

## **JOHN B. BOWLES**

Computer Science and Engineering  
University of South Carolina  
Columbia, SC 29208

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### **EDUCATION**

Ph.D. in Computer Science,	Rutgers University,	1982
MS in Applied Mathematics,	University of Michigan,	1970
BSE in Engineering Science,	University of Virginia,	1969

### **WORK EXPERIENCE**

8/86 - Present University of South Carolina, Columbia, SC.

Associate Professor, Department of Computer Science & Engineering, 7/00-Present

Associate Professor, Department of Electrical & Computer Engineering, 8/92-7/00

Assistant Professor, Department of Electrical & Computer Engineering, 8/86-8/92

Adjunct, Department Computer Science, 1/86 - 5/86

Adjunct, Department of Electrical & Computer Engineering, 8/85 - 12/85

9/79-8/86 NCR Corporation, Columbia, SC.

Consulting Engineer, Office Systems Product Development, 4/84-8/86

Project Leader, Systems Analysis Group, Adv. Sys. Dev., 6/80-4/84

Senior Systems Engineer, 9/79-6/80

9/76-9/79 Rutgers University, New Brunswick, NJ.

Student and Teaching Assistant in Computer Science Department

5/70-1/72 US Army.

Microwave Radio Operator.

7/69-9/76 Bell Telephone Laboratories, Whippany, NJ.

Member of Technical Staff (on leave 5/70-1/72)

### **HONORS AND AWARDS**

1. Graduated with High Distinction from University of Virginia
2. Intermediate Honors (University of Virginia)
3. Rutgers University Graduate Fellowship
4. Member Tau Beta Pi, Phi Eta Sigma, Upsilon Pi Epsilon
5. 1995 Lathrop Award (IEEE SC Council, for contributions to engineering education in SC)
6. 1998 A. O. Plait Award for Continuing Excellence in Tutorial Presentation at the Annual Reliability and Maintainability Symposium.
7. Featured "Personality" in *Reliability Review*, Vol. 18, March 1998, pp. 28,30. (*Reliability Review* is the journal of the ASQ Reliability Division).
8. IEEE Millennium Metal (2000)

9. Samuel Litman Distinguished Professor Award, 2003 (USC College of Engineering and Information Technology)
10. Joseph M. Biedenbach Service Award, 2008 (USC College of Engineering and Computing)

### **PROFESSIONAL SOCIETIES**

1. Senior Member IEEE
2. Senior Member American Society for Quality
3. ASQ Certified Reliability Engineer

### **COURSES TAUGHT AT THE UNIVERSITY OF SOUTH CAROLINA**

EECE 201	ECE Laboratory I, UG
EECE 211	Introduction to Computer Engineering I, UG
EECE 311	Foundations of Computer Engineering
EECE 331	Control Systems, UG
EECE 334	Introduction to Communications, UG
EECE 351	Software Engineering I, UG
EECE 740	Design for Reliability, G *
EECE 741	Probabilistic Systems Analysis, G *
EECE 845	Computer Communications, G **
EECE 897	Research in Operational Analysis, G
EECE 890S	Computer System Performance Evaluation, G (Spring '90) *
CSCI 713	System Performance Evaluation, G **
CSCE 146	Algorithmic Design II, UG
CSCE 313	Embedded Systems Laboratory, UG**
CSCE 317	Computer Systems Engineering, UG*
CSCE 491	Computer Engineering Project, UG*
CSCE 492	Capstone Software Engineering Project, UG
CSCE 516	Computer Networks, UG/G **
CSCE 717	Introduction to Fuzzy Logic, G *
CSCE 747	Software Testing, G *
CSCE 787	Computer System Reliability and Performance Evaluation, G*
CSCE 790L	Topics in Information Technology: Model Driven Development, G*

\* developed new course

\*\* updated and reorganized existing course

### **PH.D. DISSERTATIONS SUPERVISED**

1. C. Enrique Peláez, "A Fuzzy Cognitive Map Knowledge Representation for Failure Modes and Effects Analysis", University of South Carolina, December 1994.
2. Kenneth Michael Araujo, "Exploiting Design Patterns for Improved Efficiency in the Testing of Object-Oriented Software", University of South Carolina, November 2006.

