* Mercury Deposition Meeting, Organized by Center for Diagnostics and Bioremediation, University of West Florida, Pensacola, FL, Jan 13-15, 2010.
5. *Database Development for Tracking and Analysis of Atmospheric Data*, Hg Measurements Meeting, University of West Florida, Pensacola, FL., February 2-3, 2011.

6. *Spatial and Temporal Trends in Atmospheric Deposition of Mercury, Trace Metals and Major Ions in the Pensacola Bay Watershed*, Hg Measurements Meeting, University of West Florida, Pensacola, FL, February 2-3, 2011.
7. *Nonrigorous Proofs of Stirling's Formula,* presented at the Florida Chapter of the MAA Meeting, The University of University of West Florida, November, 2012.

Other Presentations

1. Presented several seminars on using Enable, DBASE III Plus, and Lotus 123 to faculty at The University of Toledo in 1987.
2. "*Multimedia, Hypermedia & CD-ROM technology*", presented at Kent State University, April, 1991.
3. "*Impact of Kolb's Learning Style on the Authoring of Multimedia/Hypermedia*", presented at The Department of Computer Science, The University of West Florida, Pensacola, FL, October, 2000.
4. *"Breast Cancer Detection Using Rank Nearest Neighbor Classification Rules"*, presented in Joint Statistical Meetings of American Statistical Association, Atlanta, GA, August, 2001.
5. "*Mining Association Rules for Insurance Data*", presented at The Department of Computer Science, University of West Florida, Pensacola, FL, March, 2002.
6. "*Data Mining: Discovering Association Rules for Insurance Data*," invited talk, presented at The Department of Computer Science, Florida A&M University, Tallahasse, FL, July 2002.
7. Invited Panel Discussion: *Challenges facing Information Studies/Information Technologies*, participated at Florida State University, College of Information Studies, Tallahasse, FL, July 2002.
8. Invited talk: *Database Concepts*, College of Information Technology, Georgia Southern University, Statesboro, GA, October, 2002.
9. Invited talk: *Database Interface of VB.Net*, Roger Williams University, Bristol, RI, February, 2003.
10. *"Association Rule Mining"*, presented at The Department of Computer Science, Florida A & M University, Tallahasse, FL, July 2003.

Local Symposium Presentations

1. "*An Algorithm and Code for Computing Exact Critical Values for the Kruskal-Wallis Nonparametric One-Way ANOVA*, presented at SEASTARS 2004, April 19, 2004 (poster session).
2. *"Discovering Crime Patterns in a State Database*," presented at SEASTARS 2004, April 19, 2004 (poster session).
3. *"An Algorithm and Code for Computing Exact Critical Values for the Friedman's Nonparametric ANOVA",* presented at SEASTARS 2005, April 19, 2005 (poster session).
4. *"Rules for Migrating from Entity Relationship (ER) Diagrams,"* presented at SEASTARS 2005, April 19, 2005 (poster session).
5. "*A Java Based Parser Software for Converting XML Documents to ER Diagrams and Relational Databases*," presented at SEASTARS 2006, April 26, 2006 (poster session).
6. "*An Algorithm and Code for Computing Percentiles of Skew-Normal Distributions*", presented at SEASTARS 2006, April 26, 2006 (poster session).
7. "*SOA and Databases*", departmental seminar series, Computer Science Department, Sept 8, 2008.
8. *Calculating Support, Confidence and Lift in Multi-relational XML Data,* SSE Seminar Series, Dec 7, 2012.

9. **Bagui, S.,** *The Transformation of Data*, Rite of Passage Lecture, The University of West Florida, March 28, 2014.
10. Gonen, B., Fang, X., El-Sheikh, E., **Bagui, S.,** and Wilde, N. (2014). Semantic Traversing Documents by Using Semantic Relationships. 2014 Faculty Research Showcase, University of West Florida, Pensacola, FL, April 24, 2014.
11. **Bagui, S.,** Cybersecurity at UWF, presentation made to UWF's IT Pack, October 29, 2014.
12. **Bagui, S.,** Cybersecurity, how does it work, presentation made at Open House, April 11, 2015.

Sessions Chaired/Co-chaired

1. **Co-chaired** session at *World Multiconference on Systemics, Cybenetics and Informatics* (WMSCI) 2010, Orlando, FL June 29-July 2, 2010.

SERVICE

Departmental Service, Fall 1999 – Spring 2005

1. Departmental committees:
   Undergraduate Committee (1999 - 2005); Online committee (2005); Chair Search committee (Spring 2005 – Summer 2005), Lecturer Search committee (Summer 2005), Java Programming Committee (COP2253) (Fall 2004 – 2005).
2. Course Coordinator commitments:
   Aug 1999 – August 2005:
   Microcomputer Application Packages (CGS 2570), Multimedia Systems (CGS 3994), Web Page Design (CGS 3823), Database Systems (COP 4710), Advanced Database Systems (COP 5715), Desktop Publishing (CGS 2580), Visual Programming (CGS 3464). Developed CCRs for the above courses during this period, and was instrumental in putting Microcomputer Application Packages online for the first time.

Departmental Service, FALL 2006 – Present

1. Coordinator, Ed.D. Program, Computer Science specialization (2007 – 2015).
2. Coordinator, Medical Information Technology Program (2007 – 2013).
3. Coordinator for CS Department's Certificate programs (2006 – present).
   Certificates developed:
   i. Certificate in Database Systems (2007).
   ii. Certificate in Web Technologies (2007).
   iii. Certificate in Cybersecurity (2014).
   iv. Certificate in GeoComputing (2014).
   v. GeoCyber Certificate (2015).
   vi. Data Science Certificate (2015).
4. MSDNAA Coordinator (2007 – 2010).
5. Program reviews:
   i. Chair, IT Program Review, 2009-2010.

ii. Chair, CS Undergraduate and Graduate Program Review, 2013-2014.
iii. Chair, IT Program Review, 2016-2017.

6. Committees served on:

a. Search Committees:
i. Search committee, Office Support Specialist position (in Computer Science), member, Fall 2006
ii. Chair, CS Faculty Search Committee, Fall 2009, Fall 2010.
iii. Member, CS Department Faculty Search Committee, Spring, 2012.
iv. Chair, CS coordinator/advisor search committee, Spring, 2012.
v. Chair, Cybersecurity Faculty Search Committee, 2013-14.
vi. Hiring official, Cybersecurity Office Administrator Search Committee, Summer, 2014.
vii. Hiring official, Cybersecurity Advisor Search Committee, Summer, 2014.
viii. Hiring official, IT Techie Search Committee, Fall, 2014.
ix. Hiring official, Battle Lab Techie Search Committee, Fall 2014.
x. Chair, CS Faculty Search Committee, 2014-15.

b. Other committees:
i.Junior Faculty Mentoring committee (2005 – 2006)
ii.Departmental Web Page development committee, 2007- present
iii.SE Curriculum development committee, member, 2007-2008.
iv.Grand Opening Planning Committee, member, Fall 2009.
v.Assessment Committee, member, Summer 2010 – present.
vi.Common Pre-requisites Committee, department representative, Spring 2011 – present.
vii.Member, CS departmental scholarship committee, 2009 - present
viii.Member, CS departmental assessment committee, 2011-present.
ix.Chair, CS department strategic planning committee, 2013-present.
x.Battle lab renovation committee, 2014-2015.
xi.Hadoop Cluster Purchase committee, 2014-2015.
xii.Chair, CS Department Equipment committee, 2014-present.
xiii.Member, By-Laws Committee, 2014-present.

5. Developed CCRs for:
i. Advanced Database Systems (COP6727) – graduate database course
ii. Data Mining (CAP4770/5771) – dual listed data mining course
iii. Database Administration (COP4723/5775) – dual listed course
iv. CIS major, CIS minor, IT major, IT minor
v. IT Tracks – Networking and Telecommunications Technologies, Human Computer Interaction, Information Technology, and Digital Enterprise.
vi. MSIT program CCR, 2015.
vii. MSIT/Cybersecurity specialization, 2015.
viii. MSIT/Database specialization, 2015.

6. New Courses developed:
1. Advanced Database Systems (COP6727)
2. Data Mining(CAP4770/CAP5771)
3. Database Administration(COP4723/COP5775)

7. Online courses developed:
1. Database Systems (COP4710/COP5725)

2. Advanced Database Systems (COP6727)
3. Data Mining(CAP4770/CAP5771)
4. Database Administration(COP4723/COP5775)
5. Seminar in SOA(COP5990).

8. New Specializations developed:
   1. MSA/DBA (2007).
   2. MS/CS/DB (2010).
   3. BS/CS/CyberSecurity (2013).
9. New Programs developed:
   1. MSIT
      i. MSIT/Database Management (2015).
      ii. MSIT/Cybersecurity (2015).
10. Student recruitment efforts
    1. Articulation with Junior Colleges: March 2007, March 2008.
    2. CS Department Open House: Jan 2007; Nov 2007; Feb 2009; Nov 2009; April 2010,; June 13, 2011; June 16, 2011; June 20, 2011; June 23, 2011; July 14, 2011; Sept 17, 2011; Oct 15, 2011, Mar 17, 2012; Nov 2013; Nov 11, 2014; April 11, 2014;
    3. Pensacola Junior College visits: March 20, 2008, April 8, 2008.
    4. Holodeck presentation to Middle School teachers, April 16, 2010.
    5. West Florida High School, May 2011.
11. Coordinated, prepared and administered test for student – to test out of Web Page Design Course (CGS3823), Spring 2006.
12. Outreach Activities – visited: Alpha Data Corporation, FW Beach, NAS Pensacola, Bullet Technologies, General Dynamics, Pall Corporation, Cogon, App River, Avalex Technologies, Media Com, Coco, Beyond.com, Booz Allen Hamilton.
13. Participated in SSE Grand Opening Events, Feb 3-5, 2010.
14. Directed independent study students: (2009-2010): 12; supervised one honors thesis; coordinated 6 internships; and served on one master's committee.
15. Advising:
    1. 2009-2010: 55 undergraduate advisees and 42 graduate advisees.
    2. 2010 – 2011: 60 undergraduate advisees and 45 graduate advisees
    3. 2011 – 2012: 55 undergraduate advisees and 48 graduate advisees
16. Chair, Ed.D. committee, 2011 – 2014.
17. International Collaborations:
    1. Working with China, 2013.
    2. Working with Faith University in Turkey, 2014-2015
    3. Working with Reutlingen University in Germany, 2011 – present.
18. Meetings:
    1. Organized and hosted Florida Consortium on Cybersecurity (FC2) at UWF's Department of Computer Science, Sept 16, 2014.
    2. Committee member, STARTUP weekend, 2013-present.
    3. Committee member, Cyberthon, 2015.
19. Articulation Agreements
    1. Articulation with Pensacola State College

20. Non-Disclosure Agreements
    1. General Dynamics IT (GDIT), February, 2015.
    2. Los Alamos Technical Associates, Inc. (LATA), February, 2015.
21. Accreditations and Designations
    1. Professional Master's Designation (PSM) for Master of Science in Administration, with a specialization in Cybersecurity.
    2. CAE, 2015.

COLLEGE-WIDE SERVICE

1. Elections Committee (At Large), member, 2006 -2008, 2008-2010, 2011-2013, 2013-2015.
2. Academic Standards Committee, member, 2006-2009.
3. CAS Council, member, 2007-2010.
    a. Chair, CAS Graduate Program Committee (CAS Council ad hoc committee), fall 2010.
4. Search Committee, Art Department, member, 2008.
5. Search Committee, CEDB, member, 2008.
6. Search Committee, Physics, member, 2008.
7. Tenure and promotion mentoring committee, Art Department, member, 2008-09, 2012-13.
8. Tenure and promotion mentoring committee, Biology, 2012-2013.
9. ATC Search Committee, member, Spring 2011.

UNIVERSITY-WIDE SERVICE

1. Excellence in Undergraduate Teaching and Advising Committee, member, 2002-2003.
2. Academic Technology Advisory Council (ATAC), member, Fall 2004 – 2006.
3. Faculty Merit Scholarship Program Review Committee, member, 2005 – 2006.
4. Faculty Phone-A-Thon, Admissions Office, UWF, student recruitment, Fall and Spring, 2006.
5. Excellence in Undergraduate Teaching and Advising Committee, member, 2007.
6. Co-chair, Faculty and Staff Campaign, UWF, 2007 – 2009; member, 2010.
7. Participated in UWF's Fund Raising Campaign – Great Futures Campaign, 2007.
8. Computer Science Video Clips for Office of Admissions (for recruitment), Summer 2009.
9. Faculty Video Profile for SSE, Summer 2009.
10. University Faculty Personnel Committee, 2010-2013.
11. Member of STRIDE task force (part of ADVANCE – NSF grant), 2012 – 2015
12. Member of ADVANCE (part of NSF grant), 2012-2015.
13. Member of Chair's Handbook Composition Committee, 2012-2013.

COMMUNITY SERVICE

1. Judge in Math/Computer Science Judge for 49th Annual West Panhandle Regional Science and Engineering Fair, February, 2004.
2. Lead judge in Math/Computer Science Judge for 50th Annual West Panhandle Regional Science and Engineering Fair, February, 2005.
3. Served for *Tsunami* fund raising event, January, 2005.

PROFESSIONAL SERVICE

1. Guided student in creating database for Gulf Coast Kids Club, Fall 2005.
2. Developed Alumni database for Department of Computer Science, UWF, (Fall 2006-Spring 2007).
3. Serving on Oracle Customer Advisory Panel, 2013 – present.
4. On Advisory Council, Florida Center for Cybersecurity (FC2), 2014-present.
5. Represent Department of Computer Science at Pensacola Chamber of Commerce, 2013-present.

PROFESSIONAL DEVELOPMENT

1. Attended UWF's Mini-Conference on Best Practices for Active Learning and Student Engagement (March, 2007).
2. CUTLA Workshop on Writing and Evaluating Student Learning Outcomes, May 16, 2007.
3. UWF 2007 Mini-Conference on Best Practices for Face-to-Face and Online Learning: Promoting Active Learning and Student Engagement, UWF, Nov 8, 2007.
4. Completed ***LEAD***, UWF's Leadership Training Program, 2007-08.
5. Studio-e – Training for Online Teaching, Fall 2007-08.
6. Attended 2011 ABET Symposium, April 14-16, 2011.
7. Attended Howie-in-the-Hills, September, 2012.
8. Attended SPOL – Strategic Planning Online Workshop, Oct 2013.
9. Attended workshop on Discrimination and Harassment for Supervisors, 10/1/2013.
10. Attended STEM Retention Workshop, 2/28/2014.
11. Attended UWF's Office of General Counsel's, "Identity Theft: Protecting Personal Information," Nov, 21, 2014.
12. Attended Diversity Recruitment, Hiring and Retention, Department Chair Workshop, Jan 28th, 2015.

PROFESSIONAL MEMBERSHIPS

Member of ACM 2004-05; 2010 – 2012.
Member of UWF Charter of Upsilon Pi Epsilon, an International Honor Society for Computing and Information Disciplines (2006 – present).

STUDENTS GUIDED

Graduate Project Advisor

Dustin Mink, 2006-2007, Datamining; Gerald Rush, Bioinformatics with BLAST, 2008-2009; Paul Brown, AERO Project, NAS Pensacola, 2008-2009; Sandeep Ramani, Genetic Algorithm, 2007-2008; Adam Loggins, 2008-2009; Jiri Just, 2008-2009; Brandon Youngblood, Optimizing Queries, 2009 – 2010; Mohammad Islam, Optimizing Queries, 2009-2010; Cecil Musgrove, Optimizing Queries, 2009-2010; Duane Christi, Data Warehousing for Escambia County's School Board System, 2009-2010; James Teichart, 2011-2011; Robert Lyons, Cloud computing, 2012; Sweta Ghosh, 2011-2012; Anton Parker, 2012-2013; Loi Nguyen, Database Sharding, 2012-2014; Sean Spratlin, Mining XML Data, 2011-2013; Mariko Young, Data Mining, 2011-2012; James Bouressa, RDF, 2013-2014; Robert Jamie

White, Phishing, 2014; Mason Evans, SQL Injection, 2014; Xingang Fang, Chem-informatics, 2014-2015; Joseph Sheehan, 2015-2016, Malware Analysis.

Thesis Committees
Carlos Perez, 2009-2010

Dissertation Committees (Chair)
Evorell Fridge, 2011-2014

Computer Science Department Honors Project Advisor
Tabatha DeJesus, Fall 2013

Directed Studies and Undergraduate Research
Damien Walker, Developing JAVA based Parser Software, 2005; Utkarsh Shah, Optimizing Queries, Summer 2008; Nicholas Fox, Optimizing Queries, Summer 2008; Clark Mitchell, Malware Analysis - Datamining, Summer 2015; Renan Lordello, SQL Injection Attacks, Summer 2015.

External Dissertation Committee:
Angie Cox, 2015, Trident University.

PostDocs:
Xingang Fang (2015-present)

Curriculum Vitae

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E-mail Address: jcoffey@uwf.edu
Web Site http://www.uwf.edu/~jcoffey

Educational Background:

The University of West Florida.
- Ed.D. Curriculum and Instruction, Computer Science Option, August, 2000.
- M.S. Computer Science/Software Engineering, April, 1992.
- B.S. Systems Science, December, 1989.

The College of William and Mary.
- B.S. Psychology, June, 1971.

Employment History at the University of West Florida

The Department of Computer Science

- Professor (2010 - present)
- Associate Professor (2005 - 2009)
- Assistant Professor (2001 - 2004)
- Lecturer (1992-2000)

Teaching Assignments

1. **Programming Languages** - a core course in the CS option. A survey of procedural, object-oriented, functional and logic-based programming languages. Chomsky hierarchy of formal languages, stack and heap memory management issues, parameter passing modes, etc.
2. **Advanced Programming Languages** - a 6000-level graduate course. Topics include program translation, intermediate representations and code generation, code optimization, concurrency issues for programming language design, and abstract grammars, translational, operational, denotational and axiomatic semantics.

3. **Science of Computing** - an introductory core course for CIS and CS options. Developed the original CCR for the course and the original instructional materials in conjunction with the Instructional Media Center.
4. **Data Structures** - core course for CIS and CS options and for two of the five IIT options. Basic data structures including arrays, vectors, linked lists, trees, graphs, searching and sorting algorithms, hashing and heaps. Significant emphasis is placed on programming.
5. **Java Programming** - prerequisite course for CIS, CS, and IIT options. Basic programming in Java. Utilizes an "objects early" approach.
6. **Introduction to CIS** - a required course for CIS, CS, and IIT options and for ECE students. An intermediate course in C++ programming.
7. **Exploring the Internet** - an online course that utilizes the Internet to teach about usingthe Internet. Over a 2 year period, administered delivery of the course to 1800 students.
8. **UNIX and C** - an upper level elective that required C programming, basic UNIX opearting system use, scripting and system calls.
9. **Pascal Programming** - a beginning course in the Pascal programming language. Previously a required prerequisite for the CIS and CS options.
10. **Software Engineering** - a core course in the CIS and CS options. This course focuses on issues pertaining to the analysis, design and implementation of large software systems requiring co-ordination among team members.
11. **Web-Enabled Applications.** An upper-level elective in XML, Document Object Models, Ajax, client versus server-side scripting. Additional topics include CSS, XSLT, SAX parsing, and php.
12. **Intermediate Programming** - a required course for CS, CIS and other majors. A continuation of Introduction to Java featuring ArrayLists and arrays, Interfaces, file I/O, exceptions.
13. **Service Oriented Architecture Seminar:** A seminar in Web services and SOA. The course dealt with topics including BPEL, Ajax/Dojo, Database, service interoperability, service semantics and others.
14. **Advanced Computer Programming** - An advanced Java programming course for the CIS option: Data Structures, Threads, Generics, XML, Client-Server.
15. **Data Structures and Algorithms II** – for Computer Science, CS option majors. Includes height-balanced trees, recurrences, counting principles, heaps and priority queues, greedy algorithms, probabilistic algorithms, and dynamic programming.
16. **Distributed Software Architecture II –** Web applications including client and server-side processing, XML, XSLT, XML Schema, Document Object Model, Javascript, php, AJAX, MySQL, SOAP, WSDL, BPEL and service-oriented architecture.
17. **Network-Centric Software Applications –** offered concurrently with Distributed Software Architecture II.
18. **C++ Programming:** an introductory course in C++ taken by a variety of majors.
19. **Graduate Project:** Capstone project for CS/SE Master's students
20. **Undergraduate Capstone Project** – capstone experience for CS/CIS/SE/IT
21. **CS and SE Seminar** – graduate research class
22. **CS Foundations: Algorithms and Data Structures** - A fast-paced course introducing foundational knowledge in computer science for graduate students.

The Institute for Human and Machine Cognition

Major projects:

- **NUCES Project.** Researcher, Programmer and Knowledge Engineer. Created knowledge bases, designed and programmed (25,000 loc in C) a Multimedia graphical interface for a large scale expert system. Created Multimedia Model Editor and Model Player, the precursor to CMapTools. Database supervisor.
- **Project Quorum** - Programmer on large scale joint project with IBM Latin America. Automated file transfer between OS-2 machines by writing Rexx and C programs to UUencode and upload the files to mainframes, send files across SNA networks, UUdecode and download files on the other end.
- **Knowledge Preservation at NASA Lewis Research Center** - Elicited knowledge regarding Launch Vehicle System Integration from senior NASA engineers and represented that knowledge in multimedia knowledge models. Demonstrated three different arrangements of the knowledge to target various audiences and uses.
- **Multimedia Knowledge-Based Systems** - Name withheld at request of sponsoring agency. Demonstrated knowledge modeling of experts in a knowledge domain using CMapTools. Worked in Washington D.C.
- **Models & Prototypes for Improving the Effectiveness of Distance Learning & Computer-Mediated Learning.** Chief of Naval Aviation and Training (CNET).
  Phase 1 - Researcher, Knowledge Engineer. Created a demonstration performance support system for electronics technicians.
  Phase 2 - Researcher, Designer, Programmer. Created a pedagogical adjunct to ìCMapTools.î Extended this large object-oriented computer program in JavaTM.
- **Navy Meteorological and Oceanographic Facility** - METOC. Assisted in performing Cognitive Work Analysis of the installation, and in the creation of new ways to represent meteorological data.

Consultancy Work:

- NASA Glenn Research Center, Cleveland, OH.
- Electric Power Research Institute
- Dolan DNA Learning Center, Cold Spring Harbor, NY
- The University of North Florida, Florida Institute of Education, Jacksonville, FL
- Boeing, Houston, TX
- The United States Navy, Dahlgren, VA.
- Southern Company, Birmingham, AL.
- Gulf Power, Pensacola, FL.
- Commander's Predictive Environment, US Navy

Research/Creative Activities

Refereed Journal Publications

Coffey, J.W. (2017). No Warranty Express or Implied: Why do We Have so many Problems with the Computer Systems that Pervade our Lives? Journal of Systemics, Cybernetics and Informatics, ISSN: 1690-4524 (to appear).

Coffey, J.W. (2017). A Framework for a Multi-Faceted, Educational, Knowledge-Based Recommender System. Journal of Systemics, Cybernetics and Informatics, ISSN: 1690-4524 (to appear).

Coffey, J.W., Baskin, A., Reichherzer, T., and Wilde, N. (2016). A Semi-automated Approach to the Recovery of SOA System Structures from Low-Level Artifacts, International Journal of Software Engineering and Knowledge Engineering, 26(1), pp 41–62.

Coffey, J. W., and Owsnicki-Klewe, B. (2016). Introducing a Reflective Activity into the Design Process of an Advanced Computer Programming Course. Journal of Computing Sciences in Colleges, 31(5). pp. 29-37.

Coffey, J. W. (2015). Concept Mapping and Knowledge Modeling: A Multi-disciplinary, Educational, Informational, and Communication Technology. Journal of Systemics, Cybernetics and Informatics, 13(6), pp. 122-128. ISSN: 1690-4524.

Coffey, J. W. (2015). Relationship between design and programming skills in an Advanced Computer Programming Class. Journal of Computing Sciences in Colleges, 30(5). pp. 39-45.

Snider, D., Coffey, J.W., Reichherzer, T., Wilde, N., Terry, C., Vandeville, J., Heinen, A., and Pramanik, S. (2014). Using Concept Maps to Introduce Software Security Assurance Cases, CrossTalk: The Journal of Defense Software Engineering, 27(5), pp. 4-9.

Frame, S., and Coffey, J.W. (2014). A Comparison of Functional and Imperative Programming Techniques for Mathematical Software Development, Journal of Systemics, Cybernetics and Informatics, 12(2), pp. 49-53. ISSN: 1690-4524.

Coffey, J.W. (2014). A Method to Evaluate Differences between Student UML Class Diagrams. The Journal of Computing Sciences in Colleges. 29(5). pp. 68-74.

Coffey, J.W. (2013). Perspectives Regarding Computer Science Curriculum Delivery through Distance Education at Regional Universities. International Journal of Technology, Knowledge and Society, 8(4). pp.73-82.

Goehring, G., Reichherzer, T., El-Sheikh, E., Snider, D., Wilde, N., Bagui, S., Coffey, J., & White, L. (2013). A Knowledge-Based System Approach for Extracting Abstractions from Service Oriented Architecture Artifacts. International Journal of Advanced Research in Artificial Intelligence, 2(3), pp. 44-52.

Coffey, J.W. (2012). Outcomes in a Technically-oriented Course in Web Services and SOA. Journal of Computing Sciences in Colleges 27(5) pp. 101 – 107.

Mintzes, J.J., Canas, A.J., Coffey J.W., Gorman, J., Gurley, L., Hoffman, R.R., McGuire, S.Y., Miller, N., Moon, B., Trifone, J., and Wandersee, J.H. (2011). Comment on "Retrieval Practice Produces More Learning than Elaborative Studying with Concept Mapping" Science Magazine. 334(6055). p. 453.

White, L. J., Reichherzer, T., Coffey, J., Wilde, N. and Simmons, S. (2011). Maintenance of service oriented architecture composite applications: static and dynamic support. Journal of Software Maintenance and Evolution: Research and Practice. doi: 10.1002/smr.568

Prayaga, L., Coffey, J.W., and Rasmussen, K. (2010). Teaching game programming across age groups. International Journal of Gaming and Computer-Mediated Simulations. 3(1). pp. 28-43.
Coffey, J.W. (2010). Web Conferencing Software in University-Level, E-Learning-Based, Technical Courses. Journal of Educational Technology Systems. 38(3). pp. 367-381.
Coffey, J. W., (2008). Digital Natives, Online Learning, and the Production of Capable Computer Science Graduates: The Case for Virtual Synchronous Learning Activities, The International Journal of Technology, Knowledge, and Society, 4(4) pp. 59-64.
Prayaga, L and Coffey, J.W. (2008). Game Development and Higher Order Thinking Skills. Journal of Educational Technology. 5(3). pp. 40-48.
Coffey, J.W. (2008). MODELER: A virtual constructivist learning environment and methodology for object-oriented design. Journal of Computers in Mathematics and Science Teaching. 27(2). pp. 129-147.
Coffey, J.W. & Eskridge, T. (2008). Case Studies of Knowledge Modeling for Knowledge Preservation and Sharing in the U.S. Nuclear Power Industry. Journal of Information and Knowledge Management. 7(3). pp. 173-185.
El-Sheikh, E. M., Coffey, J.W., & White, L. J. (2008). Exploring Technologies, Materials, and Methods for an Online Foundational Programming Course. Informatics in Education Journal. 7(2). pp. 259-276.
Coffey, J.W. (2007). A meta-cognitive tool for courseware development, maintenance, and reuse. Computers and Education. 48, pp. 548-566.
Coffey, J.W., Hoffman, R.R., & Cañas, A.J. (2006). Concept Map-based Knowledge Modeling: Perspectives from Information and Knowledge Visualization. Information Visualization, 5. pp. 192-201.
Hoffman, R.R., Coffey, J.W., Ford, K.M., & Novak, J.D. (2006). A method for eliciting, preserving, and sharing the knowledge of forecasters. Weather and Forecasting. 21(3). pp. 416-428.
Coffey, J.W. (2004). Facilitating Idea Generation and Decision-Making with Concept Maps. Journal of Information and Knowledge Management. 3(2) pp. 1-14.
Coffey, J.W. & Cañas, A.J. (2003). LEO: A Learning Environment Organizer to support computer mediated Instruction. Journal of Educational Technology Systems. 31(3). pp. 275-290.
Coffey, J.W., Cañas, A.J., Reichherzer T., Hill G., Suri N., Carff R, Mitrovich T, & Eberle D. (2003). Knowledge Modeling and the Creation of El-Tech: A Performance Support and Training System for Electronic Technicians. Expert Systems with Applications. 25(4) pp. 483-492.
Coffey, J.W. & Hoffman, R.R. (2003). Knowledge modeling for the preservation of institutional memory, Journal of Knowledge Management, 7(3). pp. 38-49.
Cañas, A.J., Ford, K.M., Coffey, Reichherzer, T., Suri, N., Carff, R., Shamma, D., Hill, G., Breedy,M. (2000). Herramientas para Construir y Compartir Modelos de Conocimiento Basados en Mapas Conceptuales , Revista de Informática Educativa, 13(2), pp.145-158.
Ford, K.M., Coffey, J.W., Cañas, A.J., Turner, C.W., & Andrews, E.J. (1996). Diagnosis and Explanation by a Nuclear Cardiology Expert System. International Journal of Expert Systems. 9(4). pp. 499-506.

Technical Reports

Coffey, J.W., Reichherzer, T., & Wilde, N. (2012). Recovering Conceptual Models of Composite Applications with CARET: Composite Application Reverse Engineering Tool. . S^2ERC-TR-309. Software Engineering Research Institute.

Coffey, J.W., White, L., Simmons, S., & Wilde, N. (2010). Locating Software Features in a SOA Composite Application. S^2ERC-TR-304. Software Engineering Research Institute.

Wilde, N., Coffey, J.W., Daniels, E., Simmons, S., & Pinto, A. (2010). Static Support for Understanding SOA Descriptions: Exploring the Requirements. S^2ERC-TR-303. Software Engineering Research Institute.

ITPAC Project Prioritization Subcommittee (2009). IT Project Prioritization Proposal. Presented to the Information Technology Planning and Advisory Committee (ITPAC), University of West Florida, Sept 24, 2009.

Wilde, N., Coffey, J., Daniels, E., Simmons, S., & Pinto, A. (2009). The SOA Laboratory: a Resource for Education and Research. SERC-TR-297. Software Engineering Research Institute.

Hoffman, R.R., & Coffey, J. W. (2008). Knowledge Elicitation Workshops in Support of the Commanders' Predictive Environment. A Technical Report prepared for the Commander's Predictive Environment group of the Air Force Research Laboratory, Wright-Patterson AFB, OH.

Hoffman, R.R., & Coffey, J.W. (2007). Procedural Guide on Eliciting and Representing Practitioner Knowledge. SCS HR Concept Mapping for Gulf Power. Pensacola, FL.

Academic Program Review. (2006). Department of Computer Science, Five Year Program Review. Division of Academic Affairs, The University of West Florida, Pensacola, FL.

Coffey, J.W., Boling, C., Guidrey, K, Harrison, W., Howell, C., Platt, R., & Redding, C. (2005). Report of the Open Source Software Committee to the University Planning Council for Information Technology. The University of West Florida, Pensacola, FL.

Coffey, J.W. & Eskridge, T.C. (2004). A Knowledge Retention Pilot Study in the Nuclear Power Industry: Activities, Achievements, and Challenges. Technical Report to the Electrical Power Research Institute (EPRI), Palo Alto, CA.

Coffey, J.W., Carnot, M.J., Feltovich, P., Feltovich, J., Hoffman, R.R., Cañas, A.J., & Novak, J.D. (2003). A Summary of Literature Pertaining to the Use of Concept Mapping Techniques and Technologies for Education and Performance Support. Technical Report submitted to the CNET, Pensacola, FL.

Hoffman, R.R., Ford, K.M., & Coffey, J.W., (2000) The Handbook for Human-Centered Computing. Technical Report, NIMA. Washington D.C.

Hoffman, R.R., Coffey, J.W., & Ford, K.M. (2000). A Case Study in the Research Paradigm of Human-Centered Computing: Local Expertise in Weather Forecasting. Report to the National Technology Alliance, Arlington VA. Dec. 15, 2000.

Coffey, J.W. (1999). Institutional Memory Preservation at NASA Glenn Research Center. Technical report, Glenn Research Center, Cleveland, OH.

Ford, K.M., Cañas, A.J., Coffey, J.W., Andrews, E.J., and Schad, N. (1992). Interpreting Functional Images with NUCES: Nuclear Cardiology Expert System. Institute for Human and machine Cognition, 11000 University Pkwy, Pensacola, FL 32514.

Refereed Conference Proceedings

Coffey, J. W. (2017). A Study of the Use of a Reflective Activity to Improve Students' Software Design Capabilities. SIGCSE '17: Proceedings of the 2017 ACM SIGCSE Technical Symposium on Computer Science Education. pp 129-134. ISBN: 978-1-4503-4698-6.

Coffey, J. W. (2017). Ameliorating Sources of Human Error in CyberSecurity: Technological and Human-Centered Approaches. Proceedings of IMCIC'17, Symposium on Information and CyberSecurity. pp 85 – 88. ISBN: 978-1-941763-52-0.

Coffey, J. W. (2016). A Framework for a Multi-Faceted, Educational, Knowledge-Based Recommender System. Proceedings of IMCIC'16, The Seventh Internatinal Conference on Complexity, Informatics and Cybernetics. pp 14 - 17. ISBN: 978-1-941763-35-3.

Coffey, J. W. (2015). Concept Mapping and Knowledge Modeling: A Multi-Disciplinary Educational, Informational, and Communication Technology. Post-Conference Proceedings of Keynote talks of the 6th International Multi-Conference on Complexity, Informatics and Cybernetics, IMCIC 2015. Elsevier.

Golden, E., and Coffey, J. W. (2015). A Tool to Automate Generation of Wireshark Dissectors for a Proprietary Communication Protocol, Proceedings of IMCIC'15, Orlando, FL. March 10-13, 2015, pp. 53-56. ISBN-978-1-941763-15-5.

Reichherzer, T., Coffey, J. W., Gonen, B., and Gillett, I. (2015). Knowledge Modelling in the Health Care Domain to Support Software Development & Maintenance. Proceedings of ModelsWard 2015. The Third International Conference on Model-Driven Engineering and Software Development. ESEO, Angers, Loire Valley, France. February 9-11, 2015.

Coffey, J.W., Snider, D., Reichherzer, T., and Wilde, N. (2014). Concept Mapping for the Efficient Generation and Communication of Security Assurance Cases. Proceedings of IMCIC'14, Orlando, FL. March 4-7, 2014, pp. 173-177. ISBN-978-1-936338-97-9

Coffey, J.W. (2013). Integrating theoretical and empirical computer science in a data structures course. Proceedings of SIGCSE '13, the 44th ACM technical symposium on Computer Science Education. pp. 23 - 27. ISBN: 978-1-4503-2030-6

Satterfield, S., Reichherzer, T., Coffey, J.W., & El-Sheikh, E. (2012). Application of Structural Case-based Reasoning to Activity Recognition in Smart Home Environments. Proceedings of ICMLA'12, The 11th International Conference on Machine Learning and Applications. Boca Raton, FL. Dec 12-15.

Coffey, J.W., Reichherzer, T., Owsnick-Klewe, B., & Wilde, N. (2012). Automated Concept Map Generation from Service-Oriented Architecture Artifacts, Proceedings of CMC 2012, Fifth International Conference on Concept Mapping, Malta, Sept. 17-20, 2012.

Wilde, N., Coffey, J.W., Reichherzer, T., White, L. (2012). Open SOALab: Case Study Artifacts for SOA Research and Education, Principles of Engineering Service-Oriented Systems, PESOS 2012, Zurich, Switzerland, pp. 59-60, June 4, 2012, doi: 10.1109/PESOS.2012.6225941

Frame, S. & Coffey, J.W. (2012). A Comparison of Functional and Imperative Programming Techniques for Mathematical Software Development. Proceedings of MEI'12, Orlando, FL. July 15-18.

