

RESUME

BARRY WAYNE JOHNSON

1413 Teakwood Cove
Charlottesville, Virginia 22911

BORN

Gretna, Virginia, September 17, 1957

EDUCATION

| | |
|---|--------------------------------------|
| B.S. Electrical Engineering (with High Distinction) | University of Virginia, May 1979 |
| M.E. Electrical Engineering | University of Virginia, May 1980 |
| Ph.D. Electrical Engineering | University of Virginia, January 1983 |

EXPERIENCE

Harris Corporation, Government Aerospace Systems Division, Melbourne, Florida

Associate Principal Engineer, System Synthesis and Analysis Group, 1982-1984

Florida Institute of Technology, Department of Electrical and Computer Engineering, College of Engineering, Melbourne, Florida

Adjunct Professor of Electrical and Computer Engineering, 1983-1984

University of Virginia, Charles L. Brown Department of Electrical and Computer Engineering, School of Engineering and Applied Science, Charlottesville, Virginia

Assistant Professor, 1984-1989

Associate Professor with Tenure, 1989-1994

Full Professor with Tenure, 1994-present

L. A. Lacy Distinguished Professor of Engineering, June 2009-present

Senior Associate Dean and Associate Dean for Research, 2006-2011

Senior Associate Dean, 2011-2015

Director, Computer Engineering Program, 2020-present

Privaris, Inc., Charlottesville, Virginia

Co-Founder, January 2001

President and Chief Executive Officer, October 2002-June 2006

Chair, Board of Directors, September 2001-December 2017

Member, Board of Directors, January 2001-December 2017

Patent Portfolio Acquired by Apple, Inc., October 2014

National Science Foundation

Director, Division of Industrial Innovation and Partnerships, March 2015-January 2019

Acting Deputy Assistant Director, Directorate for Engineering, July 2016-December 2016

Acting NSF Assistant Director, Directorate for Engineering, January 2017-June 2017

Consultant

Virginia Highway and Transportation Research Council, Charlottesville, Virginia, 1980-1982

Harris Corporation, Melbourne, Florida, 1984-1994

Ovenaire, Incorporated, Charlottesville, Virginia, 1988-1991
Martin Marietta, Aero and Naval Systems Division, Baltimore, Maryland, 1988-1991
Naval Research Laboratory, Washington, DC, 1992-1996
Union Switch and Signal, Incorporated, Pittsburgh, Pennsylvania, 1993-1997
Giras and Associates, Incorporated, Pittsburgh, Pennsylvania, 1997-1999
Department of the Navy, Advanced Amphibious Assault Vehicle Program, 1998-2003
Transforming Technologies, Inc., 1999-2001
Privaris, Inc., 2001-2017
Vianix, Inc., 2000-2003
Denali Software, Inc., 2006
Richmond's Future, 2012
Biocore, LLC, October 2018-present

Other Industrial Activities

Member, Technology Advisory Board, Union Switch and Signal, Incorporated, Pittsburgh, Pennsylvania, 1995-1997
Member, Board of Directors, Institute for Precision Technologies, Pittsburgh, Pennsylvania, 1996-2002
Member, Board of Directors, Vianix, Inc., 2000-2006
Founder, Photrinsics, Inc., 2000
Member, Technology Advisory Board, Solicore, Inc., 2006-2014

UNIVERSITY SERVICE ACTIVITIES

Commonwealth of Virginia

CIT Advisory Committee on Commercialization
Steering Committee, Commonwealth Cyber Initiative Central Virginia Node

University

Member, University of Virginia Faculty Senate, 1992-1996
Member, President's Athletics Advisory Committee, 1996-2000
Member, University Teaching Awards Committee, 1999-2000
Member, Provost's Promotion and Tenure Committee, 1999-2002
Member, Board of Directors, Spinner Technologies, Inc., 2006-2010
Chair, Board of Directors, Spinner Technologies, Inc., 2009-2010
Member, Conflict of Interest Committee, 2006-2011
Founding President and Executive Director, Commonwealth Center for Advanced Manufacturing, May 2010-March 2011
Chair, Board of Directors, Commonwealth Center for Advanced Manufacturing, May 2010-May 2012
Member, Board of Directors, Commonwealth Center for Advanced Manufacturing, May 2010-May 2015
Member, Board of Directors, Commonwealth Center for Aerospace Propulsion Systems, 2009-May 2015
Chair, Board of Directors, Commonwealth Center for Advanced Logistics Systems, December 2012-October 2015
Member, Board of Directors, Commonwealth Center for Advanced Logistics Systems, December 2012-October 2015

Member, Board of Directors, Virginia Nuclear Energy Consortium Authority, July 1, 2013 – May 2015.

Chair, Search Committee, Executive Director of the University of Virginia Applied Research Institute, March 2013-June 2014.

Member, VPR Internal Review Committee, 2019-present.

School of Engineering and Applied Science

Co-founder, Center for Semicustom Integrated Systems, 1984

Member, Minority Affairs Committee, 1986

Member, Rodman Committee, 1988

Member, ENGR 160 Committee, 1989

Member, Undergraduate Curriculum Committee, 1988-1994

Member, Ten-Year Planning Undergraduate Committee, 1990-1991

Member, Department of Electrical Engineering Chairperson Evaluation and Reappointment Committee, 1990

Member, Faculty Council, 1995-1996

Member, Promotion and Tenure Committee, 1996-1998

Director, Center for Semicustom Integrated Systems, 1996-2000

Co-founder, Virginia Institute for Microelectronics, 1996

Director, Virginia Institute for Microelectronics, 1996-1998

Founder, Center for Safety-Critical Systems, 1998

Director, Center for Safety-Critical Systems, 1998-2014

Representative, Alumni Caucus, Jacksonville, Florida, 1991

Chair, Promotion and Tenure Committee, 1997, 1998

Chair, Nominations and Elections Committee, 1996, 2001-2002

Chair, Search Committee, Chair of Electrical Engineering, 1995

Chair, Search Committee, Chair of Mechanical and Aerospace Engineering, 2000

Chair, Dean's Research Advisory Committee, 2006-2011

Chair, Rolls-Royce Partnership Faculty Search Committee, 2009-2012

Chair, Strategic Plan Implementation Committee, 2011 – March 2015

Chair, Search Committee, Director of the Center for Engineering Career Development, May 2014-August 2014.

Member, Commonwealth Cyber Initiative, UVA Technical Steering Committee, 2019-present.

Director, Computer Engineering Program, 2020-present

Charles L. Brown Department of Electrical and Computer Engineering

Member, Graduate Student Recruiting Committee, 1984-1988, 1993-1994

Member, Graduate Committee, 1999-2000

Member, External Relations Committee, 1986-1991

Member, Undergraduate Committee, 1987-1989, 1990-1996

Member, Teaching Effectiveness Committee, 1989-1997

Member, Chair's Cabinet, 1994-2002

Member, Faculty Recruiting Committee, 1996-2000

Member, Faculty Recognition Committee, 1998-2000

Member, Long Range Planning Committee, 1998-2002

Member, Committee of Senior Faculty, 1994-2006

Editor, Department Newsletter, 1986-1989

Faculty Advisor, Eta Kappa Nu Honorary Fraternity, 1986-2002
Department Graduation Marshall, 1986-1996
Chair, Graduate Committee, 1992-1996
Chair, Undergraduate Committee, 1989-1991
Chair, Computer Resources Planning Committee, 1996-1997
Chair, ECE External Advisory Board Committee, 2019-present
Member, ECE Self-Assessment and External Review Committee, 2019-present

PROFESSIONAL SOCIETIES AND ACTIVITIES

Institute of Electrical and Electronics Engineers

Member, 1982-present
Senior Member, 1990-1995
Fellow, "For Contributions to Fault-Tolerant Computing", 1996-present,
Member, Technical Activities Board Finance Committee, 1988-1991, 1995, 2000-2001
Member, Technical Activities Board, 1990, 1997, 1999-2000
Member, Society Presidents Forum, 1997
Member, Technical Activities Board Administration Council, 1990
Member, Technical Activities Board Staff Activities Committee, 1990
Member and Past Chair, Technical Activities Board Finance Committee, 1991
Member, Technical Activities Board Book-broker Committee, 1991-1992
Session Chair, 1986 IEEE Southeastcon, Richmond, Virginia, March 23-26, 1986
Session Chair, Symposium on the Engineering of Computer-based Medical
Systems, Minneapolis, Minnesota, June 8-10, 1988
Session Chair, 5th IEEE International Symposium on Intelligent Control, Philadelphia,
Pennsylvania, September 5-7, 1990
Session Chair, IEEE Annual Workshop on Fault Tolerant Parallel and Distributed Systems
Session Chair, 16th IEEE VLSI Test Symposium, Monterey, California, April 26-29, 1998
Treasurer, Technical Activities Board, 1990
Chair, Technical Activities Board Finance Committee, 1990
Member, Technical Activities Board Nominations and Appointments Committee, 1998-1999
Member, IEEE Board of Directors, 1999-2000
Member, IEEE Executive Committee, 2000
Member, IEEE Fellows Committee, 2000-2002, 2008-2011
Vice Chair, IEEE Fellows Committee, 2008-2009
Member, IEEE Strategic Planning Committee, 2001

IEEE Computer Society

Member, 1982-present
Member, Fault Tolerant Computing Technical Committee, 1984-present
Member, Conferences and Tutorials Board, 1985-1986
Member, Finance Committee, 1986, 1988-1998
Member, Technical Activities Board, 1987
Member, Membership and Information Activities Board, 1987
Member, Executive Committee, 1988-2000
Member, Board of Governors, 1988-2000
Member, Neural Networks Task Force, 1988
Member, Program Committee, IEEE VHDL Methods Workshop, 1990

Member, Program Committee, Reliable Distributed Systems Symposium, 1999
Co-General Chair, IEEE Embedded Fault-Tolerant Systems Workshop, 1998
Co-General Chair, IEEE Embedded Fault-Tolerant Systems Workshop, 2000
Guest Editor, *IEEE Micro*, Special Issue on Multiprocessing, October 1986
Guest Editor, *IEEE Micro*, Special Issue on Fault Tolerance, August 1988
Guest Editor, *IEEE Micro*, Special Issue on Embedded Fault-Tolerant Systems,
September/October 1998
Guest Editor, *IEEE Micro*, Special Issue on Embedded Fault-Tolerant Systems,
September/October 2001
Guest Editor, *Journal of Supercomputing*, Special Issue on Fault-Tolerant Systems,
December 1999
Guest Editor, *IEEE Transactions on Computers*, Special Issue on Embedded Fault-
Tolerant Systems, February 2002
Vice Chair, Finance Committee, 1986
Vice Chair, Membership and Information Activities Board, 1988
Vice Chair, IEEE Fellows Society Evaluation Committee, 1999
Chair, Membership Development Committee, 1987
Chair, Finance Committee, 1988, 1995
Chair, Finance, IEEE VHDL Methods Workshop, 1988-1992
Chair, Intersociety Cooperation Committee, 1998
Chair, Nominations Committee, 1998
Chair, IEEE Fellows Society Evaluation Committee, 2001
Chair, Search Committee for IEEE Transactions on Software Engineering Editor-in-Chief,
2001
Associate Editor, *IEEE Transactions on Computers*, 1990-1994
Associate Editor, *IEEE Micro*, 1985-1989
Treasurer, 1988, 1995
Vice President, Membership and Information Activities, 1989-1990
Vice President, Press Activities, 1991
Vice President, Conferences and Tutorials, 1992
Vice President, Publications, 1993-1994
President-elect, 1996
President, 1997
Past-president, 1998
IEEE Division VIII Director, 1999-2000

IEEE Industrial Electronics Society

Member, 1982-1992
Member, Computer Controls and Industrial Automation Technical Committee, 1984-1986
Member, Control Theory and Process Control Technical Committee, 1984-1986

IEEE Education Society

Member, 1996-2006

Reviewer Activities

IEEE Transactions on Industrial Electronics
IEEE MICRO
IEEE Transactions on Education

IEEE Computer
IEEE Journal of Solid-State Circuits
IEEE Circuits and Devices Magazine
IEEE Transactions on Reliability
IEEE Transactions on Computers
IEEE Transactions on Systems, Man, and Cybernetics
IEEE Transactions on Knowledge and Data Engineering
IEEE Transactions on Parallel and Distributed Systems
Annual International Symposium on Fault-Tolerant Computing (FTCS)
Reliable Distributed Systems Symposium
Computer Society Press
Addison-Wesley Publishing Company
Butterworth and Company Publishers
Virginia Center for Innovative Technology
National Science Foundation
Louisiana State Board of Regents
IEEE Press
State of Idaho High Technology Initiative
Drexel University, Academic Research Enhancement Program
Educational Testing Service
PWS-Kent Publishing Company
MIT Press
Prentice Hall Publishing Company

