

Letha Margaret Hughes Etzkorn

Computer Science Department
The University of Alabama in Huntsville
Huntsville, AL 35899

Research Interests: Software Engineering (software metrics, program comprehension, software reuse), Cybersecurity (Digital Forensics, Security Patterns, Reverse engineering for Cybersecurity, Common Criteria Protection Profiles), Middleware, Cloud Computing and Internet of Things, Distributed Systems (Web services, Mobile and Intelligent Agents), Team Collaboration Research, Knowledge-based Systems and Natural Language Understanding (ontology analysis, program comprehension applications), Computer Networks, Computer Science/Engineering Education

EDUCATION

Ph.D. (Computer Science), University of Alabama in Huntsville, 1997

Dissertation Title: A Metrics-Based Approach to the Automated Identification of Object-Oriented Reusable Software Components. Advisor: Dr. Carl G. Davis

M.S. (Computer Science), University of Alabama in Huntsville, 1992

M.S.E.E. (Electrical Engineering), Georgia Institute of Technology, 1982

B.E.E. (Electrical Engineering), Georgia Institute of Technology, 1980

EXPERIENCE SUMMARY/PROFESSIONAL EMPLOYMENT HISTORY

Associate Chair, Dept. of Computer Science, Fall 2017-present

Professor, Dept. of Computer Science, UAH, Fall 2010-present

Associate Professor, Dept. of Computer Science, UAH, 2004-2009

Assistant Professor, Dept. of Computer Science, UAH, 1998-2004

Lecturer, Dept. of Computer Science, UAH, 1993-1998

Senior Design Engineer, Motorola Transmission Products Div., 1989-1990

Senior Design Engineer, Hayes Microcomputer Products, Inc., 1985-1989

Electronics Engineer, Lockheed-Georgia Company, 1982-1984

PROFESSIONAL MEMBERSHIPS

Senior Member, Institute of Electrical and Electronics Engineers (IEEE), since 1999

Professional Engineer, Georgia, since 1987

Member of Association for Computing Machinery, since 1991

HONORS AND AWARDS

Computer Science Departmental Award (Masters), 1992

Paper (“A Knowledge-Modeling Approach to Evaluating Student Essays in Engineering Courses”) selected as one of two papers from the Journal of Engineering Education in year 2007 to be included in the Annals of Research in Engineering Education, 2008

Amateur Radio Extra Class License, since 1986

National Merit Finalist and Four Year Scholarship Winner, 1976

Honor societies include: Phi Kappa Phi, Upsilon Pi Epsilon, Omicron Delta Kappa, Sigma Xi

PRESENTATIONS

“Improved Code Clone Categorization,” (together with Dr. Kraft and Dr. Carver from Univ of Ala.), Alabama A&M University, Nov. 17, 2009.

“New Kinds of Software Metrics: Program Understanding Metrics and Ontology Metrics,” University of Alabama in Birmingham seminar series, Nov. 30, 2007.

“Metrics for Object-Oriented Software,” Huntsville Chapter of the IEEE, Tuesday, October 12, 2004
"Information Extraction in Software Reusability Analysis," Computer Science Department Technical Seminar, The University of Alabama in Huntsville, Huntsville, AL, April 2, 2006.

"Reuse Assessment: A Metrics-Based Approach to the Automated Identification of Object-Oriented Reusable Components," Computer Science Department Technical Seminar, The University of Alabama in Huntsville, Huntsville, AL, March 3, 1995.

"The X.25 Protocol in the Hayes V-Series Modems," Hayes Microcomputer Products Technical Seminar, Norcross, GA, May 18, 1988.

CAREER TO DATE

Computer Science Dept., Univ. of Ala. in Huntsville

- **Associate Chair, Fall 2017-present**
 - Supervising CS SACS and ABET accreditation
 - Examining CS student retention
 - Setting up collaborative research meetings both within UAH and outside UAH to enhance CS research funding
 - Working to establish domestic CS graduate student recruitment activities
- **Professor, Fall 2010-present**
- **Associate Professor August 2004-July 2010**
- **Assistant Professor August 1998-July 2004**

Major Responsibilities:

- Teach courses in several areas, including Cloud Computing, software engineering, client/server (middleware), networking, architecture, among others. Have taught more than 29 different courses. See teaching summary.
- Working with several PhD students and MS thesis students. Have graduated 17 PhD students and 6 MS thesis students. See teaching summary.
- Have published more than 100 refereed papers. See research publications.
- PI or co-PI on more than \$5.1 million in grants and contracts. See research funding summary.

Some Current Activities: (see service summary for more complete list)

- Member Editorial Board, PeerJ Computer Science, 2015-present

Some Previous Activities: (see service summary for more complete list)

- Associate Editor/Member Editorial Board for the International Journal of Computers and Applications (Taylor&Francis), 2006-2017
- Member program committee Cyber and Information Security Research Conference (CISRC 2017, CISRC 2016)
- Member of Editorial Board for Software Engineering journal, ACTA Press, 2011-2014

- Member of Editorial Board and Section Editor for The Open Software Engineering Journal, 2008-2014
- Member of Editorial Board/Associate Editor for Advances in Software Engineering journal, Hindawi Publishing, 2008-2012
- Chair, University SACS COC Effectiveness Committee, 2014/15 academic year
- Chair, Faculty Appeals Committee, 2011/12 academic year
- Faculty Senate president 2009/10 academic year
- Graduate Council, 2004-2009
- Served on NSF Review Panel, April 2010
- Faculty Advisor, Campus ACM 1998-2003
- Program Chair, ACM Southeast Conference 2004
- Guest Editor (co-editor was Dr. Tim Menzies from West Virginia University), Special Issue on Information Retrieval for Program Comprehension, Empirical Software Engineering journal, Vol 14, No. 1, February, 2009.
- Member program committee Cyber and Information Security Research Conference (CISRC 2017, CISRC 2016)
- Member program committee National Cyber Summit (2016)
- Member program committee IASTED international Conference on Software Engineering (SE13)
- IASTED International Conference on Software Engineering and Applications (SEA 2006, SEA 2007, SEA 2008, 2009, 2010, 2011, 2012, 2013, 2014)
- Member program committee IASTED international Conference on Software Engineering (SE14)
- Member program committee IEEE International Conference on Program Comprehension (ICPC 2008)
- Chair, doctoral symposium Southeast Software Engineering Conf., 2002 and 2003

Lecturer, Computer Science Dept., Univ. of Ala. in Huntsville, (1/93-8/98)

Taught a wide variety of courses, in software engineering, computer architecture, operating systems, and programming. Taught both graduate and undergraduate courses.

Quality Research, Huntsville, AL (5/92-7/92)

Participated in National Test Bed CASE tool experiment. Worked for the Strategic Defense Command (now SMDC) on a team evaluating Cadre Teamwork. Received a letter of commendation from the SMDC for my work on this project.

Research Assistant, The University of Alabama in Huntsville, (2/91-12/91)

Performed mathematical analysis of atmospheric data. FORTRAN programming.

Senior Design Engineer, Motorola Transmission Products Div., Huntsville, AL (1/89-9/90)

Had sole responsibility for the real time firmware for an 8 port statistical multiplexer running the X.25 protocol. This included the design and implementation of an X.25 packet layer, LAPB link layer, and CCITT PAD (X.28, X.29, X.3). Wrote interrupt drivers. Implemented a multitasking operating system/executive. Also supported an X.25 modem project. Directed the Telenet certification of the X.25 modem project. C language , Z80, 8031 assembly language

Senior Design Engineer, Hayes Microcomputer Products, Inc. Norcross, GA, (6/85-1/89)

Designed and implemented real time firmware for the Hayes V-series modems. This included the design and implementation of an X.25 packet layer, large portions of a CCITT PAD (X.28, X.29, X.3), and high level control firmware for all Hayes V-series modems, including the first Hayes V.42 modem. Was involved in the design and development of a message-passing

operating system that was used in all Hayes V-series modems. Was involved in the setup of a code management system/development environment. Was responsible for certification of the Hayes X.25 modems using the Telenet, Defense Data Network, and Tymnet certification tests, as well as connection tests to CompuServe and various other networks. In a separate project at Hayes, was responsible for test specifications and a test set for digital and analog surface mount hybrids. C language, Z80 assembly language.

Electronics Engineer, Lockheed-Martin (formerly Lockheed-Georgia Company), Marietta, GA (4/82-1/84)

Designed and implemented a graphics terminal driver program, in JOVIAL on a MIL STD 1750A computer, for the C5-B project. Also wrote communications driver for a MIL STD 1553 bus interface card. Hardware design and software for a TI 990 computer/IEEE 488 interface card. Software for a TI 990 computer based display system. JOVIAL programming, MIL STD 1750A assembly language, TI 990/TI 9900 assembly language.

Teaching Assistant, The Georgia Institute of Technology, Atlanta, GA (3/81-3/82)

Taught an operational amplifier laboratory course.

Student Assistant, The Georgia Tech Research Institute, Atlanta, GA (4/79-9/79)

Assisted engineers with projects, some programming.

Goodyear Tire&Rubber Company, Gadsden, AL (6/78-9/78)

Drafting, engineer's assistant.

Operator, WREK Radio, The Georgia Institute of Technology, Atlanta, GA (4/77-6/78)

Monitored transmitter, automated music devices. Held third class radiotelephone license.

Summary of Teaching Accomplishments and Highlights

So far, I have taught more than **29 different courses** at UAH (including different versions of a course), 30+ different courses if ind. study and thesis and dissertation courses are included.