Wilde, N., Coffey, J.W., Reichherzer, T., & White, L. Open SOALab: Case Study Artifacts for SOA Research and Education, to appear, 4th International Workshop on Principles of

Engineering Service-Oriented Systems, PESOS 2012, Zurich, Switzerland -- June 4, 2012.
Reichherzer, T., El-Sheikh, E., Wilde, N., White, L., Coffey, J., Simmons, S. (2011). Towards intelligent search support for web services evolution: Identifying the right abstractions, 2011 13th IEEE International Symposium on Web Systems Evolution (WSE), pp.53-58, 30 Sept. 2011, doi 10.1109/WSE.2011.6081819.
White, L. & Coffey, J.W. (2011). The Design and Implementation of an Innovative Online Program for a Master of Science degree in Computer Science - Software Engineering Specialization. In Proceedings of CSEET-2011, the 24th IEEE-CS conference on Software Engineering Education and Training, Honolulu, HA, May 22-24, 2011.
Coffey, J.W., Wilde, N., Simmons, S., Pinto, A., & Daniels, E. (2010). Creating a Technically-oriented Course in Web Services and SOA: Successes, Failures, and Lessons Learned. Proceedings of FECS'10 - The 2010 International Conference on Frontiers in Education: Computer Science and Computer Engineering July, 2010, Las Vegas, NV. pp. 150-155.
Coffey, J.W., White, L., Wilde, N., and Simmons, S. (2010). Locating Software Features in a SOA Composite Applications, Proceedings The 8th IEEE European Conference on Web Services(ECOWS-2010), December 1-3, 2010. Ayia Napa, Cyprus.
Wilde, N., White, L., Coffey, J.W., Reichherzer, T., Dault, J., Gil Restrepo, J., Leal, D., Simmons, S.(2010) "Prototype Tools for Understanding SOA: Static and Dynamic Approaches" Proceedings 22nd International Conference on Software & Systems Engineering and their Applications (ICSSEA-2010), Paris, December 7-9, 2010.
Wilde, N., Coffey, J.W., Simmons, S., Pinto, A., & Daniels, E. (2010) "Supporting Information Systems Education with an Open SOA Laboratory", Proceedings IADIS International Conference Information Systems, ISBN: 978-972-8939-09-0, March 2010, Porto Portugal, pp. 503-506.
Just, J., & Coffey, J.W. (2009). A Survey and Assessment of Attack Strategies on the RSA Public-Key Cryptosystem. Proceedings of RMCI 2009, The 6th International Symposium on Risk Management and Cyber-Informatics. July 10 – 13, Orlando, FL.
Coffey, J.W. (2008). Impediments to Knowledge Communication by Senior Professionals: A Case Study. Proceedings of the Third International Conference on Knowledge Generation, Communication and Management, KGCM 2008. June 29 - July 2, Orlando, FL.
El-Sheikh, E. M., Coffey, J.W., & White, L. J. (2008). Exploring the Use of Virtual Synchronous Sessions in an Online Foundational Programming Course. Proceedings of the 2008 International Conference on Frontiers in Education: Computer Science and Computer Engineering. July 17-19, 2008. Las Vegas, NV. pp.
Moon, B.M., Hoffman, R.R., Shattuck, L.G., Coffey, J.W., Goodman, P., Linn, R., Lang, J., & Sullivan, M. (2008). Rapid and accurate idea transfer: Evaluating concept maps against other formats for the transfer of complex information. Proceedings of CMC 2008, the Third International Conference on Concept Mapping, Tallinn, Estonia & Helsinki, Finland, Sept. 22-25, 2008. pp 571-578.
Coffey, J.W., (2008). A Case study in Organizing and Presenting a Course with Concept Maps and Knowledge Models. Proceedings of CMC 2008, the Third International Conference on Concept Mapping, Tallinn, Estonia & Helsinki, Finland, Sept. 22-25, 2008. pp 1-8.
Coffey, J.W. (2008). Digital Natives, Online Learning, and the Production of Capable Computer Science Graduates: The Case for Virtual Synchronous Learning Activities. The 4th

International Conference on Technology, Knowledge and Society. Northeastern University, Boston, MA. January 18-21, 2008.
Coffey, J.W. (2007). A Study of the Use of Concept Maps and Knowledge Models to Organize and Communicate a Complex Technical Knowledge Domain. Proceedings of EARLI2007, The 12th Biennial Meeting of the European Association for Research on Learning and Instruction. Budapest, Hungary, August 23-27, 2007.
El-Sheikh, E. White, L.J., & Coffey, J.W. (2007). Reflections in Uncharted Waters: Teaching Foundational Programming Online. Proceedings of EISTA 2007, The Fifth International Conference on Education and Information Systems, Technologies and Applications. Orlando, FL July 12-15, 2007.
Coffey, J.W. (2007). Barriers to Open-Source Software Migration: A Case Study from Higher Education. Proceedings of the 11th World MultiConference on Systemics, Cybernetics and Informatics. (SCI2007), July 11-13, 2005, Orlando, FL. pp 155-158.
Coffey, J.W. (2006). In the Heat of the Moment . . . Strategies, Tactics, and Lessons Learned regarding Interactive Knowledge Modeling with Concept Maps. Proceedings of the Second International Conference on Concept Mapping, (CMC2006), Sept 14-17, 2004, San Jose, Costa Rica. pp. 263-271.
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Refereed Book Chapters

Coffey, J. W. Logic and Proof in Computer Science: Categories and Limits of Proof Techniques. Philosophic Perceptions of Logic and Order. J. Horne (ed). IGI Global: Hershey, PA. 2017.

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Posters

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Presentations

Coffey, J.W. No Warranty Express or Implied: Why do We Have so many Problems with the Computer Systems that Pervade our Lives. A Keynote talk presented at IMCIC'17, The 8th International Multi-Conference on Complexity, Informatics and Systemics. March 24-27, 2017, Orlando, FL.

Coffey, J. W. Ameliorating Sources of Human Error in CyberSecurity: Technological and Human-Centered Approaches. A talk presented at IMCIC'17, Symposium on Information and CyberSecurity.

Coffey, J. W. A Study of the Use of a Reflective Activity to Improve Students' Software Design Capabilities. SIGCSE '17: A talk presented at the 2017 ACM SIGCSE Technical Symposium on Computer Science Education.

Coffey, J. W. (2016). A Framework for a Multi-Faceted, Educational, Knowledge-Based Recommender System. A presentation delivered at the Seventh International Conference on Complexity, Informatics and Cybernetics.

Coffey, J. W. (2015). Concept Mapping and Knowledge Modeling: A Multi-Disciplinary Educational, Informational, and Communication Technology. A Keynote talk at the 6th International Multi-Conference on Complexity, Informatics and Cybernetics, IMCIC 2015, Orlando, FL. March 10-13, 2015.

Coffey, J. W. (2015). A Tool to Automate Generation of Wireshark Dissectors for a Proprietary Communication Protocol. A talk presented at IMCIC'15, Orlando, FL. March 10, 2015.

Coffey, J. W. (2015). Relationship between design and programming skills in an advanced computer programming class. A talk presented at CCSC Mid-South, Hendrix College.

Coffey, J.W. (2014). Concept Mapping for the Efficient Generation and Communication of Security Assurance Cases. IMCIC'14, Orlando, FL. March 4-7, 2014.

Coffey, J.W. (2014). A Method to Evaluate Differences between Student UML Class Diagrams. CCSC MidSouth, March 5 2014, LeMoyne-Owen College, Memphis, TN.

Coffey, J.W. (2013). Integrating theoretical and empirical computer science in a data structures course. The 44th ACM technical symposium on Computer Science Education. Denver, CO. March 7, 2013.

Coffey, J.W. (2012). A Comparison of Functional and Imperative Programming Techniques for Mathematical Software Development. A Presentation at MEI'12, Orlando, FL. July 16, 2012.

Coffey, J.W. (2011). Search-Based Support for Web Services Evolution: Identifying the Right Abstractions. A Presentation at **WSE 2011**, 13th IEEE International Symposium on Web Systems Evolution, Williamsburg, VA. Sept 30, 2011.
Coffey, J.W. (2011). Knowledge Modeling with CmapTools. Science Café. Pensacola, Fl July 18, 2011.
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Coffey, J. W. (2007). Knowledge Modeling for Decision Support in a Medical Application. Cogon Systems, December 11, 2007.
Coffey, J. W. (2007). First Experiences with Elluminate. Presented at The Elluminate, Users Conference, The University of West Florida.
Coffey, J.W. (2007). CmapTools: A Concept Map-based, Knowledge Modeling Toolkit. Digital and Learning Technology Programs, John C. Pace Library, University of West Florida. 4/6/2007.
Coffey, J.W. (2007). Knowledge Modeling with CmapTools: Technologies and Methods Presentation to the Director, Review and Assessment Program, NASA Safety and Assurance Office, NASA Headquarters, Washington DC August 8, 2006.
Hoffman, R.R., & Coffey, J.W. (2007). "Knowledge Modeling with Concept Maps at Gulf Power, Preliminary Results." presentation to the General Manager for Power Delivery and staff, Gulf Power Company, Pensacola, FL 12/11/2006.
Coffey, J.W. (2006). Getting the Big Picture: Visual Advance Organizers in Computer Science Course Presentation, Ed-Media 2006, World Conference on Educational Multimedia, Hypermedia, and Telecommunications, June 28, Orlando, FL.
Coffey, J.W. (2005) (Virtual Presentation) European Association of Research on Learning and Instruction, Nicosia, Cyprus. August, 2005.
Novak, J.D., & Coffey, J.W. (2005). Educational Uses of CmapTools. Dolan DNA Learning Center, C2G Advisory Panel Meeting, Cold Spring Harbor, New York. March 10-11, 2005.
Coffey, J.W. (2005). LEO, AMEE and CMapTools: A Next-Generation Learning Environment. Presentation to a representative of one of the nation's Intelligence agencies. IHMC, Pensacola, FL, December 7, 2005.
Coffey, J.W. (2004). A Case Study in Knowledge Elicitation for Institutional Memory Preservation using Concept Mapping. Presented at the First International Conference on Concept Mapping, CMC 2004. Pamplona, SP. September 14. 2004.
Coffey, J.W., Sanchez, D.P., Roche, J., & Woosley, A. (2004). TVAN Knowledge Retention Program Using Concept Mapping Tools. Presentation to the Chief Nuclear Officer and others, Tennessee Valley Authority, Chattanooga, TN. August 18, 2004.
Coffey, J.W., (2004). Concept Map-based Knowledge Modeling. A Presentation at the 8th World MultiConference on Systemics, Cybernetics and Informatics. (SCI2004), Orlando, FL, July 18-21, 2004,
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Organization of Information and Knowledge, Tubingen, Germany, May 13-14, 2004.
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Coffey, J.W., & Carnot, M.J. (2003). Graphical depictions for knowledge generation and sharing. Proceedings of IKS2003, IASTED International Conference on Information and Knowledge Sharing. Scottsdale, AZ, Nov 17-19.
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Coffey, J.W., Cañas, A.J., Novak, J.D., Hoffman, R.R., Carnot, M.J., & Jost. A. (2003). Facilitating the Creation of Graphical Knowledge Representations for Brainstorming and Decision Support. Proceedings of the 7th World MultiConference on Systemics, Cybernetics and Informatics. (SCI2003), July 27-30, 2003, Orlando, FL.
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Coffey, J.W. (2002). LEO: A Learning Environment Organizer for the Presentation of Knowledge Models as Courses, CNET Workshops, IHMC, Pensacola, FL
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Coffey, J.W. (2002). Eliciting, Preserving, and Sharing Expert Knowledge, CNET Workshops, IHMC, Pensacola, FL.

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Hoffman, R.R., & Coffey, J.W. (2000) STORM-LK, A Presentation to the National Technology Alliance, Washington, D.C.

Coffey, J.W. (2000). A Learning Environment Organizer for Asynchronous Distance Learning Systems. A Presentation at the Twelth IASTED International Conference on Parallel and Distributed Computing and Systems (PDCS 2000). November 6-9, 2000. Las Vegas, Nevada.

Coffey, J.W. (1999). Knowledge-based Systems, Seminar for Outstanding Science Students, University of West Florida, February 25.

Canas, A.J., & Coffey, J.W. (1998). El-Tech Performance support with embedded training for electronics Technicians. Presentation to the Chief of Naval Education and Training, NAS Pensacola, FL.

Coffey, J.W. (1998). Details withheld at request of sponsoring agency, Washington D.C.

Coffey, J.W. (1998). Multimedia Performance Support Systems, Seaside, FL.

Coffey, J.W. (1995). Differences between a method of representing knowledge and a patent for Nexpert Object. Presentation at the Office of Patents and Trademarks, Arlington, VA.

Coffey, J. W. (1995). Issues in Hypermedia and Participatory Explanation. A Presentation at the Eighth Florida AI Research Symposium (FLAIRS '95), Melbourne, FL, 1995.

Ford, K.M. & Coffey, J.W. (1993 - 1995). NUCES, Nuclear Cardiology Expert System. Presented to:

- Lousiana State University – The Chancellor of the University and Faculty of the Department of Computer Science, Baton Rouge, LA.
- Florida State Police, Tallahassee, FL.
- The State of Florida Board of Regents, Orlando, FL.
- Sopha Medical, Incorporated, Columbia, MD.
- The Board of Trustees, The University of West Florida, Pensacola FL.

Coffey, J.W. (1994). A Computationally Efficient Rule Evaluation Method from Compiled Knowledge Bases. A Presentation at the Seventh Florida AI Research Symposium (FLAIRS '94), Pensacola Beach, FL, May, 1994.

Coffey, J.W., (1994). Artificial Intelligence, Science Seminar for Superior Students, University of West Florida, February 17.

Coffey, J.W., (1994). Modern Computing Environments and Computational Intelligence, Pensacola Rotary Club, July 19.

Ford, K.M., & Coffey, J.W. (1993). Participatory Explanation. A Presentation at the Sixth Florida AI Research Symposium (FLAIRS '93), Ft. Lauderdale, FL, April.

Coffey, J.W., (1993). Interpreting Functional Images with NUCES: Nuclear Cardiology Expert System. The Gulf Coast (Pensacola) chapter of DPMA, September 14.

Coffey, J.W., (1993). Issues and Practice in Artificial Intelligence (And Other Fun Topics), Pensacola Junior College, November 4.

Panels

Digital Concept Maps as Tools for Organizing and Managing Knowledge and Information Resources. (2006). Moderator: Dr. Tanja Keller, Knowledge Media Research Center, University of Tubingen, Germany, Panelists: Dr. Geoff Briggs, CMEX, NASA Ames Research Center, Dr. Mauri Ahlberg, University of Helsinki, Dr. Pat Hayes, Institute for Human and Machine Cognition. CMC 2006, September 7, San Jose, Costa Rica.

Panel on Knowledge Elicitation. (2006). Moderator: Dr. Robert R. Hoffman, Institute for Human and Machine Cognition, Panelists: Dr. Josianne Basque, Tele-Universite, Canada, Mr. Ed Dotson, NS Navy, Dr. Tristan Johnson, Florida State University, Dr. Patrick Moore, University of West Florida. CMC 2006, September 7, San Jose, Costa Rica.

Training Knowledge Engineers (2004). Moderator: Dr. Robert R. Hoffman, Institute for Human and Machine Cognition, Panelists: Mr. Brian Moon, Klein Associates, Ms J.C. Dumestre, US Navy, Dr. F. Garcia Gonzalez, Universidad Autonoma de Puebla, Mexico. CMC 2004, September 16, Pamplona, Spain.

Workshops - Participated in the preparations and delivery of the following:

Palo Alto Research Center (PARC) Subcontract - two-day workshop in which we demonstrated joint knowledge elicitation with Dr. Joseph Novak to researchers from PARC. Elicited knowledge from intelligence analysts on a knowledge domain of interest.

NASA Blue Sky Workshop - Facilitated multi-day group knowledge generation sessions via Concept Mapping for researchers from IHMC and NASAS Ames Research Center

No Guts, No Glory: Forging A Theory of Complex Cognitive Systems. Served as Knowledge Engineer/Facilitator, ALRADA Select Working Meeting, Boulder, CO, February 27 - March 1, 2003.

Introduction to Concept Mapping using the *CmapTools* Software CMC2004 Workshop. Created and presented the workshop.

CAS Technical Planning Retreat - Planning for the College of Arts and Sciences School of Science and Engineering (SSE) organizational unit.

CmapTools training Multi-day training workshops presented to:

- **The Electrical Power Research Institute (EPRI)** - Human Resources personnel trained in the use of CmapTools for the preservation of tacit and undocumented knowledge. 17 trainees.
- **Chief of Naval Education and Training (CNET)** – Four workshops in which 80 employees of NETPDTC were trained in the use of CmapTools for Human Performance documentation purposes.
- **Naval Education and Training Command (NETC)** The CFFC group of the reorganized command.

- **PATS** – "Enhancing Educational Experiences with Concept Maps and CmapTools" workshop delivered to 12 teachers from the PATS Center, Pensacola, FL.
- **TVA/BFN** - Served as the lead for a two-day workshop held for participants in a pilot study within Tennessee Valley Authority (TVA). Coordinated by EPRI.
- One of the nation's intelligence agencies. Details withheld at the request of the sponsoring agency.
- **The University of North Florida, Florida Institute of Education (FIE).** Organized and delivered two workshops on using CmapTools to build knowledge models of Intermediate Algebra.
- **Gulf Power and Southern Company.** Follow-on workshop to the knowledge elicitation work performed with two experts.

Task Force Excel, Norfolk, VA. Three-day workshop to elicit knowledge pertinent to professional career advancement for SignalMen, Boatswain's Mate and Quartermaster.

Missions to Mars multi-day workshop with representatives of NASA Ames Research Center. Elicited knowledge on alternative exploratory missions to Mars including:

- humans remain on earth
- humans to orbit (including Libration point)
- humans to the surface of Mars

Capturing Experts' Knowledge Using Concept Maps. (2006). Moderators: Robert R. Hoffman and John W. Coffey. CMC 2006, the Second International Conference on Concept Mapping. September 7, San Jose, Costa Rica.

Commander's Predictive Environment, First workshop: January 16-17, 2006.
Commander's Predictive Environment, Second workshop: April 14-15, 2007.

Patent

Ford, K.M., Cañas, A.J. & Coffey, J. (1996). Concept map-based multimedia computer system for facilitating user understanding of a domain of knowledge. U.S. Patent #5,506,937.

Memberships in Professional Organizations

- Association of Computing Machinery.
- American Association of Artificial Intelligence
- UWF chapter of Association of Information Technology Professionals.
- Chapter (Faculty) Advisor, UWF chapter of AITP. (1992-present)
- Chairman, Speaker Committee, AITP. (1990-1992)
- President, UWF chapter of AITP. (1990-1991)

Professional Development

- Professional Development Leave, University of West Florida, to complete Doctoral Dissertation, academic year 1999-2000.
- Teaching Portfolio Workshop 2001.
- LEAD: Leadership Enhancement and Development Program. Class of 2002.
- Teaching Partners, 2008-2010.
- Sabbatical, Spring, 2017.

Projects and Grants

Externally Funded

- Principal Investigator - Knowledge Acquisition at NASA LeRC. $66,500.00
- Principal Investigator - Eliciting Knowledge and Reasoning of Southern Company Experts. $18,800.00.
- Co-Principal Investigator - A Knowledge Engineering, Team-Based Approach to Introducing Security Assurance Cases $25,000.00
- Co-Principal Investigator – Knowledge Modeling for Supporting Program Comprehension Blue Cross, Blue Shield Associates. $50,000.00
- Co-Principal Investigator - Medical Educational Research Foundation (MERF). $23,000.00
- Served as Critical Personnel on many grants through IHMC including the following (these grants totaled millions of dollars):
    - Quorum: Collaboration without Boundaries - IBM World Trade Corporation
    - Models & Prototypes for Improving the Effectiveness of Distance Learning & Computer-Mediated Learning - Chief of Naval Training
    - Multimedia Knowledge-Based Systems - sponsoring agency name withheld by request of the agency
    - Navy Meteorological and Oceanographic Facility - METOC.

Internally Funded

- Wrote and defended annual proposals to the Student Government Association (SGA) for support for the Student Chapter of AITP. $54,218.00
- University of West Florida Faculty Summer Research Grant (2006) $6,250.00
- University of West Florida Research Assistantship Grant (2006) $1,500.00

Dissertation and Thesis Work

Coffey, J.W. (2000). LEO: A Learning Environment Organizer to Accompany Constructivist Knowledge Models. Doctoral Dissertation, The University of West Florida, Pensacola, FL. *Advisor:* Dr. Alberto J. Cañas.

Coffey, J.W. (1992) Nuclear Cardiology Expert system: Development of a Prototype. Master's Thesis, University of West Florida. *Advisor:* Dr. Kenneth M. Ford.

Security Clearance

Secret Level. Interim clearance, April, 1997, Final clearance, October, 1997.

Knowledge Modeling Projects

- **Nuclear Cardiology Expert Systems (NUCES).** The original project for which the IHMC was created and funded. Elicited knowledge about the interpretation of radionuclide images of the left ventricle. Built knowledge-based consultation component to accompany the knowledge model.
- **Launch Vehicles Systems Integration (LVSI)** Performed at NASA Glenn Research Center. Created three separate multimedia elements that were integrated to create one knowledge model on launch vehicles systems integration

- **El-Tech** – Knowledge model and consultation system for Navy electronics technicians
- **STORM-LK** – Large-scale knowledge model of local weather forecasting knowledge that is necessary to be a forecaster in Pensacola, FL.
- **KMD** – The EPRI – Southern Company Knowledge Modeling Demonstration Project. Birmingham, AL.
- **Drought -** a project with the National Weather Service eliciting and modeling knowledge on conditions giving rise to droughts in the Southeastern United States.
- **Department of Defense** - information withheld at request of clients.
- **Leadership** – information withheld at request of clients.
- **EPRI/TVA Pilot Project** - Knowledge Modeling for Institutional Memory Preservation pertaining to air effluent analysis and turbine maintenance/overhaul.
- **Social Network Analysis** - knowledge modeling pertaining to uses of Social Network Analysis. Department of Defense.
- **Boeing, Houston.** Demonstration Knowledge modeling for Institutional Memory Preservation pertaining to:
  - Space Shuttle Ascent Guidance
  - Space Station On-orbit Thermo-structural Analysis.

Institutional Service

Service to the Profession

- Editorial Board – Journal of Educational Technology Systems
- Reviewer:
  - Computers and Education
  - International Journal of Expert Systems
  - International Journal of Human-Computer Studies.
  - IEEE Expert
  - Advances in Computer-Supported Learning (Book)
  - Educational Research Review
  - Journal of Technology, Knowledge, and Society. Associate Editor for volume 8.
  - Journal of Technology, Knowledge, and Society. Associate Editor for volume 4.
  - External reviewer for MEng degree, Alireza Kashian , School of EEE, Nanyang Technological University, Singapore
- Program Committee: Intelligent User Interfaces, IUI 2008 - 2008 International Conference on Intelligent User Interfaces. Canary Islands, Spain, January 13-16, 2008.
- Program Committee CMC:
  - CMC 2004 - The First Int'l Concept Mapping Conference, Pamplona, Spain.
  - CMC 2006 - The Second Int'l Concept Mapping Conference, San Jose, Costa Rica.
  - CMC 2008 - The Third Int'l Concept Mapping Conference, Estonia and Finland.
  - CMC 2010 –The Fourth Int'l Concept Mapping Conference, Santiago, Chile.
  - CMC 2012 –The Fifth Int'l Concept Mapping Conference, Malta.
  - CMC 2014 –The Sixth Int'l Concept Mapping Conference, Sao Paulo, Brazil.
  - CMC 2016 - The Seventh Int'l Concept Mapping Conference, Estonia.
- Advisory Committee for Computer Science and Information Technology, Pensacola State College, 1994-present.

- Twenty Five Gallon Blood Donor, Northwest Florida Regional Blood Center
- Judge, Florida Panhandle Regional Science and Engineering Fair (many years).

To the University

- University Faculty Personnel Committee. Chair, 2016 – 2017.
- Member Office of Undergraduate Research Committee.
- Chair, Information Technology Planning and Advisory Committee (ITPAC) – the successor to UPC-IT (2009-present).
- University Web Advisory Committee (WAC)
- Student Technology Fee Committee member (ITEP and Systemic)
- ITPAC Subcommittee to develop a prioritization plan for strategic IT projects.
- University Planning Council for Information Technology (UPC-IT), University of West Florida (2001-2008). Participated in the formulation of the UWF IT Mission Statement and Strategic Plan.
- Co-chair, UPC-IT (2004-2008)
- UPC-IT Subcommittee for Classroom Technology
- UPC-IT Subcommittee for formulation of a framework for Student Access to Technology Fees (SATF).
- Chair, UPC-IT Subcommittee to study the feasibility of adopting Open Source Software
- UPC-IT Strategic Plan Subcommittee.
- UPC-IT Minimum Hardware Standards Subcommittee
- UWF Web Presence Committee
- Search Committee, Assistant Professor, Digital Media, Department of Art.
- Search Committee for Coordinator, Career Development Services (2001).
- Phon-a-thon volunteer for new students, 1996, 2001, 2003, 2008, 2013.
- Division of Engineering Technology External Review
- Focus Group on the University Portal
- Faculty Search Committee, Institute for Human and Machine Cognition, 1994.
- Tutor, Minority Retention Center, UWF. (1988).
- Tutor, Literacy Volunteers of America, Escambia County. (1991-1992)
- LEAD program - Students' Perspectives: The Educational Experience at UWF

To the College

- Co-chair, Intelligent Systems and Robotics PhD Planning Committee (2016-present)
- Teacher Incentive Program Committee Judge, 1998
- LAS Planning for Science and Technology building (2006-2007).

To the Computer Science Department

- Chair, Department Tenure and Promotion Committee (2017).
- Member, Tenure and Promotion Committee (2005-present)
- Chair, Nystul Search Committee 2016-2017.

- Scholarship Committee (2000-2001).
- Scholarship Committee Chair (2001 - present).
- Faculty advisor to the UWF chapter of DPMA/AITP. (1993 - Present)
- Computer Science Core Curriculum Committee, 1998-1999.
- Computer Science Department Ad Hoc Curriculum Design Group (2001-2002)
- Computer Science Department representative for Saturday Open House and Undergraduate Orientations (in many years, 1996-present).
- Academic Advisor, Department of Computer Science (1993 to 1999).
- Faculty advisor to the UWF chapter of DPMA/AITP. (1993 - Present)
- ASC Open house (Fort Walton Beach, August 2006)
- Faculty Search Committee for two Lecturers (2005)
- Chair, Five-year self-study, Department of Computer Science
- Community outreach: visited area high schools to promote programs in computing.
- CS Department committee to revise CIS curriculum, IT currriculum (2006-07-08).
- Mentoring Committee, Drs. Lakshmi Prayaga, Laura White, Dallas Snider, Ezhil Kaliamannan

Dissertation Committee Member

- John Bolyard

Computer Science Department Honors Project Advisor

- Travis Zimmerman
- Keegan Anderson

Master's Thesis Advisor

- Gilbert Ryan Petris
- Eric Golden

Thesis Commitees

- Steven Satterfield – Defended May, 2012
- Bradley Swain – defended August, 2009
- Carlos Perez – defended Fall, 2009
- LaTreva Pounds - defended 8/2001
- Michelle Buckalew - defended 1/2001
- Tony Croy - prospectus completed
- Sherri Sentelle - defended 1/2002
- Ian Schneller - defended 4/2002

Graduate Project Advisor

- Eric Golden
- Rick Peterson
- Ryan Defour
- Scott Frame
- Laura Dulin

- Jiri Just
- Michael Webb
- Johnnie Odom
- Darcy Lewis
- Tim Giertz

Electrical and Computer Engineering Department Honors Committee Member
- Laura Solari
- Jeffrey Gibson

Directed Individual Studies - Supervised the following students:
- Andre King
- Thomas Roberson
- Halston Pate
- Eric Golden
- Mithal Ashraf
- Robert Peters
- Roger Hawthorne
- Travis Zimmerman
- Gary Register
- Chris Ayers
- Chad Carff
- Bart McDonough
- Brian Watson
- Michael Webb
- James Holstead
- Paul Groth
- James Dodd
- Bruce Edgar
- Timeyo Banda
- Eric Larin
- Curtis Williams
- Alice Banks

Awards and Honors
- Lifetime member, Upsilon Pi Epsilon
- As Chapter Advisor to UWF chapter of AITP (Association of Information Technology Professionals:

  Outstanding Student Chapter of the Year for AITP Region 7 (SouthEastern United States) 1998-1999 and 2000-2001.
  Student Chapter Outstanding Performance Award (SCOPA) 1993, 1994, 1998, 1999, 2000.
  Coordinated many trips to regional and National competitions.

- Professional Development Leave, University of West Florida, to complete Doctoral Dissertation, academic year 1999-2000.
- Distinguished Teaching Award, UWF (1997).
- Golden Apple Award as Teacher of the Year, UWF. (1997)
- Teacher Incentive Program Award, (1997).
- Outstanding Student Organization Advisor, UWF, (1993 - 1994)
- Outstanding Student, Division of Computer Science, UWF. (1989)
- Honor Society of Phi Kappa Phi. (1989).
- Lifetime member, Phi Kappa Phi. (1991).
- Who's Who Among Students at American Colleges and Universities. (1991)
- Summa Cum Laude graduate of UWF.
- President's List, UWF. (every semester of Undergraduate studies)
- Certificate of Accomplishment for Outstanding Academic Performance, BellSouth Services, Summer, 1998, Winter, 1989.
- Graduate Scholarships: Division of Computer Science, UWF; Pensacola Chapter of DPMA.
- Dean's List, The College of William and Mary.

Brian Patrick Eddy
email: beddy@uwf.edu (912)
658-0321

RESEARCH INTERESTS

Software Engineering, Program Comprehension, Software Maintenance and Evolution, Information Retrieval, Model-Driven Engineering, DevOps, Computer Science Education

EDUCATION

PhD, Computer Science
University of Alabama, Tuscaloosa, AL — August 2015
Advisor: Dr. Jeff Gray

MS, Computer Science
University of Alabama, Tuscaloosa, AL — December 2012
Advisor: Dr. Nicholas Kraft

BS, Computer Science
Armstrong Atlantic State University, Savannah, GA — December 2009

BS, Applied Mathematics
Armstrong Atlantic State University, Savannah, GA — December 2009

ACADEMIC POSITIONS

Assistant Professor, Computer Science
University of West Florida, Pensacola, FL — August 2015 - ***current***

JOURNAL ARTICLES

B.P. Eddy, J. Corley, J. Carver, "Searching for Answers: An Exploratory Study of the Formation, Use, and Impact of Queries During Debugging" (in submission)

J. Robinson, X. Hong, **B.P. Eddy**, S. Vrbsky, "Analysis of a TSP Solver with multi-swap optimization on the GPU" (in submission)

B.P. Eddy, N.A. Kraft, and J. Gray, "The effects of structural weighting of leading terms and comments on LDA-based feature location" (in submission)

J. Corley, **B.P. Eddy**, E. Syriani, and J. Gray, "Efficient and Scalable Omniscient Debugging for Model Transformation," *Software Quality Journal*, 25(1): 7-48, 2017.

N. Wilde, **B.P. Eddy**, K. Patel, N. Cooper, V. Gamboa, B. Mishra, and K. Shah, "Security for DevOps Deployment Processes: Defenses, Risks, Research Directions," ***IJSEA***, 7(6), 2016.

L.R. Biggers, C. Bocovich, R. Capshaw, **B.P. Eddy**, L.H. Etzkorn, and N.A. Kraft, "Configuring latent Dirichlet allocation based feature location," **Empirical Software Engineering 19(3): 465-500, 2014.**

CONFERENCE/WORKSHOP PAPERS

B.P. Eddy, N. Wilde, N.A. Cooper, B. Mishra, V.S. Gamboa, K.N. Patel, K.M. Shah , "CDEP: Continous Delivery Educational Pipeline," *Proceedings of the 2017 ACM Southeast Conference*, Kennesaw, GA, USA, pp 55-62, 2017.

J. Gray, J. Corley, **B.P. Eddy**, "An Experience Report Assessing A Professional Development MOOC for CS Principles," *Proceedings of the 47th ACM Technical Symposium on Computer Science Education (SIGCSE '16)*, Memphis, TN, USA, pp/ 455-460, March 2016.

J. Corley, **B.P. Eddy**, J. Gray "Towards Efficient and Scalable Omniscient Debugging for Model Transformations," 14th *Domain-Specific Modeling (DSM)*, Portland, OR, USA, 6 pages, October 2014.

B.P. Eddy, "Structured Source Retrieval for Improving Software Search during Program Comprehension Tasks," *Proceedings of the ACM SIGPLAN conference on Systems, Program- ming, Languages and Applications: Software for Humanity 2014 (SPLASH'14)* DocSymp, Portland, OR, USA, pp. 13-15, October 2014.

B.P. Eddy, "Incorporating Structured Queries into Software Search," ACM SIGPLAN conference on *Systems, Programming, Languages and Applications: Software for Humanity 2014 (SPLASH'14)* Student Research Competition, Portland, OR, USA, October 2014.

B.P. Eddy and N.A. Kraft, "Using Structured Queries for Source Code Search," *Proceedings of the 30th International Conference on Software Maintenance and Evolution (ICSME'14)*, Victoria, British Columbia, Canada, pp. 431-435, September 2014. [acceptance rate: 36%]

B.P. Eddy, J.A. Robinson, N.A. Kraft, and J.C. Carver, "Evaluating Source Code Summarization Techniques: Replication and Expansion," *Proceedings of the 21st IEEE International Conference on Program Comprehension (ICPC'13)*, San Francisco, CA, USA, pp. 13-22, May 2013 [acceptance rate: 30%].

B.P. Eddy, Jeffrey A. Robinson, "Supporting Feature Location and Mining of Software Repositories on the Amazon EC2," *Proceedings of the 51st ACM Southeast Regional Conference (ACM-SE'13)*, Savannah, GA, USA, pp. 9:1-9:6, March 2013.

L.R. Biggers, **B.P. Eddy**, N.A. Kraft, and L.H. Etzkorn, "Toward a Metrics Suite for Source Code Lexicons," *Proceedings of the 27th IEEE International Conference on Software Mainte- nance (ICSM'11)*, Williamsburg, VA, USA, pp. 492-495, September 2011. [acceptance rate: 38%].

SHORT PAPERS

B.P. Eddy and J. Corley, "Searching For Answers: An Exploratory Study of the Forma- tion, Use, and Impact of Queries During Debugging," *Proceedings of the ACM SIGPLAN conference on Systems, Programming, Languages and Applications: Software for Humanity 2014(SPLASH'14)*, Portland, OR, USA, pp. 51-52, October 2014 and N.A. Kraft, "Toward an Understanding of the Relationship Between the Iden- tifier and Comment Lexicons," *Proceedings of the 49th ACM Southeast Regional Conference (ACM-SE'11)*, Kennesaw, GA, USA, pp. 342-343, March 2011. Winner, Best Poster award.

TEACHING EXPERIENCE

Assistant Professor, University of West Florida Spring 2017

Course: Programming Languages (COP 4020)

Description: This is a senior level computer science course on the concepts of programming lan- guages. Students learn about the implementation of programming languages, design decisions in programming languages, and about different programming language paradigms. Particular focus is given to the functional language paradigm with looks at LISP, Scala, and Haskell. A semester long project has students developing an interpreter for their own programming language.

Responsibilities: Designed references for building a simple interpreter for handling a new language. Oversaw the development of students' programming languages while also designing lecture plans, projects, and exams for the course.

Assistant Professor, University of West Florida Spring 2017

Course: Software Engineering II (CEN 3032)

Description: A second course on software engineering. The focus of this course is on the design, construction, and testing of software systems. Topics include software architectures and layering, de- sign patterns, SOLID design principles, dependency injection, unit testing and mocking frameworks, refactoring, software quality assurance, and continuous integration and deployment pipelines. Stu- dents complete a semester long project that with specific focus on following good design principles and testing practices. This project culminates in a presentation and demonstration of the working system. More time is given to the development of the system than is alotted in CEN 3031.

Responsibilities: Redesigned the second course in the software engineering sequence at UWF to give more hands

on experience to students. In charge of designing lecture plans, projects, exams, and activities, as well as the grading of the aforementioned, that met with the overall objectives of the course.

Assistant Professor, University of West Florida Fall 2016
Course: Software Engineering I (CEN 3031)
Description: A first course on software engineering. The focus of this course is on software engineer- ing process. Topics include software processes and methodologies, domain modeling, requirements, use cases, detailed design, UML, whitebox testing with unit testing frameworks, blackbox testing, version control, and implementation considerations. Students complete a semester long project that takes them through each phase of a project. This project culminates in a presentation and demon- stration of their working system.
Responsibilities: Redesigned the first course in the software engineering sequence at UWF. In charge of designing lecture plans, projects, exams, and activities, as well as the grading of the aforemen- tioned, that met with the overall objectives of the course.

Assistant Professor, University of West Florida Spring 2016
Course: Capstone Systems Project (CIS 4595C)
Description: This is an interdisciplinary final semester project course. Students include information technology, computer information systems, and software engineering majors. Develop a software system for a real-world client while working in small teams. Each project consisted of a mobile, web, server, and data component. Throughout the course, students were expected to follow an agile process and develop and deliver relevant artifacts.
Responsibilities: In charge of identifying and monitoring appropriate projects and clients for the semester long projects. This included monitoring these projects through version control, issue tracking, and messaging services. Developed and presented material for special topics in agile devel- opment, devops, distributed and remote teams, and modern development practices, processes, and tools.