## MASTER'S THESES SUPERVISED

1. Ian B. Hewitt, "A Program For Analysis of Queueing Network Models With Load Dependent Servers", University of South Carolina, May, 1988.
2. Brian Martin Jones, "Hardware Diagnostics for Multiprocessor Computers", University of South Carolina, March 1989.
3. Venkatesh Swaminathan, "A Model of Computer Network Reliability ", University of South Carolina, May 1989.
4. Carlos A. Valero, "Use of Formal Methods in the Development of Computer Communication Protocols", University of South Carolina, May 1989.
5. Padma Rangaswami, "Automated Management of Computer Integrated Manufacturing Networks", University of South Carolina, February 1990.
6. Sharma Upadhyayula, "Network Management and Performance Monitoring", University of South Carolina, March 1991.
7. Kai Kolstad, "Designing for Security in Distributed Computer Systems", University of South Carolina, May 1991.
8. Colon E. Peláez, "Computer Viruses," University of South Carolina, June 1991.
9. Himanshu B. Desai, "Simulation and Performance Analysis of Reliable Broadcast Protocols for Distributed Systems," University of South Carolina, December 1991.
10. Kaushik Saha, "The Integrated Management of Measurement Entities Distributed over Interconnected Networks," University of South Carolina, December 1991.
11. Carter Edmonds, "Improving Reliability Through Strife Testing," University of South Carolina, December 1991.
12. Arathi Kashipathi, "A Graphical User Interface for Internet File Transfer Protocol", University of South Carolina, July 1994.
13. Devyani Savakoor, "Combining Failure Modes and Effects Analysis (FMEA) and Sneak Circuit Analysis (SCA)", University of South Carolina, August 1994.
14. Patrick S. Mills, "Fuzzy Speech Recognition", University of South Carolina, December 1995.
15. Juan I. Martinez, "A Fuzzy Positioning System for an Articulated Robot Arm", University of South Carolina, November 1996.
16. Alope Agarwal, "Design Methodologies For Fuzzy Controllers", University of South Carolina, November 1997.
17. Xiaomei Guo, "Web-Based Testing System", University of South Carolina, November 1999.
18. Prasad Shailesh, "Design and Development of a Windows Classifier System", University of South Carolina, July 2001.
19. Sallie F. Scarberry, "Software Testing of a Wargame Simulation Program", University of South Carolina, April 2003.

20. Dheeraj Reddy Thumma, "Model Driven Architecture (MDA) Implementation and Case Study", University of South Carolina, July 2005.

### **UNDERGRADUATE STUDENT RESEARCH**

1. Lorrie A. Klein and C. Tommy Swann; "Comparison of Commercial Reliability Prediction Programs", Spring, 1989, (work resulted in USCMI technical Report and in paper in 1990 RAMS)
2. Matthew Grulick and Wayne Green, "Number of Effective Processors in a Multiprocessor System" Fall, 1990, (paper, "Calculating The Number of Effective Processors in a Multiprocessor System" won student paper contest at S.C. Engineering and Management Conference, January 1991, entered in SoutheastCon Student Paper Contest)
3. Emily R. Williamson, "PCs From Scratch", South Carolina Honors College Senior Thesis, University of South Carolina, May 2000.
4. James D. Jones, "The Linux/Apache Web Server A Different Approach", South Carolina Honors College Senior Thesis, University of South Carolina, April 2001.
5. Alexander Barnette, "Business Level Software Application Development with J2EE", South Carolina Honors College Senior Thesis, University of South Carolina, December 2003.
6. Jason Byrnes, (with William Arndt, John Boyd, David Manuel, Adam Turner), "Aibo Marco-Polo", South Carolina Honors College Senior Thesis, University of South Carolina, December 2005.
7. Brian Buran, "Developing a University Book Trade System with OptimalJ and Microsoft Visual Studio 2005: A Comparison", South Carolina Honors College Senior Thesis, University of South Carolina, May 2006.
8. William Arndt, (with John Boyd, Jason Byrnes, David Manuel, Adam Turner), "Software Engineering Applied to Robotic System", South Carolina Honors College Senior Thesis, University of South Carolina, May 2006.
9. David C. Manuel Jr., "Marco Polo for the Sony<sup>TM</sup> AIBO", South Carolina Honors College Senior Thesis, University of South Carolina, May 2006.
10. Chris Jones, (with Jeff Davis, John Teasdel, Andres Montes, Enrico Chandler), "Creation of a Server-Side Internet Application through the Utilization of the J2EE Framework and OptimalJ", South Carolina Honors College Senior Thesis, University of South Carolina, May 2006.
11. John Garrett Flowers, "Improving the Capstone Project Experience: A Case Study in Software Engineering", South Carolina Honors College Senior Thesis, University of South Carolina, December 2007.