Current List of Courses taught:

<u>Graduate Courses:</u>	<u>Undergraduate Courses:</u>
CS799—Doctoral Dissertation	CS499—Senior Project: Team Software Development
CS796—Intelligent and Mobile Agents	CS495—Selected Topics in Computer Science
CS795—Selected Topics in Computer Science	CS495—Metrics Analysis Course
CS699—Master’s Thesis	CS495—Secure Software
CS695—Selected Topics in Computer Science	CS490—Introduction to Operating Systems
CS685—Computer Security	CS490—Systems Software
CS670—Computer Networks	CS485—Intro to Computer Security
CS668—Software Studio II	CS470—Intro. To Computer Networks
CS666—Software Studio I	CS454—Introduction to Cloud Computing
CS652—Object-oriented Design	CS453—Client/Server Computing
CS650—The Software Engineering Process	CS413—Computer Architecture (undergraduate)
CS586—Microprocessor Architecture	CS309—Switching Theory (Digital Logic)
CS585—Intro. to Computer Security	CS308—Computer Organization and Assembly Language Programming
CS570—Intro. To Computer Networks	CS207, CS208—Computer Science II: Data Structures (C and Pascal)
CS554--Intro. to Cloud Computing	CS121, CS107, CS108—Computer Science I: Intro. to programming (C++, C, and Pascal)
CS553—Client/Server Computing	
CS552—Analysis and Design Patterns	
CS552—Object-Oriented Design	
CS513—Computer Architecture	

Dissertation and Thesis Students Advised:

Ph.D. Students Who Have Graduated		
Dr. Mohammad Shojaeshafiei (co-advised with Dr. Michael Anderson)	A Measurable Cybersecurity Quality Framework and Its Application to the Department of Transportation	Fall, 2020
Dr. Julien McKinney Young	Measuring Solution Intelligence: A Path Walking Simulator of Multiple Autonomous Robots on a Dynamic Graph	Spring, 2016
Dr. Zhiqiang (John) Wu	An Approach to Finding Good Anchor Nodes in Ontologies	Summer, 2015
Dr. Amr Desouky	A Qualitative Analysis of Object Oriented Runtime Cohesion and Complexity	Spring, 2014
Dr. Matthew Beard	The Relationship to Software Quality Characteristics to Code Clones	Spring, 2013
Dr. Ruchira Mathur	Object Oriented Runtime Software Quality Analysis	Summer, 2011
Dr. Dan Schrimpsheer	Dynamic Generation of Reduced Ontologies to Support Resource Constraints of Mobile Devices	Summer, 2011
Dr. Kevin Keen	Measuring and Comparing Group Intelligence of Mobile and Intelligent Agents on a Mobile Robotics Platform	Summer, 2010
Dr. Stacy K. Lukins	Source Code Retrieval for Bug Localization using Latent Dirichlet Allocation, and its Relationship with Stability of Agilely Developed Software	Spring, 2009
Dr. Patricia L. Roden	An Examination of Stability and Reusability in Highly Iterative Software	Fall, 2008
Dr. Maureen Raley	Metrics for Risk Determination in Large-Scale Distributed Systems Maintenance	Spring, 2008
Dr. Craig Eichelkraut	A Mobile Agent Based Approach For Optimizing Real-Time Geographically Distributed Control Systems Using Swarm Intelligence	Spring, 2008
Dr. Bradley L. Vinz	A Synergistic Approach to Program Comprehension: Combining Code Understanding with Comment Understanding	Spring, 2008
Dr. Hector Olague	Assessing Maintainability: Information Theory, Metrics and Iterative Software Processes	Fall, 2006
Dr. Haining Yao	A Semantic-Based Approach for Software Reusable Component Classification and Retrieval	Fall, 2005
Dr. Anthony M. Orme	A Measurement Oriented Approach to E-Commerce Distributed Transactions Based on a Mobile/Intelligent Agent Framework	Spring, 2005

Dr. Cara Stein Gall	Semantic Metrics for Source Code and Design	Summer, 2004
---------------------	---	--------------

MS Thesis Students Who Have Graduated			
Matthew Beard	The Accuracy of Information Retrieval Based Bug Localization Techniques	MSSE	Summer, 2011
David Michal	A Comparison of Development Environments for Mobile Autonomous Robots: Player/Stage Gazebo vs. Microsoft Robotics Developer Studio	MSCS	Fall, 2010
Richard Dabney	A Fault-Tolerant Approach To Test Control Utilizing Dual Redundant Processors	MSCS	Spring, 2006
Owen Funkhouser	Comparing UML Use Cases to Internal Program Documentation in Object-Oriented Code	MSSE	Fall, 2004
Stephen Quattlebaum	A Comparison of the Results of Object-Oriented Metrics in C++ and Java	MSCS	Summer, 2004
Raed Shatnawi	A Comparison of Modern Object-Oriented Programming Languages and Compilers Using Standard Gang of Four Design Patterns	MSSE	Fall, 2003

Curriculum Development:

- Directed Computer Science department hardware laboratory, 2010-2017
- Co-developed a new course in Digital Forensics, first taught Spring, 2018.
- Created a new course in Cloud Computing, course first taught Spring 2016.
- Served on committee to revamp and combine MSSE program, 2015.
- Completely revamped MSSE program, spring 2012 (with Dr. Harry Delugach). Deleted several courses, completely refocused 3 courses.
- Developed a robotics laboratory for the Computer Science department 2007/2008 academic year
 - Developed software to run the robots, fall 2007
 - Instituted laboratory in both freshman and senior courses. Included:
 - Developed course materials, fall 2007 and spring 2008
 - Ran laboratory myself for a senior course (CS470), fall 2007
 - Supervised and trained GTAs, 2007-2015.
 - In concert with CS121 instructors and TA, developed course assignment for CS121 and organized laboratory operation, spring 2008. Similarly for CS470/CS570 and CS553 in Fall, 2008. Added CS321 and CS668 in spring 2009.
- From Fall 2007 through Fall 2012, I redeveloped CS553, Client/Server Architectures to teach client server concepts using web services as well as dotNet and CORBA technologies
- In Fall, 2004, I served on a departmental committee to completely reorganize the software engineering curriculum.
 - As part of this reorganization of the software engineering curriculum, I refocused CS552, Object Oriented Design, to different areas. It is now called CS552, Analysis and Design Patterns
- In Spring, 2004, I largely revamped CS552 (originally Object Oriented Design, became Analysis and Design Patterns), with new content for approx. half the course
- In 2001/2002, served as chair of the departmental architecture committee when we reorganized all 4 of our architecture courses, according to ACM/IEEE guidelines
- In Fall, 2001, I redeveloped CS553, Client/Server Architectures, to teach modern client/server concepts illustrated by newly developed CORBA technologies. At that point in time, CS553 had not been taught for several years; the original developer of the course had left the university. Topics in the course were outdated.

- In Fall, 2000 and Spring, 2001, I developed an initial internet/networking laboratory for the CS department.
- In Fall, 2000, Dr. Mary Ellen Weisskopf and I investigated improvements to laboratory assignments for the computer science operating systems courses

Course No. and Title	Term- Section
CS107 Intro. to CS (C lang.)	FA95
	SP98
CS121 Intro. to CS (C++ lang)	FA07
CS108 Intro. to CS (Pascal)	FA92
	WI93
CS207 Data Structures (C lang.)	FA96
CS208 Data Structures (Pascal)	SP93
CS308 Computer Org. and Assem. Lang.	WI94
	SP94
	SP95
	SP97
CS 309 Switching Theory	WI93
	SP93
	SU93
	SP95
	FA95
	FA96
	FA97
	SP98
	FA98
	FA06
	FA08
SP17	
CS413 Introduction to Digital Computer Design	FA93
	WI94
	FA95
	FA03
	SP04
	FA04
	SP05
	FA05
SP06	
	FA09
	FA12
	SP13

	FA13
	SP14
	FA15
	SP16
CS453 Client/Server Architectures	FA14
	FA15
	FA16
	FA17
	FA18
	FA19
	FA20
CS454 Intro to Cloud Computing	SP16
	FA 16
	SP17
	FA17
	FA19
	FA20
CS470 Intro. to Computer Networks	FA05
CS485 Intro. to Computer Security	SP18
	FA18
	SP19
	SP20
CS490 Systems Software	SP95
	SP96
	FA96
	FA97
	SP98
CS490 Operating Systems	FA03
CS495-13 Selected Topics: Metrics Analysis	SP06
CS495-13 Selected Topics: Secure Software	SU09
CS496 ST: Intro to Cloud Computing	SP15
CS499 Senior Project: Team SW Dev.	FA98
	FA99
CS513 Intro. to Computer Arch.	SU93
	FA93
	FA94
	SP01
CS552 Object-Oriented Design	SP99
	SP00
	SP01
	SP02
	SP03
	SP04
	SP05
CS552 Analysis & Design Patterns	SP06
	SP07

	SP08
	SP09
	SP12
CS553 Client/Server Architectures	FA00
	FA01
	FA02-01
	FA02-02
	FA07
	FA08
	FA10
	FA11
	FA12
	FA13
	FA14
	FA15
	FA16
	FA17
	FA18
	FA19
	FA20
CS554 Intro. to Cloud Computing	SP16
	FA 16
	SP 17
	FA 17
	FA19
	FA20
CS570 Intro. to Computer Networks	FA05
CS585 Intro. to Computer Security	SP18
	FA18
	<i>SP19-section01</i>
	<i>SP19-section09</i>
	SP20
	SP21
CS586 Microprocessor Architecture	SP94
	F94
	SP96
	SP97
CS596 ST: Computing for the Blind	FA15
CS596 ST: Intro to Cloud Computing	SP15
CS650 Software Eng. Process	FA99
	FA01
	FA03
	FA04
	SP08
	SP09
	SP10
	SP11
	FA11
	FA11 – (DL)

	SP12
CS652 Object-Oriented Design	SP13
	SP-13 –(DL)
CS666 Software Studio I	FA10
CS668 Software Studio II	SP11
CS670 Computer Networks	FA00
CS685 Computer Security	FA06
CS796 Intelligent and Mobile Agents	SP02

Research Accomplishments and Highlights

PUBLICATIONS:

At the current time, I have **published or had accepted** more than **100 refereed publications**.

Publications include:

1. **48 refereed journal articles**
 - 46 fully peer-reviewed
 - 2 editorially-reviewed
2. **79 refereed conference papers**
 - 72 fully peer-reviewed conference papers
 - 7 reviewed-abstract conference papers
3. **4 technical reports**
4. **6 final reports on grants or contracts**
5. **1 workshop paper (invited)**
6. **1 textbook (*Introduction to Middleware*, Taylor & Francis, by Etzkorn)**
7. **7 other publications, including:**
 - 1 ACM Proceedings for which I was the editor (Dr. Seong-Moo Yoo from ECE was co-editor)

PROPOSAL HISTORY:

I have had **accepted** greater than **\$5.1 million in total funding as PI or co-PI**, this includes:

- **17 external research grants/contracts for which I was PI or co-PI**
- **4 equipment grant proposals**
- **4 instructional proposals**

I have also served as Senior Personnel for approx **\$123K** in funding.

