

VICTOR P. NELSON

Professor

305 Broun Hall

Phone: (334) 844-1849, Fax: (334) 844-1809

E-mail: nelsovp@auburn.edu

Website: <http://www.eng.auburn.edu/~nelsovp>

EDUCATION

- 1978 - Ph.D., Electrical Engineering, Ohio State University
- 1977 - MS, Electrical Engineering, Ohio State University
- 1971 - BSEE, Electrical Engineering, University of Kentucky

EXPERIENCE

Years of experience at Auburn: 32

- 2003 - Present: Professor, Electrical and Computer Engineering, Auburn University
- 1982 - 2003: Associate Professor, Electrical and Computer Engineering, Auburn University
- 1978 - 1982: Assistant Professor, Electrical and Computer Engineering, Auburn University
- 1976 - 1978: Research Assistant, Communication and Control Systems Lab, Ohio State University
- 1975 - 1978: Instructor, Physics, Electrical Engineering, U.S. Naval Nuclear Power School

REGISTERED PROFESSIONAL ENGINEER

- State of Alabama, 1978 - present

SCIENTIFIC AND PROFESSIONAL SOCIETIES

- 2002 - Present: Accreditation Board for Engineering and Technology (ABET) - Program Evaluator
- Association for Computing Machinery
- American Society for Engineering Education (ASEE)
- IEEE Computer Society
- IEEE Education Society

INSTITUTIONAL AND PROFESSIONAL SERVICES

- 2009 - Present: *Member* - IEEE Committee on Engineering Accreditation Activities (CEAA)
- 2006 - 2007: *Chair, ECE Division* - American Society for Engineering Education (ASEE)
- 2004 - Present: *Assistant Department Chair* - ECE Department
- 2003 - 2010: *Associate Editor for Digital Systems* - IEEE Transactions on Education
- 2002 - Present: *Adcom (Administrative Committee) and Bylaws Chair* - IEEE Education Society
- 2002 - Present: *Program Evaluator* - ABET
- 2001 - 2005: *Model Computer Engineering Curriculum Committee* - IEEE Computer Society/Association for Computing Machinery
- 2001 - Present: *Chair (2003-4), Member (2001-3)* - Auburn Residency Appeals Committee
- 2001 - 2009, 2011-present: *Member* - ECE Executive Committee, Chair 2011
- 1998 - Present: *Chair* - ECE Curriculum Committee

HONORS AND AWARDS

- 2010: Meritorious Service Award - ECE Division of ASEE.
- 2005: Outstanding Contribution Award - IEEE Computer Society. *For the establishment of Computing Curricula 2005 for Computer Enginee*
- 2005: Wireless Educator of the Year - Global Wireless Education Consortium (GWAC). *Co-awarded with Richard Chapman*
- 2004: Graduate School Outstanding Faculty Member - Auburn University.
- 2002: Walker Merit Teaching Award - Auburn University, College of Engineering.
- 2000: Birdsong Merit Teaching Award - Auburn University, College of Engineering.
- 1995: Faculty Honoree - Camp War Eagle - Auburn University.
- 1984: ASPE Regional Young Engineer of the Year - State of Alabama.
- 1983: Honorable mention - C. Holmes Macdonald Outstanding Teaching Award for Young Electrical Engineerin - Eta Kappa Nu.
- 1971: NCAA Post Graduate Scholarship - NCAA/University of Kentucky.

PROFESSIONAL DEVELOPMENT ACTIVITIES

- 2009 - 2009: ABET IDEAL Workshop

RESEARCH INTERESTS

- Embedded systems design
- VLSI design and test
- Microprocessor applications
- Computer-aided design and test of digital systems

Research Grants:

- F. Dai, C. Stroud and **V. Nelson**, Self-Healing Mixed-Signal SoCs, \$1,093,779, BAE Systems, subcontract under DARPA grant for \$9,382,485, 2009-12 (10%/10%)
- V. Agrawal, F. Dai, **V. Nelson**, A. Singh and C. Stroud, Collaborative Research: Electronic Testing Education, Research and Training Infrastructure, National Science Foundation, \$1,099,876, 2007-11 Auburn portion = \$599,995, plus \$43,000 REU Supplement awarded for 2009-11 (20%/20%)
- C. Stroud & **V. Nelson**, "BitStream Verification Tool Study", National Security Agency, \$361,311, 2006-10, (25%/50%), \$149,396 pending for 2011-2012 (50%/50%)
- "Wafer-Oriented Trend Analysis for VLSI Test Optimization", with Adit D. Singh, National Science Foundation, NSF-CCR-9912389, \$315,117, September 1, 2000 - August 31, 2003.
- "NOTES (Novel Test Strategies)", U.S. - Spain Science and Technology Program Joint Research Project, with A.D. Singh (Auburn) and J. Figueras (Universitat Politecnica De Catalunya). \$25,670, June 1, 1999 - May 31, 2000.
- "An Integrated Model for Evaluating Test Effort, Product Quality and Cost Trade-off in Microelectronics Manufacturing", Co-principal investigator with A.D. Singh and R.W. Johnson, DARPA, \$529,764, March 1995-March 1997.
- "Fault Tolerance and Architectural Reliability of Distributed Processing Systems" by the U.S. Army Ballistic Missile Defense Advanced Technology Center. Six separate awards from July 1979 through

September 1986. Total amount: \$648,000.

- "Reconfigurable, Distributed Digital Filters" by the Auburn Engineering Experiment Station" Award: \$14,020, October 1979 to September 1980.
- "Hardware Upgrade to a Fault Tolerance Distributed Computing Laboratory" by the U.S. Army Research Office, Award: \$174,085, June 1982 to May 1985.
- "Microcomputer Control of a Home Appliance Network" by Whirlpool Corporation. Four Awards from September, 1983 through December 1987. Total amount: \$321,065.
- "Parallel Logic Simulation and Fault Analysis of Digital Circuits" by Cray Research, Inc., Award: \$19,503, January 1988 to December 1988.

Instructional Support Grants:

- "A VLSI Computer-Aided Design Laboratory - Equipment Support", National Science Foundation, \$99,510, March 1990 to August 1991.
- Arranged donation of approximately \$6 million of computer-aided design software from Mentor Graphics, Xilinx, and Altera.
- Arranged donation of approximately \$1.2 million of computer-aided design software from Intergraph/Dazix.

PRINCIPAL CONTRIBUTIONS IN AREA OF SPECIALIZATION:

Courses Taught:

CSE220 - Fundamentals of Structured Programming *
EE306 - EE Lab VI (Computer-Controlled Motor) *
EE3040 – Electrical System Design Lab
EE3050 – Embedded System Design Lab *
EE330/221/2200 - Design and Analysis of Logic Circuits
EE335/222/2220 - Computer Org. and Assy. Lang. Prog.
EE401/402,ELEC4000 - Senior Design Projects
EE4200 - Digital Systems Design *
EE430 - Introduction to Microprocessor Systems
EE520 - Introduction to Computer Graphics **
EE521 - Artificial Intelligence and Robotics **
EE523 - Fault Diagnosis of Digital Systems
EE523/6250 - Computer-Aided Digital Circuit Design *
EE524/6210 – Personal Computer Hardware Design *
EE525 - Microcomputer Laboratory *
EE527 - Systems Programming
EE528 - Compiler Design
EE530 - Computer Engineering Seminar
EE530/CSE530/5200/6200 - Computer Architecture and Design *
EE531/CSE531 - Bit-Slice, Microprogrammed CPU Design
EE590/5260/6260 - Embedded Computing Systems *
EE590 - Introduction to Multiprocessor Systems *
EE621 - Switching Theory I
EE626/CSE626 - Computer Architecture I
EE633/CSE633 - Special Purpose Computer Systems
EE636/CSE636 - Computer Networks **

EE642/CSE642 - Fault Tolerant Computing **
EE576/677/678/776 - VLSI Design I & II *
ELEC7970 - Standard Cell IC Design *
EE690 - 32-Bit Microprocessors *
* - new courses developed, **- old courses redesigned

Contributions to Curriculum Development and Administration:

- Chair, ECE Curriculum Committee
- Member & Chair, ECE Executive Committee
- Developed proposals for Bachelor of Computer Engineering and Bachelor of Wireless Engineering programs at Auburn
- Member, College of Engineering Curriculum Committee
- Member, College of Engineering ABET EC-2000 Committee
- ABET Program Evaluator, 2002 – present.
- IEEE Computer Society “Computing Curricula 2001” (CC2001) Committee – Computer Engineering Model Curriculum Member
- Served on the Computer Science and Engineering Curriculum Committee; initial chairman of the committee.
- Interim Associate Dean for Assessment and the Freshman Computing Initiative (1999-2000).
- Coordinator, ECE Department SACS/ABET accreditation activities
- Director, ECE Digital Stem (since 1979)
- Established VLSI Computer-Aided Design and Test Laboratory
- ECE Graduate Program Coordinator (January 1994-present)
- Directed 32 completed Master's Theses and 6 PhD dissertations
- Currently directing one M.S. student and a member of 16 graduate student advisory committees

MAJOR PUBLICATIONS

TEXTBOOKS AND BOOK CHAPTERS:

- Victor P. Nelson, "Computer Architecture" chapter 23, The Industrial Electronics Handbook: Fundamentals of Industrial Electronics, 2nd Ed., B.M. Wilamowski and J.D. Irwin, Eds., CRC Press (March 2011) (22 pages 100% participation)
- Digital Logic Circuit Analysis & Design, V.P. Nelson, H.T. Nagle, B.D. Carroll, and J.D. Irwin. Prentice-Hall, Inc., Englewood Cliffs, NJ, 1995.
- "Computer Architecture", V.P. Nelson, Chapter 3, The Handbook on Industrial Electronics, J. David Irwin, editor, pp. 48-72, CRC Press, 1997.
- "MCM Testing", V.P. Nelson, Chapter 15, Handbook of Multichip Module Technology, ISHM, P Garrou & I Turlik, eds., pp. 15.1-57, 1998.
- "Techniques in Fault-Tolerant Computing", Control and Dynamic Systems, Vol. 60, C.T. Leondes, Editor, Academic Press, 1994, pp. 329-365.
- Fault Tolerant Computing, V.P. Nelson & B.D. Carroll, IEEE Computer Society Press, 1987.
- 74AS-EVM-16 Microprogramming ASISP Processors, Laboratory Manual No. 1, Texas Instruments, Inc., 1987.

JOURNAL PAPERS:

- Barnett, T.S., Singh, A.D., and Nelson, V.P., “Extending Integrated-Circuit Yield Models to Estimate Early-Life Reliability”, IEEE Transactions on Reliability, Vol. 52, No. 3, Sep. 2003, pp 296-300.
- Knight, C.G., Singh, A.D., and V.P. Nelson, “An IDDQ Sensor for Concurrent Timing Error Detection”,