AWARDS AND HONORS

Tau Beta Pi, Member
Eta Kappa Nu, Member
IEEE Computer Society Certificate of Appreciation for Conferences Financial Analysis, 1985
IEEE Computer Society Meritorious Service Certificate for Contributions to Membership Development, the Directory, and Financial Analysis, 1987
Award for Outstanding Contributions to the Department of Electrical Engineering, Virginia Chapter, Eta Kappa Nu, 1987
Young Faculty Teaching Award, Department of Electrical Engineering, University of Virginia, 1988
Outstanding Paper Award for 1987, *IEEE Transactions on Education*
Alumni Board of Trustees and University of Virginia Endowment Fund Young Teacher Award, University of Virginia, 1989
Outstanding Faculty Award, State Council of Higher Education for Virginia, 1990
Honorable Mention, 1990 C. Holmes MacDonald Outstanding Young Electrical Engineering Professor Award (Eta Kappa Nu)
IEEE Computer Society Outstanding Contribution Award for Contributions to the Society's Membership Programs, 1990
Honorable Mention, 1991 C. Holmes MacDonald Outstanding Young Electrical Engineering Professor Award (Eta Kappa Nu)
Frederick Emmons Terman Award, American Society for Engineering Education, 1991
C. Holmes MacDonald Outstanding Young Electrical Engineering Professor Award (Eta Kappa Nu), 1992

Alan Berman Research Publications Award, Department of the Navy, Naval Research Laboratory, 1992
IEEE Computer Society Certificate of Appreciation for Service as Vice President of Publications, 1993
IEEE Fellow, 1996, "For Contributions to Fault-Tolerant Computing"
IEEE Computer Society Golden Core Member, 1996
David A. Harrison Outstanding Faculty Award, University of Virginia, 1997
IEEE Computer Society Certificate of Appreciation for Service as the FOCUS (Federation of Computing in the United States) Board Chair, 1998
IEEE Computer Society Certificate of Appreciation for Service as Vice Chair of the IEEE Computer Society Fellows Evaluation Committee, 1999
IEEE Certificate of Appreciation for Service as a Member of the 1999 IEEE Technical Activities Board, 1999
IEEE Third Millennium Medal, 2000
2011 Outstanding Faculty Award, University of Virginia Engineering Foundation
National Academy of Inventors, Fellow, Class of 2016 (2017 was First Year of Membership)
2019 Distinguished Service Award of the National Science Foundation

TEACHING ACTIVITIES

New Courses Developed

- EE 734 – Reliable Digital Design and Analysis
- EE 435 – Microcomputer Interfacing
- EE 335 – Microcomputers
- EE 787 – Safety-Critical Systems (Jointly developed with Joanne Dugan)
- EE 434 – Fault-Tolerant Computing
- EE 634 – Fault-Tolerant Computing
- EE 333 – Computer Architecture (Jointly developed with Alan Batson)
- ECE 586 – Biometrics
- ECE-5502 – Hardware/Software Security

Courses Taught

- EE 631 – Advanced Switching Theory
- EE 734 – Reliable Digital Design and Analysis
- EE 435 – Microcomputer Interfacing
- EE 333 – Microcomputers
- EE 335 – Microcomputers (Includes Laboratory)
- ENGR 208 – Digital Logic Design
- ECE 2330 / CS 2330 – Digital Logic Design
- EE 333 – Computer Architecture
- CS 333 – Computer Architecture
- EE 434 – Fault-Tolerant Computing
- EE 634 – Fault-Tolerant Computing
- ECE 586 – Biometrics
- EE 695 – Advanced Projects
- EE 407 – EE Projects
- EE 897 – Graduate Teaching Instruction
- EE 898 – Masters Thesis Research
- EE 999 – PhD Dissertation Research

Undergraduate Thesis Advising

Technical advisor for more than 60 undergraduate theses

FUNDED RESEARCH EQUIPMENT GRANTS

Co-principal Investigator, "Enhancement of VLSI System Design Capability", University Academic Computing Support Program, September 1, 1985 - August 31, 1986, (\$58,273 funded).

Co-principal Investigator, "Enhancement of Center for VLSI Fault Tolerance and Testing", Virginia Center for Innovative Technology, August 1, 1985 - July 31, 1986, (\$127,600 funded).

Co-principal Investigator, "System Simulation Software for Design Support", University Academic Computing Support Program, April 1987, (\$10,000 funded).

Principal Investigator, "A Harris Corporation HCX-9 Computer System Grant", Harris Corporation, Computer Systems Division, October 1987, (\$450,110 funded).

Co-principal Investigator, "Mentor Graphics Educational Gift Program", Mentor Graphics, Incorporated, Beaverton, Oregon, February 1, 1989 - January 31, 1992, (\$3,600,000 funded).

FUNDED RESEARCH GRANTS

Principal Investigator, "Testability Issues in Standard Cell and Gate Array Technologies", Virginia Center for Innovative Technology, September 1, 1984 - August 31, 1985, (\$63,834 funded).

Co-principal Investigator, "General Assistant: A Personal Decision Support Tool", Electronic Warfare Associates, Inc., September 1, 1985 - August 31, 1987, (\$50,653 funded).

Principal Investigator, "Development of Techniques for Quick Assessment of Logic Simulators", General Electric Company, Electronics Automation Application Center, September 1, 1985 - August 31, 1986, (\$92,145 funded).

Co-principal Investigator, "A Program in Semicustom Integrated Systems", Virginia Center for Innovative Technology, July 1, 1986 - June 30, 1986, (\$1,295,446 funded).

Co-principal Investigator, "Integration of VHSIC System Functional Design and Design for Testability Tools", Research Triangle Institute, January 1, 1987 - May 31, 1988, (\$124,928 funded).

Co-principal Investigator, "A Preliminary Investigation of Distributed Electric Load Management", U. S. Army Fort Belvoir Research and Development Center, Fort Belvoir, Virginia, June 1, 1987 - December 31, 1987, (\$24,974 funded).

Co-principal Investigator, "Initial Implementation and Analysis of a New Methodology for the Uninterpreted Modeling of Digital Systems", International Business Machines, Inc. (Manassas, Virginia), September 1, 1987 - August 31, 1990, (\$78,310 funded).

Co-principal Investigator, "Fault Coverage Analysis in Gate Array Designs", General Electric-Fanuc Automation, Charlottesville, Virginia, June 1, 1988 - December 31, 1988, (\$19,764 funded).

Co-principal Investigator, "Modeling and Simulation of the Copperhead Electronics Package Using the VHSIC Hardware Description Language (VHDL)", Battelle, Research Triangle Park, North Carolina, September 1, 1988 - August 31, 1989, (\$58,417 funded).

Co-principal Investigator, "Uninterpreted/Interpreted Modeling of Digital Systems in a Common Simulation Environment", Hughes Aircraft Company Corporate VLSI CAD Program, El Segundo, California, June 1, 1989 - December 31, 1990, (\$127,148 funded).

Co-principal Investigator, "A High-Performance Computer Architecture for Embedded and/or Multicomputer Applications", Defense Advanced Research Projects Agency (DARPA), January 1, 1989 - March 31, 1990, (\$324,582 funded).

Co-principal Investigator, "Uninterpreted/Interpreted Modeling of Digital Systems", Semiconductor Research Corporation, January 1, 1990 - December 31, 1993, (\$289,000 funded).

Co-principal Investigator, "Uninterpreted/Interpreted Modeling of Digital Systems in a Common Simulation Environment", IBM Corporation, Poughkeepsie, New York, January 1, 1990 - December 31, 1991, (\$114,808 funded).

Principal Investigator, "An Intelligent Electronic Display System Based on Modern Microprocessors and VLSI Technology", Inova Corporation, Charlottesville, Virginia, September 1, 1990 - May 31, 1992, (\$78,196 funded).

Principal Investigator, "An Intelligent Electronic Display System Based on Modern Microprocessors and VLSI Technology", Virginia Center for Innovative Technology, September 1, 1990 - May 31, 1992, (\$65,500 funded).

Principal Investigator, "Performance Modeling of Fault-Tolerant Systems Using VHDL", NASA Langley Research Center, Hampton, Virginia, July 1, 1990 - December 31, 1993, (\$77,000 funded).

Co-principal Investigator, "Evaluation of Risk Management Methodology for the Space Shuttle", Vitro Corporation (Funds from NASA Headquarters), Silver Spring, Maryland, February 4, 1991 - March 31, 1991, (\$15,000 funded).

Principal Investigator, "Research on Fault-Tolerant Advanced Train Control Systems", Union Switch and Signal, Advanced Technology Group, A Member of the Ansaldo Group, Pittsburgh, Pennsylvania, March 1, 1991 - May 31, 1997, (\$1,304,429 funded).

Principal Investigator, "A Fault-Tolerant Memory Architecture for Space Applications", Bendix Incorporated (Funds from the Naval Research Laboratory), Columbia, Maryland, July 1, 1991 - September 30, 1991, (\$20,000 funded).

Principal Investigator, "Automatic Classification of Aluminum Defects", Reynolds Metals Company, Experimental Research and Development Laboratory, Richmond, Virginia, January 1, 1992 - December 31, 1993, (\$91,122 funded).

Principal Investigator, "An Integrated Design Methodology Based on the VHSIC Hardware Description Language", NASA Langley Research Center, Hampton, Virginia, January 1, 1993 - December 31, 1995, (\$75,000 funded).

Principal Investigator, "Automatic Classification of Aluminum Defects", Virginia Center for Innovative Technology, Herndon, Virginia, January 1, 1993 - December 31, 1993, (\$22,109 funded).

Co-principal Investigator, "A Unified Environment for End-to-End System Design", Advanced Research Projects Agency, Arlington, Virginia, September 1, 1993 - August 31, 1997, (\$1,000,000 funded).

Co-principal Investigator, “Risk-Based Sustainable Policy for Distributed Flood Protection”, National Science Foundation, Arlington, Virginia, September 1, 1995 - August 31, 1998, (\$250,000 funded).

Principal Investigator, “VHDL Fault Simulation for Embedded Hardware/Software Systems”, Air Force Rome Laboratories, Rome, New York, October 1, 1995 - September 30, 1998, (\$447,812 funded).

Principal Investigator, “A Program in Semicustom Integrated Systems”, Virginia Center for Innovative Technology, Herndon, Virginia, July 1, 1996 - June 30, 1997, (\$82,500 funded).

Co-principal Investigator, “Innovative Dependability Analysis Techniques in an Advanced Design Environment”, National Science Foundation, Arlington, Virginia, June 1, 1996 - May 31, 1999, (\$311,565 funded).

Principal Investigator, “Development of a Portable Information Management Systems”, Impaq Corporation, Virginia Beach, Virginia, January 1, 1997 - June 30, 1997, (\$28,489 funded).

Principal Investigator, “Development of a Portable Information Management Systems”, Virginia Center for Innovative Technology, Herndon, Virginia, January 1, 1997 - June 30, 1997, (\$19,647 funded).

Principal Investigator, “Development of a MASC/ADC Evaluation System”, Virginia Center for Innovative Technology, Herndon, Virginia, April 1, 1997 - July 31, 1997, (\$14,116 funded).

Principal Investigator, “Development of a MASC/ADC Evaluation System”, Oceana Sensor Technologies, Inc., Virginia Beach, Virginia, April 1, 1997 - July 31, 1997, (\$16,000 funded).

Principal Investigator, “Development of a Handheld Cellular Dictation Device”, Impaq Corporation, Virginia Beach, Virginia, June 1, 1997 - December 31, 1997, (\$41,943 funded).

Principal Investigator, “Development of a Multimedia Portable Information System”, Impaq Corporation, Virginia Beach, Virginia, July 1, 1997 - December 31, 1997, (\$33,532 funded).

Principal Investigator, “Development of a Portable Information Management Systems”, Virginia Center for Innovative Technology, Herndon, Virginia, January 1, 1997 - June 30, 1997, (\$19,981 funded).

Principal Investigator, “Development of a Handheld Cellular Dictation Device”, Virginia Center for Innovative Technology, Herndon, Virginia, July 1, 1997 - December 31, 1997, (\$19,965 funded).

Principal Investigator, “A Program in Semicustom Integrated Systems”, Virginia Center for Innovative Technology, Herndon, Virginia, July 1, 1997 - June 30, 1998, (\$99,368 funded).

Principal Investigator, “Virginia Institute for Microelectronics”, Virginia Center for Innovative Technology, Herndon, Virginia, July 1, 1997 - June 30, 2000, (\$75,000 funded).

Principal Investigator, “A Program in Semicustom Integrated Systems, Virginia’s Center for Innovative Technology, Herndon, Virginia, July 1, 1998 – June 30, 1999, (\$99,760 funded).

Principal Investigator, “Prototype Design of a Remote Sensor System”, Omnet, Inc., Staunton, Virginia, October 1, 1998 – August 31, 1999, (\$15,315 funded).

Principal Investigator, “Prototype Design of a Remote Sensor System”, Virginia’s Center for Innovative Technology, Herndon, Virginia, October 1, 1998 – August 31, 1999, (\$60,330 funded).

Principal Investigator, “A Program in Semicustom Integrated Systems, Virginia’s Center for Innovative Technology, Herndon, Virginia, July 1, 1999 – June 30, 2000, (\$85,000 funded).

Principal Investigator, “A Safety-Critical Grenade Launch Controller”, Wegmann, Inc., Lynchburg, Virginia, September 1, 1999 – February 29, 2000, (\$26,582 funded).