Publications:

Legend:

- For journals, the *Thomson Scientific ISI/SCI impact factors* are indicated where available.
- *Australia and New Zealand Computing Research and Education (CORE)* journal rankings and conference rankings are provided where available.
- *Conference acceptance rates* are indicated where they are available.
- My current and former **PhD Students'** (including those already graduated) names shown in **Purple**.
- My current and former **MS Thesis students'** (including those already graduated) names shown in **Red**.

Peer Reviewed Articles in International Journals		
PUBLISHED OR ACCEPTED		
	Publisher and/or Affiliation	Journal Impact and Ranking Information, other Information (where available)
1. Shojaeshafiei, M., Etkorn, L., and Anderson, M. "Analytic Hierarchy Process-based Fuzzy Measurement to Quantify Vulnerabilities of Web Applications, <i>International Journal of Computer Networks and Communications (IJCNC)</i> ,		
2. Coe, D., Kulick, J., Milenkovic, A., Etkorn, L. "VIRTUALIZED IN-SITU SOFTWARE UPDATE VERIFICATION : Verification of Over-the-Air Automotive Software Updates", <i>IEEE Vehicular Technology</i> , Vol. 15, Issue: 1, Feb. 2020, pp.84-90.	IEEE	
3. Wu, J., J., Gholston, S., and Etkorn, L. "An Approach to Finding Good Anchor Nodes in Ontologies," <i>International Journal of Computers and Applications</i> , Dec, 2017.	Taylor & Francis	

4.	Delugach, H., Etzkorn, L.H. , Carpenter, S., Utley, D. “A Knowledge Capture Approach for Directly Acquiring Team Mental Models,” <i>International Journal of Human-Computer Studies</i> , Volume 96, Issue C, December 2016, pp. 12-21.	Elsevier	<i>SCI Impact Factor: (2016: 1.476)</i>
5.	Biggers, L.R. , Bocovich, C. , Capshaw, R., Eddy, B.P., Etzkorn, L.H. and Kraft, N.A. “Configuring Latent Dirichlet Allocation Based Feature Location.” <i>Empirical Software Engineering</i> , Vol. 19, 2014, pp. 465-500.	Springer	<i>Australia CORE Ranking: (2008: A), SCI Impact factor (2011: 1.854)</i>
6.	Schrimpscher, D. , and Etzkorn, L. , “A Model to Predict Quality of a Reduced Ontology for Web Service Discovery on Mobile Devices,” <i>The Knowledge Engineering Review</i> , Vol. 29, Issue 2, March 2014, pp.201-216..	Cambridge University Press	<i>Australia CORE Ranking: (2008: B), SCI impact factor (2008:1.588)</i>
7.	Sandra Carpenter, Harry Delugach, Letha Etzkorn , Julie Fortune, and Dawn Utley, “How Instructional Format (Voice and Modality) Influences Subsequent Performance: An Empirical Study”, <i>Intl. Jour. of Teaching and Learning in Higher Education</i> , Vol. 25, No. 1, 2013, pp.59-65.		
8.	Lukins, S. , Kraft, N., and Etzkorn, L. , “Bug Localization Using Latent Dirichlet Allocation,” <i>Information and Software Technology</i> , 52(9): 972-990, 2010.	Elsevier	<i>Australia CORE Ranking: (2008: B; 2007: B), SCI impact factor (2003: 0.632; 2008: 1.2)</i>
9.	Stein C. , Etzkorn, L. , Gholston, S., Farrington, P., Utley, D., Cox, G., and Fortune, J., “Semantic Metrics: Metrics Based on Semantic Aspects of Software,” <i>Applied Artificial Intelligence</i> , Vol. 23, Issue 1, January 2009, pp.44-77.	Taylor & Francis	<i>Australia CORE Ranking: (2008: B), SCI impact factor (2003: 0.789; 2007: 0.753)</i>
10.	Orme, Anthony Mark, Yao, Haining, Etzkorn, Letha,	Inderscience	<i>SCI impact factor (2007: 0.356)</i>

	“Complexity Metrics for Ontology Based Information,” <i>International Journal of Technology Management</i> , Vol. 47, No. 1/2/3, 2009, pp.161-173.	Publishers	
11.	Cox, G., Hughes, William E., Etzkorn, Letha H. , and Weisskopf, Mary E., “Predicting Computer Science PhD Completion: A Case Study,” <i>IEEE Transactions on Education</i> , Vol. 52, No. 1, Feb. 2009, pp.137-143.	IEEE Education Society	<i>Australia CORE Ranking: (2008: B), SCI impact factor (2005: 0.644; 2007: 0.815)</i>
12.	Vinz, B.L. , and Etzkorn, L.H. , “Improving Program Comprehension by Combining Code Understanding with Comment Understanding,” <i>Knowledge-Based Systems</i> , Vol. 21, Issue 8, December, 2008, pp. 813-825.	Elsevier	<i>Australia CORE Ranking: (2008: B; 2007: A), SCI impact factor (2003: 0.825; 2007: 0.574)</i>
13.	Olague, Hector M. , Etzkorn, Letha H. , Messimer, Sherri L., and Delugach, Harry, “An Empirical Validation of Object-Oriented Class Complexity Metrics and Their Ability to Predict Error-Prone Classes in Highly Iterative, or Agile, Software,” <i>Journal of Software Maintenance and Evolution</i> , Vol. 20, Issue 3, May/June 2008, pp. 171-197.	Wiley InterScience	<i>Australia CORE Ranking: (2008: B; 2007: B), SCI impact factor (2007) 0.765</i>
14.	Yao, Haining , Etzkorn, L. , and Virani, S., “Automated Classification and Retrieval of Reusable Software Components,” <i>Journal of the American Society for Information Science and Technology</i> , 59(4), February, 2008, pp.613-627.	Wiley Interscience	<i>Australia CORE Ranking: (2008: A*; 2007: A), SCI impact factor (2006: 1.555; 2007: 1.436)</i>
15.	Funkhouser, O. , Etzkorn, L. , and Hughes, W.E., “A Lightweight Approach to Software Validation By Comparing UML Use Cases	Springer	<i>Australia CORE Ranking: (2008: C), SCI impact factor (2006: 0.4; 2007: 0.543)</i>

	with Internal Program Documentation Selected Via Call Graphs," <i>Software Quality Journal</i> , Vol. 16, No. 1, March, 2008, pp. 131-156.		
16.	Carter, Donna M, Aygun, Ramazan, Cox, Glenn, Weisskopf, Mary Ellen, Etzkorn, Letha , "The Effect of Uncontrolled Concurrency on Model Checking," <i>Concurrency and Computation: Practice and Experience</i> , Vol. 20, No. 12, August, 2008, pp. 1419-1438.	Wiley Interscience	<i>Australia CORE Ranking: (2008: A; 2007: A), SCI impact factor (2007: 1.154)</i>
17.	Gall, C. (Stein), Lukins, S., Etzkorn, L. , Gholston, S., Farrington, P., Utley, D., Fortune, J., and Virani, S., "Semantic Software Metrics Computed from Natural Language Design Specifications," <i>IET Software (formerly IEE Proceedings Software)</i> , Vol. 2, No. 1, February, 2008, pp. 17-26.	IET (Institute for Engineering and Technology), the professional institution for engineering and technology in the UK	<i>Australia CORE Ranking: (2008: B), SCI impact factor (2006: 0.64)</i>
18.	Olague, H., Etzkorn, L. , Gholston, S., and Quattlebaum, S. , "Empirical Validation of Three Software Metrics Suites to Predict Fault-Proneness of Object-Oriented Classes Developed Using Highly Iterative or Agile Software Development Processes," <i>IEEE Transactions on Software Engineering</i> , Vol. 33, No. 6, June, 2007, pp. 402-419.	IEEE Computer Society	<i>Australia CORE Ranking: (2008: A*; 2007: A+), SCI impact factor (2006: 2.132; 2007: 2.105)</i>
19.	Dabney, Richard, Etzkorn, Letha , and Cox, Glenn, "A Fault-Tolerant Approach to Test Control Utilizing Dual Redundant Processors," <i>Advances in Engineering Software</i> , Vol. 39,	Elsevier	<i>Australia CORE Ranking: (2008: B), SCI impact factor (2006: 0.431; 2007: 0.529)</i>

		No. 5, May 2008, pp. 371-383.
<p>20. Carpenter, Sandra L., Delugach, Harry S., Etzkorn, Letha H., Farrington, Phillip A., Fortune, Julie L., Utley, Dawn R., Virani, Shamsnaz S., "A Knowledge-Modeling Approach to Evaluating Student Essays in Engineering Courses," <i>Journal of Engineering Education</i>, Vol. 96, No. 3, July, 2007, pp.227-238.</p> <ul style="list-style-type: none"> selected as one of two papers from the Journal of Engineering Education in year 2007 to be included in the Annals of Research in Engineering Education, 2008 	<p>American Society for Engineering Education</p>	<p>Listed as one of the core journals in the field of Advanced Learning Technologies by the TENCompetence Project;</p> <p>"JEE is the mostly widely read educational research journal in engineering education with 8,000 subscribers in over 70 countries, and it is the most highly cited education journal currently ranked first in the categories of education and educational research on the Thomson ISI Science Citation Index and the Social Science Citation index." http://www.asee.org/publications/jee/ [last accessed Dec 2008]</p> <p>SCI impact factor (2006: 0.304; 2007: 0.3)</p>
<p>21. Cox, Glenn W., Gholston, Sampson E., Utley, Dawn, Etzkorn, Letha, Stein, Cara, Farrington, Philip, Fortune, Julie, "Empirical Validation of the RCDC and RCDE Semantic Complexity Metrics for Object-Oriented Software," <i>Journal of Computing and Information Technology</i>, Vol. 15, No. 2, 2007, pp. 1-10.</p>	<p>University Computing Centre, Zagreb, Croatia</p>	<p>Australia CORE Ranking: (2008: C)</p>
<p>22. Orme, Anthony M., and Etzkorn, Letha," A Parallel Methodology for Reduction of Coupling in Distributed Business-to-Business E-Commerce Transactions," <i>Journal of Electronic Commerce in Organizations</i>, Vol. 5, No 3, July-September, 2007, pp. 52-67. (later re-published as a book chapter in <u>Consumer Behavior, Organizational Development, and Electronic Commerce: Emerging Issues for Advancing Modern Socioeconomics</u>, Ed. Mehdi Khosrow-Pour, published by IGI</p>	<p>Publication of the Information Resources Management Association, Idea Group Publishing</p>	