- IEEE Journal of Solid State Circuits, Vol. 33, No. 10, October 1998, pp. 1545-1550.
- Wang, C.J., Wu, C., and V.P. Nelson, "A Study of the Generalized Multiple Bus-Connected Parallel Computer", The Computer Journal, Vol. 35, 1992, pp. A089-A094.
 - Kutz, L.J. and V.P. Nelson, "Remote Control of a Robot in a MAP Network", International Journal of Advanced Manufacturing Technology, Vol. 6, 1991, pp.317-327, Springer-Verlag London,Ltd.
 - Wang, C.J. and V.P. Nelson, "Petri Net Performance Modelling of a Modified Mesh-Connected Parallel Computer", Parallel Computing, Vol. 17, pp. 75-84, 1991.
 - Nelson, V.P., "Fault Tolerant Computing: Fundamental Concepts", IEEE Computer, Vol. 23, No. 7, pp 19-25, July 1990. Also included in Readings in Ultra-Dependable Distributed Systems, by N. Suri, C.J. Walker, and M.M. Hugue, from IEEE Computer Society Press.
 - Wang, C.J., Wu, C.H., and V.P. Nelson, "A Comparative Architectural Study of Three MIMD Computing Surfaces", IEE Proceedings, Vol. 137, Pt. E, No. 4, pp. 261-268, July 1990.
 - Bisbee, C.R. III, and V.P. Nelson, "Failure dependent bandwidth in shuffle/exchange networks", IEEE Transactions on Computers, Vol. C-37, No. 7, July 1988, pp 853-858.
 - Thanawastien, S. and V.P. Nelson "Interference analysis of shuffle/exchange networks", IEEE Transactions on Computers, Vol. C-30, No. 8, Aug. 1981, pp 545-555.
 - Nelson, V.P. and Fellows, H.L.,Jr., "A microprocessor-based real-time amusement ride controller", IEEE Micro, Vol. 1, No. 3, August 1981, pp 13-22. Also included in Microprocessors & Microcomputers, J.T. Cain, Ed., IEEE Computer Society Press, 1984, pp. 327-336.
 - Nagle, H.T.,Jr. and V.P. Nelson "Implementing digital filters on 16-bit microcomputers", IEEE MICRO, Vol. 1, No. 1, Feb. 1981, pp 23-41.
 - Nelson, V.P. and H.T. Nagle, Jr. "Comparison of 16-bit microcomputer performances in digital filtering applications", IEEE MICRO, Vol. 1, No. 1, Feb. 1981, pp 32-40.
 - West, G.L., Nagle, H.T.,Jr. and V.P. Nelson "A microcomputer- controlled testing system for digital integrated circuits", IEEE Transactions on Industrial Electronics and Control Instrumentation, Vol. IECI-27, No. 4, Nov. 1980, pp 279-283.
 - Bray,J.M., Nelson. V.P., deMaine, P.A.D. and Irwin, J.D., "Data- Compression Techniques Ease Storage Problems", Computer Design, Vol. 24, No. 14, Oct. 15, 1985, pp. 102-106.

CONFERENCE PAPERS:

- G.Starr, J.Qin, B.Dutton, C.Stroud, F.Dai & V.Nelson, "Automated Generation of BIST and Measurement Circuitry for Mixed-Signal Circuits and Systems", IEEE International Symp. on Defect and Fault Tolerance in VLSI Systems, October, 2009
- J. Yao, B. Dixon, C. Stroud, and V. Nelson, Built-In Self-Test of Programmable Interconnect in Virtex-4 FPGAs, IEEE Southeastern Symposium on System Theory, 2009.
- G. Starr, J. Wersinger, R. Chapman, L. Riggs, **V. Nelson** and C. Stroud, Application of Embedded Systems in Low Earth Orbit for Measurement of Ionospheric Anomalies, Proc. International Conf. on Embedded Systems and Applications, pp. 9-15, 2009 (5%)
- Nitin Yogi and Victor P. Nelson, "IEEE P1500 compliant Modified Bidirectional Boundary Scan Cell for SoC testing", IEEE 1^{4th} North Atlantic Test Workshop, Essex Junction, VT, May 11-13, 2005.
- David L. Soldan, Victor P. Nelson, Andrew McGettrick, John Impagliazzo, Pradip Srimani, Mitchell D. Theys, Joseph L.A. Hughes, "Development of the Model Curriculum for Computer Engineering", Proc. 34th ASEE/IEEE Frontiers in Education Conference, Session F3B, Oct. 20-23, 2004, Savannah, GA.
- Victor P. Nelson, David L. Soldan, Andrew McGettrick, John Impagliazzo, Pradip Srimani, Mitchell D. Theys, Joseph L. A. Hughes, "Computing Curriculum – Computer Engineering (CCCE) A Model for Computer Engineering Curricula in the Next Decade", Proc. 2004 American Society for Engineering Education Annual Conference and Exposition, Session 2532, June 20-23, 2004, Salt Lake City, Utah.
- Victor P. Nelson, Richard O. Chapman, Richard C. Jaeger, "Auburn University's Baccalaureate Program in Wireless Engineering", ASEE Southeast Section Conference, April 4-6, 2004, Auburn. AL.
- Victor P. Nelson, David L. Soldan, Andrew McGettrick, John Impagliazzo, Pradip Srimani, Mitchell D. Theys, Joseph L. A. Hughes, "Computing Curriculum - Computer Engineering (CCCE)- A Model For Computer Engineering Curricula in the NextDecade", ASEE Annual Conference and Exposition, June, 2004, Session 2532.