Principal Investigator, “A Safety-Critical Grenade Launch Controller”, Virginia’s Center for Innovative Technology, Herndon, Virginia, September 1, 1999 – February 29, 2000, (\$25,000 funded).

Principal Investigator, “Safety Assessment of Aviation Systems”, The Boeing Company, Seattle, Washington, October 1, 1999 – December 31, 1999, (\$15,000 funded).

Principal Investigator, “Safety Assessment of a Railroad Controller”, Union Switch and Signal, Inc., Pittsburgh, Pennsylvania, October 1, 1999 – June 30, 2002, (\$515,461 funded).

Principal Investigator, “Wrist Watch Style Heart and Breathing Rate Monitor”, Virginia’s Center for Innovative Technology, Herndon, Virginia, June 1, 1999 – November 30, 1999, (\$18,750 funded).

Co-principal Investigator, “Security Education in Embedded Computing”, National Science Foundation, Arlington, Virginia, September 1, 2000 – August 31, 2003, (\$436,701 funded).

Principal Investigator, “Embedded Real-Time Safety-Critical Hardware/Software Systems”, Nuclear Regulatory Commission, Rockville, Maryland, October 1, 1997 - March 31, 2002, (\$1,826,413 funded).

Principal Investigator, “Formal Techniques for Designing Safety-Critical Systems”, NASA Langley Research Center, Hampton, Virginia, July 1, 2000 – June 30, 2003, (\$66,000 funded).

Co-principal Investigator, “Assessment of Safety-Critical Systems Incorporating Application Specific Integrated Circuits”, Electricite de France (EDF), Chatou, France, June 1, 2002 – May 31, 2005, (\$205,400 funded).

Co-principal Investigator, “Establishment of a Center for Railroad Safety-Critical Excellence”, Federal Railroad Administration, Washington, DC, August 1, 2001 – July 31, 2004, (\$1,951,137 funded).

Principal Investigator, “Digital Control System Modeling and Data Generation Using Fault Injection”, Ohio State University (funded as a subcontract by the Nuclear Regulatory Commission), June 1, 2005 – December 31, 2006, (\$167,500 funded).

Principal Investigator, “Digital System Dependability Performance”, Nuclear Regulatory Commission, August 29, 2006 – July 31, 2011, (\$1,510,349 funded)

Principal Investigator, “Fault Injection Analysis”, Ansaldo STS-USA, Inc., Pittsburgh, Pennsylvania, June 1, 2008 – August 31, 2010, (\$274,035 funded).

Principal Investigator, “Safety Assessment”, Ansaldo STS-USA, Inc., Pittsburgh, Pennsylvania, June 1, 2008 – August 31, 2010, (\$79,556 funded).

Principal Investigator, “University Strategic Partnership Program”, Science Applications International Corporation (SAIC), July 1, 2009 – June 30, 2015, (\$1,020,000 funded).

Principal Investigator, “Master Research Agreement”, Ingersoll Rand, November 8, 2011 – November 7, 2016, (\$525,000 funded).

- Principal Investigator, “Commonwealth Center for Advanced Manufacturing”, United States Economic Development Administration, April 22, 2011 – November 30, 2014, (\$3,975,725 funded).
- Principal Investigator, “Commonwealth Center for Advanced Manufacturing – A Workforce Training and Economic Development Partnership with TICRC”, Tobacco Indemnification and Community Revitalization Commission, May 31, 2011 – May 31, 2014, (\$4,983,000 funded).
- Principal Investigator, “Commonwealth Center for Advanced Manufacturing Apprentice Academy”, United States Economic Development Administration, October 1, 2013 – March 31, 2015, (\$280,600 funded).
- Principal Investigator, “IPA Assignment for Barry Johnson”, National Science Foundation, March 16, 2015 – January 24, 2019, (\$1,342,108 funded).
- Co-principal Investigator, “I-Corps: Extremely Compact, Low-Power Sensing Nodes that may Fulfill the Promise of Smart Dust”, National Science Foundation, August 1, 2020 – January 31, 2022, (\$50,000 funded).
- Co-principal Investigator, “ERVA: A Vision for Engineering Leadership Multi-Sector Alliance”, National Science Foundation, April 15, 2021 – March 31, 2026, (\$7,999,924 awarded).

POST DOCTORAL ASSOCIATES SUPPORTED AND SUPERVISED

- D. Todd Smith, 1993-1996
 Lori M. Kaufman, 1997-2000
 Todd A. DeLong, 2002-2005
 Carl R. Elks, 2006-2010
 Michael A. Reynolds, 2006-2010

GRADUATE STUDENTS SUPPORTED AND SUPERVISED

Doctor of Philosophy Students

- Lee A. Belfore II, *Modeling the Performance of Faulty Neural Networks*, Doctor of Philosophy, January 1990.
- D. Todd Smith, *A Malicious Fault List Generation Algorithm for the Evaluation of System Coverage*, Doctor of Philosophy, August 1993.
- Eric D. Cutright, *A Simulation-Based Approach to Integrated Performance and Reliability Modeling Using VHDL*, Doctor of Philosophy, May 1994.
- Andrew J. Schwab, *Analysis Techniques for Real-Time Fault-Tolerant Processing Arrays*, Doctor of Philosophy, May 1994.
- Anup K. Ghosh, *A Methodology and Application of Fault Simulation in the Design Process of Large-Scale Systems*, Doctor of Philosophy, May 1996.
- Charles Y. Choi, *Dependable System Hardware/Software Co-design Using Data Flow Models*, Doctor of Philosophy, January 1997.
- Lori M. Kaufman, *Dependability Analysis for Ultra-Dependable Systems Using Statistics of Extremes*, Doctor of Philosophy, May 1997.
- Ramesh Rao, *Synthesis of Reliability Models from Behavioral and Performance Models*, Doctor of Philosophy, August 1997.

- Ronald J. Hayne, *Behavioral Fault Modeling in a VHDL Synthesis Environment*, Doctor of Philosophy, May 1999.
- Todd A. DeLong, *Safety-Critical System Design Using Algorithm-Based Safety Assurance*, Doctor of Philosophy, August 2002.
- Michael A. Reynolds, *A Hybrid Approach to Performance and Reliability Modeling*, Doctor of Philosophy, May 2006.
- Carl R. Elks, *A Formal Approach to Designing Safety-Critical Systems*, Doctor of Philosophy, May 2005.
- Kevin A. Kotlarski, *Algorithm-Based Techniques for Designing Safety-Critical Systems*, Doctor of Philosophy, August 2005.
- Yangyang Yu, *Fault Injection Approaches for Safety Assessment of Digital Systems*, Doctor of Philosophy, August 2006.

Master of Science Students

- Margaret E. Moore, *Development of Techniques for the Quick Assessment of Fault Simulators*, Master of Science, January 1987.
- Thomas E. Roberts, *Design and Analysis of a Fault-Tolerant Microprocessor-Based Controller for a Powered Wheelchair*, Master of Science, January 1987.
- Haytham H. Hana, *Application of Time Redundancy to Concurrent Error Detection in VLSI Circuits*, Master of Science, January 1987.
- Michael Hagopian, *Development of Techniques for the Quick Assessment of Functional Simulators*, Master of Science, May 1987.
- Steven C. Karppi, *Efficient Generation of Tests for Combinational CMOS Circuits*, Master of Science, May 1987.
- Stephen R. Welke, *A Unified Reliability Model for Hardware/Software Systems*, Master of Science, May 1988.
- Jennifer A. Schrader, *Use of the D-Algorithm for Testing CMOS VLSI Stuck-Open Faults*, Master of Science, May 1989.
- Maximo H. Salinas, *Implementation-Independent Model of the WM Computer Architecture*, Master of Science, January 1990.
- Ramesh Rao, *A Building Block Approach to Performance Modeling Using VHDL*, Master of Science, May 1990.
- Sunil M. Pamidi, *A VLSI Implementation of the Stream Control Unit for the WM Computer Architecture*, Master of Science, May 1990.
- Eric D. Cutright, *Performance Modeling of Fault-Tolerant Systems Using VHDL*, Master of Science, May 1991.
- Charles Y. Choi, *A Software Package for Dependability Analysis*, Master of Science, May 1992.
- Royce A. Hernandez, *A Hardware/Software Design for an Integrated Electronic Display System*, Master of Science, January 1993.
- Anup K. Ghosh, *A Distributed Parallel Processing System for Wayside and Carborne Train Control*, Master of Science, May 1993.
- Craig A. Lorie, *A Microprocessor Control Unit for an Electronic Display*, Master of Science, May 1993.

- Philip G. Broome, *A Microcontroller-Based Clock Network for an Electronic Display System*, Master of Science, May 1993.
- Todd A. DeLong, *Performance and Safety Analysis of a Microprocessor-Based Embedded Control System Using VHDL*, Master of Science, January 1994.
- Douglass T. Lamb, *A Dependable Computing Platform: A Software Executive for Real-Time Safety-Critical Control*, Master of Science, May 1994.
- Anees A. Shaikh, *Input and Output Modules for a Safety-Critical Train Control System*, Master of Science, August 1994.
- Matthew G. Kelly, *A Fail-Safe Duplex Architecture for Real-Time Safety-Critical Train Control*, Master of Science, January 1995.
- Jeffrey M. Chrzanowski, *A Hardware Fault Injector for a 68040-Based Microprocessor Board*, Master of Science, May 1995.
- Paul J. Perrone, *Global Safety Assurance: Concepts and Application to Train Control Systems*, Master of Science, May 1995.
- Arshad Rahman, *Integrated Performance and Reliability Modeling Using ADEPT and REST*, Master of Science, May 1995.
- Vikram Rana, *Application of FDDI as the Communications Network in a Real-Time Distributed Control System*, Master of Science, January 1996.
- Charles L. Meissner, *Design of an Input/Output Subsystem and Fault Injector for VFRAME++*, Master of Science, May 1996.
- Erik D. Laurila, *Fault Simulation in Mixed-Signal Systems*, Master of Science, May 1999.
- Sanyukta Bhide, *Safety Modeling of Digital Systems Accounting for Common Mode and Common Cause Faults*, Master of Science, January 2000.
- Ryan J. Baucom, *ROBUST: A VHDL-Based Fault Simulation Tool*, Master of Science, January 2001.
- Brian J. Laurey, *Design of a Real-Time Executive for a Safety-Critical Train Control System*, Master of Science, May 2002.
- Marco Pescosolido, *Statistical Models for Coverage Estimation Using Experimental Fault Injection*, Master of Science, May 2002.
- Bertrand Bastien, *A Fault Injection Study of a Fault-Tolerant Digital Controller*, Master of Science, January 2004.
- Paolo Re, *Safety Assessment of Systems Incorporating Application Specific Integrated Circuits*, Master of Science, January 2004.

INVITED PRESENTATIONS

- “Fault Tolerance Issues in Medical Applications of Computing”, Clinical Laboratory Managers Association, Kansas City Chapter, February 18, 1988, Kansas City, Kansas.
- “Design and Analysis of Fault-Tolerant Systems for Industrial Applications”, Fourth International Conference on Fault-Tolerant Computing Systems, September 21, 1989, Baden-Baden, Germany.
- “Reliability and Fault Tolerance Issues in Intelligent Computing Systems”, Fifth IEEE International Symposium on Intelligent Control, September 6, 1990, Philadelphia, Pennsylvania.
- “Fault Tolerance in Real-Time Distributed Systems”, Ninth Symposium on Reliable Distributed Systems, October 9, 1990, Huntsville, Alabama.