Assistant Professor, University of West Florida Spring 2016 Course: Data Structures and Algorithms I (COP 3530)
Description: A first course in Data Structures and Algorithms. Topics include traditional data structures with a focus on design and analysis of algorithms. This was a C-based course. Data structures included linear data structures, trees, dictionaries, and graphs. Algorithms included sorting, searching, recursive techniques, and backtracking.
Responsibilities: In charge of designing lecture plans, projects, exams, and activities, as well as the grading of the aforementioned, that met with the overall objectives of the course.

Assistant Professor, University of West Florida Fall 2015 Course: Object Oriented Programming (CEN 4331)
Description: Exploration of the fundamental ideas behind object-oriented programming, including encapsulation, inheritance, and polymorphism. In addition, students were introduced to the concepts of object-oriented design, documentation, multithreading, event-driven programming, graphical user interfaces, and unit testing.
Responsibilities: Updated the course and developed additional activities to introduce students to JavaFX, Java's multithreading services, lambda expressions, unit testing, and streams. In charge of designing lecture plans, projects, exams, and activities, as well as the grading of the aforementioned, that met with the overall

objectives of the course.

Assistant Professor, University of West Florida Fall 2015, 2016 Course: Software Engineering Management (CEN 4053)
Description: Review concepts and principles related to the management of software development and evolution projects. Topics include estimation, planning, risk management, teamwork, review, and the tools to help manage the aforementioned.
Responsibilities: Focused on aligning the course with modern development practices and tools. In charge of designing lecture plans, projects, exams, and activities, as well as the grading of the aforementioned, that met with the overall objectives of the course. Furthermore, designed and monitored team projects with six students per team.

Lab Instructor, University of Alabama Fall 2014 Course: Programming II (CS 250 lab), *taught by* Dr. Marcus Brown
Description: The co-requisite lab for CS 250, a second course in programming that builds upon the concepts covered in CS 150. The emphasis is to improve and solidify program development skills as well as to introduce students to multimedia programming. Topics covered include modules, encapsulation, object oriented design, inheritance, trees, lists, dictionaries, file input and output.
Responsibilities: Helped in the design, administering, and grading of activities that emphasized the concepts taught in the lecture section of the course.

Instructor, University of Alabama Fall 2014
Course: Programming I (CS 150)
Description: An introductory course that teaches programming and program development. The em- phasis of the course is the rapid acquisition of programming, testing, debugging and system skills. Taught with C, the course emphasizes the basic principles of designing procedural programs.
Responsibilities: In charge of designing lecture plans, projects, exams, and activities, as well as the grading of the aforementioned, that met with the overall objectives of the course. For students need- ing additional attention, this included additional instruction through email, office hours, tutoring sessions, and forum discussions.

Instructor, University of Alabama Spring 2014, Fall 2013 Course: Programming I (CS 150)
Description: An introductory course that teaches programming and program development. The emphasis of the course is the rapid acquisition of programming, testing, debugging and system skills. The course utilizes Python, a modern object-oriented language whose clean and consistent syntax and semantics provide a simpler entry for beginning programmers.

Responsibilities: In charge of designing lecture plans, projects, exams, and activities, as well as the grading of the aforementioned, that met with the overall objectives of the course. For students need- ing additional attention, this included additional instruction through email, office hours, tutoring sessions, and forum discussions.

Teaching Assistant, University of Alabama Spring 2013
Course: Programming II (CS 250), *taught by* Dr. Nicholas Kraft

Description: A second course in programming that builds upon the concepts covered in CS 150. The emphasis is to improve and solidify program development skills as well as to introduce students to multimedia programming. Topics covered include modules, encapsulation, object oriented design, inheritance, trees, lists, dictionaries, file input and output.
Responsibilities: Acted as both a teaching assistant and instructor for CS 250. Assisted in designing lecture plans, projects, exams, and activities, as well as the grading of the aforementioned, that met with the overall objectives of the course. For students needing additional attention, this included additional instruction through email, office hours, tutoring sessions, and forum discussions.

Instructor, University of Alabama Fall 2012, Spring 2012
Course: Programming II (CS 250)

Teaching Assistant, University of Alabama Fall 2011, Spring 2011
Course: Foundations of Comp Science (CS 260), *taught by* Dr. Marcus Brown
Description: The foundational course with an emphasis on the science of computing. Issues such as computability, problem complexity and algorithm analysis, efficient searching and sorting techniques, data structures, and the object-oriented programming paradigm are introduced and explained.
Responsibilities: Assisted by supporting students needing additional attention, this included addi- tional instruction through email, office hours, tutoring sessions, and forum discussions.

INVITED LECTURES

Performing Large-Scale Information Retrieval in a Cloud-based Environment
Given to the cloud computing class at The University of Alabama. The lecture discussed the importance of distributed environments on the indexing and processing of queries for large-scale text-based retrievalsystems.

An Overview of the Digital Forensics Process for Law Enforcement
Given to a special topics class at Armstrong Atlantic State University. The lecture was an overview of the tools and techniques used by digital forensics analysts at the time, as well as the laws that govern the process, and special considerations that first responders must be aware of.

A Survey of Server-side Scripting Languages
A lecture to the UNIX and Secure Web Development class at Armstrong Atlantic State University. The lecture was a brief overview of the different scripting languages available at the time, as well as the benefits and consequences of the different languages. Languages discussed included ColdFusion, PHP, JSP, ASP, and Ruby on Rails.

DEPARTMENT, COLLEGE, UNIVERSITY SERVICE

Software Engineering Program Coordinator, University of West Florida 2015-current–The main point of contact for the software engineering graduate program in the Department of Computer Science at the University of West Florida. In charge of updating and managing the undergraduate and graduate software engineering programs and curriculum.

Organizer, Codefest at University of West Florida 2015 – current
Responsibilities: Run and organize a three day hackathon at the University of West Florida. This included organization of the event, community outreach, fundraising, identifying and purchasing of prizes, t-shirts, and SWAG, ordering food, identifying professional mentors and judges, holding weekly planning meetings with community representatives, advertising to neighboring universities, lining up technical support, and running the event over the weekend. Over the weekend, I was responsible for helping with volunteer involvement, managing mentors and judges, designing the judging criteria and managing the scoring, aiding students in troubleshooting problems in their projects, as well as leading various special events and information sessions on special topics.

Advisor to UWF Association of Computing Machinery (ACM) Student Group
2016 – current
Responsibilities: Advise and help manage the ACM student group at the University of West Florida. In this capacity, I serve as a facilitator to arrange for presentations, workshops, and activities that meet with the desires of the officers and members. In this capactiy I have facilitated the schedul- ing of guest speakers, designed workshops on web application development and mobile application development, helped with monthly game nights, and helped with recruitment of new students.

Member, Student Engagement Faculty Advisory Board (SEFAB) 2016 – current
Responsibilities: SEFAB is in charge of overseeing student engagement for the students of the Hal Marcus College of Science and Engineering at the University of West Florida. In this capacity, I helped the board hold college wide engagment events including presentations to the STEM living learning community and STEM Scholars group, faculty panels on undergraduate education in STEM, and other activities.

CS Scholars Coordinator, University of West Florida 2015 – current
Responsibilities: One of three faculty members in the Department of Computer Science at the University of West Florida in charge of coordinating and organizing the department's CS Scholars events. These are a series of events focused on improving student relations within the department and the field. Events introduce new concepts from the field and are designed to bring students from the same major together into a supportive community.

Programming Coach, University of West Florida 2015 – current
Responsibilities: Coach of the University of West Florida programming team during the ACM International Collegiate Programming Competition. Teams placed first, second, and fourth on site for the 2015 regional ACM ICPC.

Faculty Search Committee, Department of Computer Science at University of West Florida 2016, 2017

Reviewer, Office of Undergraduate Research at University of West Florida 2016, 2015

Faculty Marshal, Fall Commencement at University of West Florida Fall 2015, Fall 2016

Programming Coach, University of Alabama 2010 – 2011
Responsibilities: Coach of The University of Alabama programming team during the ACM Interna- tional Collegiate Programming Competition as well as local competitions in the states of Alabama and Mississippi. Continued as an advisor for the programming team through the 2014 academic year.

Mentor for the Research Experience for Undergraduates, University of Alabama 2010
Responsibilities: Mentored two undergraduate computer science students in conducting a summer long research program. The focus of the project was on the configuration and performance of a topic-modeling based approach for feature location in source code. The end of the summer project culminated in the production of a journal paper to one of the top academic journals in Software Engineering.

PROFESSIONAL SERVICE

Track Chair, Software Engineering, ACM Southeast 2017

Program Committee, International Conference on Software Engineering and Data Engineering 2015

Student Volunteer, SPLASH'14 October 2014

Reviewer, Entropy

Reviewer, Software: Practice and Experience

Reviewer, Empirical Software Engineering Journal

Reviewer, International Conference on Software Maintenance ERA 2013, 2012

Reviewer, International Conference on Program Comprehension 2011

K-12 OUTREACH

Code and Tech Stars (CaTS) January 2017–Current

Description: CaTS is a weekend coding workshop targeted at 4th-6th grade girls in the Pensacola area. Topics include introductory programming using Scratch that focuses on games, art, and storytelling. Other topics include robotics and web development.
Responsibilities: Developing curriculum, facilitating presentations, and overseeing volunteers.

CS Principles for High School June–July 2015
Website: https://csp-cs4hs.appspot.com/
Description: CSP4HS provides six-weeks of free online instruction to educators who are interested in learning more about CS Principles, which is a new Advanced Placement course being developed by the College Board.
Responsibilities: Performed duties as a graduate student instructor. Duties included helping with technical issues, monitoring the discussion of teachers on the forums, and answering questions related to the course and computer science.

Technology Students Association Vex Robotics April 2015
Website: http://www.tsaweb.org/
Description: The TSA-VEX Robotics Competition provides students with a hands-on, co-curricular competition for learning about science, technology, engineering and mathematics (STEM) and complements the existing technology-related competitions offered by TSA.
Responsibilities: Performed duties as a head judge. Duties included supervising the construction of events, enforcing the rules as outlined to the competitors, and when necessary clarifying and ruling on decisions that pertained to maintaining a fair environment

Engineering, Science, and Technology (BEST) Program November 2014 Website: http://outreach.cs.ua.edu/robotics-contest/
Description: A robotics competition for middle and high school students where students participate in a sports-like environment. The goals is to inspire students to pursue careers in engineering, science, and technology by creating a fun and exciting event.
Responsibilities: Ran the scoring table which consisted of recording all scores, generating schedules, and managing the field display of scores and schedules.

University of Alabama Robotics Contest April 2014, April 2013, April 2015 Website: http://outreach.cs.ua.edu/robotics-contest/
Description: A robotics competition for students ranging from elementary to high school. Competi- tors write programs that guide robots through a series of trials and obstacles. The nature of the event is not presented until the competition and can be either point or time based. Schools from all over the state of Alabama send teams to compete.
Responsibilities: Performed duties as a head judge. Duties included supervising the construction of events, enforcing the rules as outlined to the competitors, and when necessary clarifying and ruling on decisions that pertained to maintaining a fair environment.

CS4Alabama Teacher Professional Development April 2014, April 2013 Website: http://cs4alabama.org

Description: A two-day introduction to basic mobile application development for high school teachers in the state of Alabama. The two-day course teaches high school teachers how to use App Inventor 2 developed by MIT to create applications for Android devices. In addition to the basics of mobile development, there are brief explanations of programming constructs.
Responsibilities: Acted as an assistant instructor worked individually with students that were having difficulty maintaining the pace of the class. This included providing additional information to help clarify and direct students into completing their objectives.

University of Alabama High School Computer Science Summer Camps June 2014 Website: http://outreach.cs.ua.edu/camps/
Description: Two weeks of summer camps that invite high school students from across the country and internationally. Each week focuses on a new goal with the first week to introduce students to program with the Java programming language using Greenfoot and game programming. The second week teaches students to develop mobile applications using App Inventor2 developed by MIT. In addition, there are two days of robotics in the second week.
Responsibilities: Acted as an assistant instructor and mentor to students. This included assisting students with their week-long projects, helping to clarify instructions, helping students maintain the learning pace of the camp, judging programming competitions, and chaperoning students during other activities.

University of Alabama Middle School Computer Science Summer Camp August 2014 Website: http://outreach.cs.ua.edu/camps/
Description: A week designed to teach middle schoolers how to program through the use of Scratch. Students learn how to create basic animations, games, and interactive programs. The week concludes with a demonstration of individual student projects completed throughout the week.
Responsibilities: Acted as an assistant instructor and mentor to students. This included assisting students with their week-long projects, helping to clarify instructions, helping students maintain the learning pace of the camp, judging programming competitions, and chaperoning students during other activities.

Tutor Fall 2004 – August 2010
Responsibilities: Tutored local high school and college students in the Savannah area in areas of mathematics, computer science, chemistry, biology, and physics. Students included those with special needs and learning disabilities

HONORS PROJECT ADVISOR

- Jonathan Rogers
- Lauren Cabrera

GRADUATE PROJECT ADVISOR

- Khyati Patel

DISCIPLINARY RESEARCH ADVISOR

- Nathan Cooper
- Bhavyansh Mishra

- Valeria Gamboa
- Keenal Shah
- Adrian DeLeon
- Nikolai Shields
- Hunter Werenskjold
- Don Kerrigan
- Jonathan Jurczak

HONORS & AWARDS

Upsilon Pi Epsilon 2015-Present
Member of UPE. UPE is the first and only, existing international honor society in the Computing and Information disciplines.

Department of Computer Science Representative, UA 3-Minute Thesis 2013
Nominated by the faculty to represent the Department of Computer Science in the University's 3MT competition (2 selected out of 60)

Best Poster Award, ACM Southeast 2011

GAANN Fellowship, University of Alabama August 2010 – May 2013 This is a prestigious fellowship funded by the Department of Education and awarded to individuals with an outstanding academic record intending to achieve the terminal degree in their field and pursue a career in teaching and research.

PROFESSIONAL EXPERIENCE

Sabre Technologies October 2009 – July 2010
Savannah, GA (Software Developer)
Developed web based software solutions for Savannah based businesses and industries. Managed and administered commercial websites in coldfusion, javascript, html, and flash. Managed client databases in MySQL and SQL along with web based interfaces for processing and *Inc.*
February 2008 – August 2008
Savannah, GA (Intern Software Engineer)
Developed ASP.NET based versions of the company's existing applications and software for remote users
Developed an embedded web server for use in the company's software architecture. Developed a code generator for generating source code from the company's specification doc- uments

Federal Law Enforcement Training Center May 2007 – August 2007 Glynco, GA (Intern)
Reviewed the computer forensics programs offered to federal and state law enforcement officers. Became a certified forensics analyst and digital acquisition expert for both network and stan- dalone setting.

Eman M. El-Sheikh – Curriculum Vitae

Center for Cybersecurity and
Department of Computer Science
University of West Florida
11000 University Parkway
Pensacola, FL 32514
Tel: 850-474-3074
Fax: 850-474-3156
E-mail: eelsheikh@uwf.edu

Education

Ph.D., Computer Science 2002	Michigan State University Area: Artificial Intelligence Advisor: Jon Sticklen Title: An Architecture for the Generation of Intelligent Tutoring Systems from Reusable Components and Knowledge-Based Systems.	East Lansing, MI
M.Sc., Computer Science 1995	Michigan State University	East Lansing, MI
B.Sc., Computer Science 1992	American University in Cairo Summa Cum Laude (Highest Honors)	Cairo, Egypt

Employment

Director 2/2016 – present	Center for Cybersecurity University of West Florida	Pensacola, FL
Professor 8/2014 – present	Department of Computer Science University of West Florida	Pensacola, FL
Interim Director 7/2015 – 2/2016	Center for Cybersecurity University of West Florida	Pensacola, FL
Associate Dean 8/2015 – 8/2016 8/2014 – 7/2015 1/2010 – 7/2014	University of West Florida College of Science and Engineering College of Science, Engineering and Health College of Arts and Sciences	Pensacola, FL
Associate Professor 8/2009 – 7/2014	Department of Computer Science University of West Florida	Pensacola, FL
Interim Associate Dean 8/2009 – 12/2009	College of Arts and Sciences University of West Florida	Pensacola, FL

Assistant Professor 8/2001 – 7/2009	Department of Computer Science University of West Florida	Pensacola, FL
Teaching Assistant 9/2000 – 5/2001	Computer Science & Engineering Department Michigan State University	East Lansing, MI
Instructor 6/1999 – 7/1999	Computer Science & Engineering Department Michigan State University	East Lansing, MI
Research Assistant 5/1995 – 9/2000	Intelligent Systems Lab Computer Science & Engineering Department Michigan State University	East Lansing, MI
Teaching Assistant 9/1993 – 5/1995	Computer Science & Engineering Department Michigan State University	East Lansing, MI
Software Engineer 1/1993 – 6/1993	Automatic Systems Corporation	Abu Dhabi, UAE
Programmer 4/1992 – 1/1993	IBM	Cairo, Egypt

Awards and Appointments

Member, Innovation Coast Board of Directors
November 2016 – present Innovation Coast, Pensacola, Florida.

Principal Investigator and Project Director
August 2012 – present NSF Faculty ADVANCE Program, University of West Florida.

Visiting Research Scientist
Spring 2011– present Florida Institute for Human and Machine Cognition, Pensacola, Florida.

Achievement Award
Awarded for service to advancing cybersecurity education at SAM 2016: 15th International Conference on Security and Management, Las Vegas, NV, July 25 – 28, 2016.

Mentor
2015 Association of American Colleges and Universities (AAC&U) Project Kaleidoscope (PKAL) PKAL Summer Leadership Institute, Claggett, MD, July 20 – 26, 2015.

Friend of Diversity Award, Awarded to ADVANCE Program by the Office of Equity,
April 2015 Diversity and International Affairs, University of West Florida.

President's Award for Leadership in Diversity
April 2014 University of West Florida.

Administrative Fellow
Fall 2008 – Summer 2009 College Arts and Sciences Dean's Office, University of West Florida.

I worked with the Dean on college goals and developed and managed Teaching Partners, a program to promote the development and exchange of best teaching practices, and facilitate peer reviews of teaching. My responsibilities also included overseeing the college's **Scholars of Engineering, Applied Sciences & Technology Annual Research Symposium**, Faculty Activity Reports, and various assessment initiatives.

Instructional Strategies and Assessment Fellow
Spring 2007 – Summer 2009 The Center for University Teaching, Learning, and Assessment, University of West Florida.

I planned and facilitated events for the development of faculty skills in teaching, learning, and assessment, including five mini-conferences, several workshops and roundtable discussions. I worked with faculty to develop useful and sustainable instructional and assessment practices.

Paper and Poster Awards

Computer Science Award, 2016 Student Scholars Symposium: Timm, M. and El-Sheikh, E. Animal ID: An Algorithmic Approach to Identifying Individual Animals in Images. University of West Florida, Pensacola, FL, April 21, 2016.

Computer Science Award, 2015 Student Scholars Symposium: Mitchell, C., AI Research Group, and El-Sheikh, E. The Hemingway Effect: A Comparison of Artificial Intelligence and Machine Learning Methods. University of West Florida, Pensacola, FL, April 23, 2015.

Computer Science Award, 2014 Student Scholars Symposium: Rowberry, B., AI Research Group, and El-Sheikh, E. Race to the Finish: A Comparison of AI Search, Navigation, and Pathfinding Algorithms. University of West Florida, Pensacola, FL, April 24, 2014.

TechSoft Computer Science Award, 2013 Student Scholars Symposium: Stephen, D., Haynes, A., and El-Sheikh, E. Wernicke: Natural Language Processing for Home Automation. University of West Florida, Pensacola, FL, April 25, 2013.

Artificial Intelligence Award, 2011 Student Scholars Symposium: Connor, J. and El-Sheikh, E. Let's Make Music: Generating Music Using Artificial Intelligence. University of West Florida, Pensacola, FL, April 21, 2011.

Computer Science Award, 2011 Student Scholars Symposium: Ramirez, Z. and El-Sheikh, E. An AI Framework for Maze Navigation in Robotic Environments. University of West Florida, Pensacola, FL, April 21, 2011.

Gaming/Simulation Award, 2011 Student Scholars Symposium: Broxton, T. and El-Sheikh, E. Implementing Swarm Intelligence for Solving Complex Problems. University of West Florida, Pensacola, FL, April 21, 2011.

Gaming/Simulation Award, 2011 Student Scholars Symposium: McConaghy, P., Graves, J., Brown, P., Brewster, T., and El-Sheikh, E. Argos Glest: Ambitious AI Automating Annihilation (Intelligent Game Play Using AI). University of West Florida, Pensacola, FL, April 21, 2011.

Provost's Award, SEASTARS 2010: McCarthy, J. and El-Sheikh, E. A Cooperative Intelligent Agent Architecture for Enterprise Search. The 7th Annual **Scholars of Engineering, Applied Sciences &**

Technology Annual Research Symposium, University of West Florida, Pensacola, FL, April 15, 2010.

Best Graduate Award, 2010 SEASTARS: Corliss, J. and El-Sheikh, E. Intelligent Network Traffic Flow Analysis: the "Brains" of the System. The 7th Annual **Scholars of Engineering, Applied Sciences & Technology Annual Research Symposium**, University of West Florida, Pensacola, FL, April 15, 2010.

Best Simulation Award, 2010 SEASTARS: Calvo, C. L. and El-Sheikh, E. Analysis of the A* Search Algorithm: Using AI to Improve Search Effectiveness. The 7th Annual **Scholars of Engineering, Applied Sciences & Technology Annual Research Symposium**, University of West Florida, Pensacola, FL, April 15, 2010.

Best Computer Science Award, 2010 SEASTARS: Cantero, F. M. and El-Sheikh, E. Can your Robot Move? Navigation and Obstacle Avoidance. The 7th Annual **Scholars of Engineering, Applied Sciences & Technology Annual Research Symposium**, University of West Florida, Pensacola, FL, April 15, 2010.

Best Computer Science Award, 2009 SEASTARS: Carff, J., El-Sheikh, E. M., Johnson, M., and Pratt, J. E. A Human-Robot Team Navigation System for Complex Environments. The 6th **Scholars of Engineering, Applied Sciences & Technology Annual Research Symposium**, University of West Florida, Pensacola, FL, April 16, 2009.

Best Computer Science Award, 2008 SEASTARS: Swain, B., El-Sheikh, E., and Khabou, M. Recognize This! A Neural Network-Based Recognizer of Handwritten Digits. The 5th **Scholars of Engineering, Applied Sciences & Technology Annual Research Symposium**, University of West Florida, Pensacola, FL, April 14, 2008.

Upsilon Pi Epsilon Induction
2008 International Honor Society for the Computing Disciplines

Best Paper Award
2008 Paper was selected among top 10% of papers at EISTA 2008: **6th International Conference on Education and Information Systems, Technologies and Applications**, Orlando, FL, June 29 – July 2, 2008.

El-Sheikh, E. (2008). Engaging Students in an Online Programming Course: Lessons Learned.

Best Paper Award
2007 Paper was selected as best paper in session at EISTA 2007: **The 5th International Conference on Education and Information Systems, Technologies and Applications**, Orlando, FL, July 12 – 15, 2007.

El-Sheikh, E., White, L., and Coffey, J. (2007). Reflections in Uncharted Waters: Teaching Foundational Programming Online.

New Faculty Fellow
2003 The IEEE 2003 Frontiers in Education (FIE) Conference, Boulder, CO, November 5-8, 2003.

I was selected as a 2003 IEEE Faculty Fellow. Fellows are selected using a

rigorous peer-reviewed application process to promote and acknowledge their involvement in the development of innovative practices for Computer Science and Engineering education.

Distinguished Teacher 2003
Nominated for the Distinguished Teacher Award at the University of West Florida, Spring 2003.

Thoman Fellow 1999
I was selected as a Thoman Fellow at Michigan State University for 1999 – 2000. The Thoman Fellow is awarded to outstanding and motivated international scholars completing their doctoral studies, who show achievement and promise in scholarship and leadership. I participated in seminars, outreach programs, community service, global awareness events, and volunteer work.

Best Paper Award 1999
Paper was selected as a best paper at 12th International Conference on Industrial and Engineering Applications of Artificial Intelligence and Expert Systems, Cairo, Egypt.

El-Sheikh, E., and Sticklen, J. (1999). Leveraging a Task-specific Approach for Intelligent Tutoring System Generation: Comparing the Generic Tasks and KADS Frameworks.

Research and Scholarly Activities

Books

Daimi, K., Francia, G., Ertual, L., Encinas, L., and El-Sheikh, E. (2017). Computer and Network Security Essentials, Springer International Publishing, ISBN 978-3-319-58423-2, 2017.

El-Sheikh, E., Zimmermann, A., and Jain, L. (2016). Emerging Trends in the Evolution of Service-Oriented and Enterprise Architectures, Springer International Publishing ISBN 978-3-319-40562-9, DOI 10.1007/978-3-319-40564-3.

Refereed Journal Publications and Book Chapters

Warren, C., Reed, A., El-Sheikh, E., and Le-Khac, N.A. (2017). Privacy Preserving Internet Browsers – Forensic Analysis. Computer and Network Security Essentials (Daimi, K., Francia, G., Ertual, L., Encinas, L., and El-Sheikh, E., Eds.). Springer International Publishing, ISBN 978-3-319-58423-2, 2017.

Wilde, N., Gonen, B., El-Sheikh, E., and Zimmermann, A. (2016). Approaches to the Evolution of SOA Systems. Trends in the Evolution of Service-Oriented and Enterprise Architectures (E. El-Sheikh, A. Zimmermann and L. Jain, Eds.). Springer International Publishing ISBN 978-3-319-40562-9, DOI 10.1007/978-3-319-40564-3.

Zimmermann, A., Schmidt, R., Sandkuhl, K., El-Sheikh, E., Jugel, D., Schweda, C., Möhring, M., Wißotzki, M., Lantow, B. (2016). Leveraging Analytics for Digital Transformation of Enterprise Services

and Architectures. Trends in the Evolution of Service-Oriented and Enterprise Architectures (E. El-Sheikh, A. Zimmermann and L. Jain, Eds.). Springer International Publishing ISBN 978-3-319-40562-9, DOI 10.1007/978-3-319-40564-3.

Gonen, B., Fang, X., El-Sheikh, E., Bagui, S., Wilde, N., and Zimmermann, A. (2014). Ontological Support for the Evolution of Future Services Oriented Architectures. Transactions on Machine Learning and Artificial Intelligence, vol. 2, no. 6, pp. 77 – 90, 2014.

Maestre, A., El-Sheikh, E., Williamson, D., and Ward, A. (2014). A Machine Learning Tool for Weighted Regressions in Time, Discharge, and Season. International Journal of Advanced Computer Science and Applications, vol. 5, no. 3, pp. 99 – 106, 2014.

El-Sheikh, E., Reichherzer, T., White, L., Wilde, N., Coffey, J., Bagui, S., Goehring, G., and Baskin, A. (2013). Towards Enhanced Program Comprehension for Service Oriented Architecture (SOA) Systems, Journal of Software Engineering and Applications, vol. 6, pp. 435 – 445, 2013.

Wilde, N., Bagui, S., Coffey, J., El-Sheikh, E., Reichherzer, T., White, L., Goehring, G., Terry, C., Baskin, A. (2013). "Interoperable Systems and Software Evolution: Issues and Approaches," *Digital Enterprise Design and Management 2013, Advances in Intelligent Systems and Computing*, volume 205, 2013, chapter 10, pp. 45-56, Springer Berlin Heidelberg, doi={10.1007/978-3-642-37317-6_5}.

Goehring, G., Reichherzer, T., El-Sheikh, E., Snider, D., Wilde, N., Bagui, S., Coffey, J., and White, L. (2013). A Knowledge-Based System Approach for Extracting Abstractions from Service Oriented Architecture Artifacts. International Journal of Advanced Research in Artificial Intelligence, vol. 2, no.3, pp. 44 – 52, 2013.

El-Sheikh, E. and Prayaga, L. (2011). Development and Use of AI and Game Applications in Undergraduate Computer Science Courses. Journal of Computing Sciences in Colleges, vol. 27, no. 2, pp. 114-122, December 2011.

Fernandez, J.R. and El-Sheikh, E.M. (2011). CluSandra: A Framework and Algorithm for Data Stream Cluster Analysis. International Journal of Advanced Computer Science and Applications, vol. 2, no. 11, pp. 87-99, 2011.

Perez, C.A., El-Sheikh, E.M. and Glymour, C. (2010). Discovering Effective Connectivity among Brain Regions from Functional MRI Data. International Journal of Computers in Healthcare, vol. 1, no. 1, pp. 86 - 102. Inderscience Publishers.

Stanny, C., El-Sheikh, E., Ellenberg, G., & Halonen, J. S. (2010). First Things First: Attending to Assessment Issues. Dunn, D. S., McCarthy, M. A., Baker, S., & Halonen, J. S. Using Quality Benchmarks for Assessing and Developing Undergraduate Programs. San Francisco, CA: Jossey-Bass, pp. 46 – 70.

El-Sheikh, E. M., Mbizo, J., Stanny, C. J., Stewart, G. L., Sutton, M. A., White, L. J., and Williams, M. H1. (2010). Engaging Faculty in the Assessment Process at the University of West Florida. P. L. Maki, Ed., Coming to Terms with Student Outcomes Assessment. Sterling, VA: Stylus Publishing, pp. 178 - 190.

Halonen, J. S. and El-Sheikh, E. M. (2010). How Chairs Help Departments Become Great. Academic Leader, June 2010 issue. Madison, WI: Magna Publications

1 Authors are listed in alphabetical order. All authors contributed equally to manuscript.

El-Sheikh, E. and Sticklen, J. (2009). Reusing Task-Specific Knowledge-Based Systems to Generate Intelligent Tutoring Systems. International Journal of Advanced Intelligence Paradigms, vol. 1, no. 3, pp. 251 – 274. Inderscience Publishers.

Prayaga, L., Prayaga, C., Simmons, S., and El-Sheikh, E. (2009). Visual Interactive Artificial Neural Network (VIANN) Tutor. Bulletin of Applied Computing and Information Technology (BACIT), vol. 7, no. 1.

El-Sheikh, E. (2009). Techniques for Engaging Students in an Online Programming Course. Journal of Systemics, Cybernetics, and Informatics, vol. 7, no. 1, pp. 1 - 12. IIIC Press.

El-Sheikh, E., Coffey, J., and White, L. (2008). Exploring Technologies, Materials, and Methods for an Online Foundational Programming Course. International Journal of Informatics in Education, vol. 7, no. 2, pp. 259-276.

El-Sheikh, E. (2005). An Adaptive Learning Environment for Improving Learning Experiences in Introductory Computer Programming Courses. The International Journal of Learning, vol. 12, no. 9, pp. 83-90.

El-Sheikh, E. and Sticklen, J. (2002). Generating Intelligent Tutoring Systems from Reusable Components and Knowledge-Based Systems. Lecture Notes in Computer Science, S. Cerri, G. Gouarderes, and F. Paraguacu (Eds.), Springer-Verlag, vol. 2363, pp. 199-207.

El-Sheikh, E. (2000). Generation of Intelligent Tutoring Systems from Existing Expert Systems, In: The 1999 SIGART/AAAI Doctoral Consortium, J. Wiebe (Ed.), Intelligence, vol. 11, no. 2, pp. 43-48.

El-Sheikh, E., and Sticklen, J. (1998). A Framework for Developing Intelligent Tutoring Systems Incorporating Reusability. Lecture Notes in Artificial Intelligence, J. Mira, A. del Pobil, and M. Ali, (Eds.), Springer-Verlag, vol. 1415, pp. 558-567.

Refereed Conference Proceedings Publications

Timm, M. and El-Sheikh, E. (2017). An Evaluation of Machine Learning Algorithms for Prediction of Shelter Animal Outcomes. Proceedings of the 32nd International Conference on Computers And Their Applications (CATA 2017). March 20 – 22, 2017, Honolulu, HI.

Useche, O. and El-Sheikh, E. (2016). An Intelligent Web-Based System for Measuring Students' Attention Levels. Proceedings of ICAI 2016: The 18th International Conference on Artificial Intelligence, July 25 – 28, 2016, Las Vegas, NV, CSREA Press.

Baggs, J.P., Renner, M. and El-Sheikh, E. (2016). A Faster Alternative to Traditional A* Search: Dynamically Weighted BDBOP. Proceedings of ICAI 2016: The 18th International Conference on Artificial Intelligence, July 25 – 28, 2016, Las Vegas, NV, CSREA Press.

Useche, O. and El-Sheikh, E. (2015). An Intelligent System Framework for Measuring Attention Levels of Students in Online Course Environments. Proceedings of ICAI 2015: The 17th International Conference on Artificial Intelligence, July 27 – 30, 2015, Las Vegas, NV, CSREA Press.

Gonen, B., Fang, X., El-Sheikh, E., Bagui, S., Wilde, N., Zimmermann, A., and Petrov, I. (2014). Maintaining SOA Systems of the Future: How Can Ontological Modeling Help? Proceedings of KEOD

2014: The International Conference on Knowledge Engineering and Ontology Development, October 21 – 24, 2014, Rome, Italy.

Zimmermann, A., Gonen, B., Schmidt, R., El-Sheikh, E., Bagui, S., and Wilde. N. (2014). Adaptable Enterprise Architectures for Software Evolution of SmartLife Ecosystem. Proceedings of IEEE EDOC – SoEA4EE 2014: The Sixth Workshop on Service oriented Enterprise Architecture for Enterprise Engineering, Sep. 1-5, 2014, Ulm, Germany.

Maestre, A. and El-Sheikh, E. (2014). A Comparison of Machine Learning Techniques for the Generation of River and Stream Water Quality Estimates. Proceedings of ICAI 2014: The 2014 International Conference on Artificial Intelligence, July 21 – 24, 2014, Las Vegas, NV, CSREA Press.

Zimmermann, A., Pretz, M., Zimmermann, G., Firesmith, D., Petrov, I., and El-Sheikh, E. (2013). Towards Service-oriented Enterprise Architectures for Big Data Applications in the Cloud. The Fifth International Workshop on Service Oriented Enterprise Architecture for Enterprise Engineering, September 9, Vancouver, BC.

El-Sheikh, E., Bagui, S., Firesmith, D., Petrov, I., Wilde, N., Zimmermann, A. (2013). Towards Semantic-Supported SmartLife System Architectures for Big Data Services in the Cloud. Proceedings of The Fifth International Conference on Advanced Service Computing, May 27 – June 1, Valencia, Spain, IARIA XPS Press.

McGraw, B. and El-Sheikh, E. (2013). Integrating Reinforcement Learning with Communication for Multi-Agent Systems. Proceedings of the 28th International Conference on Computers And Their Applications (CATA 2013). March 4 – 6, 2013, Honolulu, HI, pp. 123 – 128.

Satterfield, S., Reichherzer, T., Coffey, J., and El-Sheikh, E. (2012). Application of Structural Case-based Reasoning to Activity Recognition in Smart Home Environments. Proceedings of The 11th *International Conference on Machine Learning and Applications.* December 12-15, 2012, Boca Raton, FL.

Jackson, R. and El-Sheikh, E. (2012). A Case Study Building a Web-Based Dietitian Expert System. Proceedings of ICAI'12: The 2012 International Conference on Artificial Intelligence, July 16 – 19, 2012, Las Vegas, NV, vol. 1, pp. 445 – 451, CSREA Press.

White, L., Wilde, N., Reichherzer, T., El-Sheikh, E., Goehring, G., Baskin, A., Hartmann, B., and Manea, M. (2012). Understanding Interoperable Systems: Challenges for the Maintenance of SOA Applications. Proceedings of 45th Hawaii International Conference on System Sciences (HICSS), pp. 2199-2206, January 2012.

Reichherzer, T., El-Sheikh, E., Wilde, N., White, L., Coffey, J., Simmons, S. (2011). Towards Intelligent Search Support for Web Services Evolution: Identifying the Right Abstractions. Proceedings of 2011 13th IEEE International Symposium on Web Systems Evolution (WSE), pp.53-58, Sep. 30, 2011.

McCarthy, J. M. and El-Sheikh, E. M. (2011). Image Generation and Analysis for the Android Platform: Exploring Computer Vision in Mobile Development Environments. Proceedings of IPCVI'11: The 2011 International Conference on Image Processing, Computer Vision, and Pattern Recognition**,** Las Vegas, NV, July 18 – 21, 2011, CSREA Press.

El-Sheikh, E. M., Perez, C. A., and Glymour, C. (2010). Using Causal Modeling for Determining Connectivity among Brain Regions. Proceedings of ICAI'10: The 2010 International Conference on Artificial Intelligence**,** Las Vegas, NV, July 12 – 15, 2010, CSREA Press, pp. 653 - 659.