- Victor P. Nelson, Mitchell D. Theys, Alan Clements, "Computer Architecture and Organization in the Model Computer Engineering Curriculum", Frontiers in Education Conference, FIE-2003, Boulder, Colorado, November, 2003.
- Victor P. Nelson, Richard O. Chapman, Richard C. Jaeger, "A New Baccalaureate Program in Wireless Engineering", Proc. ASEE Annual Conference and Exposition, June 22-25, 2003, Nashville, TN, Paper 2127.
- Joseph L. Hughes, Pradip Srimani, Victor P. Nelson, "Computing Curricula 2001: Computer Engineering", 2002 ASEE Annual Conference and Exposition, Montreal, Quebec, Canada, June 16-19, 2002.
- Thomas S. Barnett, Adit D. Singh, Victor P. Nelson, "Estimating Burn-In Fail-Out for Redundant Memory", accepted for presentation at International Test Conference, Oct. 28-Nov 2, 2001, Baltimore, MD.
- Thomas S. Barnett, Adit D. Singh, Victor P. Nelson, "Yield-Reliability Modeling for Fault Tolerant Integrated Circuits", accepted for presentation at Defect and Fault Tolerance in VLSI", 2001.
- Thaddeus Roppel and Victor P. Nelson, "Web-Enhanced Instruction and Assessment for a First Course in Electrical and Computer Engineering", 2001 ASEE Annual Conf. & Exposition, June 24-27, Albuquerque, NM.
- Thomas S. Barnett, Adit D. Singh, Victor P. Nelson, "*Burn-In failures and Local Region Yield; An Integrated Yield/ Reliability Model*", VLSI Test Symposium, Marina del Rey, CA, May 2001.
- Knight, C.G., Singh, A.D., and V.P. Nelson, "A Concurrent Timin Error Detection Circuit for CMOS", *Proc. 3rd IEEE Int'l On-Line Testing Workshop*, Crete, Greece, July 1997, pp. 70-74.
- Nelson, V.P. and A.D. Singh, "Yield, Defect Level and Cost Tradeoffs in MCM Substrate and Assembly Testing", *Proc. MCM Test III Advanced Technology Workshop*, Napa Valley, CA, Sep. 15-18. 1996.
- Williamson, S.T., A.D. Singh, and V.P. Nelson, "Fault and Yield Modeling of MCMs for Automotive Applications@", *Proc. 5th International Conference on Multichip Modules*, Denver Colorado, April, 1996.
- Nelson, V.P. and A.D. Singh, "MTAP: A Test Advisor Program @", *MCM Test II Advanced Technology Workshop*, Napa Valley, CA, Sep. 10-13 1995.
- Nelson, V.P. and A. Flint, "Test Development of a Microcontroller-Based MCM for Automotive Applications", Proc. the 4th International Conference on Multichip Modules, Denver Colorado, April 19-21, 1995, pp. 114-119.
- Kutz, L.J., and V.P. Nelson, "Remote Control of a Robot in a MAP Network", *Proc. AUTOFACT '89*, Detroit, MI, Oct. 30-Nov. 2, 1989.
- C.J. Wang, V.P. Nelson, and C.H. Wu, "Performance Modelling of the Modified Mesh-Connected Parallel Computer", *Proc. 9th Int'l Conf. on Distributed Computing Systems*, Newport Beach, CA., June 1989, pp 490-497.
- C.J. Wang, C.H. Wu, and V.P. Nelson, "Stochastic and Deterministic Modeling of Message Passing Parallel Computers", *Proc. 1st Ann. IEEE Symposium on Parallel and Distributed Processing*, Dallas, TX, May 1989, pp. 98-105.
- C.J. Wang and V.P. Nelson, "An augmented torus processing surface for MIMD", *Proc. Phoenix Conf. on Computers and Communications*, Scottsdale, Arizona, March 1989, pp. 97-100.
- S. Qian, V.P. Nelson, and J.M. Morris, "TMS320-Based Digital Communication Network in the AC Power Line", *Proc. 19th Annual Pittsburgh Conf. on Modeling and Simulation*, May 1988, pp xxx-xxx.
- Wang, C.J., Wu, C., and V.P. Nelson, "A Study of the Generalized Multiple Bus-Connected Parallel Computer", *Proc. 2nd Symp. on the Frontiers of Massively Parallel Computation*, Fairfax, VA, October 1988, pp.541-544.
- S. Thanawastien, J. Lo, and V.P. Nelson, "A reconfigurable multiple-SIMD/MIMD system for multi-phase space-based missions", *Proc. 7th Ann. Int'l Phoenix Conf. on Computers and Communications*, Scottsdale, AZ, March 1988, pp 62-68.
- C.J. Wang and V.P. Nelson, "A Reconfigurable Fault-Tolerant Parallel Computer - Wafer Scale Approach", *Proc. IEEE Southeastcon*, Tampa, FL, April 1987, pp. 216-220.
- C.J. Wang and V.P. Nelson, "Dynamic Reconfiguration Algorithms for Fault-Tolerant Multiprocessor Arrays", *Proc. 6th Ann. International Phoenix Conf. on Computers and COmmunications*, Phoenix, AZ, Feb. 1987, pp. 94-98.