### **FUNDED RESEARCH**

1. "Network Quality", NCR Corp., \$35,000, April 1988 (2 months)
2. "RAMS Reliability Engineering Education Workshop"  
Rockwell International, \$5000, January, 1990;

- NCR Corp, \$1000, January, 1990;
3. "Parallel Computer Architectures", NCR Corp., \$2,730, October 1989 (6 weeks)
  4. "Advanced Computer Architectures", NCR Corp., \$3,087, May 1990 (6 weeks)
  5. "An Expert System to Assist in Performing Failure Modes and Effects Analysis", with R. D. Bonnell, SCUREF, \$419,496, March 1991 (3 years).
  6. "Fuzzy Logic Controller", USC Research and Productive Scholarship, \$2845, May 1993 (1 year)
  7. "Optimize Utility Monitoring & Control System", Fort Jackson/W.O. Blackstone & Company, with J. H. Morehouse, C. W. Brice, 1/6/98, \$121,000, 12/22/97- 6/22/99 (project with Ft. Jackson, subcontracted through W. O. Blackstone)
  8. "Network based tool for monitoring, measuring, and assessing course objectives", NSF/Gateway, \$6,500, summer 1998.
  9. "Private network for teaching and Research in Telecommunications Technologies", BellSouth Instructional Innovation Grant, \$5,000, 7/1/2000 – 6/30/2001.
  10. "GK-12 Engineering Fellowships to Enhance Science Education in South Carolina Schools", With J. S. Lyons (ME, PI), C Ebert (Education, Co-PI), N. Carnes (Education), A. Cooper (Civil & Environ Engr), C. Brice (EE), M. Matthews (Chem E), NSF, \$1,103,641, 3 years beginning 1/1/2001.
  11. Biowatch Medical, "Student work experience in embedded systems" \$12,503, 1/15/2003 – 8/15/2003.
  12. Software donation from Compuware Inc, licenses for OptimalJ, QARun, QALoad, QADirector, \$706,522, January 2003
  13. "REU Site: Multidisciplinary Research in Computing," National Science Foundation, \$263,528, April 13, 2004 – March 31, 2008, CoPI with Caroline Eastman (PI) and Laura Kent (Education, CoPI).
  14. "REU Site: Multidisciplinary Research in Computing," National Science Foundation, Award # 0649105, \$279,516, January 15, 2007 – December 31, 2009, CoPI with Caroline Eastman (PI).
  15. "CCLI: Novel Instructional Material Development for Embedded System Education in the Undergraduate Computer Engineering Curriculum," National Science Foundation, Award # 0633641, \$149,788, March 1, 2007 – February 28, 2010, CoPI with Gang Quan (PI).
  16. "SC Steps to STEM," National Science Foundation, ~\$2,035,667, May 16, 2007 – May 15, 2012, participating faculty with Timothy Mousseau (PI).
  17. "USC Participation in STARS Alliance for Broadening Participation in Computing", , National Science Foundation, Broadening Participation in Computing, UNCC is lead institution, \$25,098, first year, Co-PI with Caroline Eastman (PI).
  18. "STARS REU Supplement", \$4,800, March 1, 2008 – February 28, 2009.

## PUBLICATIONS

### Books

1. Robert Vichnevetsky and John B. Bowles, *Fourier Analysis of Numerical Approximations of Hyperbolic Equations*, SIAM, 1982, 135 p.
2. *Proceedings IEEE SoutheastCon 2002*, editor, IEEE, April 5-7, 2002, ISBN: 0-7803-7252-2, 480 p.
3. *Proceedings IEEE SoutheastCon 2002 CD*, editor, IEEE, April 5-7, 2002, ISBN: 0-7803-7253-0

### Book Chapters

1. David J. Russomanno, Ronald D. Bonnell, and John B. Bowles, "Expert Systems for Reliability Evaluation," in *New Trends in System Reliability Evaluation*, K. B. Misra (Ed.), Elsevier, 1993, pp. 625-652.
2. John B. Bowles, "Failure Modes and Effects Analysis", in *ASM Handbook, Volume 11, Failure Analysis & Prevention*, W.T. Becker and R. J. Shipley (eds.), ASM International, 2002, pp. 51 – 59.
3. John B. Bowles, "FMEA and Its Implementation", in *Encyclopedia of Statistics in Quality and Reliability*, Fabrizio Ruggeri, Ron S. Kenett, and Fredrick W. Faltin (eds.), John Wiley & Sons, 2008.

### Refereed Journal Publications

1. John B. Bowles, "Survey of Reliability Prediction Procedures for Microelectronic Devices", *IEEE Transactions on Reliability*, March 1993, pp. 1-11.
2. John B. Bowles and Colon E. Peláez, "Bad Code", *IEEE Spectrum*, August 1992, pp. 36 - 40. (Reprinted in Australian Computer Virus Interest Group newsletter, February 1993.)
3. John B. Bowles, "Getting RM&S into the Engineering Curriculum", *Communications in RM&S*, Winter 1994, pp. 34-38.
4. David J. Russomanno, Ronald D. Bonnell, and John B. Bowles, "Viewing Computer Aided Failure Modes and Effects Analysis from an Artificial Intelligent Perspective", *Integrated Computer-Aided Engineering*. (Special issue on artificial intelligence in manufacturing and robotics), Vol. 1, No. 3, 1994, Wiley, pp. 209-228.
5. John B. Bowles and C. Enrico Peláez, "Application of Fuzzy Logic to Reliability Engineering", *Proceedings of the IEEE* (Special issue on fuzzy logic in engineering), March 1995, pp. 435-449.
6. John B. Bowles and C. Enrico Peláez, "Fuzzy logic prioritization of failures in a system failure mode, effects and criticality analysis", *Reliability Engineering and System Safety*, Vol. 50, No. 2, 1995, Elsevier, pp. 203-213.