McCarthy, J. M. and El-Sheikh, E. M. (2010). A Cooperative-Agent Architecture for Managing Large Document Collections in Corporate Intranets. Proceedings of ICAI'10: The 2010 International Conference on Artificial Intelligence**,** Las Vegas, NV, July 12 – 15, 2010, CSREA Press, pp. 438 - 443.

Corliss, J. and El-Sheikh, E. M. (2010). An Intelligent System for Network Traffic Flow Analysis. Proceedings of ICAI'10: The 2010 International Conference on Artificial Intelligence**,** Las Vegas, NV, July 12 – 15, 2010, CSREA Press, pp. 716 - 722.

Carff, J., Johnson, M., El-Sheikh, E. M., and Pratt, J. E. (2009). Human-Robot Team Navigation in Visually Complex Environments. Proceedings of IROS 2009: The 2009 IEEE/RSJ International Conference on Intelligent RObots and Systems, St. Louis, MO, Oct. 11 – 15, 2009.

El-Sheikh, E. and Swain, B. (2009). A Geospatial Natural Language-Based Path Understanding System. Proceedings of ICAI'09: The 2009 International Conference on Artificial Intelligence**,** Las Vegas, NV, July 13 – 16, 2009, CSREA Press, pp. 161 - 167.

Wells, D. L., El-Sheikh, E. M., Sutton, M. A., Di Santo, V., and Bennett, W. A. (2009). Automated Image Processing of X-Radiographics of Digestion in Stingrays. Proceedings of ICAI'09: The 2009 International Conference on Artificial Intelligence**,** Las Vegas, NV, July 13 – 16, 2009, CSREA Press, pp. 715 - 719.

White, L., Coffey, J., and El-Sheikh, E. (2009). A Longitudinal Study of the Effectiveness of Teaching Introductory Programming Courses Online. Proceedings of ED-MEDIA 2009: World Conference on Educational Multimedia, Hypermedia & Telecommunications. Honolulu, Hawaii, June 22-26, 2009, AACE Press.

Perez, C. and El-Sheikh, E. (2009). Learning and Representing Causal Relationships with Bayesian Networks. Proceedings of CATA-2009: The 24th International Conference on Computers and Their Applications, New Orleans, LA, April 8-10, 2009, ISCA Press, pp. 252 - 257.

El-Sheikh, E., Swain, B., and Khabou, M. (2008). A Comparison of Neural Network Architectures for Handwritten Digit Recognition. Proceedings of ICAI'08: The 2008 International Conference on Artificial Intelligence**,** Las Vegas, NV, July 14 – 17, 2008, CSREA Press, pp. 28-32.

El-Sheikh, E., Coffey, J., and White, L. (2008). Exploring the Use of Virtual Synchronous Sessions in an Online Foundational Programming Course. Proceedings of FECS'08: The 2008 International Conference on Frontiers in Education: Computer Science and Computer Engineering, Las Vegas, NV, July 14 – 17, 2008, CSREA Press, pp. 395-401.

El-Sheikh, E., and Becker, J. (2008). G-Bots: Intelligent Agents in a Complex Simulated Environment. Proceedings of WMSCI 2008: The 12th World Multi-Conference on Systemics, Cybernetics and Informatics, Orlando, FL, June 29 – July 2, 2008, IIIS Press, pp. 109-113.

El-Sheikh, E. (2008). Engaging Students in an Online Programming Course: Lessons Learned. Proceedings of EISTA 2008: The 6th International Conference on Education and Information Systems, Technologies, and Applications**,** Orlando, FL, June 29 – July 2, 2008, IIIS Press, pp. 37-41.

El-Sheikh, E., White, L., and Coffey, J. (2007). Reflections in Uncharted Waters: Teaching Foundational Programming Online. Proceedings of EISTA 2007: The 5th International Conference on Education and Information Systems, Technologies and Applications**,** Orlando, FL, July 12 – 15, 2007, IIIS Press, pp. 310-314.

El-Sheikh, E. and Stanny, C. (2007). Creating Institutional Structures to Promote, Reward, and Sustain Faculty Work on Assessment and Scholarship of Teaching and Learning. Proceedings of the 2007 Association of American Colleges and Universities (AAC&U) Conference, Savannah, GA, Nov. 1 – 3, 2007.

Coffey, J., El-Sheikh, E., and Redding, C. (2007). Barriers to Open-Source Software Migration: A Case Study from Higher Education. Proceedings of WMSCI 2007: The 11th World Multi-Conference on Systemics, Cybernetics and Informatics**,** Orlando, FL, July 8 – 11, 2007, IIIS Press, pp. 155-158.

Stanny, C. and El-Sheikh, E. (2007). Integrating Assessment and Faculty Development in a Teaching Center: Issues and Conflicts. Proceedings of the 2007 International Assessment and Retention Conference (IARC), St. Louis, MO, June 7 – 10, 2007.

Horsley, J., Wooten, M., and El-Sheikh, E. (2006). Shoechicken: An Intelligent System for Recommending RSS/Atom Content. Proceedings of the 21st International Conference on Computers And Their Applications (CATA), Seattle, WA, March 23 – 25, 2006, ISCA Press, pp. 206-210.

El-Sheikh, E. and Greene, M. (2005). A Program Visualization Tool for Learning Introductory Java Programming. Proceedings of FECS'05: The 2005 International Conference on Frontiers in Education: Computer Science and Computer Engineering, Las Vegas, NV, June 20 – 23, 2005, CSREA Press, pp. 48-54.

El-Sheikh, E., Taylor, L., Digman, M., and Carff, C. (2005). Using Interactive Learning Environments in the Introductory Computer Science Curriculum. FECS'05: The 2005 International Conference on Frontiers in Education: Computer Science and Computer Engineering, Las Vegas, NV, June 20 – 23, 2005, CSREA Press, pp.95-101.

Harrell, D., Bataineh, M., El-Sheikh, E., and Spolski, J. (2004). The Development of a Pre-College Engineering Curriculum for High School Students: Design and Implementation. Proceedings of FIE-2004: The 2004 Frontiers in Education Conference. October 20 – 23, Savannah, GA, IEEE Press, pp. F4D:1-5.

El-Sheikh, E. (2003). A Conceptual Problem-Based Learning Environment for Teaching Introductory Programming. Proceedings of FIE-2003: The 2003 Frontiers in Education Conference, November 5 – 8, Boulder, CO, IEEE Press, pp. T4C:28.

El-Sheikh, E. and Sticklen, J. (2003). Using Hierarchical Classification-Based Expert Systems to Support Tutoring. Proceedings of IC-AI'03: The 2003 International Conference on Artificial Intelligence. June 23 – 26, Las Vegas, NV. CSREA Press, pp. 636-642.

El-Sheikh, E. and Sticklen, J. (2002). A Task-Specific Architecture for the Generation of Intelligent Tutoring Systems. Proceedings of FLAIRS-2002: The 15th International Florida Artificial Intelligence Research Society Conference. May 14 – 16, Pensacola Beach, Florida. AAAI Press, pp. 294-298.

El-Sheikh, E. (1999). Development of a Methodology and Software Shell for the Automatic Generation of Intelligent Tutoring Systems from Existing Generic Task-based Expert Systems. AAAI-99: Sixteenth National Conference on Artificial Intelligence, SIGART/AAAI-99 Doctoral Consortium. Orlando, Florida, AAAI Press, pp. 945.

El-Sheikh, E., and Sticklen, J. (1999). Leveraging a Task-specific Approach for Intelligent Tutoring System Generation: Comparing the Generic Tasks and KADS Frameworks. IEA-AIE 1999: 12th International Conference on Industrial and Engineering Applications of Artificial Intelligence and Expert

Systems, Cairo, Egypt, Springer-Verlag Press, pp. 809-819.

El-Sheikh, E. and Sticklen, J. (1998). Using a Functional Approach to Model Learning Environments. ECAI'98: European Conference on Artificial Intelligence Model Based Reasoning for Intelligent Education Environments Workshop, Brighton, UK, ECAI Press, pp. 30-40.

El-Sheikh, E., Bakowska, F., Penney, C., Liu, R., and Sticklen, J. (1997). Utilizing the WWW for Industrial Training. WebNet 97: World Conference of the WWW, Internet, and Intranet, Toronto, Canada, AACE Press, pp. 14.

El-Sheikh, E., Penney, C., Bakowska, F., Liu, R., Kamel, A., and Sticklen, J. (1997). Intelligent Tutoring for Polymer Composite Molding. 1997 Symposium on Low-Cost, High-Speed Polymer Composites Processing, Michigan State University, East Lansing, MI.

El-Sheikh, E., Penney, C., Liu, R., Kamel, A., McCullough, R. L., and Sticklen, J. (1997). Leveraging Computer Technology to Support Training in Liquid Molding Technologies for Polymer Composite Materials. NSF Engineering Education Innovators' Conference, Technology Reinvestment Project in Manufacturing Education and Training, Washington, DC.

El-Sheikh, E., Kamel, A., and Sticklen, J. (1996). An ITS Shell Leveraging the Generic Task Approach to Problem Solving. ITS'96: Third International Conference on Intelligent Tutoring Systems Workshop on Architectures and Methods for Designing Cost-Effective and Reusable ITSs, Montreal, Canada.

El-Sheikh, E., Sticklen, J., Kamel, A., and Schroeder, K. (1996). Neper Wheat: Integrating Expert Systems and Crop Modeling Technology. 6th International Conference on Computers in Agriculture, American Society of Agricultural Engineers, Cancun, Mexico.

Conference Presentations and Posters

Timm, M. and El-Sheikh, E. (2017). An Evaluation of Machine Learning Algorithms for Prediction of Shelter Animal Outcomes. The 32nd International Conference on Computers And Their Applications (CATA 2017). March 20 – 22, 2017, Honolulu, HI.

Useche, O. and El-Sheikh, E. (2016). An Intelligent Web-Based System for Measuring Students' Attention Levels. ICAI 2016: The 18th International Conference on Artificial Intelligence, July 25 – 28, 2016, Las Vegas, NV.

Baggs, J.P., Renner, M. and El-Sheikh, E. (2016). A Faster Alternative to Traditional A* Search: Dynamically Weighted BDBOP. ICAI 2016: The 18th International Conference on Artificial Intelligence, July 25 – 28, 2016, Las Vegas, NV.

Schneider, S. K., Bryan, L. K., Chung, H., El-Sheikh, E., Hays-Thomas, R., Thompson, C., Vaughan, P., & Walch, S. E. (May, 2016). *Development and revision of a reliable and valid faculty culture survey to measure advancement of women in the STEM disciplines.* 28th annual meeting of the Association for Psychological Science, May 2016, Chicago, IL.

Schneider, S. K., Bryan, L. K., Chung, H., El-Sheikh, E., Hays-Thomas, R., Thompson, C., Vaughan, P., & Walch, S. E. (May, 2016). *Development of a survey to measure faculty culture supportive of women scientists in ADVANCE Institutions.* 2016 NSF ADVANCE/GSE Program Workshop Broadening Participation: Research, Interventions, Impact, May 2016, Baltimore, MD.

Baggs, J. P., Renner, M. and El-Sheikh, E. (2016). Enhancing Path Finding in 3D Environments using Navigation Meshes and Hybrid Search Algorithms. 2016 Student Scholars Symposium, University of West Florida, Pensacola, FL, April 21, 2016.

Dhimal, P., Sanford, K. and El-Sheikh, E. (2016). Stock Predictor Using Machine Learning. 2016 Student Scholars Symposium, University of West Florida, Pensacola, FL, April 21, 2016.

Self, C., AI Research Group and El-Sheikh, E. (2016). Argonaut Tour-Bot: A Tour Robot for University of West Florida's Science and Engineering Building. 2016 Student Scholars Symposium, University of West Florida, Pensacola, FL, April 21, 2016.

Timm, M. and El-Sheikh, E. (2016). Animal ID: An Algorithmic Approach to Identifying Individual Animals in Images. 2016 Student Scholars Symposium, University of West Florida, Pensacola, FL, April 21, 2016.

Timm, M., White, T. and El-Sheikh, E. (2016). TourBot: Ultimate Robot Tour Guide of Building 4. 2016 Student Scholars Symposium, University of West Florida, Pensacola, FL, April 21, 2016.

Schneider, S. K., Bryan, L. K., Chung, H., El-Sheikh, E., Hays-Thomas, R., Thompson, C., Vaughan, P. & Walch, S. E. (March, 2016). *Updates on UWF Faculty Climate and Culture from the 2015 ADVANCE Faculty Culture Survey.* Poster presented at the 15th Annual Women's Studies Conference, March 2016, Pensacola, FL.

Useche, O. and El-Sheikh, E. (2015). An Intelligent System Framework for Measuring Attention Levels of Students in Online Course Environments. ICAI'15: The 17th International Conference on Artificial Intelligence, July 27 – 30, 2015, Las Vegas, NV.

Vaughan, P., Thompson, C., Howard, M., El-Sheikh, E., Schneider, S., Walch, E., Chung, H., Bauer, K., and Kantaras, I. (2015). Exploring Mentoring Considerations of Female STEM Faculty in Higher Education. 2015 National Science Foundation ADVANCE/GSE Program Workshop: *Broadening Participation through Innovations for Institutional and Educational Transformation*, Baltimore, MD, May 31 – June 2, 2015.

Vaughan, P., Thompson, C., Howard, M., El-Sheikh, E., Schneider, S., Walch, E., Chung, H., Bauer, K., and Kantaras, I. (2015). Exploring Mentoring Considerations of Female STEM Faculty in Higher Education. 2015 Faculty Research Showcase, University of West Florida, Pensacola, FL, April 23, 2015.

Mitchell, C., AI Research Group, and El-Sheikh, E. (2015). The Hemingway Effect: A Comparison of Artificial Intelligence and Machine Learning Methods. 2015 Student Scholars Symposium, University of West Florida, Pensacola, FL, April 23, 2015.

El-Sheikh, E., Molek, E., Chung, H. (2014). Faculty-led Strategies for Advancing Undergraduate STEM Education: Best Practices and Lessons Learned. 2014 AAC&U PKAL Conference: Transforming STEM Higher Education Conference, Nov. 6 – 8, 2014, Atlanta, GA.

Gonen, B., Fang, X., El-Sheikh, E., Bagui, S., Wilde, N., Zimmermann, A., and Petrov, I. (2014). Maintaining SOA Systems of the Future: How Can Ontological Modeling Help? KEOD 2014: The International Conference on Knowledge Engineering and Ontology Development, October 21 – 24, 2014, Rome, Italy.

Maestre, A. and El-Sheikh, E. (2014). A Comparison of Machine Learning Techniques for the Generation of River and Stream Water Quality Estimates. ICAI'14: The 2014 International Conference on Artificial Intelligence, July 21 – 24, 2014, Las Vegas, NV.

Rowberry, B., AI Research Group, and El-Sheikh, E. (2014). Race to the Finish: A Comparison of AI Search, Navigation, and Pathfinding Algorithms. 2014 Student Scholars Symposium, University of West Florida, Pensacola, FL, April 24, 2014.

Gonen, B., Fang, X., El-Sheikh, E., Bagui, S., and Wilde, N. (2014). Semantic Traversing Documents by Using Semantic Relationships. 2014 Faculty Research Showcase, University of West Florida, Pensacola, FL, April 24, 2014.

Wilde, N., Coffey, J., White, L., Snider, D., Reichherzer, T., El- Sheikh, E., and Gonen, B. (2014). A Knowledge Engineering, Team-Based Approach to Introducing Security Assurance Cases. 2014 Faculty Research Showcase, University of West Florida, Pensacola, FL, April 24, 2014.

Schneider, S., Bryan, L., El-Sheikh, E., Hays-Thomas, R., Vaughan, P., and Walch, E. (2014). Development of a Reliable and Valid Faculty Culture Survey for ADVANCE Grant Institutions. 2014 Faculty Research Showcase, University of West Florida, Pensacola, FL, April 24, 2014.

El-Sheikh, E., Bagui, S., Firesmith, D., Petrov, I., Wilde, N., Zimmermann, A. (2013). Towards Semantic-Supported SmartLife System Architectures for Big Data Services in the Cloud. The Fifth International Conferences on Advanced Service Computing, May 27 – June 1, Valencia, Spain.

Stephen, D., Haynes, A., and El-Sheikh, E. (2013). Wernicke: Natural Language Processing for Home Automation. 2013 Student Scholars Symposium, University of West Florida, Pensacola, FL, April 25, 2013.

McGraw, B. and El-Sheikh, E. (2013). Integrating Reinforcement Learning with Communication for Multi-Agent Systems. 28th International Conference on Computers And Their Applications (CATA 2013), March 4 – 6, 2013, Honolulu, HI.

Schneider, S., Koppes Bryan, L., El-Sheikh, E., Hays-Thomas, R., Vaughan, P., and Walch, S. (2013). Development of a Reliable and Valid Faculty Culture Survey for ADVANCE Grant Institutions. 2013 NSF ADVANCE Program Workshop, March 3 – 5, 2013, Washington, DC.

Jackson, R. and El-Sheikh, E. (2012). A Case Study Building a Web-Based Dietitian Expert System. ICAI'12: The 2012 International Conference on Artificial Intelligence, July 16 – 19, 2012, Las Vegas, NV.

El-Sheikh, E. and Lanier, G. (2012). Promoting High-Impact Practices and Student Success: Models for Faculty Development and Reward. AAC&U Student Success: Pushing Boundaries, Raising Bars Conference, Seattle, WA, March 22 – 24, 2012.

McCarthy, J. M. and El-Sheikh, E. M. (2011). Image Generation and Analysis for the Android Platform: Exploring Computer Vision in Mobile Development Environments. IPCVI'11: The 2011 International Conference on Image Processing, Computer Vision, and Pattern Recognition**,** Las Vegas, NV, July 18 – 21, 2011.

Broxton, T. and El-Sheikh, E. (2011). Implementing Swarm Intelligence for Solving Complex Problems. 2011 Student Scholars Symposium**,** University of West Florida, Pensacola, FL, April 21, 2011.

Connor, J. and El-Sheikh, E. (2011). Let's Make Music: Generating Music Using Artificial Intelligence. 2011 Student Scholars Symposium**,** University of West Florida, Pensacola, FL, April 21, 2011.

Davis, J., Ruble, A., and El-Sheikh, E. (2011). Very Intelligent STock Analyzer (VISTA). 2011 Student Scholars Symposium, University of West Florida, Pensacola, FL, April 21, 2011.

Dimmig, T., Lorenz, J., and El-Sheikh, E. (2011). Autonomous Virtual Rover: Using AI to Navigate and Survive in Unknown Terrain. 2011 Student Scholars Symposium**,** University of West Florida, Pensacola, FL, April 21, 2011.

King, A. and El-Sheikh, E. (2011). Optimizing Best-Case Performance in WoW Using AI. 2011 Student Scholars Symposium**,** University of West Florida, Pensacola, FL, April 21, 2011.

McConaghy, P., Graves, J., Brown, P., Brewster, T., and El-Sheikh, E. (2011). Argos Glest: Ambitious AI Automating Annihilation (Intelligent Game Play Using AI). 2011 Student Scholars Symposium**,** University of West Florida, Pensacola, FL, April 21, 2011.

Ramirez, Z. and El-Sheikh, E. (2011). An AI Framework for Maze Navigation in Robotic Environments. 2011 Student Scholars Symposium**,** University of West Florida, Pensacola, FL, April 21, 2011.

El-Sheikh, E. M., Perez, C. A., and Glymour, C. (2010). Using Causal Modeling for Determining Connectivity among Brain Regions. ICAI'10: The 2010 International Conference on Artificial Intelligence**,** Las Vegas, NV, July 12 – 15, 2010.

McCarthy, J. M. and El-Sheikh, E. M. (2010). A Cooperative-Agent Architecture for Managing Large Document Collections in Corporate Intranets. ICAI'10: The 2010 International Conference on Artificial Intelligence**,** Las Vegas, NV, July 12 – 15, 2010.

Corliss, J. and El-Sheikh, E. M. (2010). An Intelligent System for Network Traffic Flow Analysis. ICAI'10: The 2010 International Conference on Artificial Intelligence**,** Las Vegas, NV, July 12 – 15, 2010.

Calvo, C. L. and El-Sheikh, E. (2010). Analysis of the A* Search Algorithm: Using AI to Improve Search Effectiveness. SEASTARS 2010: The 7th Annual Scholars of Engineering, Applied Sciences & Technology Annual Research Symposium**,** University of West Florida, Pensacola, FL, April 15, 2010.

Cantero, F. M. and El-Sheikh, E. (2010). Can your Robot Move? Navigation and Obstacle Avoidance. SEASTARS 2010: The 7th Annual Scholars of Engineering, Applied Sciences & Technology Annual Research Symposium**,** University of West Florida, Pensacola, FL, April 15, 2010.

Corliss, J. and El-Sheikh, E. (2010). Intelligent Network Traffic Flow Analysis: the "Brains" of the System. SEASTARS 2010: The 7th Annual Scholars of Engineering, Applied Sciences & Technology Annual Research Symposium**,** University of West Florida, Pensacola, FL, April 15, 2010.

Kedambadi, R. and El-Sheikh, E. (2010). Improving the Efficiency of Probabilistic Reasoning. SEASTARS 2010: The 7th Annual Scholars of Engineering, Applied Sciences & Technology Annual Research Symposium**,** University of West Florida, Pensacola, FL, April 15, 2010.

McCarthy, J. and El-Sheikh, E. (2010). A Cooperative Intelligent Agent Architecture for Enterprise Search. SEASTARS 2010: The 7th Annual Scholars of Engineering, Applied Sciences & Technology Annual Research Symposium**,** University of West Florida, Pensacola, FL, April 15, 2010.

Stanny, C. and El-Sheikh, E. (2009). Strategies for Effective Use of Technology to Promote Faculty Development. The 2009 Southern Association of Colleges and Schools Commission on Colleges (SACS-CoC) Annual Meeting, Atlanta, GA, December 5 – 8, 2009.

El-Sheikh, E. and Swain, B. (2009). A Geospatial Natural Language-Based Path Understanding System. ICAI'09: The 2009 International Conference on Artificial Intelligence**,** Las Vegas, NV, July 13 – 16, 2009.

Wells, D. L., El-Sheikh, E. M., Sutton, M. A., Di Santo, V., and Bennett, W. A. (2009). Automated Image Processing of X-Radiographics of Digestion in Stingrays. ICAI'09: The 2009 International Conference on Artificial Intelligence**,** Las Vegas, NV, July 13 – 16, 2009.

Perez, C. and El-Sheikh, E. (2009). Learning and Representing Causal Relationships with Bayesian Networks. CATA-2009: The 24th International Conference on Computers and Their Applications, New Orleans, LA, April 8-10, 2009.

Carff, J., El-Sheikh, E. M., Johnson, M., and Pratt, J. E. (2009). A Human-Robot Team Navigation System for Complex Environments. SEASTARS 2009: The 6th Annual Scholars of Engineering, Applied Sciences & Technology Annual Research Symposium**,** University of West Florida, Pensacola, FL, April 16, 2009.

Perez, C. and El-Sheikh, E. M. (2009). Learning and Representing Causal Relationships with Bayesian Networks. SEASTARS 2009: The 6th Annual Scholars of Engineering, Applied Sciences & Technology Annual Research Symposium**,** University of West Florida, Pensacola, FL, April 16, 2009.

Perez, C., El-Sheikh, E. M., and Glymour, C. (2009). Discovering Causal Connections between Brain Regions from Functional MRI Data. SEASTARS 2009: The 6th Annual Scholars of Engineering, Applied Sciences & Technology Annual Research Symposium**,** University of West Florida, Pensacola, FL, April 16, 2009.

Swain, B. A. and El-Sheikh, E. M. (2009). Where Do We Go From Here? An Approach and System for Path Understanding Using Geospatial Natural Language. SEASTARS 2009: The 6th Annual Scholars of Engineering, Applied Sciences & Technology Annual Research Symposium**,** University of West Florida, Pensacola, FL, April 16, 2009.

Wells, D. L., El-Sheikh, E. M., Sutton, M. A., Di Santo, V., and Bennett, W. A. (2009). An Application for Automated Image Processing of Stingray Digestion X-Rays. SEASTARS 2009: The 6th Annual Scholars of Engineering, Applied Sciences & Technology Annual Research Symposium**,** University of West Florida, Pensacola, FL, April 16, 2009.

Stanny, C., El-Sheikh, E., and Chung, H. M. (2009). Getting Started with an SoTL Project. 2009 UWF Spring Mini-Conference on Best Practices for the Scholarship of Teaching and Learning (SoTL), University of West Florida, Pensacola, FL, February 27, 2009.

Stanny, C., Hurd, J., and El-Sheikh, E. (2008). Strategies for Assessing the Impact of a Quality Enhancement Plan. The 2008 Southern Association of Colleges and Schools Commission on Colleges (SACS-CoC) Annual Meeting, San Antonio, TX, December 6 – 9, 2008.

El-Sheikh, E., Swain, B., and Khabou, M. (2008). A Comparison of Neural Network Architectures for Handwritten Digit Recognition. Presented at ICAI'08: The 2008 International Conference on Artificial Intelligence**,** Las Vegas, NV, July 14 – 17, 2008.

El-Sheikh, E., Coffey, J., and White, L. (2008). Exploring the Use of Virtual Synchronous Sessions in an

Online Foundational Programming Course. Presented at FECS'08: The 2008 International Conference on Frontiers in Education: Computer Science and Computer Engineering, Las Vegas, NV, July 14 – 17, 2008.

El-Sheikh, E., and Becker, J. (2008). G-Bots: Intelligent Agents in a Complex Simulated Environment. Presented at WMSCI 2008: The 12th World Multi-Conference on Systemics, Cybernetics and Informatics, Orlando, FL, June 29 – July 2, 2008.

El-Sheikh, E. (2008). Engaging Students in an Online Programming Course: Lessons Learned. Presented at EISTA 2008: The 6th International Conference on Education and Information Systems, Technologies, and Applications, Orlando, FL, June 29 – July 2, 2008.

Swain, B., El-Sheikh, E., and Khabou, M. (2008). Recognize This! A Neural Network-Based Recognizer of Handwritten Digits. SEASTARS 2008: The 5th Annual Scholars of Engineering, Applied Sciences & Technology Annual Research Symposium**,** University of West Florida, Pensacola, FL, April 14, 2008.

Becker, J. and El-Sheikh, E. (2008). G-Bots: Artificial Intelligence for a Simulated Environment of Gravitation and Newtonian Physics. SEASTARS 2008: The 5th Annual Scholars of Engineering, Applied Sciences & Technology Annual Research Symposium**,** University of West Florida, Pensacola, FL, April 14, 2008.

El-Sheikh, E. and Stanny, C. (2007). Using Assessment Practices to Promote the Scholarship of Teaching and Learning. 2007 UWF Fall Mini-Conference on Best Practices for Face-to-Face and Online Learning: Promoting Active Learning and Student Engagement, University of West Florida, November 8, 2007.

El-Sheikh, E. and Stanny, C. (2007). Creating Institutional Strategies to Promote, Reward, and Sustain Faculty Work on Assessment and Scholarship of Teaching and Learning. The Association of American Colleges and Universities Conference (AAC&U): Network for Academic Renewal, Savannah, GA, Nov. 1 – 3, 2007.

El-Sheikh, E. (2007). Faculty Development Activities and Services of the Center for University Teaching, Learning, and Assessment. Employee Excellence Program, University of West Florida, Pensacola, FL, October 19, 2007.

El-Sheikh, E., White, L., and Coffey, J. (2007). Reflections in Uncharted Waters: Teaching Foundational Programming Online. EISTA 2007: The 5th International Conference on Education and Information Systems, Technologies and Applications**,** Orlando, FL, July 12 – 15, 2007.

Stanny, C. and El-Sheikh, E. (2007). Integrating Assessment and Faculty Development in a Teaching Center: Issues and Conflicts, 2007 International Assessment and Retention Conference (IARC), St. Louis, MO, June 7 – 10, 2007.

El-Sheikh, E. and Greene, M. (2005). A Program Visualization Tool for Learning Introductory Java Programming. Presented at FECS'05 - The 2005 International Conference on Frontiers in Education: Computer Science and Computer Engineering, Las Vegas, NV, June 20 – 23, 2005.

El-Sheikh, E., Taylor, L., Digman, M., and Carff, C. (2005). Using Interactive Learning Environments in the Introductory Computer Science Curriculum. Presented at FECS'05 - The 2005 International Conference on Frontiers in Education: Computer Science and Computer Engineering, Las Vegas, NV, June 20 – 23, 2005.

El-Sheikh, E., Taylor, L., Digman, M., and Carff, C. (2005). A Concept-Based Tutoring Environment for Object-Oriented Programming. Presented at SEASTATRS: The 2nd Scholars of Engineering, Applied Sciences, and Technology Annual Research Symposium, University of West Florida, Pensacola, FL, April 19, 2005.

El-Sheikh, E. (2003). A Conceptual Problem-Based Learning Environment for Teaching Introductory Programming. Presented at FIE-2003: The 2003 Frontiers in Education Conference. November 5 – 8, Boulder, CO.

El-Sheikh, E. (2003). Using Hierarchical Classification-Based Expert Systems to Support Tutoring. Presented at IC-AI'03: The 2003 International Conference on Artificial Intelligence. June 23 – 26, Las Vegas, NV.

El-Sheikh, E. (2002). Generating Intelligent Tutoring Systems from Reusable Components and Knowledge-Based Systems. Presented at ITS-2002: The Sixth International Intelligent Tutoring Systems Conf. June 5-7, Biarritz, France.

El-Sheikh, E. (2002). A Task-Specific Architecture for the Generation of Intelligent Tutoring Systems. Presented at FLAIRS-2002: The 15th International Florida Artificial Intelligence Research Society Conference. May 14 – 16, Pensacola Beach, Florida.

El-Sheikh, E. (1999). Development of a Methodology and Software Shell for the Automatic Generation of Intelligent Tutoring Systems from Existing Generic Task-based Expert Systems. Presented at AAAI-99: Sixteenth National Conference on Artificial Intelligence, SIGART/AAAsI-99 Doctoral Consortium. Orlando, Florida.

El-Sheikh, E. (1998). Using a Functional Approach to Model Learning Environments. Presented at ECAI'98: European Conference on Artificial Intelligence Model Based Reasoning for Intelligent Education Environments Workshop, Brighton, UK.

El-Sheikh, E. (1998). A Framework for Developing Intelligent Tutoring Systems Incorporating Reusability. Presented at IEA-AIE-98: 11th International Conference on Industrial and Engineering Applications of Artificial Intelligence and Expert Systems, Benicassim, Castellon, Spain.

El-Sheikh, E. (1997). Utilizing the WWW for Industrial Training. Presented at WebNet 97: World Conference of the WWW, Internet, and Intranet, Toronto, Canada.

El-Sheikh, E. (1997). Intelligent Tutoring for Polymer Composite Molding. Presented at 1997 Symposium on Low-Cost, High-Speed Polymer Composites Processing, Michigan State University, East Lansing, MI.

El-Sheikh, E. (1996). An ITS Shell Leveraging the Generic Task Approach to Problem Solving. Presented at ITS'96: Third International Conference on Intelligent Tutoring Systems Workshop on Architectures and Methods for Designing Cost-Effective and Reusable ITSs, Montreal, Canada.

Invited Talks and Panels

El-Sheikh, E. A Panel Discussion on Cybersecurity Workforce Development, 2017 Florida International Summit, Tampa, FL, February 2, 2017.

El-Sheikh, E. Building Bridges & Pathways – Innovative Solutions for Expanding the Cybersecurity Workforce, Panel Discussion at the Florida Center for Cybersecurity Third Annual Conference, Tampa, FL, October 25, 2016.

El-Sheikh, E. Women in Cybersecurity, Panel Discussion at ITEN Wired, Pensacola Beach, FL, October 11, 2016.

El-Sheikh, E. Strategy for Northwest Florida's Future – Talent Development, Panel Discussion at Gulf Power 2016 Economic Symposium, Panama City, FL, October 3, 2016.

El-Sheikh, E. The Future of Cybersecurity Education, Panel Discussion at SAM 2016: 15th International Conference on Security and Management, Las Vegas, NV, July 25 – 28, 2016.

El-Sheikh, E. Cybersecurity Education and Workforce Development, Panel Discussion at CyberThon 2016, Pensacola, FL, January 23, 2016.

El-Sheikh, E. Accelerating Cybersecurity Practitioner Skills Development – The Nexus of Education & Training, Panel Discussion at the National Initiative for Cybersecurity Education (NICE) 2015 Conference, San Diego, CA, November 4, 2015.

El-Sheikh, E. Undergraduate Research as a High Impact Practice, Invited Presentation, University of West Florida Office of Undergraduate Research Faculty Workshop, Pensacola, FL, October 2, 2015.

Lean In: Women, Work and the Will to Lead – A Panel Discussion. University of West Florida, Pensacola, FL, September 25, 2014.

El-Sheikh, E. Women in Computer Science, PSY4991: Women in Science, University of West Florida, Pensacola, FL, April 11, 2012.

El-Sheikh, E. Mentoring Undergraduate Students in Research, CUTLA Workshop, March 11, 2011.

El-Sheikh, E. Women in Computer Science, EXP4990: Women in Science, University of West Florida, Pensacola, FL, February 9, 2011.

Conferences, Symposia and Workshops Organized

Co-Coordinator, STEM Retention Workshop University of West Florida, Pensacola, FL, February 28, 2014.

Co-Coordinator, 2013 UWF Scholars Week and NSF ADVANCE Annual Showcase, University of West Florida, Pensacola, FL, April 23 – 26, 2013.

Coordinator, SEASTARS 2010: UWF 7th Annual Scholars of Engineering, Applied Sciences & Technology Annual Research Symposium**,** University of West Florida, Pensacola, FL, April 15, 2010.

Coordinator, SEASTARS 2009: UWF 6th Annual Scholars of Engineering, Applied Sciences & Technology Annual Research Symposium**,** University of West Florida, Pensacola, FL, April 16, 2009.

Organizer and facilitator, 2009 UWF Spring Mini-Conference on Best Practices for the Scholarship of

Teaching and Learning (SoTL), University of West Florida, Pensacola, FL, February 27, 2009.

Organizer and facilitator, 2008 UWF Fall Mini-Conference on Best Practices for Student Engagement in Face-to-Face and Online Courses, University of West Florida, Pensacola, FL, October 3, 2008.

Organizer and facilitator, 2008 UWF Spring Mini-Conference on Best Practices for Assessment and Curricular Reform, University of West Florida, Pensacola, FL, February 29, 2008.

Organizer and facilitator, 2007 UWF Fall Mini-Conference on Best Practices for Face-to-Face and Online Learning: Promoting Active Learning and Student Engagement, University of West Florida, Pensacola, FL, November 8, 2007.

Organizer and facilitator, 2007 UWF Spring Mini-Conference on Best Practices for Active Learning and Student Engagement, University of West Florida, Pensacola, FL, March 2, 2007.

Technical Reports

El-Sheikh, E. Building Institutional Programs to Advance Science and Engage Learners through Multi-Disciplinary Strategies and Community Outreach**.**

El-Sheikh, E., and Perkins, A. Developing an Intelligent Search-Based File Transfer Application.

Dissertation

El-Sheikh, E. (2002). An Architecture for the Generation of Intelligent Tutoring Systems from Reusable Components and Knowledge-Based Systems. Ph.D. Dissertation, Michigan State University, East Lansing, MI.

Research Activities

Faculty Advisor, AI Research Group & Lab, UWF, Spring 2010 – present.

Launched and currently serve as the faculty advisor for the AI Research Group to promote interest and develop expertise in AI research among undergraduate and graduate students.

Member, Service-Oriented Architecture Research Group, UWF, 2011 – 2016.

Research Grants and Proposals

Funded

PI, 2017 NSA CAE Cybersecurity Expansion Program, Total budget: $195,071.

PI, 2017 NSA CAE Regional Center for South East Region, Total budget: $196,829.

PI, 2017 NSA CyberSecurity Core Curriculum Development, Secure Development for Software and Industrial Control Systems, Total budget: $176,922.

PI, 2017 Florida Cyber Pathways, Florida Center for Cybersecurity, Total budget: $93,127.

PI, 2017 NSA GenCyber Program, Pathways to Cyber, Total budget: $89,150.

PI, 2016 Pathway to Cyber Program, Florida Center for Cybersecurity, Total budget: $30,000.

PI, NSF ADVANCE Program Award, Title: "Enhancing the Culture for Recruiting, Retaining and Advancing Women in STEM," 2011 – 2017, Total budget: $598,354.

PI, Advancing STEM at UWF: Improving Retention, Faculty Development and Visibility for STEM Programs. 2013 Pace Academic Development Award Proposal, Total budget: $20,700.

PI, Intelligent Learning Environment for Foundational Computer Science Topics, Research and Sponsored Programs, University of West Florida, September 2012 – August 2013, Total budget: $7,297.