- “Performance and Dependability Issues in Real-Time Control Systems”, IEEE Control Systems Society, Pittsburgh Chapter, November 7, 1990, Pittsburgh, Pennsylvania.
- “Integration of Performance and Functional Modeling in VHDL”, IBM Corporation, December 13, 1990, Poughkeepsie, New York (joint presentation with James H. Aylor, Ronald Waxman, and Ronald D. Williams).
- “An Integrated Design Environment Using VHDL”, Second Annual Symposium on Communications, Signal Processing, and ASIC VLSI Design, March 22, 1991, Greensboro, North Carolina.
- “An Integrated Environment for Designing Fault-Tolerant Systems”, United States Army Fault-Tolerant Parallel Processor Program, August 14, 1991, Fort Monmouth, New Jersey.
- “A Seminar on Safety-Critical Systems”, Union Switch and Signal, Incorporated, Advanced Technology Group, September 13, 1991, Pittsburgh, Pennsylvania.
- “An Introduction to Coding Theory”, Union Switch and Signal Incorporated, Advanced Technology Group, October 19-20, 1992, Pittsburgh, Pennsylvania.
- “Modeling of Fault-Tolerant Systems Using VHDL”, Dependability Working Group Meeting, IBM, Federal Systems Company, December 7, 1992, Manassas, Virginia.
- “Fault Simulation Using VHDL”, Dependability Working Group Meeting, University of Texas at Austin, March 9, 1993, Austin, Texas.
- “A Modular Input/Output Architecture for a Safety-Critical System”, Union Switch and Signal, Incorporated, Advanced Technology Group, October 13-14, 1995, Pittsburgh, Pennsylvania.
- “Microelectronics Technology for Industry”, Virginia's Center for Innovative Technology, July 18, 1996, Herndon, Virginia.
- “Distributed Safety-Critical Systems Using Commercial Off The Shelf Components”, International Workshop on Fault Tolerant Parallel and Distributed Systems, April 5, 1997, Geneva, Switzerland.
- “A Safety-Critical System for Real-Time Control Applications”, Nuclear Regulatory Commission, April 10, 1997, Rockville, Maryland.
- “Dependable Computing for Safety-Critical Applications”, Institution of Electrical Engineers (IEE), Distinguished Speaker Series, September 17, 1997, London, United Kingdom.
- “Real-Time Safety-Critical Systems”, Distinguished Lecturer Series, IEEE Tokyo Section, March 16, 1998, Tokyo, Japan.
- “Real-Time Safety-Critical Systems”, Nippon Telephone and Telegraph (NTT) Research and Development Laboratory, Distinguished Speaker Series, March 17, 1998, Tokyo, Japan.
- “Reliability and Safety Modeling of Digital Systems”, Nuclear Regulatory Commission, July 7, 1998, Rockville, Maryland.
- “Safety-Critical Systems for Industrial Control Applications”, Electric Power Research Institute (EPRI), October 20, 1998.
- “Safety-Critical Digital Systems”, IEEE International Conference on Engineering of Complex Computer Systems, August 12, 1998, Monterey, California.
- “Reliability and Safety Modeling of Digital Instrumentation and Control Systems, Cooperative Probabilistic Risk Assessment (COOPRA) Group, Instrumentation and Control Working Group, January 25, 1999, Ottawa, Canada.
- “Safety Assessment of Hardware/Software Systems Using Fault Simulation”, 32nd Annual Simulation Symposium, April 12, 1999, San Diego, California.
- “Reliability and Safety Modeling of Digital Systems”, Advisory Committee on Reactor Safety, Nuclear Regulatory Commission, May 4, 1999, Rockville, Maryland.
- “Reliability and Safety Modeling of Embedded Digital Systems”, Boeing Commercial Airplane Corporation, August 1-2, 1999, Seattle, Washington.

“Safety Assessment of Hardware/Software Systems”, Nuclear Regulatory Commission, Invited Panel of Experts, September 15, 1999, Rockville, Maryland.

“PROTEUS: A Generic Architecture and Approach for Safety-Critical Systems”, NASA Langley Research Center, December 3, 1999, Hampton, Virginia.

“Issues in the Design and Assessment of Safety-Critical Digital Systems”, GE-Harris International Users’ Conference, March 30, 2000, Orlando, Florida.

“Safety Assessment of Complex Digital Systems”, International Atomic Energy Agency, December 4, 2000, Halden, Norway.

“PROTEUS: A Generic Architecture and Approach for Safety-Critical Systems”, International Atomic Energy Agency, December 4, 2000, Halden, Norway.

“An Algorithm-Based Approach to Safety-Critical Systems Design”, Annual IEEE Workshop on Fault-Tolerant Parallel and Distributed Systems, April 23, 2001, San Francisco, California.

“An Algorithm-Based Approach to Safety-Critical Systems Design”, IEEE International On-Line Testing Workshop, Taormina, Sicily, July 9-11, 2001 (Keynote Presentation).

“Safety Assessment of Complex Hardware/Software Systems”, Electric Power Research Institute (EPRI) Digital Instrumentation and Control Advisory Committee, January 28, 2002, Pasadena, California.

“Biometric Security Solutions”, Virginia Trucking Association, Charlottesville Virginia, August 18, 2003.

“Security and Privacy Using a Trusted Biometric Device”, MitreTek Systems, Biometrics Technology Speaker Series, Alexandria, Virginia, April 14, 2004.

“Single Device for Security Access Without a Central Biometric Database”, Booz Allen Hamilton, Biometrics Technology Speaker Series, McLean, Virginia, November 11, 2004.

“Contactless Technology in Logical and Physical Convergence”, CardTech SecurTec Conference, Las Vegas, Nevada, April 12, 2005.

“Universal Personal Biometric Devices for Physical and Logical Access”, National Institute of Standards and Technology, Security Research Division, Bethesda, Maryland, November 1, 2006.

“Universal Personal Biometric Devices for Physical and Logical Access”, Michigan State University, Department of Computer Science and Engineering, East Lansing, Michigan, November 30, 2006.

“Biometrics in Advanced Card and ID Security”, CardTech SecurTec Conference, San Francisco, California, May 15, 2007.

“Introduction to Biometrics”, CardTech SecurTec Conference, San Francisco, California, May 16, 2007.

“Advancements in Biometrics and Identity Verification”, Biometrics Summer School Program, Sardinia, Italy, June 12, 2008.

“Hardware and Software Architectures for Secure Biometrics Systems”, International Conference on Pattern Recognition”, Tampa, Florida, December 8, 2008.

“Advanced Manufacturing Partnership”, National Governors Association, Seattle, Washington, January 25, 2012.

“Advanced Manufacturing Partnership”, National Governors Association, Omaha, Nebraska, April 25, 2012.

“Advanced Manufacturing Partnership”, National Governors Association, Denver, Colorado, July 19, 2012.

“Public-Private Partnerships”, VCU Energy and Sustainability Conference, Richmond, Virginia, January 30, 2013.

- “Manufacturing and Higher Education Research and Development Collaboration”, North Carolina State University 28th Annual Emerging Issues Forum, Raleigh, North Carolina, February 12, 2013.
- “Advanced Manufacturing Workforce Development”, Innovation in Manufacturing Conference (Virginia Tech), Roanoke, Virginia, April 23, 2013.
- “Commonwealth Center for Advanced Logistics Systems”, Logistics Forum, Virginia State University, Petersburg, Virginia, May 14, 2013.
- “Advanced Manufacturing Partnership”, National Governors Association, Chicago, Illinois, November 15, 2013.
- “Advanced Manufacturing Innovation Zone”, International Economic Developers Conference, Alexandria, Virginia, March 24, 2014.
- “Commonwealth Center for Advanced Manufacturing”, MODSIM World 2014, Hampton, Virginia, April 17, 2014.
- “Commonwealth Center for Advanced Logistics Systems”, MODSIM World 2014, Hampton, Virginia, April 17, 2014.
- “Commonwealth Center for Advanced Manufacturing”, The 2014 International Conference on Research Facilities”, San Diego, California, May 5, 2014.
- “Commonwealth Center for Advanced Manufacturing”, Keynote Speaker, 2014 Annual Meeting, National Modeling and Simulation Consortium, Arlington, Virginia, July 9, 2014.
- “STTR Program at the National Science Foundation”, The National Academies of Sciences, Engineering, and Medicine, Washington, DC, April 1, 2015.
- “Industrial Innovation and Partnerships at the National Science Foundation”, Korea Joint Committee Meeting, Seoul, Korea, March 30-31, 2016.
- “Industrial Innovation and Partnerships at the National Science Foundation”, Association of American Universities, April 5, 2016.
- “Advanced Manufacturing Partnerships”, Economic Development Administration (EDA) Global Economic Development Conference, Washington, DC, April 8, 2016.
- “SBIR-STTR Program at the National Science Foundation”, The National Academies of Sciences, Engineering, and Medicine, Washington, DC, April 12, 2016.
- “Third-Party Support for University-Industry Collaborations”, University-Industry Demonstration Partnership Annual Meeting (UIDP 22), University of Nebraska, Lincoln, Nebraska, April 14, 2016.
- “Industrial Innovation and Partnerships at the National Science Foundation”, Milwaukee Engineering Research Conference, Milwaukee, Wisconsin, May 5, 2016.
- “Industrial Innovation and Partnerships at the National Science Foundation”, 2016 Government Cyber Security Small Business Innovation Research (SBIR) Workshop, August 31, 2016.
- “The NSF Directorate for Engineering”, Annual Meeting of the ASEE Engineering Research Council, March 6-8, 2017, Arlington, Virginia.
- “The NSF Directorate for Engineering”, Annual Meeting of the Electrical and Computer Engineering Department Heads Association (ECEDHA), Miramar Beach, Florida, March 17-21, 2017.
- “I-Corps Program at the National Science Foundation”, National Governors Association, Annapolis, Maryland, July 21, 2017.
- “Industry University Partnerships at the National Science Foundation”, State University of New York (SUNY) Corporate Bootcamp, Albany, New York, October 19, 2017.
- “Federal Funding of Research and Innovation”, State University of New York (SUNY) Federal Research Forum, Washington, DC, October 25, 2017.

- “Fostering Research and Development Through Public-Private Partnerships at the National Science Foundation”, Estonian National Academy of Sciences, Tallinn, Estonia, April 11-12, 2018.
- “National Science Foundation Collaboration Highlights”, University-Industry Demonstration Partnership (UIDP 26), San Jose, California, April 19, 2018.
- “Fostering Research and Innovation through Partnerships”, Innovation Research Interchange (IRI), Annual Meeting, Atlanta, Georgia, June 5, 2018.
- “Funding Social Innovations”, MIT Tata Center for Technology and Design, 4th Annual Symposium and Workshop, Cambridge, Massachusetts, September 27-28, 2018.
- “NSF Support for Research in the 21st Century Innovation Environment”, Government University Industry Research Roundtable, National Academy of Engineering, Washington, DC, October 17, 2018.
- “NSF Support for Research and Innovation”, Apple, Inc., Cupertino, California, November 7, 2018.
- “NSF Support for Research and Innovation”, Pennsylvania State University, State College, Pennsylvania, November 27, 2018.
- “Startup Accelerators and Supporting Federal Programs”, Commonwealth of Virginia, University-Based Economic Development (UBED) Meeting, Charlottesville, Virginia, June 12, 2019.

PATENTS

- Peterson, R. A., Giras, T. C., Mackey, L. C., Disk, D. R., Brown, R. G., Johnson, B. W., and Profeta, J. A., “Traffic Control System Utilizing On-Board Vehicle Information Measurement Apparatus”, United States Patent No. 5,332,180, July 26, 1994.
- Smith, D. T., Johnson, B. W., Giras, T. C., and Profeta, III, J. A., “A Malicious Fault List Generation Method”, United States Patent No. 5,561,762, October 1, 1996.
- Abdallah, D. S., Johnson, B. W., and Olvera, K. R., “A Man-Machine Interface for Controlling Access to Electronic Devices”, United States Patent No. 7,420,546, September 2, 2008.
- Abdallah, D. S., Johnson, B. W., and Olvera, K. R., “A Man-Machine Interface for Controlling Access to Electronic Devices”, United States Patent No. 7,525,537, April 28, 2009.
- Johnson, B. W., Olvera, K. R., Tillack, J. A., and Russell, D. C., “In-circuit Security System and Methods for Controlling Access to and Use of Sensitive Data”, United States Patent No. 7,587,611 September 8, 2009.
- Abdallah, D. S., and Johnson, B. W., “Methods for Secure Enrollment and Backup of Personal Identity Credentials into Electronic Devices”, United States Patent No. 7,590,861, September 15, 2009.
- Abdallah, D. S., Johnson, B. W., and Olvera, K. R., “A Man-Machine Interface for Controlling Access to Electronic Devices”, United States Patent No. 7,688,314, March 30, 2010.
- Abdallah, D. S., and Johnson, B. W., “Personal Authentication Software and Systems for Travel Privilege Assignment and Verification”, Japan Patent No. 4519645, May 28, 2010.
- Russell, D. C., Johnson, B. W., and Olvera, K. R., “System and Methods for Assignment and Use of Media Content Subscription Service Privileges”, United States Patent No. 7,783,892, August 24, 2010.
- Abdallah, D. S., and Johnson, B. W., “Methods for Secure Backup of Personal Identity Credentials into Electronic Devices”, United States Patent No. 7,788,501, August 31, 2010.
- Abdallah, D. S., and Johnson, B. W., “Methods for Secure Enrollment and Backup of Personal Identity Credentials into Electronic Devices”, Japan Patent No. 4619119, November 5, 2010.