	Global).		
23.	Orme, A., Yao, H., and Etzkorn, L. , “Indicating Ontology Data Quality, Stability, and Completeness Throughout Ontology Evolution,” <i>Journal of Software Maintenance and Evolution</i> , Vol. 19, Issue 1, January/February 2007, pp. 49-75.	Wiley InterScience	<i>Australia CORE Ranking: (2008:B; 2007: B), SCI impact factor (2007: 0.765)</i>
24.	Stein, Cara, Letha Etkorn, Sampson Gholston, Phillip Farrington, Julie Fortune. "A Knowledge-Based Cohesion Metric for Object-Oriented Software," <i>INFOCOMP Journal of Computer Science</i> , vol. 5, no. 4, December 2006, pp. 44-53.	Department Of Computer Science, Federal University of Lavras, (UFLA) Brazil	<i>Australia CORE Ranking: (2008: C)</i>
25.	Yao, Haining, and Etkorn, Letha, “Automated Conversion Between Different Knowledge Representation Formats,” <i>Knowledge-Based Systems</i> , Vol. 19, Issue 6, Oct. 2006, pp. 404-412.	Elsevier	<i>Australia CORE Ranking: (2008: B; 2007: A), SCI impact factor (2003: 0.825; 2007: 0.574)</i>
26.	Olague, Hector M., Etkorn, Letha H, Li, Wei, and Cox, Glenn, “Assessing Design Instability in Iterative (Agile) Object-Oriented Projects,” <i>Journal of Software Maintenance and Evolution</i> , Vol. 18, Issue 4, July/August 2006, pp.237-266	Wiley InterScience	<i>Australia CORE Ranking: (2008: B; 2007: B), SCI impact factor (2006: 0.636; 2007: 0.765)</i>
27.	Cox, Glenn, Etkorn, Letha, and Hughes, William E., “Cohesion Metric for Object-Oriented Systems Based on Semantic Closeness from Disambiguity,” <i>Applied Artificial Intelligence</i> , Vol. 20, No. 5, May-June, 2006, pp. 419-436.	Taylor & Francis	<i>Australia CORE Ranking: (2008: B), SCI impact factor (2003: 0.789, 2007: 0.753)</i>
28.	Orme, Anthony M., Yao,		<i>Australia CORE Ranking: (2008: B),</i>

	Haining , and Etz Korn, Letha , “Coupling Metrics for Ontology- Based Systems,” <i>IEEE Software</i> , Vol. 23, No. 2, March/April 2006, pp. 102-108.	IEEE Computer Society	<i>SCI impact factor (2005: 1.333; 2007: 1.462)</i>
29.	Shatnawi, Raed, Etzkorn, Letha , and Hughes, W.E., “Comparing Object-Oriented Languages Using Design Patterns,” <i>International Journal of Computers and Applications</i> , Vol. 27, No. 4, 2005, pp. 228- 236.	ACTA Press	<i>Australia CORE Ranking: (2008: C), This journal is a merge of 3 earlier journals: 1) Int. Journal of Mini and Microcomputers (first published in 1979); 2) Int. Journal of Parallel and Distributed Systems; and 3) Journal of Microcomputer Applications which had SCI impact factor (1994) 0.123</i>
30.	Stein, C. , Cox, G., Etz Korn,L. , Gholston, S., Virani, S., Farrington, P., Utley, D., Fortune, J., “Exploring the Relationship Between Cohesion and Complexity,” <i>Journal of Computer Science</i> , 1(2), 2005, pp. 137-144.	Science Publications	NOTE: available on amazon.com [last accessed 11/10/08] Exploring the relationship between cohesion and complexity.: An article from: Journal of Computer Science by Cara Stein, Glenn Cox, and Letha Etz Korn (Digital - Jan 16, 2008) - HTML Buy: \$9.95
31.	Yao, Haining, Orme, Anthony M., Etzkorn, Letha , “Cohesion Metrics for Ontology Design and Application,” <i>Journal of Computer Science</i> , 1(1), 2005, pp. 107-113.	Science Publications	
32.	Etz Korn, Letha , Gholston, Sampson E., Fortune, Julie L., Stein, Cara E., Utley, Dawn, Farrington, P.A., and Cox, G.W., “A Comparison of Cohesion Metrics for Object-Oriented Systems,” <i>Information and Software Technology</i> , Vol. 46, Issue 10, August 2004, pp. 677- 687.	Elsevier	<i>Australia CORE Ranking: (2008: B; 2007: B), SCI impact factor (2003: 0.632; 2007: 0.581)</i>
33.	Naji, Hamid R., Wells, B. Earl, Etz Korn, Letha , “Creating An Adaptive Embedded System by Applying Multi Agent Techniques to Reconfigurable Hardware,” <i>Future Generation</i>	Elsevier	<i>Australia CORE Ranking: (2008: A; 2007: A), SCI impact factor (2005: 0.555; 2007: 1.095)</i>

	<i>Computer Systems</i> , Volume 20, Issue 6, August 2004, Pages 1055-1081.		
34.	Naji, Hamid R., Etzkorn, Letha , Wells, B. Earl "Applying MultiAgent Techniques to Reconfigurable Systems," <i>Advances in Engineering Software</i> , Volume 35, Issue 7, July 2004, Pages 401-413.	Elsevier	<i>Australia CORE Ranking: (2008: C), SCI impact factor (2006: 0.431; 2007: 0.529)</i>
35.	Etzkorn, L.H. , Gholston, S., Weisskopf, M.E., "A Study of Student Performance in Combined Courses," <i>Journal of Information Systems Education</i> , Vol 15 (2), July, 2004.	Education Special Interest Group (EDSIG) of the Association of Information Technology Professionals (AITP)	<i>Australia CORE Ranking: (2008: C)</i>
36.	Etzkorn, Letha , Gholston, Sampson, and Hughes, William E., Jr., "A Semantic Entropy Metric," <i>Journal of Software Maintenance and Evolution</i> , Vol. 14, Issue 4, July/August, 2002, pp. 293-310.	Wiley InterScience	<i>Australia CORE Ranking: (2008: B; 2007: B), SCI impact factor (2002: 0.722; 2007: 0.765)</i>
37.	Etzkorn, Letha , Davis, Carl, and Bowen, Lisa, "The Language of Comments in Computer Software: A Sublanguage of English," <i>Journal of Pragmatics</i> , Vol. 33, No. 11, 2001, pp.1731-1756.	Elsevier	<i>SCI impact factor (2005: 0.566; 2007: 484)</i>
38.	Etzkorn, Letha , Hughes, William Evans, Jr., and Davis, Carl, "Automated Reusability Quality Analysis of OO Legacy Software," <i>Information and Software Technology</i> , Vol. 43, No. 5, April, 2001, pp. 295-308.	Elsevier	<i>Australia CORE Ranking: (2008: B; 2007: B) SCI impact factor (2003: 0.632; 2007: 0.581)</i>
39.	Li, Wei, Etzkorn, Letha , Davis, Carl, and Talburt, John "An		<i>Australia CORE Ranking: (2008: B, 2007: B)</i>

	Empirical Study of Design Evolution in an Object-Oriented System, <i>Information and Software Technology</i> , Vol. 42, No. 6, April, 2000, pp. 373-381.	Elsevier	<i>SCI impact factor (2003: 0.632; 2007: 0.581)</i>
40.	Etzkorn, Letha , Bowen, Lisa, and Davis, Carl, "An Approach to Program Understanding by Natural Language Understanding," <i>Natural Language Engineering</i> , Vol. 5, Issue 5, March, 1999, pp. 219-236. An Approach to Program Understanding by Natural Language Understanding	Cambridge University Press	<i>Australia CORE Ranking: (2008: A, 2007: A)</i>
41.	Bansiya, Jagdish, Davis, Carl, and Etzkorn, Letha , "An Entropy Based Complexity Measure for Object-Oriented Designs," <i>Theory and Practice of Object Systems</i> , Vol. 5, No. 2, May, 1999, pp.1-9.	Wiley InterScience	<i>Combined with Concurrency: Practice and Experience in 2000 to form Concurrency and Computation: Practice and Experience, Australia CORE Ranking: 2007: A, SCI impact factor (2003: 0.569)</i>
42.	Etzkorn, Letha , Bansiya, Jagdish, and Davis, Carl, "Design and Complexity Metrics for OO Classes," <i>Journal of Object-Oriented Programming</i> , Vol. 12, No., 1, March, 1999, pp. 35-40. joop2.pdf	SIGS Publications	<i>Australia CORE Ranking: (2007:B), SCI impact factor (1999: 0.306)</i>
43.	Bansiya, J., Etzkorn, L. , Davis, C., and Li, W., "A Class Cohesion Metric for Object-Oriented Design," <i>Journal of Object-Oriented Programming</i> , Vol. 11, No. 8, January, 1999, pp. 47-52. joop1.pdf	SIGS Publications	<i>Australia CORE Ranking: (2007: B), SCI impact factor (1999: 0.306)</i>
44.	Etzkorn, L. , Davis, C., and Li, W., "A Practical Look at the Lack of Cohesion in Methods Metric," <i>Journal of Object-Oriented Programming</i> , Vol. 11, No. 5, Sept. 1998, pp.27-34. joop.pdf	SIGS Publications	<i>Australia CORE Ranking: (2007: B), SCI impact factor (1999: 0.306)</i>
45.	Etzkorn, L.H. , and Davis, C.G., "Automatically Identifying Reusable OO Legacy Code,"	IEEE Computer	<i>Australia CORE Ranking (2008: B), SCI impact factor (2003: 1.552;</i>