Co-PI, A Knowledge Engineering, Team-Based Approach to Introducing Security Assurance Cases, Snider, D., Coffey, J., El-Sheikh, E., Gonen, B., Reichherzer, T., White, L., Wilde, N., Northrop Grumman Corporation via the Security and Software Engineering Research Center (S2ERC), January – December 2013, $22,050.

Co-PI, Knowledge Modeling for Supporting Program Comprehension, Reichherzer, T., Coffey, J., El-Sheikh, E., White, L., Wilde, N. Blue Cross Blue Shield Association via the Security and Software Engineering Research Center (S2ERC), December 2011 – August 2013. $23,315

PI, 2011 UWF Instructional Technology Enhancement Program, Title: "An Intelligent Learning Environment for Computer Science Foundations and Outreach Activities to Support Student Engagement, Recruitment, and Retention," Total budget: $21,900.

Co-PI, 2011 UWF Instructional Technology Enhancement Program, Title: "Enhancement and Adaptation of the TellusPoint™ Platform for Undergraduate Education in the Humanities and Sciences," Total budget: $33,780.

2007 Summer Research Award, Research and Sponsored Programs Office, University of West Florida, Title: "Adapting Problem-Based Learning for Computer Science Education: A Collaborative Approach for Teaching Foundational Programming."

2005 Graduate Research Assistantship Award, Office of Research and Graduate Studies, University of West Florida, Title: "Using Problem-Based Learning in Computer Science Education."

2004 Summer Research Award, Office of Research and Graduate Studies, University of West Florida, Title: "Development of an Adaptive Tutoring System for Teaching Object-Oriented Programming."

2003/2004 Scholarly and Creative Activity Faculty Award, Office of Research and Graduate Studies, University of West Florida.

National Alumni Association Faculty Grant, University of West Florida, Fall 2003.

2003 Summer Research Award, Office of Research and Graduate Studies, University of West Florida.

2002 Summer Research Award, College of Arts and Sciences, University of West Florida.

2002 Enhancing Teaching and Learning with Technology Award, Center for University Teaching and Learning, University of West Florida.

Submitted / Under Review

Co-PI, 2016 Florida Center for Cybersecurity Seed Grant Program, "Malware Detection Tool for Linux Data structure using Machine Learning," Total budget: $67,928.

Co-PI, Florida Regional Alliances and Multistakeholder Partnerships to Stimulate Cybersecurity Training and Workforce Development, 2016 NIST RAMPS Program, Total budget: $200,000.

PI, Pathway to Cyber Program, 2016 NSA/NSF GenCyber Program, Total budget: $70,640.

Co-PI, REU Site: Cybersecurity and Large Scale Data Analytics, 2014 NSF CISE REU Program, Total budget: $286,822.

Co-PI, Integrating Research Experiences in UWF Courses to Increase Student Retention and Success. 2014 Pace Academic Development Award Proposal, Total budget: $26,000.

Co-PI, First Year Interdisciplinary Applied Research Course. 2014 Pace Academic Development Award Proposal, Total budget: $19,970.

PI, 2014 PKAL TIDES Program, "Paving Pathways to Computer Science: A Two-Course Approach to Increase Diversity, Recruitment and Retention", Budget: $276,253.

Co-PI, 2012 Dept. of Education Strengthening Institutions Program. Title: UWF STEM Scholars, Budget: $2,002,324.

Co-PI, 2012 NSF Computing Education for 21st Century Program. Title: Robotic Interactive Learning Environments, Approximate budget: $600,000.

Co-PI on proposal submitted to 2011 Next Generation Learning Challenges Wave 2 Program, Title: "iShareHistory: An Adaptive and Transformative Model for Improving College Readiness and Completion," Total budget: $250,000, Pre-proposal was one of 40 out of 240 selected nationally for the final round.

Lead PI on proposal submitted to 2007 UWF Pace Academic Development Fund, Title: "A Program to Increase Enrollment and Retention of Women in the University of West Florida's Computing Disciplines," Total budget: $25,845.

Co-PI on proposal submitted to 2007 NSF Broadening Participation in Computing Program, Title: "Outreach, Curriculum, and Culture Change (OC-cubed): A Program to Increase Enrollment and Retention of Women in Computing Disciplines," Total budget: $212,161.

Co-PI on proposal submitted to 2005 NSF Research on Learning and Education Program, Title: "Improving STEM Learning Outcomes and Evaluation with LEO: A Learning Environment Organizer," Total budget: $657,008.

Lead PI on proposal submitted to 2004 NSF Course, Curriculum, and Laboratory Improvement Program – Adaptation and Implementation Track, Title: "Adapting Problem-Based Learning for Computer Science Education: An Integrated Approach for Teaching Foundational Programming," Total budget: $199,996.

Teaching Experience

University of West Florida
Taught and developed course materials for:

CAP4601 Artificial Intelligence
Developed and taught a new undergraduate Computer Science course, which is designed to give students an introduction to core AI principles, programming techniques, and applications.

CAP4053 AI Programming for Interactive Environments
Developed and taught a new undergraduate Computer Science course, which is a follow-up course to CAP4601 to give students additional experience in using AI techniques for developing interactive environments including games, simulations, and educational environments.

COP2253 Java Programming (face-to-face and online)
A foundational programming course for the CS, CIS, and IIT programs that focuses on foundational object-oriented programming skills using Java.

COP2334 C++ Programming
A required course for CIS and IIT programs that focuses on core C++ programming skills.

COP4020 Programming Languages (face-to-face and online)
A core course for CS, CIS, and IIT programs that addresses design and implementation of a programming language and surveys various programming paradigms, including procedural, object-oriented, functional, and rule-based languages.

COP4331 & COP4331L Object-Oriented Programming & OOP Lab
An upper-level required course for CS students that focuses on the analysis, design, and development of object-oriented systems.

COP4601 Software Systems
An upper-level project-based elective for CS and CIS programs that focuses on issues related to developing a large-scale software system, including software engineering, technical skills, and project management.

COP4905/CAP4905 Directed Study
COP4905 and CAP4905 are upper-level electives for the CS and CIS programs. I supervised several students towards the development and evaluation of intelligent, large-scale software systems.

CAP5600 Artificial Intelligence (face-to-face and hybrid)
A required graduate course for CS students and an elective for SE students that focuses on foundational

AI topics including AI theory, search techniques, knowledge representation and reasoning, machine learning, and applications.

CEN6930 Advanced Topics in Software Engineering
An elective for the CS and SE graduate programs. I supervised a graduate student on a software engineering project focusing on the development of an intelligent agent-based system for news content recommendation.

COT6931 Computer Science Project
A project-based capstone course for CS graduate students. I supervised several graduate students on computer science projects focusing the application and integration of artificial intelligence principles and techniques for the development of intelligent and agent-based software systems.

CIS6971 Computer Science Thesis
A thesis-based capstone course for CS graduate students. I supervised a graduate student on a thesis focusing on real-world route reconstruction from natural language-based path descriptions. I supervised another graduate student, whose thesis focused on the use of causal modeling to discover effective connectivity among brain regions.

CEN5915 Graduate CS Research and COP5905/COP6905 Directed Study
Electives for the CS and SE graduate programs. I supervised several graduate students in researching current issues in artificial intelligence and interactive learning environments, and towards developing related software systems.

Doctoral Dissertation Committees

John Bolyard

Master's Projects and Theses Supervised

Brett Rowberry (2015). An Intelligent iOS Application for People Counting.

Omer Useche (2015). An Intelligent System for Measuring Attention Levels of Students in Online Course Environments.

Alexander Maestre (2013). Machine Learning Tool for Weighted Regressions in Time, Discharge, and Season.

Ben McGraw (2012). Integrating Reinforcement Learning with Communication for Multi-Agent Systems.

Renee Carnley (2012). Using Data Mining with Bayesian Learning to Analyze Lottery Numbers.

Steven Satterfield (2012). The Application of Structural Case-Based Reasoning to Activity Recognition in the Smart Home (committee member).

Jose R. Fernandez (2011). CluSandra: A Framework and Algorithm for Data Stream Cluster Analysis.

Robert Jackson (2011). A Case Study Building a Web-Based Dietitian Expert System.

John McCarthy (2011). Image Generation and Analysis for the Android Platform: Exploring Computer Vision in Mobile Development Environments.

Carlos Perez (2009). Discovering Causal Relationships from fMRI Data.

Bradley Swain (2009). Path Understanding using Geospatial Natural Language.

John Carff (2009). Human Robot Team Navigation.

Daniel Wells (2009). Automated Image Processing of X-Radiographics of Digestion in Stingrays.

Joel Becker (2008). G-Bots: Intelligent Agents in a Complex Simulated Environment

Michael Wooten (2006). An Intelligent System for Recommended RSS/Atom Content.

Undergraduate and Graduate Capstone Projects and Directed Studies

John Baggs
Chad Carff
John Carff
Matthew Digman
Matthew Kirkland
James Horsley
Jeff Hunter
Carlos Perez
James Spencer
Douglas Stephen
Bradley Swain
Laura Taylor
Mikayla Timm
Stephen Weathers
Michael Wooten

Michigan State University

CSE131 Introduction to Technical Computing (taught and developed materials)
A lower-level university-wide requirement that focuses on basic programming and problem solving skills.

CSE440 Introduction to Artificial Intelligence (teaching assistant and lab instructor)
An upper-level elective for CS students that focuses on the foundations of AI including theoretical issues and applications.

CSE449 Senior AI Capstone (teaching assistant and lab instructor)
A senior project-based capstone project that allows students to use their knowledge and skills to develop a software system for a real-world problem.

Service

Departmental Service

Member, ABET Committee, Spring 2016 – present

Member, Ph.D., Intelligent Systems Committee, 2016-17

Member, Cyber Security Faculty Search Committee, Fall 2013 – present

Member, Cyber Security Program Development Team, Spring 2013 – Spring 2014
Member, Faculty Mentoring Committee, Fall 2012 – present
Member, Office Assistant Search Committee, Summer 2012
Member, Faculty Search Committee, Spring 2012 – present
Member, Advisor Search Committee, Spring 2012
Chair/Member, Assessment Committee, Fall 2008 – present
Assessment Coordinator, Spring 2004 – Summer 2008
Member, Tenure and Promotion Committee, Fall 2009 – present
Member, Computer Science Recruitment and Outreach Committee, Fall 2008 – Spring 2012
Member, Computer Science Curriculum Committee, Fall 2001 – present
Member, Scholarship Committee, Spring 2002 – Spring 2013
Member, Chair Search Committee, Spring 2005
Member, Online Working Group, Spring 2005
Course Coordinator for COP2253: Java Programming, Fall 2001 – Spring 2009
Course Coordinator for COP2334: C++ Programming, Fall 2002
Member, Ad Hoc Curriculum Design Group, 2001 – 2002

College and University Service
Chair, Cybersecurity Steering Committee, Fall 2015 – present
Co-Chair, Cybersecurity Chairs Group, Fall 2015 – present
Chair, CAE Work Group, Fall 2015 – present
Chair/Member, Distinguished Faculty Service Award Selection Committee, 2014 – 2016
Chair, CSEH Marketing Coordinator Search Committee, Spring 2015
Member, CSEH Office Administrator Search Committee, Spring 2015
Member, Graduation Intervention Work Group, Fall 2014 – Summer 2015
Member, 50th Anniversary Celebration Academic Experiences Committee, Fall 2014 – Spring 2015
Judge, Student Scholars Symposium, Spring 2015 – present
Judge, Northwest Florida Regional Science Fair, Fall 2014 – present
Co-Chair, IT Performance Funding Faculty Work Group, Spring 2013 – Summer 2013
Chair, CAS Chairs Mentoring Group, Fall 2012 – Spring 2013
Member, Chairs Handbook Work Group, Fall 2012 – Spring 2013
Member, Assistant Vice President for Enrollment Management Search Committee, Spring 2013
Member, Graduate Thesis Supervision Task Force, Fall 2012 – Spring 2014
Chair, External Advisory Board, NSF ADVANCE Program, Fall 2012 – present
Chair, Internal Steering Committee, NSF ADVANCE Program, Fall 2011 – present
Chair and Coordinator, STEM Steering Committee, Spring 2012 – Spring 2015
Co-Coordinator, Northwest Florida Regional Science Olympiad, Spring 2012

Member, CAS Administrative Assistant Search Committee, Fall 2012

Member, Faculty Search Committee, School of Psychological and Behavioral Sciences, Spring 2012

Member, Professional Education Council, Fall 2011 – Spring 2013

Member, Responsible Conduct of Research Task Force, Spring 2011

Member, Graduate School Administrative Assistant Search Committee, Spring 2011

Member, SACS Fifth-Year Compliance Report Committee, Fall 2010 – Spring 2011

Member, Web Advisory Committee, Fall 2010 – present

Member, Academic Programs Assessment Council, Spring 2010 – Spring 2015

Member, Graduate Council, Fall 2009 – Fall 2013

Member, Academic Appeals Committee, Fall 2009 – Spring 2015

Member, CUTLA Advisory Board, Fall 2009 – Spring 2015

Coordinator, Research Connections Program, Fall 2009 – Spring 2015

Co-Coordinator, Teaching Partners Program, Fall 2008 – Spring 2010

Judge, BEST Robotics Competition, 2008 – 2014

Member, School of Science and Engineering Building Grand Opening Planning Committee, Spring 2009 – Spring 2010

Member, Dean of Libraries Search Committee, Summer – Fall 2009

Member, Associate Vice President for Diversity and International Studies Search Committee, Spring 2009

Volunteer, Explore UWF Open House, Spring 2002 – present

Coordinator, Scholarship of Teaching and Learning Interest Group, Fall 2007 – Spring 2009

Member, Quality Enhancement Plan Evaluation Committee, Spring 2007 – Spring 2013

Member, College of Arts and Sciences SEASTARS (Scholars of Engineering, Applied Sciences & Technology Annual Research Symposium) Advisory Committee, Spring 2007 – Spring 2008

Member, University Planning Council, UWF, Fall 2003 – Spring 2006

Member and Co-Chair, UPC Marketing, Enrollment Growth and Retention Committee, Fall 2003 – Spring 2006

Chair, International Affairs Committee, Fall 2004 – Spring 2006

Member, International Affairs Committee, Fall 2003 – Spring 2006

Volunteer, UWF Faculty Phone-a-thon, Spring 2003, Spring 2004

Volunteer, UWF Majors Fair, Spring 2003, Spring 2004

Volunteer, UWF Career Fair, 2002 – present (employer recruitment, student awareness, etc.)

Lead Judge, Annual Florida Panhandle Science and Engineering Fair, UWF, 2002

Community and Professional Service

Chair, FC2 State University System Cybersecurity Curriculum Committee, Spring 2015 – present

Volunteer/mentor, CyberThon, 2016 – present

Mentor, local area high school students, 2002 – present

Program Committee Member, SAM 2017: 16th International Conference on Security and Management, Las Vegas, NV, July 17 – 20, 2017.

Program Committee Member, SAM 2016: 15th International Conference on Security and Management, Las Vegas, NV, July 25 – 28, 2016.

Program Committee Member, IDEA 2016: 2nd International Workshop on Digital Enterprise Architecture and Engineering, Leipzig, Germany, July 6 – 8, 2016.

Program Committee Member, DEC 2016: Digital Enterprise Computing Conference, Boeblingen, Germany, June 14 – 15, 2016.

Program Committee Member, EHST 2015: 9th International Symposium on eHealth Services and Technologies, Rhodes, Greece, Sep. 17 – 18, 2015.

Program Committee Member, IDEA 2015: International Workshop on Digital Enterprise Architecture and Engineering 2015, Taormina, Italy, Sep. 15, 2015.

Session Chair, KEOD 2014: The International Conference on Knowledge Engineering and Ontology Development, October 21 – 24, 2014, Rome, Italy.

Session Chair, ICAI'14: The 2014 International Conference on Artificial Intelligence, July 21 – 24, 2014, Las Vegas, NV.

Reviewer, Emerging Trends in Image Processing, Computer Vision, and Pattern Recognition, (H. Arabnia and L. Deligiannidis, Editors), Morgan Kaufmann, May 2014.

Steering Committee Member, 2014 International Conference on Computational Science and Computational Intelligence, Las Vegas, NV, March 10 – 13, 2014.

Session Chair, Web Services Session, The Fifth International Conferences on Advanced Service Computing, Valencia, Spain, May 27 – June 1, 2013.

Math volunteer, Creative Learning Academy, 2013

Sunshine Math volunteer teacher, Cordova Park Elementary School, 2006 – 2011

Science volunteer teacher, Cordova Park Elementary School, 2005 – 2006

Session Chair, Novel Applications, ICAI'10: The 2010 International Conference on Artificial Intelligence, Las Vegas, NV, 2010

Reviewer, The International Conference on Society and Information Technologies (ICSIT), 2010

Contributor and reviewer, Big Java textbook, Cay Horstmann, Wiley Publishers, 2009

Program Committee Chair and Reviewer, The 7th International Conference on Education and Information Systems, Technologies, and Applications (EISTA), 2009

Reviewer, The 13th World Multi-Conference on Systemics, Cybernetics and Informatics (WMSCI), 2009

Reviewer, The 2nd International Conference on Knowledge Generation, Communication and Management (KGCM), 2008

Session Chair, The 6th International Conference on Education and Information Systems, Technologies, and Applications (EISTA), 2008

Session Chair, The 5th International Conference on Education and Information Systems, Technologies, and Applications (EISTA), 2007

Associate Editor and Reviewer, International Journal of Learning, 2005

Program Committee Member and Reviewer, Annual Florida Artificial Intelligence Research Society (FLAIRS) Conference, 2005

Contributor, Java Software Solutions textbook, John Lewis and William Loftus, Pearson Addison Wesley Publishers, 2004

Reviewer, Programming Languages and Methodologies textbook, Robert Schalkoff, Jones & Bartlett Publishers, 2004

Reviewer, International Journal of Artificial Intelligence Tools, 2003

Program Committee Member and Reviewer, Annual Florida Artificial Intelligence Research Society (FLAIRS) Conference, 2003

Program Committee Member and Reviewer, International Parallel and Distributed Systems Conference, 2002

Professional Development

Broadening Participation Workshop, University of West Florida, August 11 - 13, 2015.

Diversity Recruitment, Hiring, and Retention Workshop, University of West Florida, January 29, 2015.

Student Success and Retention Workshop, University of West Florida, October 14, 2014.

STEM Retention Workshop, University of West Florida, February 28, 2014.

Research Design and Evaluation Workshop, Center for University Teaching, Learning, and Assessment, University of West Florida, February 1, 2013.

Preparing for Tenure and Promotion Workshop, Center for University Teaching, Learning, and Assessment, University of West Florida, January 18, 2013.

Communication & Leadership Skills: Dealing With Conflict Workshop, Center for University Teaching, Learning, and Assessment, University of West Florida, November 2, 2012.

Institute for Academic Leadership Workshop, Howey-in-the-Hills, FL, May 23 – 26, 2010.

ABET Best Assessment Processes Symposium, Atlanta, GA, April 25 – 26, 2008.

Assessment Workshops by Dr. Peggy Maki, Center for University Teaching, Learning, and Assessment, University of West Florida, April 16, 2008.

Studio E Faculty Development Workshops for online course development, University of West Florida, summer 2007.

Assessment Workshops by Peggy Maki, Center for University Teaching, Learning, and Assessment, University of West Florida, 2006 – 2007

Student Assessment Workshop by Barbara Walvoord, Center for University Teaching, Learning, and Assessment, University of West Florida, Spring 2005

NSF CISE Grant Workshop, Office of Research and Graduate Studies, University of West Florida, Spring 2002

Compleat Professor Workshops, Center for University Teaching and Learning, University of West

Florida, 2001-2002

Workshop 1: UWF and Florida SUS Orientation, Fall 2001
Workshop 2: Teaching Effectiveness, Spring 2002
Workshop 3: Research and Scholarly Activities, Spring 2002

Enhancing Teaching with Technology Workshop, Center for University Teaching and Learning, UWF, 2001-2002

CAROLINE S. JOHN

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Bldg.4, Room 238
University of West Florida
Department of Computer Science
11000 University Pkwy
Pensacola, FL 32514
Email: cjohn@uwf.edu
Office: (850) 474-2973

PROFESSIONAL PREPARATION

Anna University, India, Electronics, and Communication Engineering B.E., 2007
University of Alabama in Huntsville, Electrical Engineering, M.S., 2012
University of Alabama in Huntsville, Cyber Security, Post-Bachelor Certificate, 2013 University of Alabama in Huntsville, Electrical Engineering, Ph.D., [2012 – Present]

APPOINTMENTS

Since 2016 Faculty Member/Lecturer, Department of Computer Science, University of West Florida, Pensacola, FL
2015 - 2016 Graduate Research Assistant, Department of Electrical and Computer Engineering, University of Alabama in Huntsville, Huntsville, AL
2012 – 2015 Adjunct Instructor, College of Business Administration, University of Alabama in Huntsville, Huntsville, AL
2009 - 2012 Graduate Teaching Assistant, Department of Electrical and Computer Engineering, University of Alabama in Huntsville, Huntsville, AL

SYNERGISTIC ACTIVITIES

- *Co-PI* for the Capacity Building Program Grant – Florida Center for Computer Science (FC2), The University of South Florida, June. 2017 - June.18; Funded Amount $75,212.
  Project Title: "*A Novel Framework to Teach Hands-on Laboratory Exercises in Computer Science*"

- *Co-PI* and Recipient of the 2015 Cooperative Agreement Award for Dual Use Technology Development, sponsored by the Marshall Flight Space Center, NASA; May. 2015 – Aug.16; Funded Amount -$31,992.
  Project Title: "*Optimization of Ferroelectric Ultra-capacitors for Energy Storage*"

PEER-REVIEWED PUBLICATIONS

Journal Articles:

- Ezhil Kalaimannan and ***Caroline S. John***, "Security Development Life Cycle framework for web-based applications," Vol. 3, No. 1, National Computer Science Institute Journal, Apr. 2016.

- ***Caroline S. John***, Todd C. MacLeod, Joe Evans, and Fat D. Ho, "Characterization of an autonomous non-volatile ferroelectric memory latch", Journal of Integrated Ferroelectrics, Vol. 132, No. 1, pp. 76-81, 2012.

- ***Caroline S. John***, Todd C. MacLeod, Joe Evans, and Fat D. Ho, "Retention Analysis of a Non-Volatile Ferroelectric Memory Device", Journal of Integrated Ferroelectrics, Vol. 140, No. 1, pp. 23-34, 2013.

- ***Caroline S. John***, Todd C. MacLeod, Joe Evans, and Fat D. Ho, "Temperature Effects on a Non-Volatile Memory Device with Ferroelectric Capacitor", Journal of Integrated Ferroelectrics, Vol. 157, No. 1, pp. 23-30, 2014.

TEACHING EXPERIENCE

Computer Science
- Discrete Structures (Undergraduate)
- Introduction to Computer Organization (Undergraduate)

Computer Programming
- Algorithm and Program Design (Undergraduate)

COLLABORATORS & OTHER AFFILIATIONS

- **Collaborators and Co-Editors.** Fat D. Ho (UAHuntsville), Hongmei Chi (FAMU), Ezhil Kalaimannan (UWF), Todd C. Macleod (MSFC, NASA).

- **Graduate Advisors and Postdoctoral Sponsors.** Prof. Jatinder N.D. Gupta, Prof. Earl B. Wells (University of Alabama in Huntsville, Huntsville, AL, USA) and Dr. Terry J. Rolin (Marshall Flight Space Center, NASA, Huntsville, AL, USA).

- **Thesis Advisor and Postgraduate-Scholar Sponsor.** None.

EZHIL KALAIMANNAN

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Email: ekalaimannan@uwf.edu
Office: (850) 473-7005

Professional Preparation

Anna University, India, Electrical Engineering B.E., 2006
University of Alabama in Huntsville, Computer Engineering, M.S., 2008
University of Alabama in Huntsville, Cyber Security, Post-Bachelor Certificate, 2012
University of Alabama in Huntsville, Computer Engineering, Ph.D., 2014

Appointments

Since 2014	Assistant Professor, Department of Computer Science, University of West Florida, Pensacola, FL
2010 – 2014	Adjunct Instructor, College of Business Administration, University of Alabama in Huntsville, Huntsville, AL
2009 - 2012	Graduate Teaching Assistant, Department of Electrical and Computer Engineering, University of Alabama in Huntsville, Huntsville, AL

Synergistic Activities

- Capacity Building Program Grant -- Florida Center for Computer Science (FC2), The University of South Florida, Role: Principal Investigator, June. 2017 -- June. 2018; Funded Amount - $75,212.
    - *Research Project Title: A Novel Framework to Teach Hands-on Laboratory Exercises in Computer Science.*

- Recipient of the Collaborative seed grant offered by the Florida Center for Computer Science (FC2), *The University of South Florida, Mar. 2015* – Dec. 2016, $12,500.
    - *Research Project Title: Exploring Security Attacks in Cache Enabled Tactical Hybrid Networks*

- Recipient of the Cross College Faculty Research (CCFR) grant offered by the Office of Vice President for Research, *The University of Alabama in Huntsville, Aug. 2013* - $5,000/year (Renewable for a total of 24 months and $10,000).

- *Research Project Title: Computational Optimization Models for Investigating Crime in Digital Forensics*

- Technical Program Committee Member: *Pre-ICIS Workshop on Information Security and Privacy (WISP 2012)*; Annual ADFSL Conference on Digital Forensics, Security and Law (ADFSL 2015, 2016, 2017); 17th International Conference on Computer and Information Technology (ICCIT 2014, 2015); 15th Annual Digital Forensics Research Conference (DFRWS USA 2015, 2016, 2017); Seed Grant Program funded by the Florida Center for Computer Science (FC2).

- Journal Referee: Adhoc member of Elsevier Digital Investigation Journal, Journal of Digital Forensics, Security and Law, and International Journal of Computational Intelligence (Advance Computing Science).

Peer-Reviewed Publications

Journal Articles:

- Bagui, S., Fang, X., *Kalaimannan, E*., Bagui, S.C and Sheehan, J. "Comparison of machine-learning algorithms for classification of VPN network traffic flow using time-related features", Journal of Computer Science Technology, Vol. 1, No. 2, pp. 108-126, 2017.

- *Kalaimannan, E* and Gupta, J.N.D. "The Security Development Lifecycle in the Context of Accreditation Policies and Standards", *Security and Privacy, IEEE,* Vol. 15, No. 1, pp. 52-57, 2017. *[Impact Factor: 0.91]*

- *Kalaimannan, E*., John, S.K., DuBose, T and Pinto, A. "Influences on ransomware's evolution and predictions for the future challenges", *Journal of Computer Science Technology*, Vol. 1, No. 1, pp. 23-31, 2016.

- Gupta, J.N.D., *Kalaimannan, E* and Yoo, S-M. "A heuristic for maximizing investigation effectiveness of digital forensic cases involving multiple investigators," *Computers & Operations Research, Elsevier,* Vol. 69, No. 1, pp. 1-9, 2015*. [Impact Factor: 2.188]*

- *Kalaimannan, E* and John, C.S. "Security Development Life Cycle framework for web-based applications," Vol. 3, No. 1, pp. 23-29, 2016.

Articles in Conference Proceedings:

- Prithviraj, S., Sameer, V.U., Naskar, R and *Kalaimannan, E*, "Source Anonymization of Digital Images: A Counter–Forensic Attack on PRNU based Source Identification Techniques",

accepted into 2017 Annual Conference on Digital Forensics, Security, and Law, Daytona Beach, May. 2017.

- Chakraborty, N and *Kalaimannan, E*, "Selective Scheduling: Controlling Non-Preemptive Devices in Smart Grid Environment", Accepted into the 8th Annual IEEE conference on Innovative Smart Grid Technologies, Arlington, Apr. 2017.

- Chi, H., Welch, S., Vasserman, E and *Kalaimannan, E*, "A Framework of Computer Science Approaches in Precision Agriculture ", Proceedings of the 12th International Conference on Cyber Warfare and Security, Dayton, pp. 90-95, Mar. 2017.

- Reichherzer, T., Mishra, A., *Kalaimannan, E* and Wilde, N, "A Case Study on the Trade-Offs Between Security, Scalability, and Efficiency in Smart Home Sensor Networks," Proceedings of the 2016 International Conference on Computational Science and Computational Intelligence (CSCI), Las Vegas, NV, 2016, pp. 222-225.

- Chi, H., *Kalaimannan, E* and Hubbard, D, "Integrate Text Mining into Computer and Information Security Education", KSU Conference on Computer Science Education, Research, and Practice. Paper 11, Kennesaw, Oct. 2016.

- *Kalaimannan, E*., "Smart Device Forensics - Acquisition, Analysis and Interpretation of Digital Evidences," Proceedings of the 2015 International Conference on Computational Science and Computational Intelligence (CSCI), Las Vegas, NV, 2015, pp. 837-838.

- *Pandey, A., Kalaimannan, E*., and Venkatesan, S., "An Information Diffusion Model to analyze the Behavior of Online Social Network based Malwares," Proceedings of the 2015 International Conference on Computational Science and Computational Intelligence (CSCI), Las Vegas, NV, 2015, pp. 867-868.

- *Kalaimannan, E*., Mitchell, C., Bagui, S., and Bagui, S, "An Automated Method of Classifying and Analyzing Malware based Operating System Calls," Work-in-Progress Abstract in the Annual Computer Security Applications Conference 2015 (ACSAC'15), Los Angeles, Dec. 2015.

- *Kalaimannan, E*., Gupta, J. N. D., and Yoo, S-M., "Maximizing investigation effectiveness in digital forensic cases," Proceedings of the 5th Annual ASE/IEEE International Conference on Privacy, Security, Risk and Trust (PASSAT- 2013), Washington D.C., USA, pp. 618 - 623, Sep. 2013. [Acceptance Rate: 9.6%]

- Gupta, J. N. D., *Kalaimannan, E*., and Patnayakuni, R., "IDS Alarms investigation with limited resources," Pre-ICIS Workshop on Information Security and Privacy (WISP), Orlando, Florida, Dec 2012.

- *Kalaimannan, E*., Gupta, J. N. D., and Yoo, S-M., "Maximizing investigation effectiveness for time critical forensic cases" in Operational Excellence: A Key to Performance Excellence, R. K. Jain, B. A. Metri, and J. N. D. Gupta (eds), Excel Books, 2013.

Presentations/Talks

- *Kalaimannan, E* (2016). Integrate Text Mining into Computer and Information Security Education. Paper presented at the KSU Conference on Computer Science Education, Research, and Practice, Oct. 2016, Kennesaw, USA.

- *Kalaimannan, E* (2015). Smart Device Forensics - Acquisition, Analysis and Interpretation of Digital Evidences. Paper presented at the *International Conference on Computational Science and Computational Intelligence (CSCI'15)*, Dec. 7-9, Las Vegas, USA.

- *Kalaimannan, E* (2015). An Information Diffusion Model to analyze the Behavior of Online Social Network based Malwares. Paper presented at the *International Conference on Computational Science and Computational Intelligence (CSCI'15)*, Dec. 7-9, Las Vegas, USA.

- *Kalaimannan, E* (2015). An Automated Method of Classifying and Analyzing Malware based Operating System Calls. Work-in-Progress abstract presented at the *Annual Computer Security Applications Conference 2015 (ACSAC'15)*, Dec. 9-12, Los Angeles, USA.

- *Kalaimannan, E* (2013). Maximizing investigation effectiveness in digital forensic cases. Paper presented at the *ASE/IEEE International Conference on Privacy, Security, Risk and Trust (PASSAT),* Sep. 8-14, Washington D.C., USA.

- *Kalaimannan, E* (2012). Maximizing investigation effectiveness for time critical forensic cases. Paper presented at the *6th International Conference on Decision Sciences for Performance Excellence,* Dec. 27-29, Hyderabad, India.

Collaborators & Other Affiliations

- **Collaborators and Co-Editors.** Jatinder N.D. Gupta (UAHuntsville), Ravi Patnayakuni (UAHuntsville), Seong Moo-Yoo (UAHuntsville), Sikha Bagui (University of West Florida), Norman Wilde (University of West Florida), Swapnoneel Roy (University of Central Florida), Hongmei Chi (Florida A&M University), Sumit Kumar Jha (University of Central Florida), Jinpeng Wei (Florida International University), Geethapriya Thamilarasu (University of Washington Bothell), Cyril Raj (M.G.R. Educational & Research Institute, India).

- **Graduate Advisors and Postdoctoral Sponsors.** Prof. Jatinder N.D. Gupta and Dr. Seong Moo-Yoo (University of Alabama in Huntsville, Huntsville, AL, USA).

- **Thesis Advisor and Postgraduate-Scholar Sponsor.** None.

Dr. rer. nat. (Ph.D.) Bernd Owsnicki-Klewe

Email:

bowsnickiklewe@uwf.edu

RECENT ACTIVITIES AT UWF (LECTURE DETAILS UNDER POINT F)

2010 through today:	Assessment coordination for the CS department
2014 through 2016	ABET collaborator
Since 2008	Member of various departmental/university committees Currently CASL

Spring 2017

CGS 3183:	Basic Web Applications
CIS 4592:	Capstone 2
COP 4027:	Advanced Computer Programming
COT 4420:	Theory of Computation (F2F/online)

Fall 2016

COP 2253:	Java Programming
CEN 4400:	Introduction to Operations Research
CTS 4817:	Web Server Administration
COP 4856:	Distributed Software Architectures 1 (F2F/online)

Support of the ACM ICPC South-East Regional

Summer 2016

CGS 3853: Web Page Design

Spring 2016

COT 3100:	Discrete Structures
CGS 3183:	Web Design for E-Commerce
CIS 4592:	Capstone 1
COT 4420:	Theory of Computation (F2F/online)

Fall 2015

COP 2253:	Java Programming
CEN 4400:	Introduction to Operations Research

CTS 4817: Web Server Administration
COP 4856: Distributed Software Architectures 1 (F2F/online)
Organization of the ACM ICPC South-East Regional
Summer 2015
CGS 3853: Web Page Design
Spring 2015
COT 3100: Discrete Structures (F2F/online)
CGS 3183: Web Design for E-Commerce
CIS 4592: Capstone Research Experience
Summer 2014
CIS 4905: Directed Study "Web Application Security"
CGS 3853: Web Page Design
Spring 2013
COT 3100C: Discrete Structures
CGS 3183: Web Design for E-Commerce
CIS 4592: Capstone Research Experience
COT 4420: Theory of Computation (F2F/online)
COP 4857: Distributed Software Architectures 2 (online)
Fall 2013
COP 2253: Java Programming
CIS 4595C: Capstone Project
CTS 4817: Web Server Administration
COP 4856: Distributed Software Architectures 1 (F2F/online)
Organization of the ACM ICPC South-East Regional
Summer 2013
CGS 3853: Web Page Design
Spring 2013
COT 3100/L: Discrete Structures with Lab
CGS 3183: Web Design for E-Commerce
CIS 4592: Capstone Research Experience
COT 4420: Theory of Computation (F2F/online)
Fall 2012
COP 2253: Java Programming
CIS 4595C: Capstone Project
CTS 4817: Web Server Administration
COP 4865: Distributed Software Architectures 1 (F2F/online)
Organization of the ACM ICPC South-East Regional

Summer 2012

CGS 3853: Web Page Design

Spring 2012

COT 3100/L: Discrete Structures with Lab

COP 4814: Net-Centric Applications

CIS 4592: Capstone Research Experience

COT 4420: Theory of Computation (F2F/online)

COP 4534L: Data Structures and Algorithms 2 Lab

Fall 2011

CGS 2060L: Excursions in Computing Lab

COP 2253: Java Programming

CTS 4817: Web Server Administration

COP 4865: Distributed Software Architectures 1 (F2F/online)

Organization of the ACM ICPC South-East Regional

Spring 2011

COT 3100/L: Discrete Structures with Lab (Pensacola)

COP 4814: Net-Centric Applications (Pensacola)

CIS 4592: Capstone Research Experience

COT 4420: Theory of Computation (DL, Online, Pensacola)

Fall 2010

COP 2253: Java Programming (3 sections, Pensacola/online)

CTS 4817: Web Server Administration

Organization of the ACM ICPC South-East Regional

Summer 2010

COP 2253: Java Programming

CGS 3853: Web Page Design

Spring 2010

COP 2253: Java Programming (Online)

COT 3100/L: Discrete Structures with Lab (Pensacola)

CIS 4592: Capstone Research Experience

COT 4420: Theory of Computation (Pensacola)

Fall 2009

COP 2253: Java Programming (Pensacola/online)

CTS 4817: Web Server Administration

COP 4865:Distributed Software Architectures 1 (Pensacola) Spring 2009

COP 2253: Java Programming (Pensacola)

COT 3100/L: Discrete Structures with Lab (Pensacola)
COP 3022/L: Intermediate Programming with Lab (Pensacola)
COT 4420: Theory of Computation (Pensacola)
Argoforge: Training group for Programming Competitionsi

Fall 2008

COP 2253: Java Programming (Pensacola/online)
COT 3100/L: Discrete Structures with Lab (Pensacola)
COP 4865: Distributed Software Architectures 1 (Pensacola)ii
Coach for the 2008 ACM International Collegiate Programming Contest

Spring 2008

COP 2253: Java Programming (Pensacola/online) [3 sections]
COT 3100: Applications of Discrete Structures

Fall 2007

COP 2253: Java Programming (Pensacola) [2 sections]
CGS 3823: Web Page Design (Pensacola)
COT 4420: Theory of Computation (Pensacola)
Organization of the UWF Second Life presenceiii
Contact faculty for Bits & Bytes – UWF/CS Student's Group

Spring 2007

COP 3022: Intermediate Programming (Pensacola) [2 sections]
COT 4420: Theory of Computation (Pensacola)
COT 3100: Applications of Discrete Structures
CEN 5915: Graduate CS research: Embedded Systems
UWF Honors Seminar “Great Works of Science”: Frontiers of Computing
Participation in Curriculum Reform Working Group
Participation in the setup of the new CS department web server
Final development, launch and maintenance of the CS web site

Fall 2006

CIS 3020: Science of Computing (Pensacola) [2 sections]
CGS 3604: Applications of Information Technology (Pensacola)
CGS 3823: Web Page Design (Pensacola)
CEN 4905: Directed Study (Client/Server Architectures)
Participation in Curriculum Reform Working Group
Participation in ITS training “Certified Web Developer”
Member of the Association for Computing Machinery (ACM)

A. EDUCATION

1984 Doctorate (Ph.D, Dr. rer. nat.) in Computer Science from the University of Hamburgiv (Grade A, "Magna cum laude"). Thesis supervisors: Prof. Dr. F. Schwenkel (Univ. of Hamburg), Prof. Dr. W. Brauer (Technical Univ. of Munich), Prof. Dr. H.-J. Schneider (Technical Univ. of Berlin)

1980 Diploma in Computer Science from the University of Hamburg (Grade A) on subject of "Knowledge Based Systems"

B. PROFESSIONAL HISTORY

2005 - Current: Lecturer at the Department of Computer Sciencev at the University of West Florida.