- Russell, D. C., Johnson, B. W., and Olvera, K. R., "System and Methods for Assignment and Use of Media Content Subscription Service Privileges", Japan Patent No. 4680918, February 10, 2011.
- Johnson, B. W., Olvera, K. R., Tillack, J. A., and Russell, D. C., "In-circuit Security System and Methods for Controlling Access to and Use of Sensitive Data", Canada Patent No. 2,527,836, February 15, 2011.
- Russell, D. C., Johnson, B. W., and Olvera, K. R., "System and Methods for Assignment and Use of Media Content Subscription Service Privileges", Canada Patent No. 2,527,826, July 26, 2011.
- Abdallah, D. S., and Johnson, B. W., "Methods for Secure Enrollment and Backup of Personal Identity Credentials into Electronic Devices", United States Patent No. 8,055,906, November 8, 2011.
- Abdallah, D. S., and Johnson, B. W., "Methods for Secure Enrollment and Backup of Personal Identity Credentials into Electronic Devices", United States Patent No. 8,001,372, August 16, 2011.
- Abdallah, D. S., and Johnson, B. W., "Methods for Secure Enrollment and Backup of Personal Identity Credentials into Electronic Devices", United States Patent No. 8,127,143, February 28, 2012.
- Russell, D. C., Johnson, B. W., and Olvera, K. R., "System and Methods for Assignment and Use of Media Content Subscription Service Privileges", United States Patent No. 8,327,152, December 4, 2012.
- Johnson, B. W., Olvera, K. R., Tillack, J. A., and Russell, D. C., "In-circuit Security System and Methods for Controlling Access to and Use of Sensitive Data", European Patent No. 1629624, March 20, 2013, (Registered in Denmark, Finland, France, Germany, Ireland, Italy, Norway, Romania, Sweden, and United Kingdom).
- Russell, D. C., Johnson, B. W., and Olvera, K. R., "System and Methods for Assignment and Use of Media Content Subscription Service Privileges", Japan Patent No. 5227381, March 22, 2013.
- Abdallah, D. S., and Johnson, B. W., "Methods for Secure Enrollment and Backup of Personal Identity Credentials into Electronic Devices", United States Patent No. 8,407,480, March 26, 2013.
- Johnson, B. W., Olvera, K. R., Tillack, J. A., and Russell, D. C., "In-circuit Security System and Methods for Controlling Access to and Use of Sensitive Data", Japan Patent No. 5248548, April 19, 2013.
- Johnson, B. W., and Abdallah, D. S., "Methods for Secure Restoration of Personal Identity Credentials Into Electronic Devices", United States Patent No. 8,478,992, July 2, 2013.
- Johnson, B. W., Olvera, K. R., Tillack, J. A., and Russell, D. C., "In-circuit Security System and Methods for Controlling Access to and Use of Sensitive Data", United States Patent No. 8,495,382, July 23, 2013.
- Abdallah, D. S., and Johnson, B. W., "Methods for Secure Enrollment and Backup of Personal Identity Credentials into Electronic Devices", Canada Patent No. 2,494,299, October 8, 2013.
- Russell, D. C., Johnson, B. W., and Petka, D. M., "Biometric Identification Device and Methods for Secure Transactions", United States Patent No. 8,566,250, October 22, 2013.
- Abdallah, D. S., and Johnson, B. W., "Personal Authentication Software and Systems for Travel Privilege Assignment and Verification", Japan Patent No. 5424905, December 6, 2013.

- Russell, D. C., Johnson, B. W., and Olvera, K. R., “System and Methods for Assignment and Use of Media Content Subscription Service Privileges”, United States Patent No. 8,788,813, July 22, 2014.
- Abdallah, D. S., and Johnson, B. W., “Methods for Secure Enrollment and Backup of Personal Identity Credentials into Electronic Devices”, United States Patent No. 8,826,031, September 2, 2014.
- Abdallah, D. S., Johnson, B. W., and Olvera, K. R., “An Electronic Device, a Method, and a Computer-Readable Storage Medium”, European Patent No EP 1629460 B1, May 13, 2015, (Registered in Denmark, Finland, France, Germany, Ireland, Italy, Norway, Romania, Sweden, and United Kingdom).
- Johnson, B. W., Olvera, K. R., Tillack, J. A., and Russell, D. C., “In-circuit Security System and Methods for Controlling Access to and Use of Sensitive Data”, United States Patent No. 9,124,930, September 1, 2015.
- Abdallah, D. S., and Johnson, B. W., “Methods for Secure Restoration of Personal Identity Credentials into Electronic Devices”, United States Patent No. 9,160,537, October 13, 2015.
- Abdallah, D. S., and Johnson, B. W., “Methods for Secure Enrollment and Backup of Personal Identity Credentials into Electronic Devices”, United States Patent No. 9,270,464, February 23, 2016.
- Russell, D. C., Johnson, B. W., and Riemenschneider, K. R., “System and Methods for Assignment and Use of Media Content Subscription Service Privileges”, United States Patent No. 9,319,405, April 19, 2016.
- Abdallah, D. S., and Johnson, B. W., “Man-Machine Interface for Controlling Access to Electronic Devices”, United States Patent No. 9,342,674, May 17, 2016.
- Russell, D. C., Johnson, B. W., and Petka, D. M., “Biometric Identification Device”, United States Patent No. 9,659,297, May 23, 2017.
- Abdallah, D. S., and Johnson, B. W., “Methods for Secure Enrollment and Backup of Personal Identity Credentials into Electronic Devices”, United States Patent No. 9,716,698, July 25, 2017.
- Johnson, B. W., Riemenschneider, K. R. O., Russell, D. C., and Tillack, J. A., “In-circuit Security System and Methods for Controlling Access to and Use of Sensitive Data”, United States Patent No. 9,923,884, March 20, 2018.
- Abdallah, D. S., and Johnson, B. W., “Methods for Secure Restoration of Personal Identity Credentials into Electronic Devices”, United States Patent No. 9,979,709, May 22, 2018.
- Russell, D. C., Singer, B. A., Petka, D. M., and Johnson, B. W., “Methods, Systems, and Apparatuses for Secure Transactions”, United States Patent No. 10,332,114, June 25, 2019.

CITATIONS

Source – Google Scholar, November 6, 2021
 Total Citations – 5,163
 h-index – 33
 i10-index – 77

MAJOR GOVERNMENT REPORTS

T. Aldemir, M. P. Stovsky, J. Kirschenbaum, D. Mandelli, P. Bucci, L. A. Mangan, D. W. Miller, X. Sun, E. Ekici, S. Guarro, M. Yau, B. Johnson, C. Elks, and S. A. Arndt, “Dynamic Reliability Modeling of Digital Instrumentation and Control Systems for Nuclear Reactor

Probabilistic Risk Assessment”, Nuclear Regulatory Guidance (NUREG), NUREG/CR-6942, Office of Nuclear Regulatory Research, United States Nuclear Regulatory Commission, October 2007, (290 pages).

- T. Aldemir, S. Guarro, J. Kirschenbaum, D. Mandelli, L. A. Mangan, P. Bucci, M. Yau, B. Johnson, C. Elks, E. Ekici, M. P. Stovsky, D. W. Miller, X. Sun, S. A. Arndt, Q. Nguyen, and J. Dion, “A Benchmark Implementation of Two Dynamic Methodologies for the Reliability Modeling of Digital Instrumentation and Control Systems”, Nuclear Regulatory Guidance (NUREG), NUREG/CR-6985, Office of Nuclear Regulatory Research, United States Nuclear Regulatory Commission, February 2009, (152 pages).
- C. R. Elks, N. J. George, M. A. Reynolds, M. Miklo, C. Berger, S. Bingham, M. Sekhar, and B. W. Johnson, “Development of a Fault Injection-Based Dependability Assessment Methodology for Digital Instrumentation and Control Systems”, Nuclear Regulatory Guidance (NUREG), NUREG/CR-7151 V1, Office of Nuclear Regulatory Research, United States Nuclear Regulatory Commission, December 2012, (201 pages).
- C. R. Elks, N. J. George, M. A. Reynolds, M. Miklo, C. Berger, S. Bingham, M. Sekhar, and B. W. Johnson, “Development of a Fault Injection-Based Dependability Assessment Methodology for Digital Instrumentation and Control Systems”, Nuclear Regulatory Guidance (NUREG), NUREG/CR-7151 V2, Office of Nuclear Regulatory Research, United States Nuclear Regulatory Commission, December 2012, (193 pages).
- C. R. Elks, N. J. George, M. A. Reynolds, M. Miklo, C. Berger, S. Bingham, M. Sekhar, and B. W. Johnson, “Development of a Fault Injection-Based Dependability Assessment Methodology for Digital Instrumentation and Control Systems”, Nuclear Regulatory Guidance (NUREG), NUREG/CR-7151 V3, Office of Nuclear Regulatory Research, United States Nuclear Regulatory Commission, December 2012, (145 pages).
- C. R. Elks, N. J. George, M. A. Reynolds, M. Miklo, C. Berger, S. Bingham, M. Sekhar, and B. W. Johnson, “Development of a Fault Injection-Based Dependability Assessment Methodology for Digital Instrumentation and Control Systems”, Nuclear Regulatory Guidance (NUREG), NUREG/CR-7151 V4, Office of Nuclear Regulatory Research, United States Nuclear Regulatory Commission, December 2012, (57 pages).

PUBLICATIONS

Books

Johnson, B. W., *Design and Analysis of Fault-tolerant Digital Systems*, Addison-Wesley Publishing Company, Reading, Massachusetts, 1989 (584 pages).

Kumar, S. K., Aylor, J. H., Johnson, B. W., and Wulf, W. A., *The Co-Design of Embedded Systems: A Unified Hardware/Software Representation*, Kluwer Academic Publishers, Boston, Massachusetts, 1996 (274 pages).

Book Chapters and Contributions

Johnson, B. W., “Fault-tolerant Microprocessor-based Systems”, Chapter 1, pp. 1-30, in *Fault Tolerant Systems*, McGraw-Hill Book Company Japan, Ltd., Tokyo, Japan, edited and translated by Eiichi Watanabe, 1986 (in Japanese).

Belfore, II, L. A., Johnson, B. W., and Aylor, J. H., “The Design of Inherently Fault-Tolerant Systems”, Chapter 28, pp. 565-583, in *Concurrent Computations --Algorithms*,

Architecture, and Technology, Plenum Press, New York, New York, edited by S. K. Tewksbury, B. W. Dickinson, and S. C. Schwartz, 1988.

- Johnson, B. W., Aylor, J.H., and Hana, H. H., “An Efficient Approach to Concurrent Error Detection in VLSI Adder Circuits,” Chapter 4, pp. 180-187, in *Computer Arithmetic - Volume I*, IEEE Computer Society Press, Los Alamitos, California, edited by E. E. Swartzlander, Jr., 1990 (reprinted from *IEEE Journal of Solid State Circuits*, Vol. 23, No. 1, February 1988, pp. 208-215).
- Aylor, J. H., Waxman, R., Johnson, B. W., and Williams, R. D., “The Integration of Performance and Functional Modeling in VHDL”, Chapter 2, pp. 22-145, in *Performance and Fault Modeling in VHDL*, Prentice-Hall Publishing Company, Englewood Cliffs, New Jersey, edited by Joel Schoen, 1992.
- Johnson, B. W., “Fault-Tolerant Computing”, in *The Electrical Engineering Handbook*, CRC Press, Incorporated, Boca Raton, Florida, edited by R. C. Dorf, pp. 2020-2031, 1993.
- Johnson, B. W., “Fundamentals of Fault-Tolerant System Design”, in *Fault-Tolerant Computing: Theory and Techniques*, Prentice-Hall Publishing Company, Englewood Cliffs, New Jersey, edited by D. K. Pradhan, pp. 1-74, 1996.
- Johnson, B. W., “Fault-Tolerant Computing”, in *The Electrical Engineering Handbook – Second Edition*, CRC Press, Incorporated, Boca Raton, Florida, edited by R. C. Dorf, pp. 2020-2031, 1997.
- Johnson, B. W. and Perrone, P. J., “Distributed Safety-Critical Systems”, in *Fault-Tolerant Parallel and Distributed Systems*, Kluwer Academic Publishers, Boston, Massachusetts, pp. 173-194, 1998.
- Yu, Y. and Johnson, B. W., “Fault Injection Techniques – A Perspective on the State of Research”, in *Fault Injection Techniques and Tools for Embedded Systems Reliability Evaluation*, Kluwer Academic Publishers, Boston, Massachusetts, pp. 7-39, 2003.

Journal Articles

- Ramey, R. L., Aylor, J. H., Johnson, B. W. and Swanson, C. T., “Hum-Controlled Electric Wheelchair”, *Medical and Biological Engineering and Computing*, Vol. 17, No. 6, November 1979, pp. 776-778.
- Aylor, J. H., Johnson, B. W. and Ramey, R. L., “The Impact of Microcomputers on Devices to Aid the Handicapped”, *IEEE Computer*, Vol. 14, No. 1, January 1981, pp. 35-40.
- Ramey, R. L., Johnson, B. W. and Aylor, J. H., “Microcomputer-Based Aid for the Handicapped Computer Programmer”, *Medical and Biological Engineering and Computing*, Vol. 20, No. 5, September 1982, pp. 640-644.
- Aylor, J. H., Ramey, R. L., Johnson, B. W., and Reger, S. I., “Motion Analysis by Raster Scan Image Source and Image Processing Techniques”, *IEEE Transactions on Instrumentation and Measurement*, Vol. 33, No. 4, December 1984, pp. 301-306.
- Johnson, B. W., “Fault Tolerant Microprocessor-Based Systems”, *IEEE Micro*, Vol. 4, No. 6, December 1984, pp. 6-21.
- Johnson, B. W. and Julich, P. M., “Fault Tolerant Computer System for the A129 Helicopter”, *IEEE Transactions on Aerospace and Electronic Systems*, Vol. AES-21, No. 2, March 1985, pp. 220-229.