- Hsu, Y.J., Nelson, V.P., and R.C. Jaeger, "A random self-test structure for LSI/VLSI chips", Proc. 7th Biennial UGIM Symposium, Rochester, NY, June 9-11, 1987.
- Y.J. Hsu, V.P. Nelson, and R.C. Jaeger, "A Gate Array Design of a Shuffle/Exchange Network Switching Element", Proc. Sixth UGIM Symp., Auburn, AL, June, 1985, pp. 158-164.
- V.P. Nelson, "Integration of Personal Computers into Electrical Engineering Curricula", Proc. 17th Symp. on System Theory, Auburn, AL, March 1985, pp. 140-144.
- S. Thanawastien and V.P. Nelson, "Diagnosis of Multiple Faults in Shuffle/Exchange Networks", Proc. 1984 Real Time Systems Symp., Austin, TX, Dec. 1984.
- S. Thanawastien and V.P. Nelson, "Task Reassignment in Shuffle/Exchange Networks", Proc. 4th Ann. Phoenix Conf. on Computers and Communications, Phoenix, AZ, March 1985.
- S. Thanawastien, V.P. Nelson, and S. Tantaratana, "Optimal Fault Detection Test Sequences for Shuffle/Exchange Networks", Proc. 13th Ann. Symp. on Fault Tolerant Computing, Milano, Italy, June, 1983, pp.442-445.
- Nelson, V.P. and R.L Fields, "Hardware and Software Development of the FTDCL Delta-Connected Multiprocessor", Proc. Southeast Symp. on System Theory, April 1982, Blacksburg, VA., pp. 273-276.
- Nelson, V.P. and H.L. Fellows, Jr. "The RIPCORDER - A microprocessor-controlled amusement ride", Proc. Industrial Electronics and Control Instrumentation Conf., March 1980, pp 373-376.
- Nelson, V.P. "Fault tolerance in reconfigurable multiprocessor systems", Proc. COMPSAC 1980 (invited paper), Chicago, IL, Oct. 1980, pp 372-380.
- Satischandra, D.V. and V.P. Nelson "A reconfigurable distributed digital filter", Proc. Symp. on Distributed Data Acquisition and Control, Miami, FL, Dec. 1980, pp 90-96.
- Satishchandra, D.V., Nelson, V.P. and S.A. Starks "A distributed logarithmic FFT processor", Proc. Southeastcon 1981, Huntsville, AL, pp 786-790.