2004 - 2005 Settling over to the USA, received work permit and SSN. Work on a CS textbook, improving photography and Photoshop/Flash skills.

1990 – 2004 Full Professor for Foundations of Computer Science and Applications of Computer Science in Economy at University of Applied Sciences Hamburgvii, Department of Electrical Engineering and Computer Scienceviii.

1984 – 1990 Researcher with PHILIPSix Research Laboratory, Hamburg. Research topics: Theoretical considerations, design and nucleus
implementation of a taxonomic knowledge representation system (based on description logics a la KL-ONE) at PHILIPS Research Laboratory, Hamburg. Several publications, invited talks and lectures within and outside of PHILIPS.

Since December 1987: Project leader (leading 4 scientists) supervising system extensions like connecting to a DBMS and integration of nonmonotonic and vague reasoning. Work on example applications: Computer configuration and text understanding.

1980 – 1984 Freelance employee with REDA GmbH, Hamburg/Grossensee, a consulting firm with focus on accounting and cost control for medium-sized manufacturing companies. Leading designer and implementation supervisor of BABSSY, a software system for integrated accounting, cost controlling and production control.

Responsibilities: Management of two pilot installations (in jewelry and mechanical engineering companies), technical and organizational support, consultant to customer management and general maintenance of customer relations. Reported directly to CEO. Later awarded procuration for REDA until leave in 1984.

1973 – 1980 Freelance employee with SCHIFFKO GmbHx, Hamburg. Design and implementation of software (FORTRAN) for Computer Aided Manufacturing (CAM) in shipbuilding.

Esp. S16-BS, an interactive graphical program for interactive arrangement of pieces on steel plates for oxygen or laser cutting. Participation in several workshops and exhibitions on CAM and cutting technology.

C. PROFESSIONAL SERVICES

2002 – 2004 Designer and webmaster of the Computer Science website at UAS Hamburgxi.

1998 – 2004 Member of the Study Reform Committee of the Department of Electrical Engineering and Computer Science. Member of the work group on the definition of the revised CS study system, including introduction of Bachelor's and Master's degrees in CS. Participation in several auditions for accrediting Bachelor and Master courses in Computer Science and Information Engineering.

1997 – 1999 Member of the department's working group on cooperation with local high schools on issues of CS education in high schools.

1997 – 1999 Participation in the University work group on the agreement upon "Ergonomic guidelines for computer workplaces". Definition of ergonomic rules and their implementation within the around 800 staff computer workplaces at the University.

1995 – 2004 Reviewer of several books on AI and C++ programming (details available upon request)

1994 – 1995 Expert referee for several Federal Research Funding Applications procedures (by the German Secretary for Research and Technology)

1992 - 1994 Head of the "Laboratory for Software Technology" at the Dept. of EE and CS at FH Hamburg, overseeing five laboratory assistants/technicians. The laboratory is responsible for carrying out teaching support for more than 400 students of "Software Technology" and "Technical Computer Science".

1992 – 1994 Member of the "Computer Council Berliner Tor". Council objectives: Planning and overseeing the future technical and staff development of computer equipment for four major departments of the university.

1990 Referee for the German Workshop on AI, GWAI-90

1990 – 1999 Member of several committees for the appointment of professors in Hamburg, Leipzig and Elmshorn (Northern Academy)

1989 Referee for the workshop on "Modeling" at the Austrian AI Conference, ÖGAI-89

1988 Program Chairman, organization and management of the 6th Spring School on AI, KIFS-88, Günne

1988 Member of the program committee of the German Workshop on AI, GWAI88

1987 Expert referee for ”Informatik in Forschung und Entwicklung” (Computer Science in Research and Development)

1987 Referee for the German Workshop on AI, GWAI-87

1979 – 1980 Participation in the “CAD Working Group” at the ”German Research Center for Shipbuilding”. Emphasis on discussion and recommendation of “Guidelines for Future CAD Applications in Shipbuilding and Maintenance Technology” (recommendation to the German Secretary for Research and Technology). Evaluation of several Computer Graphics kernel systems, esp. GKS

D. PUBLICATIONS (In chronological order)

Graphische Datenverarbeitung – Eine marktnahe Neuentwicklung zur Steigerung der Effektivität in der Fertigungsvorbereitung (Graphical Data Processing – A close-tomarket development to increase efficiency in production planning). HANSA – Schiffahrt – Schiffbau – Hafen, 114, No. 18, pp. 1599-1601, 1977 (with B. Pruin).

Bauteile SMD, ein in die Praxis eingeführtes EDV-Paket für die blechverarbeitende Industrie (Parts SMD, a practical EDP package for the steel processing industry).
HANSA – Schiffahrt – Schiffbau – Hafen, 115, No. 18, pp. 1463-1672, 1978 (with H. Dittmann, U. Kipp, B. Pruin).

Repräsentation von strategischem Schachwissen (Representation of Strategic Chess Knowledge). KI-Rundbrief der GI Nr. 21, pp. 2-6, 1980 (with K. v. Luck)

Structures for Knowledge Based Chess Programs. In: J. Siekmann (ed.): GWAI-81, German Workshop on Artificial Intelligence, pp. 297-306, Springer Verlag, 1981 (with K. v. Luck) [refereed]

N.N. A View on Planning in Chess. In: W. Wahlster (ed.): GWAI-82, German Workshop on Artificial Intelligence, pp. 92-101, Springer Verlag, 1982 (with K. v. Luck) [refereed]
N.N. A Case Study in Chess Knowledge Representation. In: D. Beal (ed.): Advances in Computer Chess IV, pp. 127-146, Pergamon Press, 1984 (with K. v. Luck) [refereed]

Declarative Representation of Control Structures. In: J. Laubsch (ed.): GWAI-84, German Workshop on Artificial Intelligence, pp. 181-190, Springer Verlag, 1984 (with K. v. Luck) [refereed]

Repräsentation von postionellem Schachwissen mit Methoden der Künstlichen Intelligenz (Representation of Positional Chess Knowledge with Artificial Intelligence Methods), Ph.D. Thesis. Also: Report No. 111, Department of Computer Science, University of Hamburg

Data Models in Knowledge Representation Systems. In: C.-R. Rollinger, W. Horn (eds.): GWAI-86, German Workshop on Artificial Intelligence, pp. 69-74, Springer Verlag, 1986 (with J. Edelmann) [refereed]

Neuere KI-Formalismen zur Repräsentation von Wissen. In: T. Christaller (ed.): Künstliche Intelligenz, KIFS-87, 5. Frühjahrsschule für Künstliche Intelligenz, Springer Verlag, 1989 (with K. v. Luck) [invited]. English version: New AI formalisms for Knowledge Representation, KIT Report, TU Berlin, 1987

Configuration as a Consistency Maintenance Task. In: W. Hoeppner (ed.): GWAI-88, German Workshop on Artificial Intelligence, Springer Verlag, 1988 [refereed]

Probabilistic Inheritance and Reasoning in a Hybrid Knowledge Representation System. In: W. Hoeppner (ed.): GWAI-88, German Workshop on Artificial Intelligence, Springer Verlag, 1988 (with J. Heinsohn) [refereed]

Ein integriertes System zur Repräsentation von Wissen (An Integrated System for the Representation of Knowledge). PHILIPS "Unsere Forschung in Deutschland" (Our Research in Germany), 1989

A General Characterization of Term Description Languages. In: K.H. Bläsius, U. Hedstück, C.-R. Rollinger (eds.): Sorts and Types in Artificial Intelligence, Springer Lecture Notes in Artificial Intelligence, pp. 183-189, Springer Verlag, 1989 [invited]

A Cardinality-Based Approach to Incomplete Knowledge. In: L.C. Aiello (ed.): Proceeding of the European Conference on Artificial Intelligence, ECAI-90, pp. 491-496, Pitman Publishing, London, 1990 [refereed]

Term Subsumption Languages in Knowledge Representation. AI Magazine, No. 2, pp.16-23, 1990 (with P. F. Patel-Schneider, A. Kobsa, N. Guarino, R. M. MacGregor, W. S. Mark, D. L. McGuiness, B. Nebel, A. Schmiedel, J. Yen)

KL-ONE – Eine Einführung (KL-ONE – An Introduction). In: P. Struß (ed.): Wissensrepräsentation (Knowledge Representation), Oldenbourg Verlag, 1991 (with K. v. Luck) [invited]
Integrating Cognitive Systems: First Intermediate Report - Project Outline, 1995 (with K. von Luck)

Smalltalk als Plattform zur Integration unterschiedlicher Softwarekonzepte (Smalltalk as a Platform for the Integration of Various Software Concepts). Proceedings of the STJA (Smalltalk and Java in Industry and Education) '97, pp. 209-214, 1997 (with M. Böhm, G. Pfeiffer, J. Raasch) [refereed]

Integration kognitiver Systeme - ein Zwischenbericht (Integration of Cognitive Systems – an Intermediate Report). KI (German magazine on Artificial Intelligence), No. 2/97, pp. 33-36, 1997 (with M. Böhm, G. Klemke, K. v. Luck, G. Pfeiffer)

Objektorientierung in der Informatikausbildung auf der Basis von Smalltalk (Object Orientation in Computer Science Education based on Smalltalk). Informatik Spektrum No. 20, pp. 335-343, 1997 (with M. Böhm, J. Freytag, G. Pfeiffer, J. Raasch) [invited]

Introducing a Reflective Activity into the Design Process in an Advanced Computer Programming Course, CCSC-MS: 2016 (with J. Coffey)

E. BOOKS

Algorithmen und Datenstrukturen (Algorithms and Data Structures), Verlag Wißner,

Augsburg, 1995, 2nd ed. 1997, 3rd ed. 1998, 4th ed. 2002, ISBN 3-89639-172-0

Wissensrepräsentation und Logik - Eine Einführung (Knowledge Representation and Logic – An Introduction). In: Görz, G. (ed.): Handbuch der Künstlichen Intelligenz

(Handbook of Artificial Intelligence), Addison-Wesley, 1993, 2nd ed. 1995, 3rd ed. 2000, ISBN 3-486-25049-3 (with K. v. Luck, B. Nebel). Responsible chapter editor of the chapter on “Knowledge Representation”.

F. PRESENTATIONS (SELECTION, IN CHRONOLOGICAL ORDER)

Wissensrepräsentation mit Semantischen Netzen (Knowledge Representation with Semantic Networks). PHILIPS Research Laboratories, Hamburg, 1986

Semantic Networks. ISA Colloqium on Conceptual Modeling, Eindhoven, 1986

The MESON Knowledge Representation System. PHILAI-86, PHILIPS Workshop on Artificial Intelligence, 1986

Notes on the Role of Semantics in Knowledge Representation Systems. Tutorial at the German Workshop on Artificial Intelligence GWAI-86, 1986

On the Representation of Uncertainty in Semantic Networks. PHILAI-87, PHILIPS Workshop on Artificial Intelligence, 1987

Non-Concepts and Non-Roles. 1st German KL-ONE workshop, Saarbrücken, 1987

Advanced Course: New AI Formalisms for Knowledge Representation. 5th Spring School on AI (KIFS-87), Günne, (with K. v. Luck), 1987

Basic Course: Knowledge Representation. 6th Spring School on AI (KIFS-88), Günne, (with K. v. Luck), 1988

Configuration in the MESON Knowledge Representation System. PHILIPS TDS Appeldoorn, 1988

Verstehen und Referenz in der KI (Understanding and Reference in AI). Workshop on the Philosophy of Understanding, Dagstuhl, 1989

Knowledge Representation for Text Understanding. Institute for Perception Research, Eindhoven, 1989

Terminologische Repräsentationssysteme (Terminological Representation Systems). Univ. Bielefeld, 1989

The MESON Knowledge Representation System. AAAI Workshop on "Term Subsumption Languages in Knowledge Representation", Thorn Hill, NH, 1989

Wohin steuert die KI? (Where is AI heading to?). Spring School on Artificial Intelligence, Günne, 1991

Künstliche Intelligenz - Ein Thema für das Gymnasium? (Artificial Intelligence - A Topic in High-School Education?). Annual Conference of the MNU (Society for Education in Science and Mathematics), Stuttgart, 1992 (with Y. Klewe)

Semantic Networks and Term Description Languages for Knowledge Representation. Advanced Tutorial at the Conference on Artificial Intelligence in Medicine (AIME-93), Munich, 1993

Several presentations to high school representatives on "CS education in high school", 1997-1999

Programming Languages (position statement). Workshop on "Object Orientation in Education". GI-Tagung Informatik und Ausbildung (Conference of the German CS Society on Computer Science and Education), Stuttgart, 1998

oo-m-ai: Object-oriented Methods for Artificial Intelligence. Presentation at the Institute for Human and Machine Cognition, Pensacola, Florida, 2001.

G. TEACHING EXPERIENCE

The following courses have been held at different Universities and academies in and around Hamburg.

Semantisch fundierte Wissensrepräsentationssysteme (Semantically Well-founded Knowledge Representation Systems). Seminar, Univ. of Hamburg, (with K. v. Luck), Fall 1988

Modellbildung in wissensbasierten Systemem (Modeling in Knowledge Based Systems). Seminar, Univ. of Hamburg, (with K. v. Luck), Spring 1989

Algorithms and Data Structures. Northern Academyxii, Elmshorn, 1996 – 2003. See below

Theoretical Foundations of Computer Science 3. Northern Academy, Elmshorn, 1999 Formal languages, grammars, Chomsky hierarchy of grammars and languages,
Pumping Lemma for regular languages, context-free languages, parsing problem, Compiler architecture, LL(1) parsing

Weekend seminar: Introduction to Java. Northern Academy, Elmshorn, 1999/2001/2002 See Programming 2 (Java) below

The following courses have been held at the University of Applied Science, Hamburg. Some have been held multiple times since 1990. Some lecture's material might overlap due to changes in the curriculum over the years.

Programming 1 (Pascal)
Simple data types, control structures, compound data types, procedural abstraction, data abstraction, top-down development, correctness (assertions, invariants)

Programming 2 (Pascal)

Basic algorithms, sorting and searching, information systems architectures, practical case studies

Programming 1 (Smalltalk)

Principles of object-orientation, CRC principle, message passing, classes, instances, methods, iterations, collections, streams, abstract classes and methods, design and redesign issues, GUI design, information systems architectures, simple design patterns ("Observer", “Factory”, “Singleton”, …)

Programming 2 (Java)

Distinctions between Smalltalk and Java, static vs. dynamic typing, type casts, design using abstract classes and interfaces, containers, exceptions, threads, events, AWT, applet programming, http services, reflective programming, advanced design patterns (“Strategy”, “COR”, …)

Programming for Students of Electrical Engineering (Pascal) Simple data types, control structures, compound data types, procedural abstraction, top-down development, numerical methods, basic algorithms (sorting and searching)

Algorithms and Data Structures (Pascal, C++ and Java)

Quality of algorithms, abstract data types, asymptotic analysis, sorting algorithms, divide-and-conquer algorithms, external sorting, binary search trees, B-Trees, tree and graph searching, optimization (greedy, Dynamic Programming), data compression

Functional and Logic Programming (Scheme/Prolog)

Functional programming paradigm, functions as first-class objects, lambda abstraction, higher-order functions, lexical and dynamic binding, encapsulation principle, delayed evaluation, streams, meta programming, logical programming paradigm, pattern matching and unification, WAM, Prolog programming styles, non-deterministic programming, information systems in Prolog, deductive databases, introduction to NLP and DCG parsing

Artificial Intelligence (Scheme/Common Lisp)

Introduction to Scheme/Lisp, list processing, list representation of complex data structures, objectives and methods of Artificial Intelligence, pattern matching, deduction algorithms, frame-based representation schemes, Micro-Flavors, Expert Systems

Applications of Artificial Intelligence (Prolog)

Advanced Prolog programming, backtracking control (cut, fail), non-deterministic parsing, Definite Clause Grammars, syntax, compositional semantics, world models and references, QA systems, semantic anomalies, issues of ambiguity

Applications of Artificial Intelligence (Smalltalk)

Objectives and methods of Artificial Intelligence, symbolic and sub-symbolic AI, symbols and denotation, logic, basic model theory, uninformed search methods, “Generate and Test”,

backtracking search, constraint solving, backward checking, forward checking, dependency-directed backtracking, informed search methods, gradient search, A* search, Means-End search, diagnostic problems, truth maintenance, uncertain knowledge, representation of temporal constraints, planning and configuration

Computer Science 1 (C++, in English for the international course on "Information Engineering")
Algorithms, data structures and abstract data types, Discrete Mathematics introduction (summations and products, asymptotic analysis), sorting algorithms, divide-and-conquer algorithms, binary search trees, B-Trees, data compression, tree and graph searching

The Semantic Web (Elective module)xiii
Current state of WWW services, Berners-Lee's "Semantic Web" vision, Search Engines,Annotations, SW activities by W3C and SemanticWeb.org, Semantics, Logic and Set Theory, Ontologies (Aristotle to modern), Languages (RDF, Description Logics, (DAML, OIL, …), Tools (Amaya, OilEd, …), Ontology construction and use

Introduction to Computer Science
Overview of CS, history of CS, coding schemes, the concept of information, redundancy, logic circuits and arithmetic, hardware abstraction layers, equivalence of hardware and software, programming languages and paradigms, automata and limits of computation.

Automata Theory
Alphabets, formal languages, grammars, Chomsky hierarchy of grammars, finite automata, acceptance conditions, regular languages, non-deterministic FAs, regular expressions, pumping lemma for regular languages, finite machines, applications in UI and protocol design, context-free languages and LL(1) parsing, push-down automata, normal forms, pumping lemma for CFLs, equivalence of CFLs and PDAs.

Compiler Construction
Compiler/Interpreter architecture, lexical analysis with finite machines, LL(1) parsing, elimination of left recursion, left factorization, manual conflict resolution, error recovery strategies, issues of semantics, attributed grammars, syntaxdirected translation, type checking, intermediate code generation (Reverse Polish
Notation), code design, limits of syntax-directed translation, bottom-up parsing, (S)LR parsing, lex and yacc

Theory of Computability
Objectives of Computability Theory, historical outline, Turing Machines, TMs as acceptors, recursively enumerable (Turing-acceptable) languages, computable functions, existence of non-computable functions, enumerable sets, decidable sets, construction of enumerators (dovetailing), Chomsky type 0 languages, equivalence of r.e./enumerable/type 0 languages, the Universal Turing Machine, non-deterministic TMs, undecidable problems, Halting Problem, equivalence of TMs, non-r.e. languages, undecidable languages, Rice's Theorem, Recursive functions, Introduction to Complexity Theory

Seminar on Applied Computer Science (Examples of tutored student presentations) Non-deterministic algorithms, probabilistic algorithms, encryption and compression algorithms, compression and transmission standards, computer viruses, XML, VPNs, Java 2 and JFC, Servlets, Web Services, distributed systems, electronic marketplaces

Seminar on Technical Computer Science (Examples of tutored student presentations) XML, DTDs and XMLS, URIs and XML namespaces, CSS and XSL/XSLT, XPath, XLink, XPointer, XQuery, XML development tools, XML extensions (RDF, DAML+OIL, etc.), XML applications

Introduction to CS

History of CS, areas of CS, number systems, elementary circuit design, effective procedures (algorithms), Turing machines, efficiency issues, asymptotic analysis, PL paradigms (imperative, functional, logical), syntax/semantics/translation of PLs, social implications of CS.

Automata and Formal Languages

Alphabets, formal languages, grammars, Chomsky hierarchy of grammars, finite automata, acceptance conditions, regular languages, non-deterministic FAs, regular expressions, pumping lemma for regular languages, finite machines, applications in UI and protocol design, context-free languages and LL(1) parsing

The following courses have been held at the University of West Florida.

Science of Computing

Data storage, data manipulation, operating systems, networking, algorithms, programming, software engineering, data abstractions, database systems, artificial intelligence, theory of computation

Intermediate Programming in Java

Arrays, Arraylists, Interfaces, inheritance, graphics, events, GUIs, exceptions, files and streams

Introduction to Software Engineering

Software Life-Cycle models, Software process models, teams, requirements analysis, OO analysis, OO design, implementation, post-delivery maintenance

Data Structures and Algorithms

Analysis of algorithms, Stacks and Queues, Binary Trees, self-adjusting trees (AVL, B-Trees), Hashing, Sorting, Graph algorithms

Theory of Computation

Sets, alphabets, mappings, formal languages, grammars, finite automata, acceptance conditions, regular languages, non-deterministic FAs, regular expressions, pumping lemma for regular languages, context-free languages, derivations, derivation trees, Chomsky Normal

Form, pumping lemma for CFLs, Turing Machines, acceptance, recursively enumerable languages, construction of TMs, TMs as enumerators, Church-Turing Thesis, Halting Problem, undecidable languages, reduction proofs, Post's Correspondence Problem

Applications of Information Technology

Computer terminology, computer components, hardware, software, HumanComputer interaction, GUIs, interface usage, networks, WAN/LAN, Internet, files and folders, HTML, tags, links, pictures, WWW search and information retrieval, information representation, bit, byte, codes, computer organization, CPU, peripherals, machine programs, operating systems, programming languages, algorithms, digital media, sound, images, sampling, compression, social implications of IT, computer hazards, legal issues, spreadsheets, Excel, databases, basic concepts, query composition, database design, privacy and security

Web Page Design

Introduction to the WWW, clients and servers, history, protocols, URLs, HTML/XHTML basics, tags, colors, fonts, advanced XHTML, lists, tables, Cascading Style Sheets (CSS), association via tags/classes, specific styles, elements, external style sheets, CSS positioning, images, formats, preparation and embedding, copyright issues, design basics, usability, accessibility, aesthetics, page navigation schemes, form and color, website planning and construction, browser differences, Javascript basics, Document Object Model (DOM), Javascript and DOM, Multimedia basics, Audio/Video preparation and publishing, codes and Codecs, compression, SMIL

Applications of Discrete Structures

Propositional logic, truth tables, equivalences, predicates, quantifiers, inferences rules, proofs (direct, indirect), sets, operations, Venn diagrams, functions, surjective/injective/bijective, inverse functions, sequences and summations, summation rules, algorithms, asymptotic analysis, function growth (O, W, Q), definitions, proofs, algorithm complexity, induction proofs (mathematical, strong, structural), recursive definition, recursive algorithms, recursion and recurrences, solving linear recurrences, divide-and-conquer algorithms, Master Theorem, Boolean functions, construction of Boolean functions (Disjunctive/Conjunctive Normal Forms)

Distributed Software Architectures 1

Classification of Distributed Architectures, Client/Server, P2P, Three-Tier Architecture, Databases, Relational Model, Keys, Integrity, Relational Algebra, DB Design, Transactions, Two-Phase Lock Protocol, SQL, MySQL, JDBC, XML, Web Tier, Web Servers, http, Application Servers, GlassFish, NetBeans, Servlets, Java Server Pages, JavaBeans, MVC, Server/Client-Side Validation, Java Server Faces, Distributed Objects, Error Semantics, Sockets, RMI, JRMP, IIOP, CORBA, EJB, Dependency Injection, JNDI, JPA, JTA

Web Server Administration

Installation and administration of the Apache web server under unix, user management, backups, support software (ftp,ssh), server extensions (CGI, PHP, tomcat), web application deployment, server security, secure connections (SSL/TLS), MS Server 2008 and IIS, .NET applications, virtualization

Capstone Research Experience

Research topic selection, literature selection, research project planning, presentation techniques, research report structure, practical aspects (project documentation, three presentations, one research report)

Net-Centric Applications

XML, basics, well-formedness, validation, DTD and XML Schema, CSS, XSLT, client-side scripting, JavaScript, jQUERY, AJAX, server-side processing, PHP, MySql database, web application security (XSS, SQL injection, …), session management, web services, WSDL and SOAP, deployment strategies

Excursions in Computing Lab

Hands-on experience with Search Engines, Web Page Design, Cooperative Work, Media, Operating Systems, Databases, Programming, Research and Presentations

Data Structures and Algorithms 2 Lab

Design studies by course projects, coding and debugging, probabilistic algorithms, applications of asymptotic analysis (recurrences, Master Therorem), Counting and Combinatorics, Greedy Algorithms

Capstone Project

Development of a software system for a real-world client while working in small teams. Development and delivery of relevant artifacts such as a project proposal, design, test plan, code, user's manual, and project log with metrics as the software system evolves throughout the course. A final presentation and evaluation of the project experience is required.

Web Design for E-Commerce

Introduction to software components in e-commerce, Infrastructure for ecommerce, Security and legal issues in e-commerce, Creating a web site for an industry, Accessibility and Usability issues, expanding a web site to include catalogs and shopping carts, Future of e-commerce software; technology: HTML/CSS, Relational DBMS, PHP

Distributed Software Architecture 2

Advanced concepts in Java EE: Details of MVC, EJBs and Dependency Injection (DI), DI by Annotations or JNDI lookup, Bean life cycle and call-backs, Web Services: REST and SOAP-based. Object-Relational Mapping, JPA/JTA (Java Persistence/Transaction API), JMS (Java Message Service), Overview over distributed Dbs (Cassandra, MongoDB).

Directed Study "Web Application Security"

TCP/IP, TLS/SSL (https), attack forms and defenses; analysis of GOTOFAIL and HEARTBLEED, DANE/DNSSEC, Server-side TLS/SSL (Apache), Applicationside TLS/SSL; Server Hardening, Server-side encryption, (hashes/salting), Injection attacks (sanitizing).

Introduction to Operations Research

Game Theory, zero-sum games, equilibria and probabilistic solutions; special optimization problems: Shortest path, transport and scheduling; Linear Optimization: Graphical and computational solutions. Predictions by probability distributions; Introduction to Data Analysis: Analysis of raw data, five number analysis, box plots, geographical data; Programming in R: vectors, matrices, data frames, APIs for optimization and statistical analysis.

Advanced Computer Programming

Asymptotics; basic data structures: Queues, Stacks, trees. Sorting algorithms, Advanced DS: Hash maps, heaps, graphs. OO Design and UML; Java Generics; Design Patterns; Multithreading; DB and Web programming

H. PROJECTS

H1. Research projects

2012 – 2014 Scavenger: Semantic Representations for location-based services and planning.

2011 – 2014 SARIDE: Semantic Representations for Media Objects

2001 – 2004 Initiation of the “oo-m-ai” (OO methods for AI) research project. Project objectives: Develop a coherent, reusable object oriented framework for AIbased problem solving methods. Expanded to dealing with issues of the "Semantic Web" in 2002

1995 – 1997 Initiation and outline of a research project “Integration of Cognitive Systems” at the University of Applied Sciences, Hamburg, Department of Electrical Engineering and Computer Science (with Kai von Luck)xiv. Project goals: Integration of symbolic and sub-symbolic methods for problem solving. Supervision of several student’s theses emerging from this project, esp. in the area of symbolic planning and robot control.

1981 – 1984 Design and prototypical implementation of N.N., a Chess knowledge base for strategic middle game positions at the Department of Computer Science at the University of Hamburg as the Ph.D. project (with Kai von Luck).

H2. Student's (educational) projects

- Logic Programming and Planning (Prolog)
- Visualization for Software Engineering
- Visualization of Finite Automata (Pascal)
- Chess Programmingxv

- Java Evaluation
- Java Applications

I. THESES SUPERVISED (SOME IN COOPERATION WITH LOCAL COMPANIES – SELECTION)

- An Expert System for Human Resource Scheduling
- A Compiler for the Simulation of Robot Motion
- Core Production Planning System
- Mobile Robot Design for Serving Multiple Goals
- A Knowledge Representation Framework for Simulation
- Planning with Blackboard Abstractions
- An Object Oriented Robot Simulation System
- Design of a Cooperative Internet Agent
- An Open Logic-Programming Environment for Smalltalk
- The Use of Annotations in the "Semantic Web"
- Ontologies and Web Search Engines

J. ONLINE RESOURCES (Lectures & Downloads)

- Online slides for the “Semantic Web” course (Spring 2003) http://www.informatik.haw-hamburg.de/~semweb/online/
- Course material for “Computer Science 1” http://www.informatik.haw-hamburg.de/~owsnicki/cs1.html
- Handout “Theory of Computablity” (ps, zip, in German) http://www.informatik.haw-hamburg.de/~owsnicki/public/theo.zip Slides “Compiler Construction” (rtf, zip, in German) http://www.informatik.haw-hamburg.de/~owsnicki/public/folrtf.zip
- Slides “Applications of AI” (ps, zip, in German) http://www.informatik.haw-hamburg.de/~owsnicki/public/kips.zip
- Slides “Functional and Logical Programming” (ps, zip, in German) http://www.informatik.haw-hamburg.de/~owsnicki/public/flfolien.zip

K. COMPUTER-RELATED SKILLS

FORTRAN IV/80, Common Lisp, Scheme, Prolog, Java, C/C++, Smalltalk, XML/HTML, JSON, OWL, CSS, JavaScript, Flash, Photoshop, MySQL, MongoDB, Apache, LaTeX, Linux, R, PHP

L. MISCELLANEOUS SKILLS/HOBBIES

- Audio production and hard disk recording
- Composition and Songwriting

- Guitar, bass, flute playing
- Digital/analog photography and web design
- Chess
- English language (fluent)
- German language (native)

ANTHONY G. PINTO

apinto@uwf.edu

SKILLS SUMMARY

- Ability to relate equally will with subordinates, peers and supervisors.
- Quick to grasp new concepts, taking a common sense approach to new challenges
- Ability to program in Pascal, C, C++, Java, Python, JSP, Java Servlets, Java Server Faces, JDBC, Java Script, Visual Basic, Visual Basic Script, Visual Basic .NET, Perl, Lotus Script, Ada, SQL, PL/SQL, Unix scripting, Cold Fusion, XML, and HTML
- Extensive software applications experience in Windows, Linux, Unix, Lotus Notes and Domino, Oracle, SQL Plus, Eclipse, Net-Beans, MySQL, MySql Work Bench, MS SQL Server, JUnit Testing Framework,Kali Linux tools and Metasplolit
- Extensive knowledge of Ethical Hacking and Penetration testing techniques.
- In-Dept understanding of Capability Maturity Model Integrated (CMMI), Extreme Programming (XP) , Software Development Model and UML.
- Detailed knowledge of NSA/DHS CAE Cyber Defense Application Process
- Skilled in Object Oriented Programming.
- Compiled over 23 years as a classroom instructor and instructor evaluator.
- Certified Technical Trainer with Comptia.
- Negotiation and Presentation Skills.
- Competed twenty years with the United States Marine Corps, with progressively increasing technical and managerial responsibilities.
- Completed 14 years as a graduate and undergraduate Lecturer in Computer Science

EDUCATION

MS, Computer Science (**GPA 3.97**) 1996 - 2002
University of West Florida *Pensacola, Florida*

- Graduate April 2002.
- Courses include: Data Structures**, Software Engineer Courses** to include (Testing, Verification and Validation, Software Specification, Design, Management), Object Oriented Programming (**Java, C++**)**,** Ada, Compiler Construction, Database Programming (**Oracle and SQL**) and Advance Database Programming (Data Mining, PL/SQL and **Oracle**), Research course developing a **Java GUI** Application.

BS, BUSINESS MANAGEMENT (**GPA 4.0**) 1989-1992

University of Maryland *College Park, Maryland*

- Focus in International Marketing and Japanese American Comparative Management.
- Received University of Maryland Scholarship for GPA and paper on career goals.

AA, ELECTRONIC TECHNOLOGY (**GPA 3.93 SUMMA CUM LAUDE**) 1986-1989
Northern Virginia Community College *Annandale, Virginia*

U.S. MARINE CORPS/NAVY TRAINING 1979-1997

- 200 classroom hours in instructional technique and curriculum development.
- 4400 classroom hours in electronic/computer theory and maintenance
- 600 classroom hours in leadership training.
- 120 classroom hours in Total Quality Management Skills.
- Received Leadership Writing Award while attending leadership training course.

PROFESSIONAL TRAINING

- Wireshark Advanced Network Analysis – 2013
- Blackhat Certificate – Hacking by the Numbers Bootcamp – 2013
- Blackhat Certificate – Hacking by the Numbers BlackOps - 2013
- Blackhat Certificate – Pentesting with Kali Lunix – 2013
- Blackhat Certificate – Locking Down Linux – 2014
- Blackhat Certificate – Adaptive Red Team Tactics – 2014
- Quality Matters Course Development - 2017
- NSA/DHS CAE KU Mapping - 2014
- Raytheon Cyber Security Training – 2012-2013
- SEI Introduction to CMMI - 2008
- SEI Intermediate Concepts in CMMI -2008
- SEI Practical Risk Management - 2009
- SEI Mastering Process Improvement -2009

EXPERIENCE

LECTURER 2002 - PRESENT
University of West Florida *Pensacola, Florida*

- Point of Contact –Coordinator for UWF successful effort to achieve the NSA/DHS Center of Academic Excellence Designation in Cyber Defense Education.
- Instructed graduate and undergraduate courses in Computer Science and Software Engineering.fac
- Developed, managed and instructed an intensive (1 day) computer programming course for undergraduate students.

- Lead in coordinating UWF efforts to achieve the NSA/DHS Center of Academic Excellence designation.
- Redesign a Cyber security course including developing 18 laboratory assignments for upper division Cyber Security course involving penetration testing and network defense using Kali Linux and Metasploit.
- Lead in developing a new Computer Science Specialization in Cyber Security, including program and new course design.
- Developed several laboratory assignment for an upper division Computer Science course, designed to improve active learning by providing a more hands on activities.
- Developed and instructed a 1 day orientation for adjunct instructors
- Developed a plan to leverage online meeting software to allow students to increase "Student engagement" and "Active learning" in SE graduate courses.
- Developed new modules in Graduate Database courses to incorporate advanced topics including relational algebra and PL/SQL
- Create an online quiz structure that provided instantiations feedback and allows students to review errors and improve their scores.
- Developed course material to change the database software used in one of our graduate SE courses. Provided students with newer state of the art software.
- Created a lesson learned activity for students in a multiple interation Software Engineering Group Project class.
- Created audio/video recording consisting of an overview that provided insight into solving the complex programming project for a Graduate Java Programming course.
- Designed new laboratory assignments for Intermediate Programming course to expose the student to Software Engineering techniques such as using UML Class and Interactive Diagrams, and incremental design.
- Incorporated demonstration of several complex tasks via on-line videos that provided students with a repeatable video reference to these tasks.
- Created new programming project assignments for Intermediate and Advanced Programming courses that caused students to more thoroughly explore GUI development which is a very marketable skill.
- Requires student in upper level programming courses to develop a users manual for all programming projects, allow student to develop their analytical thinking as well as their writing skills.
- Modified the online quizzes to provide more informative feedback to students.
- Added online quizzes to three face to face courses to provide students with self paced informative feedback.
- Successful in term substitute instructor for a software engineering course.
- Incorporated framework testing via JUnit into Advanced Programming courses laboratory and programming project assignments. Framework testing is a sought after industry skill.
- Completely redesigned the CIS/SE/ITT capstone class to incorporate a clearer, more comprehensive, staged approach to providing solutions to real world clients. The solution included additional artifacts at each stage to improve communication between the client and the development team.
- Redesigned final exam in Graduate On-line Java programming course to test student's skill in developing complex programming solutions while using open book type resources. This new process provided a more thorough assessment of student's abilities.
- Revised a General Studies Computer Science course to increase student engagement and awareness to how information technology affects their chosen fields.