7. John B. Bowles and C. Enrico Peláez, "Using fuzzy cognitive maps as a system model for failure modes and effects analysis", *Information Sciences: Intelligent Systems*, Vol. 88, January 1996, Elsevier, pp. 177-199.
8. John B. Bowles, "Simple, Approximate, System Reliability and Availability Techniques", *Reliability Review*, Vol. 20, No. 3, September 2000, pp. 5-11, 26-27.
9. John B. Bowles, "Caution: constant failure-rate models may be hazardous to your design", *IEEE Transactions on Reliability*, Vol. 51, No. 3, September 2002, pp. 375-377.
10. John B. Bowles and J. Gregory Dobbins, "Approximate Reliability and Availability Models for High Availability and Fault Tolerant Systems with Repair", *Quality and Reliability International*, vol. 20, Wiley Interscience, November 2004, pp. 679 – 697.
11. John B. Bowles, "An Assessment of RPN Prioritization in a Failure Modes Effects and Criticality Analysis", *Journal of the IEST*, Institute of Environmental Sciences and Technology, Vol. 47, 2004 Annual Edition, pp. 51-56. (Revised version of 31 below.)
12. John B. Bowles, Michael S. Ware, Matthew J. Peterson, Caroline M. Eastman, "Integrating Security into the Design of Software Systems", *The Journal of Reliability, Maintainability, and Supportability in Systems Engineering*, Vol. 1, Spring 2006, RMS Partnership, pp. 15 – 25.

#### **Refereed Conference Publications**

1. John B. Bowles and Mark R. Ransford, "Implementation of a Queueing Network Analysis Program", *Proceedings CompCon 83 Fall*, September 1983.
2. John B. Bowles and Laurie A. Klein, "A Comparison of Commercial Reliability Prediction Programs", *Proc. Ann. Reliability and Maintainability Symp.*, January 1990, pp. 450-455.
3. John B. Bowles and Venkatesh Swaminathan, "A Combined Hardware, Software and Usage Model of Network Reliability and Availability", *Proceedings of the International Phoenix Conference on Computers and Communications*, March 1990.
4. David J Russomanno, Ronald D. Bonnell, and John B. Bowles, "A Blackboard Model for an Expert System for Failure Modes and Effects Analysis", *Proc. Ann. Reliability and Maintainability Symp.*, January 1992, pp. 483-490.
5. John B. Bowles, "AR&MS Reliability Engineering Education Workshops," *1992 Annual Reliability and Maintainability Symposium Proceedings*, January 1992, pp. 134 - 139 (invited paper).
6. David J Russomanno, Ronald D. Bonnell, and John B. Bowles, "Functional Reasoning in a Failure Modes and Effects Analysis (FMEA) Expert System", *Proc. Ann. Reliability and Maintainability Symp.*, January 1993, pp. 339 - 347.
7. Puneet Kukkal, John B. Bowles, and Ronald D. Bonnell, "Database Design for Failure Modes and Effects Analysis", *Proc. Ann. Reliability and Maintainability Symp.*, January 1993, pp. 231 - 239.