MAGAZINE ARTICLES, THESES, AND OTHER MAJOR REPORTS:

- David L. Soldan, Victor P. Nelson, et. al., "Computer Engineering 2005 – Curriculum Guidelines for Undergraduate Degree Programs in Computer Engineering", Computing Curricula for Computer Engineering Joint Task Force, submitted to IEEE Computer Society and Association for Computing Machinery, December 2004.
- Nelson, V.P., "Safety in Numbers", Byte Magazine, August 1991, pp. 175-184.
- Nelson, V.P. "Applications of fuzzy automata to determining the orientation of three dimensional objects from live images", MS Thesis, Ohio State University, 1977.
- Nelson, V.P. "The use of characteristic parameters for accurate reliability modeling of hybrid modular redundant digital systems", PhD Dissertation, Ohio State University, 1978.
- Nagle, H.T., Jr., V.P. Nelson, et al "Fault tolerance and architectural reliability in distributed processing systems", AU Tech Report AU-EE-79-0025-1, June. 1979.
- Nelson, V.P., et.al. "Fault-tolerance and architectural reliability in distributed data processing systems", Auburn Univ. Tech. Report AU-EE-80-0025-1, Oct. 1980.
- Nelson, V.P., et.al. "Fault-tolerance and architectural reliability in distributed data processing systems", Auburn Univ. Tech. Report AU-EE-81-0025-1, Nov. 1981.
- Nelson, V.P., et.al. "Fault-tolerance and architectural reliability in distributed data processing systems", Auburn Univ. Tech. Report AU-EE-82-0025-1, Dec. 1982.
- Nelson, V.P., et.al. "Fault-tolerance and architectural reliability in distributed data processing systems: Part I - Testbeds for BMD-DDP Systems", Auburn Univ. Tech. Report AU-EE-84-0011-1, July 1984.
- Nelson, V.P., et.al. "Fault Tolerance and Reliability in Tightly-Coupled Multiprocessor Systems for Ballistic Missile Defense", Auburn Univ. Tech. Report AU-EE-85-0011-1, August 1985.
- Nelson, V.P., et.al. "Hardware Approaches to Fault-Tolerant Multiprocessor Design for Ballistic Missile Defense", Auburn Univ. Tech. Report AU-EE-86-0050-1, August 1986.

EXTENSION AND MAJOR PROFESSIONAL ACTIVITIES

- ABET accreditation consultant, two universities, (2006, 2008).
- Secretary/Treasurer (2004-2005), Program Chair (2005-2006), Chair (2006-2007), ASEE ECE Division.
- Associate Editor, IEEE Transactions on Education, June 2003 to present.
- Elected to the Administrative Committee (AdCom) of the IEEE Education Society, 2002-2005. Bylaws Committee Chair.
- Selected by IEEE as an ABET Program Evaluator, 2002-present.
- Member, IEEE Computer Society "Computing Curriculum: Computer Engineering (CCCE) Task Force", defining the model Computer Engineering Curriculum for Computing Curriculum 2001.
- Judge and Submission Evaluation Team leader for the IEEE Computer Society International Design Contest (CSIDC), 2002, 2003, 2010.
- Panel Member, "New Trends in EE Education", ECEDHA (ECE Department Heads) Meeting, March, 2002.
- Panel Member, "Computing Curriculum 2001 – Computer Engineering", Frontiers in Education Conference, Oct. 10-13, Reno, NV.
- Program committee member, VLSI Test Symposium (1997-99)
- Program committee member, MCM Test Workshop (1996-98)
- Consultant to Motorola (Austin, Phoenix) and Chrysler (Huntsville). Modeling and simulation of automotive multichip modules. (1995-96)
- Tutorial (with B.D. Carroll), "Introduction to Fault Tolerant Computing", 3rd Int'l Conf. on Distributed Computing, Miami, FL, Oct. 22, 1982. Repeated at AIAA Workshop on Fault Tolerant Computing for Aerospace Systems, Ft. Worth, TX, Nov. 8, 1982 and in Berlin, West Germany in May, 1984 and September 1985.
- Director of Auburn Extension Service Short Course "Introduction to Microprocessors".
- Program Chairman, First Symposium on Distributed Data Acquisition and Control, Miami, FL, December 1980.
- Member of the Editorial Board of IEEE MICRO Journal.
- Consultant to several companies on microprocessor applications and fault tolerant system architectures for military, SDI, and aerospace applications.
- Invited participant: Distributed Systems Workshop on Fault Tolerant/ Survivable Systems for SDI, RADC, July 1986.

CONSULTING EXPERIENCE

- 1995 - 1996: *MCM Modeling and Test Design* - Motorola/Chrysler