- Reworked two Graduate SE course to fit into a condensed executive format of eight weeks.
- Reviewed and tested a complex laboratory assignment dealing with Service Oriented Architecture and Cloud Computing
- Developed extensive course material for CMMI base process improvement course.
- Delivered a CMMI based process improvement course to industry professionals.
- Structured the use of On-line meeting software provide a more convenient method for student academic advising.
- Mentored a visiting professor in all aspects of teaching an undergraduate programming course.
- Provided extensive course material and mentorship to an adjunct professor in our Java Programming course.
- Created a successful partnership with Defense Activity for Non-Traditional Education Support (DANTES) at Saufley field to create project opportunities for our Graduate and Undergraduate Capstone Students.
- Setup proctor final exam for out of state adjunct professors class, included all administrative tasks including grades the exams for the adjunct professor.
- Paper on "Creating a Technically-Oriented Course in Web Services and SOA" accepted for publication and presentation by the 2010 International Conference on Frontiers in Education: Computer Science and Computer Engineering (FECS'10:July 12-15, 2010, USA)
- Paper on "Supporting Information Systems Education with Open SOA Laboratory" by Norman Wilde, John W. Coffey, Sharon Simmons, Anthony Pinto, and Eric Daniel accepted for publication and presentation by the IADIS International Conference Information Systems 2010, ISBN:978-972-8939-09-0 March 2010, Porto Portugal, pp. 503 – 506.
- Paper on "Influences on ransomware's evolution and predictions for the future challenges" by Ezhil Kalaimannan, Sharon K. John, Theresa DuBose & Anthony Pinto accepted for publication in The Journal of Cyber Security Technology Ref.: Ms. No. TSEC-2016-0002R1 http://www.tandfonline.com/doi/full/10.1080/23742917.2016.1252191
- Database administrator for Oracle Database Server.
- Developed and instructed a comprehensive information technology course covering current and future information technology topics, including new research in computer science.
- Presented a seminar in principles of learning, and instructional technique to the faculty of the Computer Science Department.
- Developed "Hands-on" workshops for Java and C++ Programming courses to increase "Active Learning" and "Student Engagement".
- Create multimedia for use in the Database System course.
- Created an online course project based course which allowed student group interaction in the virtual world of cyberspace.
- Member of the Computer Science Department Graduate Admissions Committee.(2008 – present)
- Member of the UWF General Studies Committee.(2004 – 2010)
- Selected Speaker at the 2005 Student Leadership Conference given by the UWF SGA of FWB.
- Selected Speaker at the 16th International Conference on College Teaching and Learning, March 29 – April 2 2005, Jacksonville, Fl. Presentation on *Why Ethical Themes need to be incorporated in Technology Courses*
- Departmental Representative for SSE recruiting and public relation events

- Coordinated an Memorandum of Understand between SEI and UWF related to teaching SEI CMMI courses to local government and businesses
- Coordinating a UWF entry into the SEI International Consortium of Universities
- Coordinator of outreach program between UWF and West Florida High School, including guest lectures in college level material.
- Active in Departmental Recruiting and public relations
- Developed a program to allow high school students to get Computer Science college credit.
- Developed several fully on-line Software Engineering Graduate Courses, In keeping with "Active Learning" and "Student Engagement" incorporating a virtual classroom technology throughout the course.
- Completed Certification courses in Capability Maturity Model Integrated (CMMI) with the Software Engineering Institute.
- Extremely Active in creating a partnership with Raytheon Corporation to improve our Cyber Security footprint and provide a avenue for further cooperative ventures.
- Invited guest speaker for showing faculty innovative ways to use the virtual classroom education software.
- Identified, coordinated and administered the Sun Micro System's Sun Academic Initiative (SAI) for university students and faculty
- Faculty liaison to Oracle University program that includes informational messages on cutting edge Oracle technologies, access to Oracle Engineers, Discounts on Oracle Certification Exam Self Test Software and Discount on Oracle Certification Exams for Students, Faculty and Staff.
- Members of the SSE Science Showcase presented to several grammar and middle schools in the area.
- Selected member of the Computer Science Department Chair Search Committee.
- Member of the Computer Science New Faculty Search Committee.
- Member of the departmental sub-committee on curriculum revisions.
- Member of the Florida Teachers Certification Examination Computer Science Committee for the Florida Department of Education (DOE).
- AITP Intramural Programming Contest - Develop problems, Monitored and Judged contest
- Member of the departmental sub-committee for Distance Learning.
- Active member of departmental curriculum committee involved in graduate program changes, book selection and coordination of junior college programs.
- Assist the AARP Tax program with vital IT support. Used my profession skill to guide the program coordinator and his volunteers thru issues related to processing, filing tax returns electronically. The program process over 2800 tax returns.
- Liaison between TeleCommunications Systems and UWF to provide student of the DOD Joint Analysis course college credits.
- Catholic Charities - Family Enrichment Program - Tutoring 3rd thru 5^{th} grade in math, reading and English.
- Red Cross Volunteer in Disaster Computer Operations.
- Escambia County School District Mentor
- Children's Home Society Mentor.
- Mentor in the Escambia County School "I Love Science" Program
- Escambia County School's Science Fair Judge
- Episcopal Day School's Science Fair Judge
-

- Fall 2011 No Run-Around Volunteer, this event provided student with information on registration, admittance, financial aid, advising etc.
- Member UWF Military/Veterans Advisory Council
- Activity Coordinator for two activities in the 2012 and 2013 Regional Science Olympics held at UWF.
- Coordinating internships with several organization including Escambia County School System and Raytheon Corporation.
- Elected to CAS Council 2012 – 2014.
- CAS Council Steering committee 2013-2014
- CAS Council Curriculum Change Request Committee 2012- 2014
- CoSEH Council member and Chair of CCR committee – 2015.
- Member of the 2011 – 2013 UWF Growth & Development Committee
- Technical Mentor of Cyber Patriot Team – 2014 - 2016
- Cyberthon 15 and 16 – committee member and Blue Team Leader.
- Faculty Advisor/Mentor – UWF Cyber Security Club/Cyber Competition team.
- Mentor to the club's competition team that took first place honors in the 2016 Florida Center for Computer Science Annual Conference Cyber Defense Challenge and the Cyberthon 2017 Cyber Defense Capture the Flag Competition.
- Award NSA GenCyber Grant – 2017
- Award NSA/DHS CAE Regional Resourse Center Grant.

PROGRAMMER 1999 – 2002, 2004 - 2009
Dyntel /CSC *Pensacola, Florida*

- Project Lead for two dynamic web application using a variety of technologies including, J2EE, Oracle, MS SQL Server, Perl, and Linux.
- Performed multiple programming task in several languages including Visual Basic Script, ASP languages, **C++**, **Java** and Java Script in support of the U.S. Navy effort to allow world-wide web integration and collaboration.
- Developing integrated web and application based database system to store, present, and report data used by various departments of the federal government.
- Team leader of project which included building an **Oracle** Database and providing a complex **dynamic** web interface using Cold Fusion and Java Script.
- Designed and developed interactive web site using JSP, JavaSerlets and SQL Server DB. Project pulled data from multiple internet sources and develop chart, graph etc.
- Exetensive use of Perl scripting to extract complex data for storage in an Oracle database.
- Developed an Application in BMC Remedy Administrative Request System.
- Led a team to develop a Software engineering project process for a government organization.
- Designed, implemented and integrated in C and Unix Script, an Email address conversion program handling 30,000 addresses from 20 different sources.
- Built and maintain a web accessible site that houses all 10000+ U.S Navy training courses including schedules and dynamic quotas using extracted data from the Navy's Master **Oracle** database.
- Converted Marine Corps Awards program into version used by Chief of Naval Education and Training including over 400 hours of modification and additions.
- Managed network security.

NETWORK ADMINISTRATOR 1994 -1999

Naval Air Technical Training CenterMillington, Tennessee and Pensacola, Florida

- Performed hardware and software configuration of Windows 3.11/95 computers for use on Windows NT system..
- Managed network security by controlling user access through password, user groups and profiles.
- Diagnose/repaired software, network access and hardware problems.
- Trained users on software/system operation to include file back-up procedures.
- Developed Lotus Approach Data Base program to track student administrative data.

ATC RADAR MAINTENANCE INSTRUCTOR/SUPERVISOR 1992 - 1999

Naval Air Technical Training CenterMillington, Tennessee and Pensacola, Florida

- Supervised 6 instructors in a complex $2.5 million computer controlled Radar system course consisting 568 classroom/laboratory hours.
- Proven innovator by decreasing student attrition rate from 17% to 3% by implementing curriculum changes and refocusing instructor's schedules.
- Hand-picked by Training Officer due to unquestioned credibility, persistence and organizational skills to research, supervise and electronically **develop curriculum** for a maintenance management course consisting of over 2000 pages of material. **Received Navy and Marine Corps Commendation Medal**.
- Managed quarterly training schedule for 150 instructors by developing **Lotus Approach Data Base** program to report and schedule training.

1983-1992 Provided varying degrees of management and technical skills in relation to computer controlled Radar system.

ADDITIONAL INFORMATION

Security clearance precludes discussion. Excellent health.

AMITABH MISHRA

amishra@uwf.edu

SUMMARY

A qualified academic professional with experience in secondary learning environment, and a wealth of knowledge in development and implementation of educational technology tools and applications in college classrooms and labs with a touch of industrial exposure, working for an educational institution currently.

PROFESSIONAL EXCELLENCE SUMMARY

- Have over sixteen years of experience in teaching at the college and university level, both in USA and India.
- Have six years of industrial work experience in coal mining and steel industries as a technical manager, technical evaluator, project coordinator and trainer on computerized automation.
- As the In-charge of Lab development, was responsible for the development of networked computer labs and other labs related to process control and automation with hands-on experience on hardware.
- Implemented innovative methods to develop relations and a better interface between the students, teaching staff and administrative staff.

TECHNICAL SKILLS

- Over **15** years of software development experience of **programming** in: **C**, **C++**, **Java**, **Python**, **Fortran**, **Pascal**, **Assembly** – Microprocessors/Microcontrollers
- Over **10** years of working with **scripting languages**: **HTML/CSS**, **Javascript**, **Shell Scripting** (**bash**), **SQL** and **XML**
- Over **10** years of experience of working with **operating systems**: **Windows**, **Linux**, **Solaris**
- Over **10** years of experience of working with **scientific software**: **LabVIEW**, **MATLAB - Simulink**, **R** Programming, **TinyOS** and **NesC**, **Qualnet**, **OMNET**, **Castalia**
- Experience in working with **computer and communication hardware**: Computer system assembly, setting up wired and wireless network infrastructure, TelosB and Tmote Wireless Sensor Platforms, Toshiba DCS and standalone controllers, Taylor MOD DCS, Siemens PLC, Allen Bradley PLC

EDUCATION

PhD in **Computing Science & Engineering** September 2008 – July 2015
University of Cincinnati, Cincinnati, OH – GPA 3.8 Finished with a CGPA of 3.93 and nine publications in international conferences and journals
Selected Coursework: Advanced Programming Concepts, Advanced Operating Systems, Advanced Algorithms I/II, Artificial Intelligence I, Data Mining and Warehousing, Advanced Mobile Computing, Wireless Ad Hoc & Sensor Networks, Sensor Networks Design.

Research Group: Center for Distributed and Mobile Computing (CDMC) – PI: Prof. Dharma P. Agrawal *Research Areas*: Wireless Sensor Networks, Heterogeneous Networks, Wireless Control.
Dissertation: Modeling and Performance Evaluation of Wireless Body Area Networks for Healthcare Applications.

Master of Technology in **Instrumentation** July 1999 – June 2001

Devi Ahilya University, Indore, India – First Class Honors Degree
Topped the merit list across all semesters in the Class of 2001

***PG Diploma* in Personnel Management** July 2002 – August 2004

National Institute of Personnel Management, Kolkata, India – First Class Honors
Topped the merit list at All-India level and bagged 3 gold medals and a national award

PG Diploma in **Biomedical Informatics** July 2003 – June 2004

Bioinformatics Institute of India, NOIDA, India – First Class Honors

Bachelor of Engineering in **Electronics** August 1986 – July 1990

Ravi Shankar University, Raipur, India – First Class Degree

Certification:

"Internet of Things: Roadmap to a Connected World" – Massachusetts Institute of Technology, May 2016
"Advance Ad-hoc and Sensor Networks" - University of Mumbai, India – 2007
"Computing" – IGNOU, India – 2003
"German Language" – Maxmüller Bhavan, Rourkela, India – 1993

TEACHING EXPERIENCE

University of West Florida, Pensacola, FL, USA, Aug 2015 – Till date
Assistant Professor, Department of Computer Science

- Taught 9 undergrad courses since Fall'15 semester – Algorithm and Program Design in C, Introduction to Computer Organization, Operating System Fundamentals, Data Sturctures and Algorithms – I, Object Oriented Programming
- Teaching 3 undergrad courses in the Spring'17 semester – Data Structures and Algorithms I – 2 sections, Operating System Fundamentals
- Engaged in Cybersecurity research with the Center of Cybersecurity ad working on IoT Security
- Holding a courtesy appointment as a Visiting Research Scientist at the Florida Institute for Human and Machine Cognition, Inc. (IHMC)
- Recipient of the UWF GROW Institute Summer Award for grant-writing; submitted an NSF grant proposal under the Secure and Trustworthy Computing program
- Site Director, Association for Computing Machinery (ACM) International Collegiate Programming Contest
  (ICPC) 2016, Southeast USA Regional Site, UWF, Pensacola, FL
  [https://ser.cs.fit.edu/ser2016/]
- Faculty In-charge, Computer Science Tutoring, HMCSE-UWF since 2016

- Serving in Growth and Development Committee, UWF, 2016
- Served in Summer Undergraduate Research Project Review Committee, HMCSE, UWF, 2016
- Served in Presidential Scholarship Application Review as an Interviewer, UWF, 2015 and 2016

Northern Kentucky University, Highland Heights, KY, USA, Aug 2012 – May 2013
Lecturer, School of Computing Sciences and Informatics

- Taught 6 courses - Object-Oriented Programming in Java, Data Structures and Algorithms, Information Technology Fundamentals Lab
- Received an average rating ranging between *fair* and *good* in students' feedback

University of Cincinnati, CINCINNATI, OH, USA, 2008 – June 2012
Graduate Teaching Assistant, School of Computing Sciences and Informatics

- Taught 5 courses: **Network and System Programming** – three courses, **Computer Fundamentals: Data Structures** – two courses
- Received an average rating ranging between *good* and *excellent* in students' feedback
- Taught computer programming in **Java** to school kids in the 2-week long summer camps organized by the department for the last three summers
- Assisted in teaching sixteen courses covering **Data Structures**, **Network Programming**, **Computer Architecture**, Programming in **MATLAB**, **C++**, and **Java**, **Computer Networks**, **Wireless and Mobile Networks**, **Ad-hoc and Sensor Networks** – provided help on course associated projects
- Occasionally taught classes in the absence of instructors
- Conducted two training sessions for graduate students on installation of **TinyOS** and **network simulators**
- Developed a web based tutorial for hands-on training on **TinyOS** for other graduate students
- Worked in three projects on application of wireless sensor networks in generation of music for dance in collaboration with College Conservatory of Music, UC.
- In-charge of equipment inventory and acquisition for the CDMC research group [voluntary]
- Handled computer and network troubleshooting for the CDMC research group [voluntary]

Undergraduate Level Courses Taught at UC

1. Network and System Programming – taught three courses
2. Computer Fundamentals: Data Structures – taught two courses **Teaching**

Assistant at UC:

1. Data Structures – one course
2. Network Programming – one course
3. Computer Architecture – one course
4. MATLAB programming– two courses
5. C++ Programming – one course
6. Java Programming – three courses
7. Computer Networks – three courses
8. Wireless and Mobile Networks – two courses
9. Ad-hoc and Sensor Networks – two courses

Associate Professor, Computer Science and Engineering, Bhilai Institute of Technology, Durg (C.G.), INDIA, 1997 – 2008 and 1990 – Jan 1992

Graduate Level Courses Taught in India

1. Design of Industrial Transducers and Sensors — 4 courses
2. Process Control and Industrial Automation — 3 courses
3. Analytical Instrumentation — 2 courses
4. Biomedical Instrumentation — 1 course
5. Business Management — 1 course
6. Microprocessors: Architecture. Programming and Interfacing — 3 course

Undergraduate Level Courses Taught in India

1. Electronic Instrumentation — 9 courses
2. Mobile Communication and Computing — 6 courses
3. Digital Signal Processing — 4 courses
4. Principles of Communication Systems — 3 courses
5. Microprocessors and Interfacing — 2 courses
6. Digital Electronics — 2 courses
7. Advanced Microprocessors — 2 courses
8. Industrial Transducers and Sensors — 2 courses
9. Computer Fundamentals — 1 course
10. Radio Engineering — 1 course
11. Network Analysis — 1 course
12. Electronic Engg. Materials — 1 course

Projects supervised in India: Graduate–12, UG–46 at Bhilai Institute of Technology, Durg (C.G.),

1997 – 2008 and 1990 – Jan 1992

- Taught courses and labs related to computers and communication (Programming courses taught – C, C++, Java, HTML, SQL, LabVIEW, MATLAB, Assembly – 8085, 8086, 8051)
- Supervised undergrad and grad projects in engineering and inspired students to integrate technology into daily classroom activities
- Solely responsible for setting-up the Computer Centre for the school with OFC and UTP wired backbone and wireless networking and Internet services in the institute
- Completed 2 consultancy projects for solving industrial problems
- Chief Organizer for 9 technical and education-oriented workshops, conferences, trainings and special university events

Record of service: Administrative Assignments (BIT, Durg, India)

Coordinator,	M. Tech. Program, Instrumentation and Control.	2006-08
Coordinator,	Depts. of Electronics and Telecom Engg., Computer Science and Engg., Information Technology, and Computer Applications	2007-08
Coordinator,	Continuing Education Cell	2006-08
Prof. In-charge	Students' Association	2000-07

Founder,	Music Club	2005
Head,	Dept. of Computer Science and Engg.	2003-06
Prof. In-charge	Internet Services, BIT	2001-06
Administrator Official Website, BIT		2001-06
Prof. In-charge	Training and Placement, BIT	2004-05 2001-03
Prof. In-charge	Central Library, BIT	2003-05
Founder	Book Bank	
Prof. In-charge	Alumni Activities	2001-05
Labs developed:	Microprocessors and Microcontrollers Lab, Instrumentation Lab, Computer Hardware Lab Computer Centre, BIT Electronics Workshop	
Team Member	CG State Engineering Admissions	2002-03
Team Member	Examination Control Centre	1997-2008
Examiner	6 universities and 2 autonomous Institutes Conduction of theory and practical examinations. Question paper setter and evaluator	
Expert	University Interview Committees: Faculty and Technical Staff recruitment	2005-08

SELECTED COURSE PROJECTS

Multilevel Encryption-Decryption - Windows CE using Random Number Generator *2006*

- Working on Arduino microcontroller controlled sensing, acquisition and transmission of physiological parameters
- Aiming at cognitive utilization of voice and data networks around the smartphone for transmission of sensed parameters

Virtual 3-D tour engine *2005*

- Developed algorithms for packet shortening in order to save energy and enhance the lifetime of WBANs
- Evaluated energy savings for critical, real-life, real-time physiological data in the suggested WBAN framework

Automatic Speaker Recognition System using pitch and formant analysis *2004*

- Designed, implemented and tested a testbed involving Tmote sensors for studying link parameters over multiple transmission channels and various power levels
- Studied packet transmission, link quality and received signal strength parameters and analyzed the results received

Selected Publications:

1. **A. Mishra**, and D. P. Agrawal. *Enhancement and Appraisal of Internet of Things Healthcare Networks*. Saarbrücken, Germany: Lap Lambert Academic Publishing, 2017. Print.
2. T. Reichherzer, **A. Mishra,** E. Kalaimannan, N. Wilde, "A Case Study on the Trade-Offs between Security, Scalability, and Efficiency in Smart Home Sensor Networks", The International Conference on Computational Science and Computational Intelligence (CSCI 2016), Las Vegas, NV, USA, December 15-17, 2016.
3. **A. Mishra** and S. Chakraborty, "Energy-efficient design methodologies for Wireless Body Area Sensor Networks in Healthcare Applications", BSN Conference 2016, San Francisco, CA, USA, June 14-17, 2016.
4. **A. Mishra** and D. P. Agrawal, "Energy Conservation and Lifetime Optimization of Wireless Body Sensor Networks for 24x7 Physiological parameters' Monitoring," Journal of Communications, vol. 10, no. 9, pp. 685-695, 2015. Doi: 10.12720/jcm.10.9.685-695.
5. **A. Mishra** and D. P. Agrawal, "Continuous Health Condition Monitoring by 24x7 Sensing and Transmission of Physiological data over 5-G Cellular Channels", International Conference on Computing, Networking and Communications (ICNC 2015), Feb 16-19, 2015, Anaheim, California, USA.
6. A. Jamthe, **A. Mishra**, and D. P. Agrawal, "Scheduling schemes for Interference Suppression in Healthcare Sensor Networks", ICC-2014, Sydney, Australia, 10-14 June 2014.
7. **A. Mishra**, S. Chakraborty, H. Li, and D. P. Agrawal, "Error Minimization and Energy Conservation by predicting data in Wireless Body Sensor Networks using Artificial Neural Network and Analysis of Error", CCNC-2014, Las Vegas, NV, USA, Jan 10-13, 2014.
8. N. Weragama, J. H. Jun, **A. Mishra** and D. P. Agrawal, "Simulation of Mobility Aware Dynamic Virtual Cells Utilizing Multiple Multicast Trees", IEEE ComSoc TCSIM Quarterly Newsletter, vol. 15, pp. 2-4, Dec 2012.
9. D. Agrawal and **A. Mishra**, "Designing Wireless Sensor Networks: from Theory to Applications," WCSN 2011, Seventh IEEE Conference on Wireless Communication and Sensor Networks, Dec 5-9, 2011, Panna, India.
10. M. Helmuth, R. Danard, J. H. Jun, T. Oliveira, **A. Mishra**, and D. P. Agrawal, "Water Birds: Compositional Collaboration with Clarinets, Wireless Sensors, and RTcmix," SEAMUS 2011, 26th Annual Conference of the Society for Electro-Acoustic Music in the United States, January 20–22, 2011, Miami, Florida.
11. M. Helmuth, J. H. Jun, T. Oliveira, J. B. Merkowitz, **A. Mishra**, Ahmad Mostafa, Dharma Agrawal, "Wireless Sensor Networks and Computer Music, Dance and Installation Implementations," International Computer Music Conference 2010, New York, USA, June 1-5, 2010.
12. **A. Mishra** and S. R. K. Rao, "Mathematical Modelling for Auto-running of Discontinuous Heat Exchanger System used for heating of process fluids," special reference to Cowper Stoves, Proceedings of INCON–2004-International Conference on Control and Instrumentation, College of Engineering, Pune, December 2004.
13. **A. Mishra** and S. R. K. Rao, "Control of Adiabatic Flame Temperature in the Raceway Zone in Iron Making using Steam Injection into hot air input," Proceedings of the CISCON — 2004, National Conference on Control and Instrumentation, Manipal Institute of Technology, Manipal, November 2004.
14. **A. Mishra** et al., "Development of Algorithm for the Analysis of Vibration signal of Rotating Machines," Proceedings of the National Level Conference on Advanced Control and Instrumentation, St. Joseph's College of Engineering, Chennai, January 2004, pp. 110 - 114.

Guest Lectures and Talks delivered/ Technical and Training Sessions conducted

- Delivered two technical lectures on "The concept of Comprehensive Environmental Monitoring and Control System (CEMACS) and typical CEMACS design" and "CEVIACS using Wireless Sensors" in the workshop on – 'Trends of Instrumentation and Control towards environmental challenges', 5th - 6th October 2007, sponsored by Chhattisgarh State Council for Science and Technology, organized by Bhilai Institute of Technology, Durg, India
- Conducted two technical sessions on "Drug Design and Discovery: Steps and Considerations" and "Computer Aided Drug Design" in the short-term course on 'Trends in Antidepressant Drugs - Innovations in Science and Technology: 2007', 5th - 19th July 2007, sponsored by All India Council for Technical Education, organized by Bhilai Institute of Technology, Durg India
- Delivered a talk on "Connectivity for the Youth: Trends, Services and Challenges", in the Symposium on 'World Telecommunications and Information Society Day – 2007', 17th May 2007, organized by BSNL and Institution of Engineers (India), Bhilai Local Chapter, Bhilai, India
- Delivered a talk on "OLEDs - The material and technology that one can fold, roll and wear" in the National Seminar on 'RECENT TRENDS IN ELECTRONIC MATERIALS and PHYSICAL SCIENCES', 15th -16th
  September 2006, organized by Department of Electronics and Physics, St Thomas College, Bhilai, India
- Delivered two technical lectures on "Wireless Sensor Networks - Design Considerations, Architecture and Hardware" and "Wireless Sensor Network Applications" in the national workshop on "Sensor Instrumentation for Environmental Pollution Monitoring", 5th -17th June 2006, organized by Chhattisgarh Swami Vivekanand Technical University in collaboration with Centre for Environmental Science and Engineering, Bhilai Institute of Technology, Durg, India
- Delivered two technical lectures on – "Mobile Telephony in a nutshell" and "Emerging trends in Mobile Telephony" in the one-day Seminar on Modern Trends in Mobile Communication, 25th February, 2006, organized by MPC College of Engg. Technology, Bhilai, India
- Conducted a one-day workshop on "MATLAB programming for Engineers" at Rai University, Raipur, India on 15th of January, 2006
- Conducted the Telecom Quiz on 'World Telecommunication Day – 2004', 17th May 2004, organized by Institution of Engineers (India), Bhilai Local Chapter, Bhilai, India
- Presented a technical paper on "E-learning" in the National Seminar and Symposium on 'Education through Net - A new concept', 22nd August 2003, Institution of Engineers (India), Bhilai Local Chapter, Bhilai, India
- Presented a technical paper on "Telecommunication in Medical Health Care" in the National Seminar and Symposium on 'World Telecommunication Day – 2003', 17th May 2003, organized by Institution of Engineers (India), Bhilai Local Chapter, Bhilai, India
- Presented a technical paper on "VoIP and Internet Telephony" in the National Seminar and Symposium on 'World Telecommunication Day – 2002', 17th May 2002 organized by Institution of Engineers (India), Bhilai Local Chapter, Bhilai, India
- Presented a technical paper on "The New Internet Technology - in the face of changing world scenario" in the National Seminar and Symposium on 'World Telecommunication

Day – 2001', 17th May 2001, organized by Institution of Engineers (India), Bhilai Local Chapter, Bhilai, India

- Guest faculty for the course titled "Computer Networks and UNIX NOS" for Master of Computers in Management program under DA University, Indore, India during 1999-2000 academic session

Conferences/ Seminars/ Short Term Courses / Training Programs Organized

- Chaired the session on 'Business Process Reengineering and Network Security (26th October. 2007) in the national conference titled "Technological Revolution in Application Development and Intelligent Systems", under 'Technovision-2007', organized by Department of Computer Applications, SS College of Engg. and Technology, Bhilai, India
- Coordinator for the workshop on "Trends of Instrumentation and Control towards environmental challenges", 5^{th}-6^{th} October 2007, sponsored by Chhattisgarh State Council for Science and Technology, organized by Bhilai Institute of Technology, Durg, India
- Resource person and faculty for the ongoing 60-hours refresher program – "Improving on technical and HR skills" meant for pre-final year undergraduate students. (started July 2007)
- Member of the organizing committee and Coordinator for Technical Sessions for the National Conference on "Broadband Communications", under BITCON, organized by Department of Electronics and Telecommunication Engg., Bhilai Institute of Technology, Durg, India, March 2007
- Coordinator for the National Conference on "Innovative Information Technologies and Secure Transactions", under BITCON, organized by Department of Information Technology, Bhilai Institute of Technology, Durg, India, March 2007
- Coordinator for the National Conference on "Technological Advancements in Processing and Decision making", under BITCON, organized by Department of Computer Applications, Bhilai Institute of Technology, Durg, India, March 2007
- Executive Committee for All India Seminars on "Advanced Communication Techniques and Networking: Exploring Challenges", 6^{th}-7^{th} January 2007, organized by Institution of Engineers (India), Bhilai Local Chapter and SS College of Engg. and Technology, Bhilai, INDIA
- Coordinator for the workshop on -MATLAB and S1MULINK programming for Scientists and Engineers", 12th December, 2006 organized by Dept. of Electronics and Telecommunication Engg., Bhilai Institute of Technology, Durg, India
- Conducted a 45-Hour Comprehensive Training Program (Oct-Nov 2006) for undergraduate students in the Pre-final year of their studies in order to improve upon their preparedness for facing job recruitment drives, organized under the banner of Training and Placement Office of the Institute.
- Coordinated a training program on "Virtual Instrumentation using LabVIEW-7 and NI-ELVIS", 4^{th}-5^{th} August 2006, organized by Dept. of Electronics and Telecommunication Engg., Bhilai Institute of Technology, Durg,
  India
- Coordinator for the workshop on "MATLAB: Toolboxes for Power Systems, Communications, Signal Processing, Neural Networks, Image Processing and Control", July 2006, organized by Dept. of Electronics and Telecommunication Engg., Bhilai Institute of Technology, Durg, India

- Convener for 'Phoenix-2006 - A national level student talent colloquium involving students' technical paper and poster presentation, technical project and computer programming contests organized by Bhilai Institute of Technology, Durg, CG, India on 7th-8th April 2006
- Initiator and Organizer of "Campus Training Forum" (CTF) at Bhilai Institute of Technology. CTF is a forum that works towards all-round development of students as true professionals. (Functioning started on 11th Feb 2006).
- Coordinator for 'ACT-2005', a National Conference on "Advance Communication Techniques" held at Bhilai Institute of Technology, Durg, India on 5th-6th April 2005
- Coordinator for 'Techno-Melange-2004', State-level students' technical paper presentation contest organized by Bhilai Institute of Technology, Durg, India on 23rd-24th August 2004

SELECTED RESEARCH AND CONSULTANCY PROJECTS

Android Smartphone based Coordinator for Wireless Body Area Networks *2014*

- Working on Arduino microcontroller controlled sensing, acquisition and transmission of physiological parameters
- Aiming at cognitive utilization of voice and data networks around the smartphone for transmission of sensed parameters

Lifetime enhancement of Wireless Body Area Networks *2013*

- Developed algorithms for packet shortening in order to save energy and enhance the lifetime of WBANs
- Evaluated energy savings for critical, real-life, real-time physiological data in the suggested WBAN framework

Wireless Sensor Network Testbed *2011*

- Designed, implemented and tested a testbed involving Tmote sensors for studying link parameters over multiple transmission channels and various power levels
- Studied packet transmission, link quality and received signal strength parameters and analyzed the results received
- Used for various other studies by senior members in the research group

Wireless Sensor Network based control of Music *2009*

- Worked on five different projects involving dancers, clarinetists and pianists with College of Music, UC
- Designed, fabricated and tested interface and conditioning circuits for external pressure, IR, optical and 3-axis accelerometer transducers for Tmote and TelosB sensors for use in sensor localization and music control
- Coded the NesC modules for data acquisition, caching and transmission for the TelosB/Tmotes
- The wireless sensor network would sense and relay the control command for playing the music to a base station Mac computer

Plate Mill, Rourkela Steel Plant, Rourkela, India *2005*

- Successfully implemented ***LIVE*** - *Logically Interactive Virtual Eyes* - An optical solution development project for dividing shear problem in Plate Mill, RSP, Rourkela, India
- The project involved image sensing of long plates using multiple cameras, compositing the images in a nonconventional display resolution and projecting them into conventional PAL-TV monitor in the control pulpit for Operator assistance

Blast Furnace 7, Bhilai Steel Plant, Bhilai, India *2001*

- Developed the algorithm, coded and implemented a network inter-process communication mailbox in UNIX for the supervisory computer system
- The mailbox was responsible for communicating sensor data from programmable logic controllers using TCP/IP, via a Terminal Server, through a UNIX server, to a Windows computer

Satpura Power, Jabalpur, India *1999*

- Designed, implemented and commissioned the automatic charging system for the Biomass Gasifier used in the generation of electrical power using firewood
- Responsible for making detailed electrical drawings, equipment planning and procurement, overseeing of installation, testing and commissioning

SELECTED ACADEMIC PROJECTS

Multilevel Encryption-Decryption - Windows CE using Random Number Generator 2006

- Working on Arduino microcontroller controlled sensing, acquisition and transmission of physiological parameters
- Aiming at cognitive utilization of voice and data networks around the smartphone for transmission of sensed parameters

Virtual 3-D tour engine 2005

- Developed algorithms for packet shortening in order to save energy and enhance the lifetime of WBANs
- Evaluated energy savings for critical, real-life, real-time physiological data in the suggested WBAN framework

Automatic Speaker Recognition System using pitch and formant analysis 2004

- Developed algorithms for packet shortening in order to save energy and enhance the lifetime of WBANs
- Evaluated energy savings for critical, real-life, real-time physiological data in the suggested WBAN framework

RF Switching

- ISM Band frequency transmitter and receiver circuits for controlling home consumer electronic appliances
- Transmitter acts as a four-channel NLOS remote controller with a much higher range than conventional IR based remotes

DAQ for Temperature measurement using NI ELVIS 3.0

- Instrumentation system designed for temperature transducers, signal conditioning and linearization, and secondary display devices using NI ELVIS and LabVIEW
- The system can accept RTDs, Thermistors and Thermocouple transducers

DIP using C

- Utilities for edge detection, image transforms, histogram equalization, color to grayscale conversion written in C language
- Use of DFT, DCT, DST, Hadamard, Discrete Walsh and KL Transform for comparison of speed and energy compaction

Optical networking through Dense Wavelength Division Multiplexing

- Optical networking for meeting high BW data demand using DWDM for routing, grooming, optical amplification and restoration at wavelength level and data capacity enhancement
- Optical layer transparent to SONET layer; provides restoration, performance monitoring and provisioning of individual wavelength instead of electrical SONET signals
- Provides ultra-fast communication over a short distance of a few meters, stationary network Capability extension possible up to a Terabit LAN

Design and implementation of a convolutional coder and decoder in FPGA

- 4-state Coder-Decoder pair using FPGA with error detection and correction, tested for noisy conditions (AWGN)
- The pair is designed for convolutional Trellis Coded Modulation for high speed modems operating in bandwidth limited channels

EVM

- Microprocessor 8085 based EVM
- Program and subroutines stored in EPROM

Collapse Indicating Devices

- Checks the pressure on any supporting surface using a piezoelectric crystal/strain gauge and gives out an alarm if the pressure exceeds predetermined unit
- Possible uses in public places, terraces, underground mines, weighing machines and elevators

FM Remote speaker system using PLCC

- HF Audio signals coupled with HV power line; signal travel along the power line and ensuring no attenuation due to bus-bar capacitance
- Isolation of power and communication equipment, power line EMI, modulation issues handled FM provides auto-volume control
- Duplex asynchronous serial link between two computers @9600 bauds with error detection and correction

Telephone Remote Control Switch

- ON-OFF control for home appliances through telephone calls via a circuit interfaced to the remote telephone line/device by dialing specific DTMF digits
- Audio feedback/ACK on control action completed

Local Positioning System
- Inertial Guidance - dead reckoning based local reference system from an initial reference

PC Controlled Obstacle detection and collision avoidance in a robotic rover
- Robo-rover using IR sensor TSOP-1738 for obstacle sensing
- Rover control program in C-language (stepper motor control through parallel port)

Parallel Telephones with Auto Secrecy and intercom facility
- Disabling of other parallel phones (3 of the 4 in parallel) when one has been lifted

Anti-Theft Messenger
- Auto messaging in the event of theft or fire
- Fully reconfigurable microcontroller based embedded system with battery support

Microcontroller based access control system
- PIC 16F84 microcontroller based lock-unlock system operated by access codes
- Programmed in microchip assembly language; secure password reset

Control of Home Appliances through Telephone line using PLC
- DTMF 8-channel switching via power line and Teleremote control via telephone lines
- 4-bit DTMF data sent through power main line for appliance ON/OFF control using 8 relays

Face Recognition using Eigen face method
- Uses image-vector based approach, in which there is statistics-based dimensionality reduction by using Eigen weight method
- The method also uses the extraction of some local features to determine tilt and rotation

PC-based wireless appliance control system
- Parallel port for control of devices through wireless transmitter and receiver
  C++ program for control with multiple possible user accounts

Health Monitoring System
- Microcontroller-based, low cost monitoring system for human body parameters

INDUSTRIAL EXPERIENCE

Assistant Manager (Instrumentation), Instrumentation Department
Steel Authority of India Limited, Bhilai Steel Plant, BHILAI, CG, India, 1992 – Nov 1997
- Planned, co-ordinated and controlled the C&I systems overhaul, additions, modifications, revamping
- Head of a team of 30 qualified technicians, responsible for scheduling preventive, shutdown and breakdown maintenance and training the team on the computerized automation systems and safety

- Responsible for implementing ISO-9001:2000 standards of calibration, testing, installation and maintenance of sensor systems, associated electronics, programmable logic controllers and distributed computer control systems
- Responsible for association and co-ordination between engineering agencies involved in the development of green field projects
- Conducted monthly contact classes and training programmes for the development of skilled manpower in the department.