8. D. S. Savakoor, John B. Bowles, and Ronald D. Bonnell, "Combining Sneak Circuit Analysis and Failure Modes and Effects Analysis", *Proc. Ann. Reliability and Maintainability Symp.*, January 1993, pp. 199 - 205.
9. David J Russomanno, Ronald D. Bonnell, and John B. Bowles, "Computer Aided FMEA: Toward an Artificial Intelligent Approach", *Proc. Fifth International Symp. on Artificial Intelligence*, December, 1992, pp. 103-112.
10. C. Enrico Peláez, and John B. Bowles, "Fuzzy Criticality Assessment for System Failure Modes and Effects Analysis," *Proc. Fuzzy Logic 93, (An International Conference on Fuzzy Logic Systems, Development Tools and Applications)*, July 1993 pp. A-211-1 — A-211-19.
11. C. Enrico Peláez, and John B. Bowles, "Using Fuzzy Logic for System Criticality Analysis," *Proc. Ann. Reliability and Maintainability Symp.*, January 1994, pp. 449 - 455 (invited paper).
12. Michael S. Leonard, and John B. Bowles, "Application of Quality Function Deployment (QFD) to Computer System Architecture," *Proc. Ann. Reliability and Maintainability Symp.*, January 1994, pp. 359 - 365.
13. John S. Pereira and John B. Bowles, "A Comparison of PID and Fuzzy Control of a Model Car", *Proc. Third IEEE Conf on Fuzzy Systems*, Orlando, FL, June 1994 (Part of IEEE World Congress on Computational Intelligence), pp. 849-856.
14. C. Enrico Peláez, and John B. Bowles, "Using Fuzzy Cognitive Maps As a System Model for Failure Modes and Effects Analysis," *Proc. Third International Conf. on Fuzzy Theory and Technology*, November 1994, pp. 383-386..
15. C. Enrico Peláez, and John B. Bowles, "Applying Fuzzy Cognitive Maps Knowledge-Representation to Failure Modes and Effects Analysis," *Proc. Ann. Reliability and Maintainability Symp.*, January 1995, pp. 450-456.
16. John S. Pereira and John B. Bowles. "Comparing controllers with the ball in a tube experiment", *Proceedings Fifth IEEE International Conference on Fuzzy Systems (FUZZ-IEEE '96)*, September 1996, New Orleans, LA, pp. 504-510.
17. Patrick Mills and John Bowles, "Fuzzy logic enhanced symmetric dynamic programming for speech recognition", *Proceedings Fifth IEEE International Conference on Fuzzy Systems (FUZZ-IEEE '96)*, September 1996, New Orleans, LA, pp. 2013-2019.
18. Juan Martinez, John Bowles, and Patrick Mills, "A fuzzy logic positioning system for an articulated robot arm", *Proceedings Fifth IEEE International Conference on Fuzzy Systems (FUZZ-IEEE '96)*, September 1996, New Orleans, LA, pp. 251-257.
19. Bob Coeyman and John B. Bowles, "Fuzzy logic applied to reboiler temperature control", *Proceedings Fifth IEEE International Conference on Fuzzy Systems (FUZZ-IEEE '96)*, September 1996, New Orleans, LA, pp. 511-516.
20. John B. Bowles, "The new SAE FMECA standard", *Proc. Ann. Reliability and Maintainability Symp.*, Anaheim, CA, January 1998, pp. 48-53.

21. John B. Bowles and J. Gregory, Dobbins, "High availability transaction processing: practical experience in availability modeling and analysis", *Proc. Ann. Reliability and Maintainability Symp.*, Anaheim, CA, January 1998, pp. 268-273.
22. John B. Bowles, "Design For Reliability: A Project Oriented Course For Teaching Reliable System Design Techniques", *Proc. Reliability and Maintainability Conference*, Gatlinburg, TN, May 10-12, 1999, pp. 76.01-76.15.
23. John B. Bowles, "Constant Failure Rate Models May Be Hazardous to Your Design", *Proc. Reliability and Maintainability Conference*, Gatlinburg, TN, May 10-12, 1999, pp. 61.01-61.07.
24. John B. Bowles, "Simple Spreadsheet Models for Computer System Availability and Reliability", *Proc. Reliability and Maintainability Conference*, Gatlinburg, TN, May 10-12, 1999, pp. 68.01-68.07.
28. John B. Bowles, Larry M. Stephens, Michael N. Huhns, R. W. Tobaben, S. Yekollu, H. Kolpuru, "Autonomous Networked Tactical Sentries", *The Second International Workshop on Compiler and Architecture Support for Embedded Systems (CASES)*, Washington, DC, October 1-3, 1999, pp. 183-187.
29. John B. Bowles, "Designing for failure: managing the failure response through analysis", *Failure Prevention Through Education Getting to the Root Cause, Conf. Proc.*, J. Scutti (Ed.), Cleveland, OH, May 23-25, 2000, pp. 62-69. (invited)
30. John B. Bowles and Chi Wan, "Software failure modes and effects analysis for a small embedded control system", *Proc. Ann. Reliability and Maintainability Symp.*, January 2001, pp. 1-6.
31. John B. Bowles, "An assessment of RPN Prioritization in a failure modes effects and criticality analysis", *Proc. Ann. Reliability and Maintainability Symp.*, January 2003, pp. 380-386.
32. John B. Bowles, "Code from Requirements: New Productivity Tools Improve the Reliability and Maintainability of Software Systems", *Proc. Ann. Reliability and Maintainability Symposium*, January 2004, Los Angeles, CA, pp. 68-72.
33. Ken Araujo and John B. Bowles, "Design Patterns as Components of Functional Models for Analyzing the Reliability of Software Systems", *Proc. Ann. Reliability and Maintainability Symposium*, January 2004, Los Angeles, CA, pp. 184-189.
34. John B. Bowles and Caroline M. Eastman, "Model Driven Development: Implementing a New Software Development Paradigm in Computer Science and Engineering Courses", *Proceedings ASEE Southeastern Section 2004 Annual Meeting*, Auburn, AL, April 2004, on CD (P2004131compuBOW).
35. James Huamonte, Kevin Smith, Dheeraj Thumma, John B. Bowles, "The Use of Roles to Model Agent Behaviors for Model Driven Architecture", *Proceedings of the IEEE SoutheastCon 2005*, April 8 – 10, 2005, Ft. Lauderdale, FL, p. 594 – 598.
36. John B. Bowles, "Better Software Reliability by Getting the Requirements Right", *Proc. Annual Reliability and Maintainability Symposium*, January 2006, Newport Beach, CA.