<i>IEEE Computer</i> , Vol. 30, No. 10, October, 1997, pp. 66-71.	Society	2007: 1.367) <i>This is the IEEE Computer Society's Flagship Publication</i>
46. Etzkorn, L.H. , and Davis, C.G., "Automated Object-Oriented Reusable Component Identification," <i>Knowledge-Based Systems</i> , Vol. 9, Issue 8, Dec. 1996, pp. 517-524.	Elsevier	<i>Australia CORE Ranking: (2008: B; 2007:A)</i> <i>SCI impact factor (2003: 0.825; 2007: 0.574)</i>

Editorially Reviewed Articles		
	Publisher and/or Affiliation	Journal Impact and Ranking Information (where available)
1. Etzkorn, Letha , Sherrill, Joel, and O'Guin, Ron, "The CORBA Notification Service: Applicability in a Real Time, Embedded Environment," <i>Embedded Systems Programming (renamed Embedded Systems Design)</i> , Oct, 2002.	CMP Media LLC	
2. Ironsides, E., Etzkorn, L. , Zajac, D., "Examining CORBA Interoperability," <i>Dr. Dobbs' Journal</i> , June, 2001, pp. 111-122.	CMP Media LLC	<i>Australia CORE Ranking: (2007: A)</i> <i>SCI impact factor (2003: 0.098; 2007: 0.048)</i>

Peer Reviewed Conference Publications	
PUBLISHED OR ACCEPTED	
	Acceptance Rate and Conference Ranking (where available)
1. Shojaeshafiei, Mohammad, Etzkorn, Letha , Anderson, Michael, "Multiple Layers of Fuzzy Logic to Quantify Vulnerabilities in IoT", 6 th International Conference on Networks and	

Communications (NCO 2020), Toronto, Canada, July 11-12, 2020.	
2. Winningham, J., Coe, D., Kulick, J., Milenkovic, A., Etzkorn, L. , “A Single-Board Computing Constellation Supporting Integration of Hands-On Cybersecurity Laboratories into Operating Systems Courses”, <i>National Cyber Summit 2020</i> , June 2-4, 2020.	
3. Shojaeshafiei, Mohammad, Etzkorn, Letha , Anderson, Michael, “Network Systems Vulnerability Quantification Using Multi-layered Fuzzy Logic based on GQM”, <i>National Cyber Summit 2020</i> , Huntsville, AL, June 2-4, 2020.	
4. Shojaeshafiei, Mohammad, Etzkorn, Letha , Anderson, Michael, “Cybersecurity Framework Requirements to Quantify Vulnerabilities based on GQM,” <i>National Cyber Summit 2019</i> , Huntsville, AL, June 4-6, 2019.	
5. Meade, W., Etzkorn, L. , Zhang, H., “The Missing Element: A Discussion of Autism Spectrum Disorders in Computer Science,” <i>Proceedings of the American Society for Engineering Education</i> , Daytona Beach, FL, March 4-6, 2018.	
6. McKinney-Young, J. Etzkorn, L. Crowd-Sourced, Cloud-Based Applications Support Real- Time, Decentralized, Ad-hoc, Emergency Management Services at the Individual Level: A Case Study. <i>Proceedings of the 17th International Conference on Internet computing and Internet of Things (ICOMP'16)</i> , July 2016, pp. 119-124.	
7. McKinney-Young, J. Etzkorn, L. Comparing the Group Intelligence of Static Agents versus Mobile Agents in a Mobile Autonomous Environment , <i>Proceedings of the 18th Int'l Conf on Artificial Intelligence (ICAI'16)</i> , July 2016, pp. 88-93.	
8. McKinney-Young, J. Etzkorn, L. Comparing An Object Oriented Runtime Complexity Metric To Depth First Search Complexity with Mobile Agents in a Mobile Autonomous Environment . <i>Proceedings of the 14th International Software Engineering Research and Practice Conference (SERP '16)</i> , July 2016, pp. 181-186.	
9. Coe, D., Kulick, J., Milenkovic, A., Kim, S., Etzkorn, L. “An Approach to Securing Cloud and Internet of Things Applications,” <i>National Cyber Summit</i> , Poster Session, June 7-9, 2016.	
10. Johnston, R, Kim, S., Coe, D., Etzkorn, L. , Kulick,J., Milenkovic, A.,”Xen Network Flow Analysis for Intrusion Detection,” <i>Proceedings of the 11th Annual Cyber and Information Security Research Conference</i> , Oak Ridge TN, April 5-7, 2016.	
11. Jones, J., Etzkorn, L.H. , “Analysis of Digital Forensics Live System Acquisition Methods to Achieve Optimal Evidence Preservation,” <i>Proceedings of IEEE SoutheastCon 2016</i> , Norfolk, VA, March 30-April 3, 2016, pp.1-6.	
12. Zhijiang (John) Wu, Etzkorn, L.H. ,” Validation of an Approach for Finding Good Anchor Nodes in Ontologies in the Semantic	

Web”, <i>Proceedings of IEEE SoutheastCon 2015</i> , April 9-16, 2015, Fort Lauderdale, FL, pp. 1-6.	
13. Desouky, A., Beard, M.D. Etkorn, L. H. , “A Qualitative Analysis of Code Clones and Object Oriented Runtime Complexity,” <i>IEEE International Conference For Convergence Of Technology (IEEE I2CT '14)</i> , April 6-8, Pune, India, 2014.	
14. Wu, John, and Etkorn, L.H. ,” An Approach For Finding Good Anchor Nodes in Ontologies in the Semantic Web,” <i>Proceedings of the 52nd Annual Southeast Regional Conference (ACMSE '14)</i> , March 28-29, Kennesaw, Georgia, 2014.	
15. Desouky, A. F., Etkorn, L. H. , Object Oriented Cohesion Metrics: A Qualitative Empirical Analysis of Runtime Behavior. <i>Proceedings of the 52nd Annual Southeast Regional Conference (ACM-SE14)</i> , March 28-29, Kennesaw, Georgia, 2014.	
16. Desouky, Amr F., Etkorn, Letha H. “An Object-Oriented Runtime Complexity Metric Based on Iterative Decision Points,” <i>Proceedings of the 11th International Conference on Software Engineering Research and Practice (SERP '13)</i> , July 22-25, Las Vegas, NV, July 2013.	
17. Beard, Matthew , Kraft, Nicholas, and Etkorn, Letha , “Code Clones in Rhino: A Case Study,” <i>Proceedings of the 16th International Conference on Software Engineering and Applications (SEA 2012)</i> , Nov. 12-14, Las Vegas, NV, 2012.	
18. Carpenter, S., Utley, D, Delugach, H., and Etkorn, L. (2012), “Measuring shared mental models without prior knowledge of the task: Metrics for mental model convergence and distinctiveness,” <i>Interdisciplinary Network of Group Researchers, Poster session</i> , Chicago, IL, July, 2012,	
19. Lindsey, Michael C. , Coe, David J., Kulick, Jeffrey, Etkorn, Letha , and Fu, Yujian “Design of Safety Critical Survivable Systems Using Autonomic and Semantic Web Methodologies”, <i>Proceedings of the International Conference on Software Engineering Research and Practice (SERP'12)</i> Las Vegas, NV, July 2012.	Acceptance rate 26%
20. Baker, Steven, Beard, Matthew, Etkorn, Letha , “A Case Study of Software Quality and Reuse,” <i>Proceedings of the 50th ACM Southeast Conference</i> , Tuscaloosa, AL, March 29-31, ACM New York, NY,2012.	
21. Beard, Matthew , Kraft, Nicholas A., Etkorn, Letha H. , Lukins, Stacy K, Measuring the Accuracy of Information Retrieval Based Bug Localization Techniques. <i>Proceedings of the 8th IEEE Working Conference on Reverse Engineering(WCRE 2011)</i> , Limerick, Ireland, October 17-20, 2011, pp.124-128	Acceptance rate 27/104 = 25.9% (full papers)
22. Biggers, Lauren R , Eddy, Brian P., Kraft, Nicholas A., Etkorn, Letha H. : Toward a metrics suite for source code lexicons. <i>Proceedings of the IEEE 27th International Conference on</i>	Acceptance rate: 38% (Early Research