- Johnson, B. W. and Aylor, J. H., "Dynamic Modeling of an Electric Wheelchair", *IEEE Transactions on Industry Applications*, Vol. IA-21, No. 5, September/October 1985, pp. 1284-1293.
- Johnson, B. W. and Aylor, J. H., "Design of an Adaptive Controller for Microcomputer Implementation", *IEEE Transactions on Industrial Electronics*, Vol. IE-33, No. 1, February 1986, pp. 28-38.
- Aylor, J. H., Johnson, B. W., and Rector, B. J., "Structured Design for Testability in Semicustom VLSI", *IEEE Micro*, Vol. 6, No. 1, February 1986, pp. 51-58.
- Johnson, B. W. and Aylor, J. H., "Reliability and Safety Analysis of a Fault-tolerant Controller", *IEEE Transactions on Reliability*, Vol. R-35, No. 4, October 1986, pp. 355-362.
- Johnson, B. W., "Guest Editor's Introduction", *IEEE Micro*, Special Issue on Multiprocessing, Vol. 6, No. 5, October 1986, pg. 5.
- Johnson, B. W., "A Course on the Design of Reliable Digital Systems", *IEEE Transactions on Education*, Vol. E-30, No. 1, February 1987, pp. 27-36, (Received Best Paper Award for 1987).
- Brown, K. E., Inigo, R. M., and Johnson, B. W., "An Adaptable Optimal Controller for Electric Wheelchairs", *Journal of Rehabilitation Research and Development*, Vol. 24, No. 2, Spring 1987, pp. 87-98.
- Johnson, B. W., Aylor, J. H., and Hana, H. H., "Efficient Use of Time and Hardware Redundancy for Concurrent Error Detection in a 32-bit VLSI Adder", *IEEE Journal of Solid-State Circuits*, Vol. 23, No. 1, February 1988, pp. 208-215.
- Williams, R. D., Johnson, B. W., and Roberts, T. E., "An Operating System for a Fault-Tolerant Multiprocessor Controller", *IEEE Micro*, Vol. 8, No. 4, August 1988, pp. 18-29.
- Belfore, II, L. A. and Johnson, B. W., "The Fault Tolerance Characteristics of Neural Networks", *The International Journal of Neural Networks Research and Applications*, Vol. 1, No. 1, January 1989, pp. 24-41.
- Brown, K. E., Inigo, R. M., and Johnson, B. W., "Design, Implementation, and Testing of an Adaptable Optimal Controller for an Electric Wheelchair", *IEEE Transactions on Industry Applications*, Vol. 26, No. 6, November/December 1990, pp. 1144-1157.
- Aylor, J. H., Cohoon, J. P., Feldhousen, E. L., and Johnson, B. W., "GATE -- A Genetic Algorithm for Compacting Randomly Generated Test Sets", *International Journal of Computer Aided VLSI Design*, Vol. 3, No. 3, November 1991, pp. 259-272.
- Belfore, II, L. A. and Johnson, B. W., "The Analysis of the Faulty Behavior of Synchronous Neural Networks", *IEEE Transactions on Computers*, Vol. 40, No. 12, December 1991, pp. 1424-1429.
- Aylor, J. H., Thieme, A., and Johnson, B. W., "A Battery State-of-Charge Indicator for Electric Wheelchairs", *IEEE Transactions on Industrial Electronics*, Vol. 39, No. 5, October 1992, pp. 398-409.

- Salinas, M. H., Johnson, B. W., and Aylor, J. H., "Implementation Independent Model of an Instruction Set Architecture Using VHDL", *IEEE Design and Test of Computers*, Vol. 10, No. 3, September 1993, pp. 42-54.
- Kumar, S., Aylor, J. H., Johnson, B. W., and Wulf, W. A., "A Framework for Hardware/Software Codesign", *IEEE Computer*, Vol. 26, No. 12, December 1993, pp. 39-45.
- Kumar, S., Aylor, J. H., Johnson, B. W., and Wulf, W. A., "Object-Oriented Techniques in Hardware Design", *IEEE Computer*, Vol. 27, No. 6, June 1994, pp. 64-70.
- Welke, S. R., Johnson, B. W., and Aylor, J. H., "Reliability Modeling of Hardware-Software Systems", *IEEE Transactions on Reliability*, Vol. 44, No. 3, September 1995, pp. 413-418.
- Smith, D. T., Johnson, B. W., and Profeta, III, J. A., "System Dependability Evaluation Using a Fault List Generation Algorithm", *IEEE Transactions on Computers*, Vol. 45, No. 8, August 1996, pp. 974-979.
- Kumar, S., Klenke, R. H., Aylor, J. H., Johnson, B. W., Williams, R. D., and Waxman, R., "ADEPT: A Unified Environment for End-to-End System Design", *Journal on Current Issues in Electronic Modeling*, Kluwer Academic Publishing, 1996, pp. 55-82.
- DeLong, T. A., Johnson, B. W., and Profeta, III, J. A., "A Fault Injection Technique for VHDL Behavioral-Level Models", *IEEE Design and Test of Computers*, Vol. 13, No. 4, Winter 1996, pp. 24-33.
- Profeta, III, J. A., Andrianos, N. P., Yu, B., Johnson, B. W., DeLong, T. A., Guaspari, D., and Jamsek, D., "Safety-Critical Systems Built with COTS Modules", *IEEE Computer*, Vol. 29, No. 11, November 1996, pp. 54-60.
- Kumar, S., Aylor, J. H., Johnson, B. W., and Wulf, W. A., "Object-Oriented Modeling of Hardware/Software for Embedded Systems", *Journal on Current Issues in Electronic Modeling*, Vol. 7, Kluwer Academic Publishers, 1996.
- Kumar, S., Aylor, J. H., Johnson, B. W., Wulf, W. A., and Williams, R. D., "A Model for Exploring Hardware/Software Trade-Offs and Evaluating Design Alternatives", *Journal on Current Issues in Electronic Modeling*, Volume 8, Kluwer Academic Publishers, 1996.
- Choi, C. Y., Johnson, B. W., and Profeta, III, J. A., "Safety Issues in the Comparative Analysis of Dependable Architectures", *IEEE Transactions on Reliability*, Vol. 46, No. 3, September 1997, pp. 316-322.
- Smith, D. T., Johnson, B. W., Andrianos, N., and Profeta, III, J. A., "A Variance Reduction Technique Using Fault Expansion for Fault Coverage Estimation", *IEEE Transactions on Reliability*, Vol. 46, No. 3, September 1997, pp. 366-374.
- Avresky, D. R., Grosspietsch, K. E., Johnson, B. W., and Lombardi, F., "Embedded Fault-Tolerant Systems", *IEEE Micro*, Special Issue on Embedded Fault-Tolerant Systems, Vol. 18, No. 5, September-October 1998, pp. 8-11.

- Kaufman, L. M., Bechta Dugan, J., and Johnson, B. W., "Using Statistics of Extremes for Software Reliability Analysis", *IEEE Transactions on Reliability*, Vol. 48, No. 3, September 1999, pp. 292-299.
- Kaufman, L. M., Johnson, B. W., and Bechta Dugan, J., "Coverage Estimation Using Statistics of Extremes for When Testing Reveals No Failures", *IEEE Transactions on Computers*, Vol. 51, No. 1, January 2002, pp. 3-12.
- Avresky, D., Lombardi, F., Grosspietsch, K. E., and Johnson, B. W., "Fault-Tolerant Embedded Systems", Guest Editors' Introduction, *IEEE Micro*, Vol. 21, No. 5, September/October 2001, pp. 12-15.
- Avresky, D., Johnson, B. W., and Lombardi, F., "Fault-Tolerant Embedded Systems", Guest Editors' Introduction, *IEEE Transactions on Computers*, Vol. 51, No. 2, February 2002, pp. 97-99.
- DeLong, T. A., Smith, D. T., and Johnson, B. W., "Dependability Metrics to Assess Safety-Critical Systems", *IEEE Transactions on Reliability*, Vol. 54, No. 3, September 2005, pp. 498-505.
- Yu, Y. and Johnson, B. W., "System Safety Modeling and Assessment Using Ternary Decision Diagrams", *Proceedings of the Institute of Mechanical Engineers – Journal of Reliability and Risk Assessment*, Vol. 221, No. 3, 2007, pp. 165-176.
- Aldemir, T., Guarro, S., Kirschenbaum, J., Mandelli, D., Mangan, L. A., Bucci, P., Yau, M., Johnson, B. W., Elks, C. R., Ekici, E., Stovsky, M. P., Miller, D. W., Sun, X., and Arndt, S. A., "Dynamic Reliability Modeling of Digital Instrumentation and Control Systems in Nuclear Power Plants", *Transactions of the American Nuclear Society*, Vol. 100, 2009, pp. 207-209.
- Yu, Y. and Johnson, B. W., "Safety Assessment for Safety-critical Systems using Markov Chain Modular Approach", Vol. 18, No. 2, *International Journal of Reliability, Quality and Safety Engineering*, May 2011, pp.1-19.
- Levitin, G., Xing, L., Johnson, B. W., and Dai, Y., "Mission Reliability, Cost and Time for Cold Standby Computing Systems with Periodic Backup", *IEEE Transactions on Computers*, April 2015, Vol. 64, No. 4, pp. 1043-1057.
- Levitin, G., Xing, L., Johnson, B. W., and Dai, Y., "Optimization of Dynamic Spot Checking for Collusion Tolerance in Grid Computing", *Future Generation Computer Systems*, North Holland Publishing Company, Vol. 86, No. 1, January 2018, pp. 30-38.
- Johnson, B. W., "The National Science Foundation: Innovation Through Partnerships", *Journal of Research-Technology Management*, Vol. 61, No. 6, November-December 2018, pp. 31-36.

Conference Papers

- Ramey, R. L., Aylor, J. H., and Johnson, B. W., "A Wheelchair Mounted Manipulator Controller", *Proceedings of the IEEE Region 3 Conference Southeastcon*, Nashville, Tennessee, April 1980, pp. 272-274.

- Aylor, J. H. and Johnson, B. W., "A Microcomputer-Based Wheelchair Controller", *Proceedings of the Fourth Annual Conference on Rehabilitation Engineering*, Washington, D. C., August 1981, pp. 87-90.
- Johnson, B. W. and Aylor, J. H., "Modeling of Wheelchair Dynamics for the Design of a Microcomputer-Based Controller", *Proceedings of the IEEE Industrial Electronics and Control Instrumentation Conference*, San Francisco, California, November 1981, pp. 70-75.
- Johnson, B. W. and Aylor, J. H., "The Use of Adaptive Control Principles in the Design of Electric Wheelchair Systems", *Proceedings of the Fourteenth IEEE Southeastern Symposium on System Theory*, April 15-16, 1982, Blacksburg, Virginia, pp. 47-50.
- Johnson, B. W. and Julich, P. M., "Reliability Analysis of the A129 Integrated Multiplex System", *Proceedings of the National Aerospace and Electronics Conference*, May 21-25, 1984, Dayton, Ohio, pp. 1229-1236.
- Aylor, J. H., Inigo, R. M., Johnson, B. W. and Morad, O., "Microcomputer Implemented Adaptive Controller for Electric Wheelchairs", *Proceedings of the Second International Conference on Rehabilitation Engineering*, Ottawa, Canada, June 1984, pp. 218-219.
- Schwab, A. J., Inigo, R. M., and Johnson, B. W., "A Microcomputer Adaptive Controller for Electric Wheelchairs", *Proceedings of the Third International Conference on Rehabilitation Engineering*, Memphis, Tennessee, June 1985, pp. 55-57.
- Johnson, B. W. and Julich, P. M., "The Fault Tolerant Computer System for the A129 Lightweight Combat Helicopter", *Proceedings of the Computers in Aerospace Conference*, Long Beach, California, October 1985, pp. 259-265 (Invited Paper).
- Hana, H. H. and Johnson, B. W., "Concurrent Error Detection in VLSI Circuits", *Proceedings of IEEE SOUTHEASTCON '86*, Richmond, Virginia, March 23-26, 1986, pp. 208-212.
- Williams, R. D., Johnson, B. W., Aylor, J. H., Belfore, L. A., Moore, M. E., and Hagopian, M., "Current Digital Hardware Simulation Techniques", *Proceedings of the International Conference on Modeling and Simulation*, September 3-5, 1986, Williamsburg, Virginia, pp. 75-86.
- Johnson, B. W., Aylor, J. H., and Williams, R. D., "The Application of Fault Tolerance to Microprocessor-based Wheelchair Control Systems", *Proceedings of the 10th Annual Conference on Rehabilitation Technology*, June 19-23, 1987, San Jose, California, pp. 504-506.
- Roberts, T. E. and Johnson, B. W., "A Fault-Tolerant Multiprocessor for Real-Time Control Applications", *Proceedings of the 13th Annual IEEE Industrial Electronics Society Conference*, November 2-6, 1987, Cambridge, Massachusetts, pp. 488-496.
- Johnson, B. W., Aylor, J. H., Williams, R. D., Hagopian, M., and Kyle, Jr., W. K., "Development of Techniques for Quick Assessment of Logic Simulators", *Proceedings of IEEE SOUTHEASTCON '88*, April 10-13, 1988, Knoxville, Tennessee, pp. 92-97.
- Johnson, B. W. and Aylor, J. H., "Reliability and Safety Analysis in Medical Applications of Computer Technology", *Proceedings of the IEEE Symposium on the Engineering of*

Computer-based Medical Systems, Minneapolis, Minnesota, June 8-10, 1988, pp. 96-100.