Projects worth mention:

- Designed the logic, programmed and implemented the boiler drum level control loop program for the DCS automation system of a Power Station Boiler using TCL language
- Designed the logic, programmed and implemented the Raceway Flame Temperature Control Loops (assembly level and machine programming) for Blast Furnaces on Toshiba controllers
- Designed the logic, programmed and implemented the automatic model for online control of Blast Furnace Cowper Stoves on Q-Basic language
- Designed and engineered the fabrication of a modified Hot Blast and Stove Dome Thermocouple fixing assemblies for in-situ fixing in very short shutdown time

Coal India Limited, South Eastern Coalfields Limited, BILASPUR, CG, India, Jan – Aug 1992
Junior Executive Trainee, Electronics and Telecommunication Department

- Worked on Strowger and Electronic Automatic Telephone Exchanges, Landline telephone network, VHF Communications Wireless links
- Well versed with telephone system electronics, telephone network wiring and terminations
- Performed a technical evaluation for an upcoming UHF-TDMA Radio Telephony project

ACCOLADES AND AWARDS

1. Project with CCM-UC was the cover story of UC Grad School Yearbook 2009
2. NIPM – PGDPM Examination 2004
   i. Tarneja National Award – Recitation and Cash award
   ii. NIPM Proficiency Gold Medal
   iii. AIOE Gold Medal for highest marks in "Industrial Relations" paper
   iv. Karnataka State Gold Medal for highest percentage of marks in the country
3. University top, M.Tech. (Instrumentation), Class of 2001, Devi Ahilya University, Indore
4. 5th in Post-Training Merit List, SAIL-BSP's Management Trainees (Technical) - 1992 Batch
5. Best Student of the School – BMHS School, Raipur, India - 1983-84

MEMBERSHIPS

- Student Member, IEEE
- Student Member, ComSoc
- Life Member, Indian Society for Technical Education
- Member, Institution of Engineers (India)
- Life Member, Biomedical Society of India
- Life Member, Instrument Society of India
- Member of Panel of Jury, CII Chhattisgarh HR Excellence Awards - 2005
- Member, Board of Studies, Electronics and Telecommunication Engg. Stream, Faculty of Engineering and Technology, CSV Technical University, Bhilai, CG, India, 2006-2008

- Member, Board of Studies, Electronics Stream of studies, Govt. V.Y.T. P.G. Autonomous College, Durg, CG under Pt. RS Shukla University, Raipur, CG, India, 2005-2008

COMMUNITY SERVICE

- Mentor for a Blue Team participating in CyberThon 2016 and the winning UWF team in CyberThon 2017, Pensacola, FL, USA
- Volunteer for preparing the middle-school students' team for the CyberPatriot competitions at Ferry Pass Middle
  School, Pensacola, FL where I teach computer programming and cyber-security basics
- Grad Student Volunteer at University of Cincinnati – Computer Science Summer Camp June 2009, June 2011
  Helped in teaching of "Beginners' Java Programming" and in making robotics and sensors projects in two-week long Summer Camp - 2009 for high school students, organized by CS Dept, CEAS, UC. June 2010
  Taught "Beginners' Java Programming" and helped in making robotics and sensors projects in two-week long Summer Camp - 2010 for high school students, organized by CS Dept, CEAS, UC.
- Member, Volunteer and Historian for University of Cincinnati – Bhakti Yoga (Aug 2009 - July 2015)
  'University of Cincinnati – Bhakti Yoga' is a students' group for general help in life through morals, spirituality, vegetarian food and healthy practices. I have participated and volunteered in all the group events that include lecture events, potlucks and fundraising efforts organized by the group since Fall 2009.
- Member and Historian for University of Cincinnati Vegetarian Club (Aug 2012 - July 2013)
  UCVC is a students' group for promoting healthy living and vegetarianism among UC students that was formed in Fall 2012. I was responsible for maintaining and promoting the group as one of the Administrators of the Facebook page for the group. As the Historian, I was responsible for photographing, cataloging and sharing the details of group events on social media. I have also volunteered for monthly vegan potluck events as well as daylong promotion and fundraising events for the group.
- Volunteer for '**Association for India's Development' (AID)**; worked in fundraising events, 2008-2011
- Member, Regional representative and Auditor of a social group '**EhSaaS India**', that takes up specific help tasks for the Institutes for physically and mentally challenged in the country, by surveying their specific needs or problems and helping them out, 2005 – 2008
- Planned and managed a fundraising event in 2005 with the help of BIT Alumni for helping '**Sneh Sampada**', Bhilai, CG, India – a residential institution for the mentally challenged
- Volunteer for '**Anand Niketan**', Bilaspur, CG, India – a residential Institution for the education and development of the hearing challenged, since 1992
- Organizing Committee Member and Volunteer for BIT Durg Alumni Association (July 2001 - June 2008)
  Volunteered for and helped organize annual Alumni Meets for my Alma Mater from 2001 - 2008

T H O M A S R E I C H H E R Z E R

Research Goal and interests

My main goal is to conduct research in artificial intelligence methods and their applications to build intelligent systems. I am also interested in systems and networks and related security issues. My broad research interests include machine learning, natural-language processing, information retrieval, knowledge representation, human computer interaction, and, more recently, sensor networks and simulation of networks.

Professional history

August 2016 – now: **Associate Professor**, The University of West Florida,
Pensacola, FL.

August 2010 – July 2016: **Assistant Professor**, The University of West Florida,
Pensacola, FL.

2009 – 2010: **Visiting Assistant Professor**, The University of West Florida, Pensacola, FL.

2007 – 2009: **Director of Technology**, Enkia Corp., Atlanta, GA.

2001 – 2007: **Research Assistant & Associate Instructor**, Indiana University, Bloomington, IN.

2006: **Consultant**, Pragati Synergetic Research, Cupertino, CA.

1994 – 2001: **Research Associate**, Institute for Human & Machine Cognition (IHMC), Pensacola, FL.

1996 – 1998, **Adjunct Instructor**, The University of West Florida, Pensacola, FL.

1991 – 1994: **Teaching Assistant**, **University of Ulm**, Germany.

1991: **Consultant**, Artificial Intelligence Research Institute, Ulm, Germany.

Academic History

2001 – 2009, **Indiana University**, Bloomington, IN

Ph.D., Computer Science, Cognitive Science (minor), GPA 3.99.

Certificate in Human-Computer Interaction (HCI).

Thesis title: A Concept Map-based Approach to Document Indexing and Navigation.

1994 – 1996, **University of West Florida**, Pensacola, FL

M.S., Computer Science, GPA 4.0.

1990 – 1996, **University of Ulm**, Ulm, Germany
Diplom, Informatic, GPA 3.45.

Personal Data

Professional membership: ACM, AAAI.

Recent Research Projects

Wearable Devices Security (2015-present)

Description: The use of wearable devices is on an upward curve with a range of devices now available from a number of manufacturers. The security and privacy issues relating to the hardware, software and the data collected by these devices, however have not been studied extensively. A lack of standards and regulations has contributed to various proprietary protocols being used which may or may not provide adequate protection to a user's data.

Work: In this project, hardware and software security aspects of different kinds of wearable devices and their communication protocols will be studied. Various attack vectors and different kind of attacks will be investigated. Specifically, attacks on the integrity, confidentiality and the privacy of the data will be examined. Finally, solutions and patches for security against the attack vectors and vulnerabilities will be proposed. Research results have been published.

Smart Home Technology (2010-present)

Description: This project aims to build smart home systems consisting of sensor networks and smart software systems integrated into homes to monitor human activities in the home for the purpose of improving the safety and the quality of life of all people living in the home.

Work: In collaboration with graduate and undergraduate students, several methods were developed to capture and analyze sensor data for recognizing human activities and to monitor individuals and suggest corrective actions in situation where activities may cause harm. Different methods of human-machine interaction are being investigated and applied to provide just-in-time support. A prototype sensor network and middleware services has been built and tested. Additional middleware services are being developed to perform activity recognition and an evaluation of the entire system by end users will be conducted soon. The research is described in several publications.

Knowledge Modeling in Health Care (2011-2014)

Description: This project aims to build a knowledge model on health care provider knowledge to promote a better understanding of provider information and collaboration among stake holders. It also pursues capturing semantic information on health care data models to support software development & maintenance activities.

Work: This is a sponsored research project by Blue Cross Blue Shield. In collaboration with domain experts an initial knowledge model was built using concept mapping and published for collaboration with users of provider information within the organization. Furthermore, semantic information of a complex health care data model was captured via concept mapping and used in subsequent case studies to examine how semantic information can facilitate software development and foster greater understanding of a domain. The research is described in several publications.

Intelligent Search Tools to Support Maintenance of Service Oriented Architecture (SOA) Composite applications (2010-2013)

Description: This project focuses on the development of intelligent search tools that mine artifacts of Service Oriented Architecture (SOA) composite applications to provide support for software engineers.

Work: Several case studies have been conducted to identify abstractions of SOA artifacts that support software maintenance activities. A search tool, called SOA Miner, has been developed that extracts and indexes abstractions from SOA artifacts and visualizes them. Rule-based methods have been applied and evaluated to automate the extraction process. The research is described in several publications.

Teaching experience

Associate Professor
University of West Florida, Pensacola, FL, Fall 2016 – Spring 2017

- Data Structures & Algorithms (face-to-face, graduate & undergraduate sections)
- Algorithm and Program Design (face-to-face, undergraduate)
- Operating Systems (face-to-face, graduate & undergraduate sections)
- Computer Networks (face-to-face, graduate & undergraduate sections)
- Linux System & Network Administration (face-to-face, undergraduate)

Assistant Professor
University of West Florida, Pensacola, FL, Fall 2010 – Spring 2016

- Advanced Computer Systems (face-to-face, graduate)
- Advanced Computer Systems & Networks (face-to-face, graduate section)
- Computer Graphics & Simulation (face-to-face, graduate & undergraduate sections)
- Data Structures & Algorithms (face-to-face, undergraduate)
- Algorithm and Program Design (face-to-face, undergraduate)
- Introductory Programming in Java (face-to-face & online, undergraduate)
- Operating Systems (face-to-face & online, graduate & undergraduate sections)
- Computer Networks (face-to-face & online, graduate & undergraduate sections)
- Linux System & Network Administration (face-to-face, undergraduate)

Visiting Assistant Professor
University of West Florida, Pensacola, FL, Fall 2009 – Summer 2010

- Operating Systems (face-to-face & online, graduate & undergraduate sections)
- Computer Networks (face-to-face & online, graduate & undergraduate sections)
- Software Testing and Verification (online, graduate)
- Introductory Programming in Java (face-to-face, undergraduate)

Adjunct Instructor
University of West Florida, Pensacola, FL, Fall 2008 – Summer 2009

- Operating Systems & Networks (online, graduate)

Associate Instructor
Indiana University, Bloomington, IN, Fall 2004 – Spring 2005

- Computer Models of Symbolic Learning (face-to-face, graduate)
- Introduction to Artificial Intelligence (face-to-face, undergraduate)

Adjunct Instructor
University of West Florida, Pensacola, FL, Summer 1997 – Fall 1998

- Introduction to Computer Graphics (face-to-face, undergraduate)
- Object-Oriented Programming in Java and C++ (face-to-face, undergraduate)

Teaching Assistant
University of Ulm, Ulm, Germany, Spring 1991 – Fall 1994

- Computer Organization (face-to-face, undergraduate)
- Database systems (face-to-face, undergraduate)

Technical Skills

- Programming languages: Java, C, C++, VB, Scheme, Lisp, Prolog, Python, Perl.
- Web programming: J2EE, PHP, GWT.
- Development of GUIs for Windows and Java platforms (MFC, AWT, Swing).
- Web languages: HTML, XML, WSDL.
- Semantic Web technology: OWL, RDF, Protégé, Pellet.
- Virtualization platforms: VMWare Workstation, vSphere Hypervisor
- Experienced with design and usage of database systems including MySQL, ObjectDB.
- Client-server application development using TCP/IP, UDP, RMI, JDBC.
- Experienced user of IDEs including Visual Studio .NET, Eclipse, Netbeans.
- Experienced user of version control systems (CVS, SVN) and software testing tools including white box testing tools.

- Experience in system administration of UNIX and Windows platforms.
- Knowledgeable of HCI design and evaluation principles.

Professional Services

Program Committee

- Sixth International Conference of Concept Mapping, 2014, Santos, Brasil.
- Fifth International Conference of Concept Mapping, 2012, Valetta, Malta.
- Third International Conference of Concept Mapping, 2008, Tallinn, Estonia, Helsinki, Finland.
- Second International Conference of Concept Mapping, 2006, San Jose, Costa Rica.
- First International Conference of Concept Mapping, 2004, Pamplona Spain.

Refereed Journals and Conference Proceedings

- FLAIRS, Context, ECCBR, ICCBR, AI Magazine, IEEE System Man & Cybernetics, IEEE Expert Systems with Applications.

Invited Guest Lectures

- The University of West Florida, March 2015.
- The University of West Florida, September 2012.
- Blue-Cross Blue Shield, Colombia, South Carolina, 2012.
- The University of West Florida, November 2009.
- Doctoral Colloquium, i-Conference, October 2006.
- Exploiting Structure in Concept Maps for Intelligent Support, Vanderbilt University, August 2006.
- National Library of the Netherlands, May 2006.
- Collaborative Knowledge Capture in Ontologies, Indiana University, April 2006.
- Understanding Knowledge Models: Modeling Concept Importance in Concept Maps, Indiana University/Purdue University, April 2006.

Conference Presentations

- 32nd International Conference on Computers and Their Applications (CATA 2017), Honolulu, HI, 2017
- 3rd International Conference on Model-driven Engineering and Software Development, Angers, France, 2015.
- The 2014 International Conference on Security and Management (SAM), Las Vegas, Nevada, 2014.
- 4th International Workshop on Principles of Engineering Service-Oriented Systems.
- 5th International Conference on Concept Mapping, Valetta, Malta, 2012.
- Knowledge Systems for Coalition Operations, Pensacola, Florida, 2012.
- 45th Hawaii International Conference on System Sciences, Maui, 2012.
- Supercomputing 2006, Tampa, Florida, 2006.

- Second International Conference on Concept Mapping, San Jose, Costa Rica, 2006.
- 28th Annual Conference of the Cognitive Science Society, Vancouver, Canada, 2006.
- Joint Conference on Digital Libraries, Chapel Hill, North Carolina, 2006.
- 26th Annual Conference of the Cognitive Science Society, Chicago, Illinois, 2004.
- 16th International Florida Artificial Intelligence Conference, St. Augustine, Florida, 2003.
- Intelligent Tutoring System Workshop on Pedagogical Agents, St. Antonio, Texas 1998.
- 11th International Florida Artificial Intelligence Conference, Sanibel Island, Florida, 1998.
- 9th International Florida Artificial Intelligence Conference, Key West, Florida, 1996.

Grant Applications

- Security in IoT Environments, Security and Software Engineering Research Center (S^2ERC), 2016.
- REU SITE: Cybersecurity and Large-Scale Data Analystics, National Science Foundation, 2014.
- Semantic Search in Software Documentation, Security and Software Engineering Research Center (S^2ERC), 2013.
- Semantic Data Modeling for System & Data Comprehension, Security and Software Engineering Research Center (S^2ERC), 2013.
- Knowledge Modeling for Supporting Program Comprehension, Security and Software Engineering Research Center (S^2ERC), 2012.
- Remote Interactive Learning Environments, National Science Foundation, 2012.
- Erosion Simulation and Modeling, Earth Ethics (non-profit), 2011.
- Intelligent Interactive eBooks, IES, Dept. of Education, 2011.
- Monitoring Market Intelligence for Retail Consumers and Producers, National Science Foundation, Information and Communication Technologies, 2009.
- Semantic Wiki for Page Alerting, SBIR Information Systems, 2009.
- Secure Cognitive Systems for Cross-Domain Information Discovery, Access, and Retrieval, BAA Cross-Domain Innovation & Science, 2009.
- Data access and security in a need-to-share environment, SBIR Information Systems, 2008.
- Information Dissemination Agent in Cross-Domain Information Sharing Environment, SBIR Information Systems, 2007.
- Consolidating Entity Information from Heterogeneous Text Sources for Multi-INT Fusion, SBIR Information Systems, 2007.

- Towards a Semantic Web for Instruments, Sensors, and other Real-Time Data Sources, IIS – Information Integration & Informatics, National Science Foundation, 2006.
- Context Models, User Models, and Reasoning for Performance Support in Complex Task Environments, IIS – Human-Centered Computing, National Science Foundation, 2006.
- Empirical Investigations of Representations, Learning, and Reasoning for An Experientially Adaptive Cognitive Agent, Experience-Based Learning, DARPA, 2005.
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Appendix E

University of West Florida Undergraduate Admissions and Graduation Requirements

Freshmen Admissions

The following outlines the general processing of all First Time in College students to the University of West Florida (UWF Regulation 3.001).

General Provisions

- Admission decisions to the University of West Florida ("UWF" or "University") are made by the University subject to the regulations of the Florida Board of Governors ("BOG").
- For the purposes of this regulation, "First Time In College" ("FTIC") students are defined as students who have earned a standard high school diploma from a regionally accredited high school or its equivalent and who have earned fewer than 12 semester hours of transferable college credit, as defined in UWF/REG 3.001(1), since graduating from high school, as evaluated by UWF.
- Undergraduate admission decisions for FTIC students are determined on a selective basis within curricular, space, enrollment and fiscal limitations. Satisfaction of minimum admission requirements does not guarantee acceptance. The selection process may include, but is not limited to, such factors as grades, test scores, pattern of courses completed, class rank, educational objectives, past conduct, academic recommendations, personal recommendations and achievements. Preference for admission in any term will be given to those applicants whose credentials indicate the greatest promise of academic success while enrolled at UWF. Admission to UWF as a FTIC student affords an applicant the ability to enroll as a degree-seeking candidate in pursuit of a baccalaureate degree.
- UWF does not discriminate in the admission process based upon age, color, disability, gender (sex or gender identity), marital status, national origin, race, religion, sexual orientation, or veteran status.

First Time In College Student Admission

The minimum admission requirements expected of FTIC students are established by the Florida Board of Governors and are set forth in BOG Regulation 6.002. Satisfaction of the BOG minimum requirements does not automatically guarantee admission to the University of West Florida.

The BOG minimum admission standards require:

1. A standard diploma from a regionally accredited high school or its equivalent. Applicants with a General Educational Development ("GED") certificate must refer to sub-paragraph (5). Applicants that are participants in a Home Education or Other Non-Traditional High School Program must refer to sub-paragraph (6). (Students admitted under the Early Admission Program are exempted from this requirement.)

2. For students who entered high school on July 7, 2007, or later, completion of 18 academic units of college-preparatory, year-long courses or equivalents (normally offered in grades nine through 12) are required as follows:

    a. four (4) units of English–three of which must have included substantial writing requirements;

b. four (4) units of mathematics–at the algebra I level and above;

c. three (3) units of natural science–two of which must have included substantial laboratory requirements;

d. three (3) units of social science–history, civics, political science, economics, sociology, psychology or geography;

e. two (2) units of the same foreign language or American Sign Language demonstrating proficiency through the second level; and

f. two (2) additional academic elective units from among these five academic areas and other courses approved by the BOG.

g. For students who entered high school prior to July 7, 2007, completion of 18 academic units of college-preparatory, year-long courses or equivalents (normally offered in grades nine through 12) are required as follows:

i. four (4) units of English- three of which must have included substantial writing requirements;

ii. three (3) units of mathematics- at the algebra I level and above;

iii. three (3) units of natural science- two of which must have included substantial laboratory requirements;

iv. three (3) units of social science–history, civics, political science, economics, sociology, psychology or geography;

v. two (2) units of the same foreign language or American Sign Language demonstrating proficiency through the second level; and

vi. three (3) additional academic elective units from among these five academic areas and other courses approved by the BOG.

3. An official SAT Reasoning Test (all three sections) or ACT Plus Writing Test; and

4. High school grades that meet either sub-paragraph a. or b.
   a. At least a "B" average (3.0 on a 4.0 scale) as computed by UWF in the required high school academic units in English, mathematics, natural science, social science, foreign language and electives; or

   b. At least a 2.5 grade point average (on a 4.0 scale) as computed by UWF in the required high school academic units in English, mathematics, natural science, social science and foreign language and electives and the following test scores:
      i. SAT–Critical Reading ≥ 460; or ACT–Reading ≥ 19

      ii. SAT–Mathematics ≥ 460; or ACT–Mathematics ≥ 19

iii. SAT–Writing ≥ 440; or ACT–English/Writing ≥ 18

5. Applicants presenting a GED must present official GED results, official transcripts of any partial high school completion, and ACT Plus Writing and/or SAT Reasoning Test (critical reading, math and writing). In addition to the test score requirements list above in 3. (b), GED applicants must receive a minimum composite score of 21 on the ACT Plus Writing Test, or an overall combined test score of 1450 on the SAT Reasoning Test (critical reading, math and writing).
6. Applicants participating in a Home Education or Non-Traditional High School Program must present a transcript from the Home School Education Program (all units must be listed in Carnegie Units) and a document from their county stating that the applicant meets high school graduation requirements. In addition to the test score requirements list above in 4. (a) and (b), Home Education or Non-Traditional High School Program applicants must receive a minimum composite score of 21 on the ACT Plus Writing Test, or an overall combined test score of 1450 on the SAT Reasoning Test (critical reading, math and writing).

Transfer Admissions

The following outlines the general processing of all Transfer students to the University of West Florida. These procedures are encompassed in UWF Regulation 3.032, approved by the University of West Florida Board of Trustees in June 2012. Until this approval, transfer student admission practices had been contained within the FTIC admission protocol. In June 2012, these procedures were developed into their own regulation.

General Provisions

- Admission decisions to the University of West Florida ("UWF" or "University") are made by the University subject to the regulations of the Florida Board of Governors ("BOG").
- "Transfer" applicants are those applicants who, prior to admission to UWF, have earned 12 or more semester hours of transferable college credit, as defined in this regulation, since graduating from high school, as evaluated by the Office of Undergraduate Admissions.
    1. Transfer applicants with fewer than 60 semester hours of transferable college credit must meet the transfer admission requirements set forth below under Transfer Student Admission, and these applicants must also meet the First Time In College ("FTIC") student admission requirements located in UWF Regulation 3.001.
    2. Transfer applicants with 60 or more semester hours of transferable college credits must meet the transfer admission requirements set forth below under Transfer Student Admission.
- Undergraduate admission decisions for transfer students are determined on a selective basis within curricular, space, enrollment and fiscal limitations. Satisfaction of minimum admission requirements does not guarantee acceptance. The selection process may include, but is not limited to, such factors as grades, test scores, pattern of courses completed, class rank, educational objectives, past conduct, academic recommendations, personal recommendations and achievements. Preference for admission in any term will

be given to those applicants whose credentials indicate the greatest promise of academic success while enrolled at UWF.

- UWF does not discriminate in the admission process based upon age, color, disability, gender (sex or gender identity), marital status, national origin, race, religion, sexual orientation nor veteran status.

Transfer Student Admission

The minimum admission requirements expected of transfer students are established by and are set forth in BOG Regulation 6.004. Satisfaction of the BOG minimum requirements does not automatically guarantee admission to the University of West Florida. The BOG regulation requires the transfer applicant to:

- Be in good standing and eligible to return to the last post-secondary institution attended as a degree-seeking student;
- Have a cumulative 2.0 Grade Point Average ("GPA") on a 4.0 system. The GPA is calculated using all transferable post-secondary credits;
- Satisfy the minimum admission requirements for entering FTIC students (See UWF Regulation 3.001) if transferring with fewer than 60 semester hours; and
- Demonstrate proficiency to the second level of the same foreign language (or American Sign Language) taken either in high school or at the undergraduate institution(s) attended previously.
    1. Transfer students not meeting the foreign language requirement may be admitted; however, if admitted, such students are required to complete the foreign language requirement prior to UWF graduation.
    2. Transfer students who received an Associate of Arts ("AA") degree from a Florida public community college, college, or university prior to September 1, 1989 are exempt from this requirement.

International Undergraduate Admissions

Applicants to the University are considered international if they are not U.S. Citizens, hold dual citizenship between the U.S. and another country, or are permanent residents currently residing in the U.S. In addition to the policies and procedures stated for the different categories of admission, the following information pertains to international applicants. Domestic applicants should refer to the "Freshman Admissions" or "Transfer Admissions" sections.

The following outlines the general processing of all International students to the University of West Florida. These procedures are encompassed in UWF Regulation 3.042, approved by the University of West Florida Board of Trustees in March 2012.

International Student Office (ISO)

1. Admission of international students to the University of West Florida ("UWF" or "University") is governed by University of West Florida admission regulations 3.001, 3.002, 3.004, 3.032, 3.033 and 3.042 , Florida Board of Governors (BOG) Regulations 6.001, 6.002, 6.003, 6.004, and 6.009, and the requirements herein.
2. For purposes of this regulation applicants to the University of West Florida will be considered "International" students if they are not U.S. citizens and if they require a visa to remain in the United States. Applicants who are permanent residents of the United States are not considered international students.

3. The admission requirements stated in the Board of Governors and UWF regulations are minimum requirements. Satisfaction of minimum requirements does not guarantee admission into the University. Preference for admission in any term will be given to those applicants whose credentials indicate the greatest promise of academic success.
4. Applicants must meet the following criteria and submit the required documentation to receive consideration for admission to the University:
    - A degree seeking applicant (undergraduate and graduate) whose native language is not English must provide evidence of English language proficiency. Non-degree undergraduate students are not required to provide documentation of English proficiency unless they are attending UWF under an international exchange agreement which requires the student to document English proficiency. The English requirement (proficiency in written and spoken English) may be fulfilled by establishing one of the following:

1. That he or she is from a country where English is the official language; or

2. That his or her prior associate's, bachelor's, master's, or doctoral degree was earned from a regionally accredited college or university in the United States; or

3. That his or her prior bachelor's, master's, or doctoral degree was earned from a country where English is the official language, or from a university at which English is the official language of instruction; or

4. That he or she completed his or her junior and senior year in a U.S. high school with a SAT Verbal score of 550 or a ACT English score of 23; or

5. That he or she achieved a qualifying score on the Test of English as a Foreign Language (TOEFL), International English Language Testing System (IELTS) or Michigan English Language Assessment Battery (MELAB)/ Michigan English Language Institute College English Test (MELICET).

- Qualifying scores for undergraduate applicants are either a TOEFL computer-based score of 213, a TOEFL internet-based score of 78/80, a TOEFL paper-based score of 550, an IELTS score of 5.5/6, or a MELAB/MELICET score of 76/77. (Consult the Undergraduate Catalog for sub-score requirements and for specific program requirements, which may be higher.)

1. Undergraduate applicants must have a 2.5 GPA on a 4.0 scale as calculated by UWF Office of Undergraduate Admissions.

2. Applicants must submit transcripts evidencing all prior academic course work including post-secondary education. The University requires an official copy of all academic credentials. Transcripts that are not in English must be accompanied by a certified English translation. Transcripts from educational institutions outside the United States must be evaluated by a credential evaluation service, as specified on the international application. (All academic credentials become property of the University. They will not be returned or forwarded to a third party. Credentials of applicants who do not enroll within one year will be destroyed).

3. Applicants must submit a non-refundable application fee payable in U.S. dollars.

4. Applicants must complete and submit the following medical information:

    a. a Physician's Evaluation Form and a Medical History Form completed by a physician, indicating the applicant's fitness, mentally and physically to pursue a college level study program.

    b. Documentation of MMR (measles, mumps and rubella) immunization, and

    c. Proof of immunization for meningitis and hepatitis B, or a signed waiver indicating the applicant's informed decision not to be vaccinated.

5. Applicants must provide proof of medical insurance that complies with the requirement of University policy, AC-6.00- 08/08 "Medical Insurance Coverage for Enrolled International Students" for all applicants on F-1 or J-1 visas.

6. Applicants must provide a Certification of Finances before the Certificate of Eligibility (Form I-20 or a DS-2019) will be issued by the University. The Certificate of Finances will show specific sources of a satisfactory level of financial support and the amount expected from each source. Funding sources must be verified by the student's or sponsor's bank by submitting an original bank statement from the student's or sponsor's financial institution. The total funds available to the student for the first academic year must at least equal the total estimates of institutional costs and living expenses. For applicants living outside the U.S., the Declaration and Certification of Finances must be received by the University no later than the application deadline each semester.

7. For transfer students: A completed transfer clearance form is required for F-1 applicants to verify their eligibility to transfer in F-1 status.

8. Undergraduate applicants who have provided all required materials and who meet all admission requirements except the English proficiency requirement may be considered for Conditional Admission to the University. Undergraduate students who receive a Conditional Admission letter who desire to attend UWF must enroll in the Intensive English Program at UWF. If such students seek to enroll in a degree program, they must meet the requirements set forth in paragraph (4) iv., above.

9. Undergraduate applicants who have provided all required materials and who meet all admission requirements except the English proficiency requirement may be considered for Conditional Admission to the University. Undergraduate students who receive a Conditional Admission letter who desire to attend UWF must enroll in the Intensive English Program at UWF. If such students seek to enroll in a degree program, they must meet the requirements set forth above.

10. Applicants will not be considered for admission until the University has received all required materials. Undergraduate international student applications, along with all other records required for admission must be received by the program deadline or university international application deadline, whichever is earlier, unless the deadline is waived by the University in writing.

Graduation and General Degree Requirements
(http://catalog.uwf.edu/undergraduate/academicpolicies/graduation/)

Pre-Graduation Audit

Students are required to meet with the assigned academic advisor to complete a Pre-Graduation Audit prior to completing 90 semester credit hours. This audit is intended to advise the student of all courses needed for graduation and to confirm that all remaining requirements are included in the degree plan.

Graduation Process

Students are responsible for meeting all graduation requirements. Having met all requirements for an undergraduate degree a student is expected to graduate and will not be permitted to take additional classes as an undergraduate student. Student responsibilities include:

1. Meeting with an academic advisor each semester to discuss degree progression;
2. Completing the Graduation Application online by the deadline listed in the Academic Dates and deadlines in the Catalog;
3. Meeting with the Department and completing a Graduation Action Plan when necessary; and
4. Meeting all requirements for the degree.

Bachelor's Degree Requirements

Requirements for a bachelor's degree from UWF are listed below. The colleges and departments may have requirements which exceed these minimums. Students should refer to their degree audits to review degree requirements. The degree audit must indicate all requirements have been completed. Please consult the individual departments for details. Minimum requirements are:

- 120 semester hours in an approved program
- UWF cumulative 2.00 GPA with a major GPA of 2.00 (departments may set a minimum grade requirement in each course and limited access programs may require higher minimum major GPAs)
- 48 semester hours in upper-level course work
- 25% of degree program credits must be earned at UWF
- The last 30 semester hours of credit for a degree must be earned at UWF
- 24 semester hours of upper-level work in the major field with a minimum of 18 upper-level semester hours in the major field at UWF
- Fulfillment of Gordon Rule
- Completion of all General Education requirements
- Completion of all program specific lower division common prerequisites
- Completion of admissions foreign language requirement
- Completion of multicultural requirement
- Nine hours of summer semester enrollment at an SUS institution (students who entered UWF with less than 60 semester hours)
- A degree will not be awarded for a student on academic probation or suspension
- Admitted and enrolled at UWF in a degree-seeking status for a minimum of one semester in the degree program for which a degree is awarded

- Admitted and enrolled at UWF in a degree-seeking status within the last five years of the date the degree is awarded. Students should contact their major department to determine the minimum of hours and courses in which to enroll. Students who need to be readmitted will be required to meet the degree requirements of the current catalog.

General Degree Requirements

In addition to the requirements for the major program of study, students must satisfy the following general University requirements:

General Education Requirements

All students (except for students holding an A.A. or certification of the completion of general studies requirements from a Florida public university or college) who enter UWF must complete the requirements specified as General Education. The General Education requirements are the basic studies that provide students with a broad educational foundation and are essential requirements for all A.A. and baccalaureate degree programs. Courses may not be taken on the pass/fail basis.

Gordon Rule (Writing and Mathematics) Requirements

To fulfill the writing and mathematics requirement for earning the first baccalaureate degree, students are required to satisfy the Gordon Rule, Florida Statutes by taking six semester hours of English coursework and six semester hours of additional coursework in which students are required to demonstrate college-level writing skills through multiple assignments. In addition, six semester hours of mathematics at the level of college algebra or higher are required. Students are required to take six semester hours of theoretical math or three semester hours of theoretical math and three semester hours of applied math. Students must have a grade of "C-" or better in the courses to successfully complete this requirement. Courses may not be taken on the pass/fail basis. Students must complete these requirements before advancing to upper-division status. Transfer students should refer to the Transfer Credit section of this catalog. Students should consult the Office of Undergraduate Admissions for evaluation of transfer mathematics courses for General Studies requirements, Gordon Rule, and credit for graduation.

Multicultural Requirement

An important component of a liberal education is the study of cultures other than one's own. As such, multiculturalism encompasses the appreciation of the values, expressions, and modes of organization of diverse cultural communities. To further such study, the University of West Florida requires all students pursuing a bachelor's degree to complete at least one course that explores one or more of the dimensions of another culture (language, religion, socio-economic structures, etc.). Students are exempt from this requirement if they have completed an A.A. degree, the general education program at a Florida public institution, or a baccalaureate degree.

The requirement is satisfied by the successful completion of a multicultural course designated on the following list. Several of the selections are General Education courses, and students may enroll in these to meet both the General Education and the multicultural requirements.

Foreign Language Requirement

Florida Statutes require that students admitted to a Florida public university meet the foreign language requirement for demonstrating competency in a foreign language. Students who have earned an A.A. from a Florida public community college may be admitted to the University, but must demonstrate competency prior to graduation with a baccalaureate degree. Students completing 8-10 semester hours of American Sign Language with passing grades will have satisfied the foreign language admission requirement. The foreign language requirement must be satisfied prior to progression to upper-division status. In addition, each academic department may determine specific language requirements for students and will recommend or require languages and proficiencies according to individual needs, career objectives, and academic programs.

Competency may be demonstrated in the following ways:

- Earning two credits of a single foreign language in high school or one credit in high school and the second semester (four semester hours) of the same foreign language at an accredited postsecondary institution demonstrating proficiency through the second level, OR
- Satisfactory completion of two semesters (8-10 semester hours) of a single foreign language at a postsecondary institution prior to admission to UWF demonstrating proficiency through the second level. Grades of P are acceptable for this requirement, OR
- Satisfactory completion of two semesters (8-10 semester hours) of a single foreign language at UWF demonstrating proficiency through the second level. Grades of P are acceptable for this requirement. Successful completion of the following tests with appropriate test scores: CLEP subject matter examinations, MAPS-Latin examination published by the College Entrance Examination Board, and proficiency examination at UWF.

Undergraduate transfer students are exempt one of the following applies: (1) they received an A.A. from a Florida public college prior to September 1, 1989; or (2) they enrolled in a program of studies leading to an associate degree from a Florida public college prior to August 1, 1989, and complete at least one academic course each twelve month period beginning with the student's first enrollment in a Florida public college and continuing until the student enrolled at UWF.

Summer Hour Requirement

Undergraduate students entering one of the state universities of Florida with less than 60 semester hours of credit must earn at least nine semester hours prior to graduation by attendance during one or more summer sessions at one of the state universities. Students may satisfy this requirement through online courses at UWF as well as any other UWF courses. Courses taken within the community college, state college system, or outside of the State University System of Florida cannot be used to satisfy summer hours.

Residency Requirement

Students must complete a minimum of 30 semester hours (25% of the degree program) in a planned program at UWF. In addition, the last 30 semester hours of course work for the undergraduate degree must be completed in residency at UWF. Courses taken while on University sponsored study abroad programs count as resident credit for purposes of meeting graduation requirements. Courses taken at another institution will not meet the UWF residency degree requirement.