<p><i>Software Maintenance (ICSM 2011)</i>, Williamsburg, VA, USA, September 25-30, 2011, pp. 492-495.</p>	<p><i>Achievements Track)</i></p>
<p>23. Corley, C.S., Kraft, N.A., Etzkorn, L.H., and Lukins, S.K., "Recovering Traceability Links between Source Code and Fixed Bugs via Patch Analysis," <i>Proceedings of the International Workshop on Traceability in Emerging Forms of Software Engineering (TEFSE '11)</i>, Honolulu, HI, May 23, 2011, ACM New York, NY, pp. 31-37.</p>	<p><i>Acceptance rate: 44%</i></p>
<p>24. Michal, David S., and Etzkorn, Letha, "A Comparison of Player/Stage/Gazebo and Microsoft Robotics Developer Studio," <i>Proceedings of the ACM Southeast Conference</i>, Kennesaw, GA, March 24-26, 2011.</p>	
<p>25. Mathur, Ruchira, Keen, Kevin, and Etzkorn, Letha, "Towards a Measure of Object Oriented Runtime Cohesion Based on Number of Instance Variable Accesses ," <i>Proceedings of the ACM Southeast Conference</i>, Kennesaw, GA, March 24-26, 2011.</p>	
<p>26. Carpenter, S., Delugach, H., Etzkorn, L., Fortune, J., Utley, D., and Virani, S., "The Effect of Shared Mental Models on Team Performance," <i>Proceedings of the Industrial Engineering Research Conference</i>, Institute of Industrial Engineers. Cancun, Mexico, June 5-9, 2010.</p>	
<p>27. Mathur, R., Keen, K.J., and Etzkorn, L.H., "Towards an Object-Oriented Complexity Metric at the Runtime Boundary based on Decision Points in Code," <i>Proceedings of the ACM Southeast Conference</i>, Oxford, MS, Apr.15-17, 2010.</p>	
<p>28. Schrimpsheer, Dan, Wu, Zhijiang, Orme, Anthony M., and Etzkorn, Letha, "Dynamic Ontology Version Control," <i>Proceedings of the ACM Southeast Conference</i>, Oxford, MS, Apr.15-17, 2010.</p>	
<p>29. Keen, K., Mathur, R., and Etzkorn, L., "Towards a Measure of Software Intelligence Employing a Runtime Complexity Metric," <i>Proceedings of the IASTED Software Engineering and Applications (SEA) Conference (SEA 2009)</i>, Cambridge, MA, Nov. 2-4, 2009.</p>	
<p>30. Schrimpsheer, Dan and Etzkorn, L., "An Empirical Quality Model for Web Service Ontologies to Support Mobile Devices," <i>Proceedings of the Third International Symposium on Empirical Software Engineering and Measurement (ESEM 2009)</i>, Lake Buena Vista, FL, Oct. 15-16, 2009, pp. 447-450.</p>	<p><i>Australia 2007 Conf. Ranking: A</i></p>
<p>31. Keen, Kevin, and Etzkorn, Letha, "Predicting Students Grades in Computer Science Courses Based on Complexity Measures of Teacher's Lecture Notes," <i>Journal of Computing Sciences in Colleges</i>, Vol. 24, No. 5, May, 2009, pp. 44-48.</p>	
<p>32. Schrimpsheer, Dan and Etzkorn, L., "Sub-Graphing Web Service Ontologies to Support Resource Constraints of Mobile Devices," <i>Proceedings of the 47th Annual ACM Southeast Conference</i>, Clemson, SC, March 19-21, 2009</p>	

<p>33. Virani, S., Etzkorn, L., Gholston, S., Farrington, P., Utley, D., and Fortune, J., “Investigation of Domain Effects on Software,” <i>Proceedings of the 47th Annual ACM Southeast Conference</i>, Clemson, SC, March 19-21, 2009</p>	
<p>34. Carpenter, S., Delugach, H., Etzkorn, L., Fortune, J., Utley, D., Farrington, P, and Virani, S.,”Studying Team Shared Mental Models,” <i>Proceedings of the 3rd ACM International Conference on the Pragmatic Web</i> (ICPW '08), Uppsala, Sweden, Sept. 29-30, 2008, pp. 39-46.</p>	
<p>35. Lukins, Stacy, Kraft, Nicholas, and Etzkorn, Letha, “Source Code Retrieval For Bug Localization Using Latent Dirichlet Allocation,” <i>Proceedings of the 15th IEEE Working Conference on Reverse Engineering</i> (WCRE 2008), Antwerp, Belgium, Oct. 15-18, 2008, pp.155-164.</p>	<p><i>Australia 2007 Conf. Ranking: B, Acceptance rate 20/70 = 28.6% (full papers)</i></p>
<p>36. Vinz, Brad, and Etzkorn, Letha, "Combined Code Understanding and Comment Understanding," <i>Proceedings of the 2008 International Conference on Software Engineering Research and Practice</i> (SERP'08), Las Vegas, Nevada, USA, July 14-17, 2008, pp. 55-60.</p>	
<p>37. Vinz, Brad, and Etzkorn, Letha, "Comments as a Sublanguage: A Study of Comment Grammar and Purpose," <i>Proceedings of the 2008 International Conference on Software Engineering Research and Practice</i> (SERP'08), Las Vegas, Nevada, USA, July 14-17, 2008, pp. 17-23.</p>	
<p>38. Virani, Shamsnaz, Messimer, Sherri, Roden, Patricia, and Etzkorn, Letha, “Software Quality Management Tool for Engineering Managers,” <i>Proceedings of the Industrial Engineering Research Conference, Institute of Industrial Engineers</i>, Vancouver, B.C.,Canada, May 17-21, 2008, pp.1401-1406.</p>	

39. Keen, Kevin, and Etzkorn, Letha, "A Brief Survey of Mobile Agents on Mobile Robotic Platforms," ACMSE 2008 poster session, Auburn, AL, March 28-29,2008.	
40. Vinz, Brad, and Etzkorn, Letha, "A Study of Comment Abstraction, Coupling, and Placement," <i>Proceedings of the 11th IASTED International Conference on Software Engineering and Applications</i> , Cambridge,MA, Nov. 19-21, 2007, pp. 290-296.	Australia 2007 Conf. Ranking: C, Acceptance rate ~63%,
41. Roden, Patricia L., Etzkorn, Letha, Virani, Shamsnaz, and Messimer, Sherri, and Vinz, B.L., "A Validation of the Entropy-Based SDI _e Metric," <i>Proceedings of the 11th IASTED International Conference on Software Engineering and Applications</i> , Cambridge,MA, Nov. 19-21, 2007, pp.57-65.	Australia 2007 Conf. Ranking: C, Acceptance rate ~63%,
42. Roden, Patricia L., Virani, Shamsnaz, Etzkorn, Letha H., and Messimer, Sherri, "An Empirical Study of the Relationship of Stability Metrics and the QMOOD Quality Models over Software Developed Using Highly Iterative or Agile Software Processes," <i>Proceedings of the 7th IEEE International Working Conference on Source Code Analysis and Manipulation (SCAM '07)</i> , Paris, France, Sept. 30-Oct 1, 2007, pp.171-179..	Acceptance rate 19/74 = 25.7%
43. Etzkorn, Letha H., Messimer, Sherri L., and Olague, Hector M., "A Principal Components Analysis of Class Metrics in Three Object-Oriented Class Metrics Suites," <i>Proceedings of the International Conference on Software Engineering Research and Practice (SERP '07)</i> , Las Vegas, NV, USA, June 25-28, 2007, pp. 397-406.	Acceptance rate 29% for regular/research papers.
44. Eichelkraut, C., and Etzkorn, L.H., "Describing Agent Based Real-Time Distributed Systems using Design Patterns," <i>Proceedings of the 45th Annual ACM Southeast Conference</i> , Winston-Salem, NC, March 23-24, 2007, pp. 156-161.	Acceptance rate 59%
45. Orme, Anthony M., and Etzkorn, Letha, "A Coupling Metric for B2B e-Commerce Systems," <i>Proceedings of the International Conference on e-Learning, e-Business, Enterprise Information Systems, e-Government, and Outsourcing (EEE '06)</i> , Las Vegas, NV, June 26-29, 2006, pp.85-88.	
46. Olague, Hector, Etzkorn, Letha, and Cox, Glenn, "An Entropy-Based Approach to Assessing Object-Oriented Software Maintainability and Degradation," <i>Proceedings of the International Conference on Software Engineering Research and Practice (SERP '06)</i> , June 26-29, 2006, Las Vegas, USA, vol. 1, pp. 642-652.	
47. Raley, Maureen and Etzkorn, Letha, "Management Metrics in Risk Determination During A Widely Distributed Computer System Upgrade," <i>Proceedings of the International Conference on Software Engineering Research and Practice (SERP '06)</i> , June 26-29, 2006, Las Vegas, USA, pp. 734-740.	
48. Vinz, Brad, and Etzkorn, Letha, "A Synergistic Approach to Program Comprehension," <i>Proceedings of the 14th IEEE</i>	Acceptance rate

<p><i>International Conference on Program Comprehension</i>, Athens, Greece, June 14-16, 2006, pp. 69-73.</p>	<p>(for short papers) 48%</p>
<p>49. Eichelkraut, Craig and Etzkorn, Letha, "Optimization of Military Distributed Control Systems Using a Mobile Agent-based Approach," <i>Proceedings of the Agent Directed Simulation Conference (ADS '06)</i>, The Society For Modeling and Simulation International, Huntsville, AL, April 2-6, 2006, pp. 41 – 47.</p>	<p>Acceptance rate ~50%</p>
<p>50. Eichelkraut, Craig and Etzkorn, Letha, "An Approach for Developing Real-Time Distributed Systems using an Agent Architecture Description Language," <i>Proceedings of the 44th Annual ACM Southeast Conference</i>, Melbourne, FL, March 10-12, 2006, pp. 506 – 511.</p>	<p>Acceptance rate (full paper) 100/244 = 41%</p>
<p>51. Olague, H., and Etzkorn, L., "An Information Theory Word-Based Metric to Evaluate Software Maintainability and Reusability," <i>Proceedings of the 2005 International Conference on Software Engineering Research and Practice (SERP '05)</i>, Las Vegas, NV, June 27-30, 2005, pp.921-927.</p>	
<p>52. Olague, H., and Etzkorn, L., "A Simple Entropy-Based Software Complexity Metric," <i>Proceedings of the 2005 International Conference on Software Engineering Research and Practice (SERP '05)</i>, Las Vegas, NV, June 27-30, 2005, pp.928-934.</p>	
<p>53. Raley, Maureen, and Etzkorn, Letha, "Entropy Metrics-Based Approach to Risk Analysis in the Maintenance Phase of Large-Scale Computer Systems," <i>Proceedings of the 2004 International Conference on Software Engineering Research and Practice (SERP '04)</i>, Las Vegas, NV, June 21-24, 2004, pp. 883-889.</p>	
<p>54. Yao, Haining, and Etzkorn, Letha, "Conversion from Conceptual Graph Model to Resource Description Framework Model," <i>Conceptual Structures at Work: Contributions of the 12th International Conference on Conceptual Structures (ICCS '04)</i>, Huntsville, AL, July 19-23, 2004, pp. 98-114.</p>	<p>Australia 2007 Conf. Ranking: A</p>
<p>55. Stein, Cara, Etzkorn, Letha, Cox, Glenn, Farrington, Philip, Gholston, Sampson, Utley, Dawn, and Fortune, Julie, "A New Suite of Semantic Metrics for Object-Oriented Software." <i>Proceedings of the 1st International Workshop on Software Audits and Metrics (SAM 2004)</i>, Porto, Portugal, April 13-14, 2004, pp. 49-58.</p>	<p>Acceptance rate = 10/16 =62%</p>
<p>56. Raley, Maureen, and Etzkorn, Letha, "Case Study: Lessons Learned During a Nationwide Computer System Upgrade," <i>Proceedings of the 42nd Annual ACM Southeast Conference</i>, Huntsville, AL, April 2-3, 2004, pp.363-368.</p>	<p>Acceptance rate (full paper) 73/134=55.5%</p>
<p>57. Stein, Cara, Etzkorn, Letha, Utley, Dawn, Farrington, Philip, Cox, Glenn, Fortune, Julie, and Gholston, Sampson, "Computing Software Metrics from Design Documents," <i>Proceedings of the 42nd Annual ACM Southeast Conference</i>, Huntsville, AL, April</p>	<p>Acceptance rate (full paper) 73/134=55.5%</p>