- Narayanaswamy, L., Aylor, J. H., and Johnson, B. W., "Modeling of an Electric Wheelchair System", *Proceedings of the International Conference of the Association for the Advancement of Rehabilitation Technology*, Montreal, Quebec, Canada, June 25-30, 1988, pp. 286-287.
- Aylor, J. H. and Johnson, B. W., "Dependability Improvements in Electric Wheelchairs Using Fault Tolerant Design Techniques", *Proceedings of the Wheelchair IV Conference*, Charlottesville, Virginia, December 6-8, 1988, pp. 34-44.
- Karppi, S. C., Johnson, B. W., and Aylor, J. H., "Efficient Generation of Tests for Combinational CMOS Circuits", *Proceedings of the 21st IEEE Southeastern Symposium on System Theory*, Tallahassee, Florida, March 26-28, 1989, pp. 684-689.
- Aylor, J. H., Thacker, J. G., Johnson, B. W., Baldwin, D., and Lei, G-M., "Dependability Modeling of Electric Wheelchair Systems", *Proceedings of the International Conference of the Association for the Advancement of Rehabilitation Technology*, New Orleans, Louisiana, June 1989, pp. 5-6.
- Johnson, B. W., "Design and Analysis of Fault-Tolerant Systems for Industrial Applications", *Proceedings of the 4th International Conference on Fault-Tolerant Computing Systems*, Baden-Baden, Germany, September 20-22, 1989, pp. 57-73 (Invited Paper).
- Brown, K. E., Inigo, R. M., and Johnson, B. W., "Design, Implementation, and Testing of an Adaptable Optimal Controller for an Electric Wheelchair", *Proceedings of the IEEE Industry Applications Society 1989 Annual Meeting*, San Diego, California, October 1-5, 1989, pp. 2232-2239.
- Belfore, II, L. A., Johnson, B. W., and Aylor, J. H., "Modeling of Fault Tolerance in Neural Networks", *Proceedings of the 1989 IEEE Industrial Electronics Conference (IECON '89)*, Philadelphia, Pennsylvania, November 6-10, 1989, pp. 753-758.
- Belfore, II, L. A., Johnson, B. W., and Aylor, J. H., "Modeling of Fault Tolerance in Neural Networks", *Proceedings of the International Joint Conference on Neural Networks*, Washington, D.C., January 16-19, 1990, pp. 325-328 (Volume I).
- G. Swaminathan, S. Srinivasan, S. Mitra, J. Minnix, B. W. Johnson, and R. M. Inigo, "Fault Tolerance in Neural Networks", *Proceedings of the International Joint Conference on Neural Networks*, Washington, D.C., January 16-19, 1990, pp. 699-702 (Volume II).
- Q. Xu, C. Jurgens, B. Arrue, J. Minnix, B. W. Johnson, and R. M. Inigo, "A Fault Tolerance Analysis of a Neocognitron Model", *Proceedings of the International Joint Conference on Neural Networks*, Washington, D.C., January 16-19, 1990, pp. 559-562 (Volume II).
- Prasad, R. K., Aylor, J. H., and Johnson, B. W., "A Fault-Tolerant Design for Electric Wheelchair Motor Drives", *Proceedings of the 22nd IEEE Southeastern Symposium on System Theory*, Cookeville, Tennessee, March 11-13, 1990, pp. 420-425.
- Prasad, R. K., Aylor, J. H., and Johnson, B. W., "Redundant DC-DC Converter for Powered Wheelchairs", *Proceedings of the RESNA 13th Annual Conference*, June 17-20, 1990, Washington, D.C, pp. 405-406.

- Jurgens, C. Y., Johnson, B. W., Aylor, J. H., and Thacker, J. G., "A Software Package for the Fault Tolerance Analysis of Electric Wheelchair Systems", *Proceedings of the RESNA 13th Annual Conference*, June 17-20, 1990, Washington, D.C, pp. 45-46.
- Johnson, B. W., "Reliability and Fault Tolerance Issues in Intelligent Computing Systems", *Proceedings of the Fifth IEEE International Symposium on Intelligent Control*, September 5-7, 1990, Philadelphia, Pennsylvania, pp. 267-272 (Invited Paper).
- Swaminathan, G., Aylor, J. H., and Johnson, B. W., "Concurrent Testing of VLSI Circuits Using Conservative Logic", *Proceedings of the IEEE International Conference on Computer Design: VLSI in Computers and Processors*, September 17-19, 1990, Cambridge, Massachusetts, pp. 60-65.
- Aylor, J. H., Cohoon, J. P., Feldhousen, E. L., and Johnson, B. W., "Compacting Randomly Generated Test Sets", *Proceedings of the IEEE International Conference on Computer Design: VLSI in Computers and Processors*, September 17-19, 1990, Cambridge, Massachusetts, pp. 153-156.
- Johnson, B. W., Pet-Edwards, J., and Schwab, A. J., "Conditional Expectations in the Evaluation of Fault-tolerant Systems", *Proceedings of the 1991 IEEE Annual Reliability and Maintainability Symposium*, January 28-31, 1991, Orlando, Florida, pp. 242-247.
- Cutright, E. D., Rao, R., Johnson, B. W., and Aylor, J. H., "An Integrated Design Environment Using VHDL", *Proceedings of the Second Annual IEEE Symposium on Communications, Signal Processing, and ASIC VLSI Design*, March 21-22, 1991, Greensboro, North Carolina, pp. 213-216 (Invited Paper).
- Cutright, E. D., Rao, R., Johnson, B. W., and Aylor, J. H., "Performance Modeling of Fault-Tolerant Systems Using VHDL", *Proceedings of the 1991 IEEE Southeastcon*, April 6-10, 1991, Williamsburg, Virginia, pp. 614-619.
- Salinas, M. H., Johnson, B. W., and Aylor, J. H., "Implementation-Independent Model of an Instruction Set Architecture Using VHDL", *Proceedings of the IEEE International Conference on Computer Design: VLSI in Computers and Processors*, October 14-16, 1991, Cambridge, Massachusetts, pp. 140-145.
- Belfore, II, L. A. and Johnson, B. W., "Fault Modeling of Asynchronous Artificial Neural Networks", *Proceedings of the International Conference on Artificial Neural Networks in Engineering*, November 10-13, 1991, St. Louis, Missouri, pp. 61-66.
- Srinivasan, S., Sarkar, A., Waxman, R., and Johnson, B. W., "Integrating Operational Specification and Performance Modeling", *Proceedings of the IEEE International Workshop on Rapid Systems Prototyping*, June 23-25, 1992, Research Triangle Park, North Carolina, pp. 249-254.
- Gribble, B. R., Aylor, J. H., Jones, S. H., and Johnson, B. W., "The Use of Bit Conserving Logic in Design for Testability", *Proceedings of the 1992 IEEE ASIC Conference and Exhibit*, September 21-25, 1992, Rochester, New York, pp. 376-379.
- Clark, K. A. and Johnson, B. W., "A Fault-Tolerant Solid-State Memory for Spaceborne Applications", *Proceedings of the Government Microelectronics Applications Conference (GOMAC)*, November 9-12, 1992, Las Vegas, Nevada, pp. 441-444.

- Swaminathan, G., Aylor, J. H., and Johnson, B. W., "Model Reduction Techniques Using Colored Petri Nets", *Proceedings of the 1993 TECHCON*, Atlanta, Georgia, October 1993, pp. 291-293.
- Rao, R., Swaminathan, G., Johnson, B. W., and Aylor, J. H., "Synthesis of Reliability Models from Behavioral Performance Models", *Proceedings of the 1994 IEEE Annual Reliability and Maintainability Symposium*, Anaheim, California, January 24-27, 1994, pp. 292-297.
- Cutright, E. D. and Johnson, B. W., "A Simulation-based Approach to Integrated Performance and Reliability Modeling Using VHDL", *Proceedings of the 1994 IEEE Annual Reliability and Maintainability Symposium*, Anaheim, California, January 24-27, 1994, pp. 402-408.
- Gnanasekaran, G., Rao, R., Aylor, J. H., and Johnson, B. W., "A VHDL Based Environment for System Level Design and Analysis", *Proceedings of the VHDL International User's Forum*, Oakland, California, May 1-4, 1994, pp. 110-116.
- Kumar, S., Klenke, R. H., Aylor, J. H., Johnson, B. W., Waxman, R., and Williams, R. D., "ADEPT: An Integrated Environment for End-to-End System Design", *Proceedings of the First Annual Conference on Rapid Prototyping of Application Specific Integrated Circuits (RASSP)*, Washington, DC, August 15-18, 1994, pp. 114-123.
- DeLong, T. A., Johnson, B. W., Profeta, J. A., and Bozzolo, D. G., "Fault Injection in an Instruction Set Architecture Model Using VHDL", *Proceedings of the VHDL International User's Forum*, Washington, DC, November 13-16, 1994, pp. 9.13-9.21.
- Schwab, A. J., Johnson, B. W., and Bechta-Dugan, J., "Analysis Techniques for Real-Time, Fault-Tolerant, VLSI Processing Arrays", *Proceedings of the 1995 IEEE Annual Reliability and Maintainability Symposium*, Washington, DC, January 17-19, 1995, pp. 137-143.
- Smith, D. T., Johnson, B. W., Profeta III, J. A., and Bozzolo, D. G., "A Method to Determine Equivalent Fault Classes for Permanent and Transient Faults", *Proceedings of the 1995 IEEE Annual Reliability and Maintainability Symposium*, Washington, DC, January 17-19, 1995, pp. 418-424.
- Smith, D. T., Johnson, B. W., Profeta III, J. A., and Bozzolo, D. G., "A Malicious Fault List Generation Algorithm for the Evaluation of System Coverage", *Proceedings of the 1995 IEEE Annual Reliability and Maintainability Symposium*, Washington, DC, January 17-19, 1995, pp. 425-432.
- Kumar, S., Aylor, J. H., Johnson, B. W., Wulf, W. A., and Williams, R. D., "An Abstract Hardware/Software Model for Early Performance Evaluation", *Proceedings of the IEEE International Symposium on Systems Engineering of Computer Based Systems*, Phoenix, Arizona, March 6-9, 1995, pp. 140-145.
- Rao, R., Rahman, A., and Johnson, B. W., "Integrated Performance and Dependability Analysis Using the Advanced Design Environment Prototype Tool ADEPT", *Proceedings of the AIAA Computing in Aerospace Conference*, San Antonio, Texas, March 28-30, 1995, pp. 285-300.
- Ghosh, A. K., Johnson, B. W., and Profeta, III, J. A., "System-Level Modeling in the ADEPT Environment of a Distributed Computer System for Real-Time Applications",

- Proceedings of the IEEE International Computer Performance and Dependability Symposium*, Erlangen, Germany, April 24-26, 1995, pp. 194-203.
- Rao, R., Johnson, B. W., Aylor, J. H., and Williams, R. D., "Integrated Performance and Reliability Evaluation Using Information Flow Models", *Proceedings of the Second Annual Conference on Rapid Prototyping of Application Specific Integrated Circuits (RASSP)*, Washington, DC, July 24-27, 1995, pp. 109-114.
- Ghosh, A. K., Johnson, B. W., and Profeta, III, J. A., "A Distributed Safety-Critical System for Real-Time Train Control", *Proceedings of the 21st Annual Conference of the IEEE Industrial Electronics Society (IECON '95)*, Orlando, Florida, November 6-10, 1995, pp. 760-767.
- DeLong, T. A., Ghosh, A. K., Johnson, B. W., and Profeta, III, J. A., "Fault Injection in the Design Process Using VHDL", *Proceedings of the VHDL International Users' Forum*, Boston, Massachusetts, October 15-18, 1995, pp. 3.11-3.20.
- Ghosh, A. K., Johnson, B. W., and Profeta III, J. A., "Safety Evaluation Using Simulation Models", *Proceedings of the 1996 IEEE Annual Reliability and Maintainability Symposium*, Las Vegas, Nevada, January 22-25, 1996, pp. 82-89.
- Rao, R., Rahman, A., and Johnson, B. W., "Reliability Analysis Using the ADEPT-REST Interface", *Proceedings of the 1996 IEEE Annual Reliability and Maintainability Symposium*, Las Vegas, Nevada, January 22-25, 1996, pp. 73-81.
- Kumar, S., Aylor, J. H., Johnson, B. W., Wulf, W. A., and Williams, R. D., "Early Performance Evaluation Using Abstract Hardware/Software Models", *Proceedings of the VHDL International Users' Forum*, Spring Conference, Santa Clara, California, February 27-March 2, 1996, pp. 51-60.
- DeLong, T. A., Smith, D. T., Johnson, B. W., and Hanna, J. P., "Simulator Independent Fault Simulation Using WAVES", *Proceedings of the VHDL International Users' Forum*, Fall Conference, Durham, North Carolina, October 27-30, 1996, pp. 129-138.
- Smith, D. T., DeLong, T. A., Johnson, B. W., and Profeta, III, J. A., "An Algorithm-Based Fault Tolerance Technique for Use in Safety-Critical Applications", *Proceedings of the 1997 IEEE Annual Reliability and Maintainability Symposium*, Philadelphia, Pennsylvania, January 20-23, 1997, pp. 278-285.
- Choi, C. Y., Johnson, B. W., and Bechta-Dugan, J., "Dependable System Co-Design Using Data Flow Models", *Proceedings of the 1997 IEEE Annual Reliability and Maintainability Symposium*, Philadelphia, Pennsylvania, January 20-23, 1997, pp. 263-270.
- Kaufman, L. M., Smith, D. T., Johnson, B. W., and Bechta-Dugan, J., "Software Reliability Parameter Estimation Using Statistics of Extremes", *Proceedings of the 1997 IEEE Annual Reliability and Maintainability Symposium*, Philadelphia, Pennsylvania, January 20-23, 1997, pp. 175-180.
- Ghosh, A. K., Johnson, B. W., and Profeta, III, J. A., "Performing Fault Simulation in Large System Designs", *Proceedings of the 1997 IEEE Annual Reliability and Maintainability Symposium*, Philadelphia, Pennsylvania, January 20-23, 1997, pp. 200-207.