37. Matthew Ginley, John Bowles, and Caroline Eastman, "Video Games and Software Engineering: A Case Study", *Proceedings 7<sup>th</sup> International Conference on Computer Games*, Louisville, KY, July 2005.
38. Steven V. Cole, Matthew D. Royal, Marco G. Valtorta, Michael N. Huhns, John B. Bowles, "A Lightweight Tool for Automatically Extracting Causal Relationships from Text", *Proceedings of the IEEE SoutheastCon 2006*, March 30 – April 2, 2006, Memphis, TN, pp. 125 – 129
39. Matthew J. Peterson, John B. Bowles, Caroline M. Eastman, "UMLpac: An Approach for Integrating Security into UML Class Design", *Proceedings of the IEEE SoutheastCon 2006*, March 30 – April 2, 2006, Memphis, TN, pp. 267 – 272.
40. Michael S. Ware, John B. Bowles, Caroline M. Eastman, "Using the Common Criteria to Elicit Security Requirements with Use Cases", *Proceedings of the IEEE SoutheastCon 2006*, March 30 – April 2, 2006, Memphis, TN, pp. 273 – 278.
41. John B. Bowles, Caroline M. Eastman, and Csilla Farkas, "Engaging Undergraduates in Computer Security Research", *Proceedings Information Security Curriculum Development Conference 2006*, Kennesaw, GA., September 22 – 23, 2006.
42. John B. Bowles, "The Personification of Reliability, Safety, and Security", *Proc. Ann. Reliability and Maintainability Symposium 2007*, January 2007, Orlando, FL.
43. Ken Araujo and John B. Bowles, "Leveraging Design Patterns and Design of Experiments for Testing Software", *Proc. Ann. Reliability and Maintainability Symposium 2007*, January 2007, Orlando, FL.
44. John B. Bowles, "Cell Phone Games for a CS2 Data Structures Course", *ACMSE 2007 Proceedings*, March 23 – 24, 2007, Winston-Salem, NC., pp. 300 – 303.
45. John B. Bowles, "A Capstone Software Engineering Project Class for the Modern Era: Emphasizing Requirements and Testing", *Proceedings National Capstone Design Course Conference*, June 13 – 15, 2007, Boulder, CO.
46. John B. Bowles and William Hanczaryk, "Threat Effects Analysis: Applying FMEA to Model Computer System Threats", *Proc. Ann. Reliability and Maintainability Symposium 2008*, January 2008, Las Vegas, NV, 6 pp. (70%, Hanczaryk is undergraduate REU student)

### **Tutorials at International Conferences**

1. John B. Bowles and Ronald D. Bonnell, "Failure mode effects and criticality analysis: (What it is and how to use it)", in *Topics in Reliability & Maintainability & Statistics*, Ann. Reliability and Maintainability Symp., 1993-1998, 32 p. (revised each year)
2. John B. Bowles, "Applying fuzzy logic to the design process", in *Topics in Reliability & Maintainability & Statistics*, Ann. Reliability and Maintainability Symp. 1996, 1997, 2002, 21 p.
3. John B. Bowles "Introduction to reliability theory and practice", in *Topics in Reliability & Maintainability & Statistics*, Ann. Reliability and Maintainability Symp., 2001, 27 p.

4. John B. Bowles “Fundamentals of Failure Modes and Effects Analysis (FMEA)”, in *Topics in Reliability & Maintainability & Statistics*, Ann. Reliability and Maintainability Symp., 2003, 2004, 2008, 32 p.
5. John B. Bowles and Hongquan Wang “Software Testing”, in *Topics in Reliability & Maintainability & Statistics*, Ann. Reliability and Maintainability Symp., 2005, 2007, 27 p.
6. John B. Bowles, “Testing Computer Software” *Tutorials IEEE SoutheastCon 2005*, April 8 – 10, 2005, Ft. Lauderdale, FL, 15 p.
7. John B. Bowles, “Testing Computer Software” *Tutorials: IEEE SoutheastCon 2006*, March 30 – April 2, 2006, Memphis, TN, FL, 30 p.