2-3, 2004, pp. 146-151.	
58. Yao, Haining, and Etkorn, Letha, "Towards a Semantic-based Approach for Software Reusable Component Classification and Retrieval," <i>Proceedings of the 42nd Annual ACM Southeast Conference</i> , Huntsville, AL, April 2-3, 2004, pp. 110-115.	Acceptance rate (full paper) 73/134=55.5%
59. Cox, Glenn, and Etkorn, Letha, "The Effectiveness of Battery-Conserving Protocols in Wireless LANs," <i>IEEE Sarnoff Symposium on Advances in Wired and Wireless Communications</i> , Princeton, NJ, April 26-27, 2004, pp.137-140.	
60. Orme, A.M., Etkorn, L.H., "An Enabling Mobile/Intelligent Agent Framework for Distributed Logistics Management Solutions," <i>Proceedings of 6th World Multiconference on Systemics, Cybernetics and Informatics</i> , Orlando, FL, July 27-30, 2003, pp. 470-479. (Winner, Best paper, Management Information Systems session)	
61. Cox, G.W., Etkorn, L., and Pajnigara, Z. "On Battery Conservation Strategies for Wireless Protocols," <i>Proceedings of the 2003 International Conference on Wireless Networks (ICWN '03)</i> , Las Vegas, NV, June 23-26, 2003, CSREA Press, pp.335-340.	
62. Cox, G.W., and Etkorn, L., "Power-Related Performance of 802.11 Protocols," <i>Proceedings of the 2003 International Conference on Wireless Networks (ICWN '03)</i> , Las Vegas, NV, June 23-26, 2003, CSREA Press, pp. 322-327.	
63. Naji, Hamid R., Etkorn, Letha, Adhami, Reza, Wells, B. Earl, "Parallel Image Processing with Agent-based Reconfigurable Hardware," <i>Proceedings of the 15th International Conference on Parallel and Distributed Computing Systems (PDCS 2002)</i> , Louisville, KY, September 2002.	
64. Naji, Hamid Reza, Etkorn, Letha, and Wells, B. Earl, "Hardware Agents: A New Approach to Support Development and Management of Information Systems," <i>Proceedings of the 6th World Multiconference on Systemics, Cybernetics and Informatics</i> , Orlando, FL, July 14-18, 2002.	
65. Etkorn, Letha and Delugach, Harry, "Towards a Semantic Metrics Suite for Object-Oriented Design," <i>Proceedings of the 34th International Conference on Technology of Object-Oriented Languages and Systems, TOOLS 34 (TOOLS USA)</i> , July 30-August 4, 2000, IEEE Computer Society Press, Los Alamitos, CA, 2000, pp. 71-80.	Australia 2007 Conf. Ranking: B, Acceptance Rate ~33%
66. Etkorn, L.H., Davis, C.G., Bowen, L.L., Wolf, J.C., Wolf, R.P., Yun, M.Y., Vinz, B.L., Orme, A.M., Lewis, L.W., "The Program Analysis Tool for Reuse: Identifying Reusable Components," <i>Proceedings of the Eleventh Annual International Florida Artificial Intelligence Research Symposium Conference (FLAIRS</i>	Australia 2007 Conf. ranking: C

'98), Sanibel Island, Florida, May 17-20, 1998, published by AAAI Press, Menlo Park, California, 1998, pp. 121-125.	
67. Etzkorn, L.H. , Davis, C.G., Bowen, L.L., Etzkorn, D.B., Lewis, L.W., Vinz, B.L., and Wolf, J.C., "A Knowledge-Based Approach to Object-Oriented Legacy Code Reuse," <i>Proceedings of the Second IEEE International Conference on Engineering of Complex Computer Systems (ICECCS '96)</i> , Montreal, Quebec, Canada, Oct. 21-25, 1996, IEEE Computer Society Press, Los Alamitos, CA, 1996, pp. 39-45.	<i>Australia 2007 Conf. Ranking: A, Acceptance rate ~35%</i>
68. Etzkorn, L.H. , "A Metrics-Based Approach to the Automated Identification of Object-Oriented Reusable Components: A Short Overview," <i>ACM OOPSLA '95 Doctoral Symposium</i> , Austin, TX, Oct. 16-19, 1995.	<i>Australia Conf. Ranking: A+</i>
69. Etzkorn, L.H. , and Davis, C.G., "A Metrics-Based Approach to the Automated Identification of Object-Oriented Reusable Components: A Short Overview," <i>ACM OOPSLA '95 Poster session</i> , Austin, TX, Oct. 16-19, 1995.	<i>Australia Conf. Ranking: A+</i>
70. Etzkorn, L.H. , and Davis, C.G., "Automated Object-Oriented Reusable Component Identification," <i>Proceedings of the Second International Symposium on Knowledge Acquisition, Representation, and Processing (KARP '95)</i> , Auburn, AL, Sept. 27-30, 1995 (an extended version was later published in <i>Knowledge-Based Systems</i> journal, see journal articles).	
71. Etzkorn, L.H. , and Davis, C.G., "Knowledge-Based Object-Oriented Reusable Component Identification," <i>Proceedings of the Eighth Annual Florida AI Research Symposium</i> , Melbourne Beach, FL, April 27-29, 1995, pp. 97-101.	<i>Australia 2007 Conf. ranking: C</i>
72. Etzkorn, L.H. , and Davis, C.G., "A Documentation-related Approach to Object-Oriented Program Understanding," <i>Proceedings of the IEEE Third Workshop on Program Comprehension</i> , Washington, D.C., Nov. 14-15, 1994, pp. 39-45.	

Workshop Papers
PUBLISHED OR ACCEPTED
1. Etzkorn, Letha H. , "Semantic Metrics, Conceptual Metrics, and Ontology Metrics: An Analysis of Software Quality Using IR-based Systems, Potential Applications and Collaborations," position paper (invited) <i>Information Retrieval Based Approaches in Software Evolution, International Conference on Software Maintenance, Philadelphia, PA, Sept. 25-27, 2006. Available at http://www.cs.wayne.edu/~amarcus/icsm2006/, Australia Conf. Ranking: A</i>

Reviewed Abstract Conference Papers

PUBLISHED OR ACCEPTED

1. **Etzkorn, Letha**, Menon, Vineetha, "Successful Transformation from Example to Role Model," *Mentoring Circles, Grace Hopper Celebration 2019*, Oct 1-4, 2019 accepted.
2. **Etzkorn, Letha**, "Cybersecurity in Education: Cloud, Software Defined Network, and Intrusion Detection Modules," *Southeast Symposium on Contemporary Engineering Topics (SSCET 18)*, August 3, 2018.
3. Cox, G., Datta, A., and **Etzkorn, Letha**, "A Modeling Approach to Support Performance Comparison of Competing Peer-to-Peer Networks," *Huntsville Simulation Conference*, 2005.
4. **Etzkorn, L.H.**, **Stein, C.**, Cox, G.W., Gholston, S., Utley, D., Farrington, P., "Examining a Semantic Metrics Suite for Object-Oriented Design," *Proceedings of the 4th Annual NASA Office of Safety and Mission Assurance Software Assurance Symposium*, OSMA SAS 2004, Morgantown, West Virginia, July 20-22, 2004.
5. **Orme, Anthony Mark**, **Etzkorn, Letha**, "Trading Partner Logistics Management Automation and Simulation with Collaboration Protocol Agreements and Mobile/Intelligent Agents," *Huntsville Simulation Conference HSC03*, Huntsville, AL, October 30-31, 2003.
6. **Etzkorn, L.H.**, **Stein, C.**, Cox, G.W., Gholston, S., Utley, D., Farrington, P., "Investigating a Semantic Metrics Suite for Object-Oriented Design," *Proceedings of the 3rd Annual NASA Office of Safety and Mission Assurance Software Assurance Symposium*, OSMA SAS 2003, Morgantown, West Virginia, July 30-Aug 1, 2003.
7. **Etzkorn, Letha**, "A Critical Examination of Entropy Metrics," *ACM Mid-Southeast Conference*, Gatlinburg, TN, Nov. 11-12, 1999.
8. **Etzkorn, L.H.**, "An Overview of the PATricia System: A System for Object-Oriented Reusable Component Identification," *ACM Mid-Southeast Conference*, Gatlinburg, TN, Nov. 9-10, 1995, (*Winner, third prize, graduate student competition*).
9. **Etzkorn, L.H.**, "Automated Object-Oriented Reusable Component Identification: An Overview," *ACM Mid-Southeast Conference*, Gatlinburg, TN, Nov. 10-11, 1994.

Final Reports on Grants and Contracts

1. **Etzkorn, L.** Final Report for SHF: Small: Collaborative Research: Improving Code Clone Categorization, National Science Foundation, 2013.
2. **Etzkorn, L.**, Gholston, S., Utley, D., Farrington, P, Cox, G., **Lukins, S.**, Fortune, J., and Virani, S., Final Report for NASA Semantic Metrics for Object-Oriented Design, 2005.
3. Utley, D, **Etzkorn, L.**, Farrington, P, Gholston, S., Fortune, J., and Virani, S., Final Report

on NASA Advanced Engineering Environment Metrics, 2005.