- Perrone, P. J. and Johnson, B. W., "Distributed Safety-Critical Systems", *Proceedings of the Second Annual Workshop on Fault Tolerant Parallel and Distributed Systems*, Geneva, Switzerland, April 5, 1997, pp. 1-20 (Invited Paper).
- Klenke, R. H., Meyassed, M., Aylor, J. H., Johnson, B. W., Rao, R., and Ghosh, A. K., "An Integrated Design Environment for Performance and Dependability Analysis", *Proceedings of the 1997 ACM/IEEE Design Automation Conference*, June 1997, pp. 184-189.
- Klenke, R. H., Aylor, J. H., Johnson, B. W., Choi, C. Y., Meyassed, M., Rao, R., and Dungan, W. W., "Improvements to ADEPT: A VHDL Based Integrated Design Environment for Performance and Dependability Analysis", *Proceedings of the VHDL International User's Forum*, Arlington, Virginia, October 19-22, 1997, pp. 190-199.
- Perrone, P. J. and Johnson, B. W., "Safety-Critical Digital Systems", *Transactions of the 25th Water Reactor Safety Information Meeting*, Bethesda, Maryland, October 20-22, 1997, pp. 110-119 (Invited Paper).
- Smith, D. T., DeLong, T. A., Johnson, B. W., and Giras, T. C., "An Assessment Process for Safety-Critical Systems", *Transactions of the 26th Water Reactor Safety Information Meeting*, Bethesda, Maryland, October 26-28, 1998, pp. 37-38 (Invited Paper).
- Kaufman, L. M. and Johnson, B. W., "The Importance of Fault Detection Coverage in Safety-Critical Systems", *Transactions of the 26th Water Reactor Safety Information Meeting*, Bethesda, Maryland, October 26-28, 1998, pp. 39-40 (Invited Paper).
- Elks, C. R., Johnson, B. W., and Perrone, P. J., "System Level Error Models for Safety-Critical Systems", *Proceedings of the IEEE Automatic Controls Conference*, Philadelphia, Pennsylvania, July 1-3, 1998 (5 pages).
- Kaufman, L. M., Bechta Dugan, J., and Johnson, B. W., "Using Statistics of Extremes for Software Reliability Analysis of Safety-Critical Systems", *Proceedings of the International Symposium on Software Reliability Engineering*, Paderborn, Germany, November 4-7, 1998, pp. 355-363.
- Baucom, R. J., DeLong, T. A., Smith, D. T., and Johnson, B. W., "VHDL-Based Distributed Fault Simulation Using SAVANT", *Proceedings of the National Aerospace Electronics Conference (NAECON)*, Dayton, Ohio, July 13-17, 1998, pp. 565-573.
- Hayne, R. J. and Johnson, B. W., "Behavioral Fault Modeling in a VHDL Synthesis Environment", *Proceedings of the IEEE VLSI Test Symposium*, Dana Point, California, April 25-29, 1999, pp. 333-340.
- Smith, D. T., DeLong, T. A., Johnson, B. W., and Giras, T. C., "Digital Systems Safety Assessment", *Transactions of the 27th Water Reactor Safety Information Meeting*, Bethesda, Maryland, October 25-27, 1999, pp. 541-550 (Invited Paper).
- Elks, C. R., Bechta Dugan, J., and Johnson, B. W., "Reliability Analysis of Hard Real-Time Systems in the Presence of Controller Malfunctions", *Proceedings of the 2000 IEEE Annual Reliability and Maintainability Symposium*, Los Angeles, California, January 24-27, 2000, pp. 58-64.

- Kaufman, L. M., Bhide, S., and Johnson, B. W., "Modeling of Common-Mode Failures in Digital Embedded Systems", *Proceedings of the 2000 IEEE Annual Reliability and Maintainability Symposium*, Los Angeles, California, January 24-27, 2000, pp. 350-357.
- Tillack J. A., Kaufman, L. M., Kannan, K., and Johnson, B. W., "Design Standards and their Application to the Digital Retrofit of Existing Analog Safety-Critical Systems", *Proceedings of the 2000 IEEE Annual Reliability and Maintainability Symposium*, Los Angeles, California, January 24-27, 2000, pp. 345-349.
- Smith, D. T., DeLong, T. A., Johnson, B. W., and Giras, T. C., "Determining the Expected Time to Unsafe Failure Using Established Dependability Metrics", *Proceedings of the High Assurance Systems Engineering Conference*, Albuquerque, New Mexico, November 15-17, 2000, pp. 17-24.
- Smith, D. T., DeLong, T. A., Johnson, B. W., and Giras, T. C., "A Safety Assessment Methodology for Complex Safety-Critical Hardware/Software Systems", *Proceedings of the International Topical Meeting on Nuclear Plant Instrumentation, Control, and Human-Machine Interface Technologies*, Washington, D.C., November 13-17, 2000, 13 pages, (Invited Paper).
- Yu, Y. and Johnson, B. W., "Modeling COTS Systems for Safety-Critical Applications Using System Safety Standards by Bayesian Belief Networks", *Proceedings of the 6th International Conference on Probabilistic Safety Assessment and Management*, June 2002, San Juan, Puerto Rico (6 pages).
- Yu, Y. and Johnson, B. W., "A BBN Approach to Certifying the Reliability of COTS Software Systems", *Proceedings of the 2003 IEEE Annual Reliability and Maintainability Symposium*, January 2003, Washington DC, pp. 19-24.
- Yu, Y. and Johnson, B. W., "A Comparison of Two Safety-Critical Architectures Using the Safety-Related Metrics", *Proceedings of the 2004 IEEE Annual Reliability and Maintainability Symposium*, January 2004, pp. 621-627.
- Yu, Y. and Johnson, B. W., "Coverage Oriented Dependability Analysis for Safety-Critical Computer Systems", *Proceedings of the 22nd International System Safety Conference*, Providence, Rhode Island, August 2-6, 2004 (10 pages).
- Yu, Y. and Johnson, B. W., "The Quantitative Safety Assessment for Safety-Critical Software", *Proceedings of the 29th Annual IEEE/NASA Software Engineering Workshop*, April 6-7, 2005, pp. 150-162.
- Yu, Y., Bastien, B., and Johnson, B. W., "A State of Research Review on Fault Injection Techniques and a Case Study", *Proceedings of the Annual IEEE Reliability and Maintainability Symposium*, January 24-27, 2005, pp. 386-392.
- Yu, Y. and Johnson, B. W., "A Soft Error Mitigation Scheme for Safety-Critical Computer Systems", *Proceedings of the Annual IEEE Reliability and Maintainability Symposium*, January 24-27, 2005, pp. 514-519.
- Yu, Y. and Johnson, B. W., "Safety Assessment for Safety-Critical Systems Including Physical Faults and Design Faults", *Proceedings of the Annual IEEE Reliability and Maintainability Symposium*, January 23-26, 2006, pp. 588-593.

- Yu, Y. and Johnson, B. W., "A Novel Safety-Critical System Modeling Approach Using Ternary Decision Diagrams", *Proceedings of the Annual IEEE Reliability and Maintainability Symposium*, January 23-26, 2006, pp. 582-587.
- Elks, C. R., Yu, Y., and Johnson, B. W., "Quantitative Safety Assessment of Computer Based I&C Systems via Modular Markov Chain Analysis", *Proceedings of the American Nuclear Society Winter Conference, Nuclear Plant Instrumentation and Controls*, November 12-16, 2006, Albuquerque, NM.
- Elks, C. R., George, N., Reynolds, M. A., Sekhar, M., and Johnson, B. W., "Robust Fault Injection for Quantitative Reliability and Risk Assessment: A Demonstration on a Benchmark Digital I&C System", *Proceedings of the International Probabilistic Safety Assessment Conference*, Hong Kong China, May 2008.
- Sekhar, M., Elks, C. R., Williams, R. D., and Johnson, B. W., "Generating Fault Lists for Efficient Fault Injection into Processor based I&C Systems", *Proceedings of the 6th International topical Meeting on Nuclear Plant Instrumentation Control and Human Machine Interface Technology (NPIC&HMIT 2009)*, April 5 - 9, 2009, Knoxville, TN.
- Elks, C. R., Reynolds, M. A., George, N., Aldemir, T., and Johnson, B. W., "Application of Safety Quantification Methodology to a Digital Feedwater Control System: Lessons Learned", *Proceedings of the 6th International topical Meeting on Nuclear Plant Instrumentation Control and Human Machine Interface Technology (NPIC&HMIT 2009)*, April 5 - 9, 2009, Knoxville, TN.
- Elks, C. R., Johnson, B. W., and Reynolds, M. A., "A Perspective on Fault Injection Methods for Nuclear Safety Related Digital I&C Systems", *Proceedings of the 6th International Topical Meeting on Nuclear Plant Instrumentation Control and Human Machine Interface Technology (NPIC&HMIT 2009)*, April 5 - 9, 2009, Knoxville, TN.
- Reynolds, M. A., Elks, C. R., George, N., Sekhar, M., Delong, T. A., and Johnson, B. W., "A Quantitative Safety Assessment Methodology for Safety-Critical Programmable Electronic Systems Using Fault Injection", *Proceedings of the 2009 SAE World Congress*, April 20-23 2009, Cobo Center, Detroit, Michigan. (Outstanding SAE Paper of 2009)
- Aldemir, T., Guarro, S., Kirschenbaum, J., Mandelli, D., Mangan, L. A., Bucci, P., Yau, M., Johnson, B. W., Elks, C. R., Ekici, E., Stovsky, M. P., Miller, D. W., Sun, X., and Arndt, S. A., "Dynamic Reliability Modeling of Digital Instrumentation and Control Systems in Nuclear Power Plants", *Proceedings of the 6th International topical Meeting on Nuclear Plant Instrumentation Control and Human Machine Interface Technology (NPIC&HMIT 2009)*, April 5 - 9, 2009, Knoxville, TN. (Best Paper Award)
- George, N., Elks, C. R., Johnson, B. W., and Lach, J. "Spatial Multi-Bit Soft-Error Tolerance in Logic", *Proceedings of the Dependable Systems and Networks Symposium*, Chicago, IL, June 2010.
- George, N., Elks, C. R., Johnson, B. W., and Lach, J., "Transient Fault Models and Architecture Vulnerability Factor (AVF) Revisited", *Proceedings of the Dependable Systems and Networks Symposium*, Chicago, IL, June 2010.
- Elks, C. R., Reynolds, M. A., Johnson, B. W., George, N., Waterman, M., and Dion, J., "Application of a Fault Injection Based Dependability Assessment Process to a

Commercial Safety Critical Nuclear Reactor Protection System”, *Proceedings of the Dependable Systems and Networks Symposium*, Chicago, Ill, June 2010.

Elks, C. R., Reynolds, M. A., George, N., Miklo, M., Sekhar, M., and Johnson, B. W., “New Fault Injection Methods for Safety Critical Digital I&C Systems: Application to Commercial Safety Grade I&C Platforms”, *Proceedings of the Seventh American Nuclear Society International Topical Meeting on Nuclear Plant Instrumentation, Control and Human-Machine Interface Technologies NPIC&HMIT 2010*, Las Vegas, Nevada, November 7-11, 2010.

Elks, C. R., George, N., and Johnson, B. W., “A Formal Model for Failure and Error Propagation in Digital Embedded Systems”, *Proceedings of the International Topical Meeting on Probabilistic Safety Analysis*, Wilmington, NC. March 13-17, 2011.

Elks, C. R., Reynolds, M. A., George, N., Miklo, M., Sekhar, M., and Johnson, B. W., "A Fault Injection Based Dependability Assessment Methodology for Digital I&C Systems: Application to Commercial Safety Grade I&C Platforms”, *Proceedings of the 23rd Annual NRC Regulatory Information Conference*, Bethesda North Marriott Hotel and Conference Center, March 8-10, 2011.

Yu, Y. and Johnson, B. W., “Safety Sensitivity Analysis for Safety-Critical Systems Using Markov Chain Modular Approach”, *Proceedings of the Annual IEEE Reliability and Maintainability Symposium*, January 23-26, 2012.

Updated November 6, 2021