### **Abstracts and Unrefereed Conference Publications**

1. J. B. Bowles, "A Model for Assessing Computer Network Reliability", *Proceedings 1989 SoutheastCon*, University of South Carolina, Columbia, S.C., April 9-12, 1989.
2. J. B. Bowles, "Choosing the System Performance Bottleneck", *Proceedings Pittsburgh Conference on Modeling and Simulation*, May 4-5, 1989.
3. K. Saha and J. Bowles, "The Integrated Management of Measurement Entities Distributed Over Interconnected Networks", *Proceedings The Twenty-Third Southeastern Symposium on System Theory*, March 1991, pp. 524-528.
4. K. O. Kolstad and J. Bowles, "Security Requirements and Models In Open Systems", *Proceedings The Twenty-Third Southeastern Symposium on System Theory*, March 1991, pp. 518-523.
5. H. B. Desai and J. Bowles, "Simulation and Performance Analysis of Reliable Broadcast Protocols for Distributed Systems", *Proceedings The Twenty-Third Southeastern Symposium on System Theory*, March 1991, pp. 508-512.
6. J. Bowles and S. Upadhyayula, "Network Management and Performance Monitoring", *Proceedings The Twenty-Third Southeastern Symposium on System Theory*, March 1991, pp. 529-534
7. C. E. Peláez and J. Bowles, "Computer Viruses", *Proceedings The Twenty-Third Southeastern Symposium on System Theory*, March 1991, pp. 513-517.
8. V. Swaminathan and J. Bowles "Concurrent Program Execution", *Proceedings The Twenty-Third Southeastern Symposium on System Theory*, March 1991, pp. 496-499.
9. P. Kukkal and J. Bowles, "Reliability in CMOS VLSI Circuits", *Proceedings The Twenty-Third Southeastern Symposium on System Theory*, March 1991, pp. 246-253.
10. Video Games and Software Engineering: A Case Study, (Abstract) M. Ginley, J. B. Bowles, and C. M. Eastman, *Bulletin of the South Carolina Academy of Science 2006*, Columbia, SC, March 10, 2006.
11. Extending WEBCRED: Assuring the Credibility of Web Sites, (Abstract) C. Hopper, M. Wassmer, C. M. Eastman, and J. B. Bowles *Bulletin of the South Carolina Academy of Science 2006*, Columbia, SC, March 10, 2006.

12. Access Control on the Semantic Web, (Abstract) B. Smith, C. Farkas, C. M. Eastman, and J. Bowles, *Bulletin of the South Carolina Academy of Science 2006*, Columbia, SC, March 10, 2006.

### Technical Reports

1. J. B. Bowles, R. D. Bonnell and L. A. Leicht, "A Qualitative Assessment of the USC College of Engineering Network", *USCMI Technical Report No. 88-40*, August 9, 1988.
2. J. B. Bowles and C. A. Valero, "Use of Formal Methods in the Development of Computer Communication Protocols", *USCMI Technical Report No. 89-24*, May 16, 1989, University of South Carolina.
3. J. B. Bowles, L. A. Klein and C. T. Swann; "A Comparison of Commercial Reliability Prediction Programs", *USCMI Technical Report No. 89-25*, October 9, 1989, Revised March 8, 1990, University of South Carolina.
4. J. B. Bowles (Ed.), "1990 RAMS Reliability Engineering Education Workshop Proceedings", *USCMI Technical Report No. 90-6*, May 31, 1990, University of South Carolina, 131 p.
5. J. B. Bowles, "NST Level 5 System Performance", NCR Corporation, E&M Columbia, August 30, 1990.
6. D. J. Russomanno, R. D. Bonnell, and J. B. Bowles, "IFMEA Intelligent Failure Modes and Effects Analysis A Preliminary Blackboard Model", March 19, 1991.
7. J. B. Bowles and C. E. Peláez, "A Comparison of Commercial FMEA/FMECA Programs," University of South Carolina, ECE Technical Report, ECE-XFMEA-91-01, Spring 1991, 89p.
8. J. B. Bowles and C. E. Peláez, "A Prototype Program For Performing an FMECA Analysis," University of South Carolina, ECE Technical Report, ECE-XFMEA-91-02, Summer 1991, 68p.