4. Cox, G., and **Etzkorn, Letha H.**, Final Report for UAH Instructional Minigrant Web-Based Tools to Enhance the Teaching of Digital Logic Design and Computer Architecture, October, 2002.
5. **Etzkorn, Letha H.**, Final Report for Army Contract F/DOD/ARMY/AMCOM/CORBA Support for Missile Guidance, Jan. 2002.
6. **Etzkorn, Letha H.**, Final Report for UAH Research Mini-Grant, Knowledge-Bases for Program Understanding, Sept. 2001.
7. **Etzkorn, Letha H.**, **Ironside, E.**, Feasibility Study on the Use of CORBA in the Environment of the U.S. Army Test, Maintenance, and Diagnostic Equipment Activity," Final report for Army Contract F/DOD/ARMY/AMCOM/Common Object Request Broker Architecture (CORBA) Interface Research and Development, Jan. 2001.

Textbooks

1. Etzkorn, Letha Hughes, *Introduction to Middleware: Web Services, Object Components, and Cloud Computing*, CRC Press, Taylor & Francis Group, 2017.

Other Publications

Click on [Technical reports](#), for copies of all UAH CS department technical reports, including mine

2. **Etzkorn, Letha**, "Cybersecurity in Education: Cloud, Software Defined Network, and Intrusion Detection Modules," *Southeast Symposium on Contemporary Engineering Topics (SSCET) and UAH Engineering Forum*, Huntsville, AL, August 3, 2018.
3. Biggers, Lauren, Eddy, Brian P., Kraft, Nicholas, **Etzkorn, Letha H.**, "An Empirical Study of Relationships between Source Code Lexicons," Technical Report # SERG-2011-02, Department of Computer Science, University of Alabama, April, 2011.
4. **Etzkorn, Letha**, and Yoo, Seong-Moo (Sam), Eds, *Proceedings of the 42nd Annual Association for Computing Machinery Southeast Conference (ACMSE '04)*, published by ACM, April, 2004.
5. **Etzkorn, Letha Hughes**, "The Use of a Simple Methodology for Flip Flop Conversion as an Aid in Teaching Synchronous Sequential Circuits in a Digital Systems Design Course," TR-UAH-CS-1998-01, Computer Science Department, The University of Alabama in Huntsville, October, 1998.
6. **Etzkorn, Letha**, Davis, Carl, and Li, Wei, "A Statistical Comparison of Various Definitions of the LCOM Metric," Technical Report TR-UAH-CS-1997-02, Computer Science Department, The University of Alabama in Huntsville, Huntsville, AL, April, 1997.
7. **Etzkorn, L.H.**, Davis, C.G., Vinz, B.L, Wolf, R.P., Wolf, J.C., Yun, M.Y., Bowen, L.L., Orme, A.M., Lewis, L.W., and Etzkorn, D.B., "An Examination of Object-Oriented Reuse Views in the PATricia System," Technical Report TR-UAH-CS-1997-01,

Computer Science Department, The University of Alabama in Huntsville, Huntsville, AL, Jan., 1997.

8. **Etzkorn, L.H.**, and Davis, C.G., "C++ Reusable Component Identification," poster, Sigma Xi Research Day, March 16, 1996 (*Winner, first place Computational Sciences Category*).
9. **Etzkorn, L.H.**, and Davis, C.G., "An Approach to Object-Oriented Program Understanding," Technical Report TR-UAH-CS-1995-01, Computer Science Department, The University of Alabama in Huntsville, Huntsville, AL, Sept. 1995.

Funding History

Agencies and organizations from which I have received external funding as PI or co-PI include (among others):

- National Security Agency (NSA)
- National Aeronautics and Space Administration (NASA)—Goddard, Marshall
- National Science Foundation (NSF)
- U.S. Army
- Various commercial companies

Some Current/Former Funded Research Projects include (among others):

- Evaluation of an Artificial Intelligence-Based Penetration Testing Tool
- CanarySat: A Virtual Cubesat Model for Cybersecurity Research and Education
- The Alabama ADVANCE Partnership for Achieving Gender Equity in STEM
- What is the Extent of the Problem: How Many Students Will Do Poorly in Collaborative Learning Because of Lack of Social Skills
- Dielectric: Lightweight Virtualization for Insulating Cyber Physical and Cloud Applications
- SHF:Small:Collaborative Research: Improved Code Clone Categorization
- Finding Frequent Webpage Access Patterns
- Semantic Metrics for Object-Oriented Design
- Web-Based Tools to Enhance the Teaching of Digital Logic Design and Computer Architecture
- CORBA for Embedded Systems

Service Accomplishments and Highlights

PROFESSIONAL SERVICE

Currently Serving as:

- Numerous times have been external reviewer for tenure and promotion, and also promotion to full professor, at several universities around the world, USA and elsewhere
- Member of Editorial Board for PeerJ Computer Science, 2015-present
- Member of Review Board, International Journal of Applied Intelligence (Springer), 2013-present

Previously Served as:

- Associate Editor/Member of Editorial Board for International Journal of Computers and Applications, Taylor & Francis, 2006-2017
- Member of Program Committee for Cyber and Information Security Research Conference (CISRC 2017)
- Member of Editorial Board and Section Editor, The Open Software Engineering journal, Bentham Open publishing, 2008-2014
- Member of Editorial Board for Software Engineering journal, ACTA Press, 2011-2014
- Member of Editorial Board/Associate Editor for Advances in Software Engineering journal, Hindawi Publishing, 2008-February 2012
- Program Chair for ACM Southeast Conference (ACMSE 2004)
- Guest editor (co-editor was Dr. Tim Menzies from West Virginia University) of a Special Issue on Information Retrieval for Program Comprehension, Empirical Software Engineering journal, Vol 14, No. 1, February, 2009.
- Doctoral Symposium Chair for Southeast Software Engineering Conference (2002, 2003)
- Member of Program Committee for:
 - Cyber and Information Security Research Conference (CISRC 2017, CISRC 2016)
 - IEEE International Conference on Program Comprehension (ICPC 2008)
 - IASTED International Conference on Software Engineering (SE 2013, SE 2014).
 - IASTED International Conference on Software Engineering and Applications (SEA 2006, SEA 2007, SEA 2008, 2009, 2010, 2011, 2012, 2013)
 - Information Resources Management Association Conference (IRMA 2006, IRMA 2007)
 - ACM Southeast Conference (ACMSE 2006, ACMSE2007, ACMSE2012)

Have refereed/reviewed numerous papers for various journals, including:

- IEEE Transactions on Knowledge and Data Engineering
- IEEE Transactions on Software Engineering
- ACM Transactions on Software Engineering and Methodology
- IET Software (formerly IEE Proceedings Software)
- Software: Practice and Experience
- Software Quality Journal
- Data and Knowledge Engineering journal
- Journal of Software Maintenance and Evolution: Research and Practice
- IEICE Transactions on Information and Systems
- Journal of Systems and Software
- Future Generation Computer Systems
- Information Processing Letters
- Information Technology and Management
- Information Sciences

- International Journal on Semantic Web and Information Systems
- Acta Cybernetica
- Applied Intelligence (Springer journal)
- Information and Software Technology
- Integrated Computer-Aided Engineering
- Computers and Industrial Engineering
- Science of Computer Programming
- Algorithms
- International Journal of Neural Systems
- The Arabian Journal for Science and Engineering
- Journal of Circuits, Systems, and Computers
- Journal of Information Processing Systems
- IEEE Computing in Science & Engineering
- Software and Systems Modeling

Reviewed several books/textbooks

Reviewed proposals, including NSF, Air Force, EPSCOR, among others.

Judge

- Computer Science (and sometimes Mathematics also) Category Judge at the Alabama Science and Engineering Fair, 2019, 2018, 2017, 2016, 2015, 2014, 2013, 2012, 2011, 2010, 2009, 2008, 2006, 2005, 2003, 2002, 2001, 2000, 1999
- Judge at Alabama Supercomputing (ASPIRE) EXPO, 2002, 2001, 2000, 1999, 1998

Gave talks:

- (together with Dr. Kraft and Dr. Carver from Univ. of Ala.) at Alabama A&M University on our Code Clone research from an NSF grant, Nov. 17, 2009.
- University of Alabama in Birmingham seminar, on Nov. 30, 2007.

DEPARTMENTAL/COLLEGE/UNIVERSITY SERVICE

Some Highlights:

- Chair or Co-Chair, CS department faculty search committee, numerous times.
- UAH Equal Employment Opportunity Committee, 2012-present
- Dean of Science search committee, 2019-2021
- Authorship and Textbook Selection Policy Working Group, Spring, 2019.
- Biology Chair Search Committee, Oct, 2018-March, 2019.
- UAH VPR Office New Faculty Research Program Committee, Oct-Nov, 2018.
- Member of Chief Information Officer (CIO) search committee, 2017/2018
- Member of Faculty Database Implementation committee, 2017/2018
- Member of Faculty Database Software replacement committee, 2016/2017
- Chair of University SACS COC Effectiveness Committee, 2014/15
- Preliminary Action Officer for Grievance Investigation, 2014.

- Member of Vice President for Research Search Committee, 2012/13
- Chair of Faculty Appeals Committee, 2011/12
- Faculty Senate, Fall, 2001 to 2003, 2007-2011, 2014-2015
 - Served as faculty senate past-president, 2010/11 academic year
 - Served as **faculty senate president**, 2009/10 academic year
 - Served as faculty senate president-elect, 2008/9 academic year
 - Served on Finance and Resources committee, 2007/8
 - Served on Faculty and Student Development Committee, 2001-2003,2014-2015
- Served on College of Science Promotion and Tenure Committee (PTAC) several times
- Served on College of Business Promotion and Tenure Committee, Fall 2014.
- University Peer and Aspirants Committee, 2010/11
- ECE/Computer Science Merger Committee, Spring/Summer 2010
- Graduate Council, 2004-2009
- Directed CS department Robotics Lab, 2007-2014
- Directed CS department Hardware Lab, 2011-2017
- Faculty advisor for student Association for Computing Machinery, 1998-2003
 - Took ACM programming teams to regional contests, Fall 1999, Fall 2000, Fall 2001, Fall 2002, Fall 2003
 - Nominated by students for Outstanding Group Advisor Award