### Other

1. "The FMECA Process in the Concurrent Engineering (CE) Environment", Society of Automotive Engineers Aerospace Information Report AIR4845, Approx. 10 co-authors, June 1993.
2. J. B. Bowles, S. Abrams, P. Goddard, S. Spangler, "Recommended Failure Modes and Effects Analysis (FMEA) practices for non-automobile applications", Society of Automotive Engineers Aerospace Recommended Practice ARP5580, July 2001, 58p.
3. J. B. Bowles, "What's in a Name?" (Editorial), *The Journal of Reliability, Maintainability, and Supportability in Systems Engineering*, RMS Partnership, vol. 1, No. 1, Spring 2006
4. J. B. Bowles, "The Five Dysfunctions of a Team: A Leadership Fable by Patrick Lencioni" (Book Review), *The Journal of Reliability, Maintainability, and Supportability in Systems Engineering*, RMS Partnership, vol. 1, No. 1, Spring 2006

5. J. B. Bowles, "TRIZ" (Editorial), *The Journal of Reliability, Maintainability, and Supportability in Systems Engineering*, RMS Partnership, Fall 2007.

### **UNIVERSITY OF SOUTH CAROLINA ACTIVITIES**

1. ECE Graduate Committee (1/89 - 8/91)
2. USC College of Engineering Petitions and Scholastic Standards Committee (10/89 - 2/96), (1/2000 – present).
3. 1991 Southeastern Symposium on Systems Theory Technical Program Committee.
4. IEEE SoutheastCon organizing committee (Fall 1988 - Spring 89). (SoutheastCon was held at USC in April, 1989)
5. Branch Counselor, IEEE Student Branch (1/92 – 6/1/2000).
6. Member, USC Faculty Senate (8/93 – 7/96).
7. Chair, USC College of Engineering Academic Responsibility Committee (2/96 – present, chair 2/96 – 1/2000).
8. ECE ABET Committee (Fall 1997 – Fall 1999).
9. ECE Planning Committee (February 1998 – Fall 99).
10. Computer Engineering Program Coordinator, (January 1998 – August 2000).
11. Computer Science/Computer Engineering Transition Committee (1/2000 – 8/2000)
12. College of Engineering and Information Technology ABET/Gateway Committee (1/2000 – 8/2000)
13. IEEE SoutheastCon organizing committee (May 2000 – present). (SoutheastCon was held at USC in April, 2002)
14. Computer Science and Engineering Undergraduate Committee, (August 2000 – present)
15. Computer Science and Engineering Assessment Committee (chair), (August 2000 – September 2003)
16. Upsilon Pi Epsilon (Computing Sciences Honor Society) faculty advisor (January 2004 – present) Started USC Chapter April 2004.
17. College of Engineering and Computing Undergraduate Committee (chair), (September 2007 – present)

### **MISCELLANEOUS PROFESSIONAL ACTIVITIES**

1. Conducted half-day workshop, "Designing for Reliability", at 1989 SoutheastCon, University of South Carolina, Columbia, S.C., April 11, 1989. Approximately 20 people attended.
2. IEEE Columbia Section, (Treas., Sec., Vice-Chair., Chair.) July 1987 – June 1991

3. Organized and Moderated Panel Discussion: "Reliability Education" at 1990 RAMS, January 24, 1990.
4. Organized and lead first 1-day workshop on reliability engineering education at 1990 Reliability and Maintainability Symposium. ("RAMS Reliability Engineering Education Workshop", January 22-23, 1990) Workshop attracted approximately 35 participants from 17 universities and industry.
5. Organized and lead second half-day workshop on reliability engineering education at 1991 Reliability and Maintainability Symposium. ("RAMS Reliability Engineering Education Workshop", January 28, 1991.)
6. Supervised winning paper at South Carolina Engineering and Management Conference Student Paper Contest (Matthew Grulick, "Calculating the Number of Effective Processors in a Multiprocessor System") January 23, 1991.
7. Organizer and session chairman for invited session, "Applications of Fuzzy Logic to R&M" at Annual Reliability and Maintainability Symposium, January 1994.
8. Chairman, Society of Automotive Engineers G-11 Failure Modes and Effects Analysis Standard working group. (Committee is developing a new international standard on FMEA/FMECA to replace Mil-Std-1629A.) 7/94 – 7/2001.
9. Reliability and Maintainability Symposium Management Committee, Program Committee (1996 – present; Tutorials Coordinator for RAMS 2000, 2001)
10. Associate Editor, *IEEE Transactions on Reliability*, 12/98 – 12/2002.
11. Technical Program Co-Chair, IEEE SoutheastCon 2002, Columbia, SC, April 5-7, 2002.
12. Editor, *The Journal of Reliability, Maintainability, and Supportability in Systems Engineering*, RMS Partnership, 12/2005 – present.
13. Participant, ASQ Certified Reliability Engineer Exam Review Workshops, July 2007, October 2007, April 2008.