

JOHN LACH

Associate Professor
University of Virginia

Charles L. Brown Department of Electrical and Computer Engineering
351 McCormick Road, P.O. Box 400743
Charlottesville, VA 22904-4743
Phone: (434) 924-6086, Fax: (434) 924-8818
E-mail: jlach@virginia.edu

EDUCATION

Stanford University	Science, Technology, and Society	BS 1996
UCLA	Electrical Engineering	MS 1998, Ph.D 2000

APPOINTMENTS

Charles L. Brown Department of Electrical and Computer Engineering
University of Virginia

- Associate Professor (August 2006-present)
- Assistant Professor (August 2000-August 2006)

RESEARCH INTERESTS

Body sensor networks for biomedical applications, integrated circuit design methodologies, fault-tolerant and safety-critical hardware design, embedded systems, application-specific and general-purpose processor design, FPGAs, intellectual property protection

CURRENT FUNDED RESEARCH PROJECTS

- National Science Foundation (PI: John Lach, co-PIs: Jack Stankovic, Gang Zhou), "Multi-Scale QoS for Body Sensor Networks," \$525,000, 2009-2012
- National Science Foundation (PI: John Lach, co-PIs: Benton Calhoun), "CI-P: Development of Community Infrastructure for Body Sensor Network Research, Education, and Support," \$100,000, 2009-2010
- National Science Foundation (PI: John Lach, co-PI: Thurmon Lockhart), "Continuous, Non-Invasive Gait Analysis and Fall-Risk Assessment," \$450,000, 2008-2011
- National Science Foundation (PI: John Lach, co-PIs: Scott Acton, Kevin Skadron), "Hierarchical Dependency Graphs for Col-Space Design with Application to Leukocyte Detection and Tracking," \$703,479, 2006-2009 (REU: \$15,996 2009-2010)
- National Science Foundation (PI: John Lach), "Exploring Fidelity/Power Tradeoffs for Body-Area Network Protocols," \$25,000, 2008-2009
- National Science Foundation (PI: John Lach, co-PIs: Henry Bertoni, Dariusz Czarkowski, Barry Horowitz), "Body-Area Sensor Networks for Detection and Assessment of Movement Disorder: Dynamically Adaptable Communication and Power Management with Energy Harvesting," \$150,000, 2007-2009
- National Science Foundation (PI: David Evans, co-PIs: Benton Calhoun, John Lach, Abhi Shelat), "Implementable Privacy and Security for Resource-Constrained Devices," \$1,000,000, 2008-2012
- Semiconductor Research Corporation, National Science Foundation (PI: Kevin Skadron, co-PIs: Benton Calhoun, John Lach), "Heterogeneous Multi-core Architectures from Homogeneous Arrays using Configurable Interconnect," \$370,000, 2009-2012
- Semiconductor Research Corporation (PI: Kevin Skadron, co-PIs: Benton Calhoun, John Lach), "Design Space Exploration for Safety Critical Applications," \$165,000, 2009-2012
- Biomedical Innovation Fund (PI: John Lach, co-PIs: Jeffrey Barth, Maite Brandt-Pearce, Donna Broshek, Jason Freeman), "Remote, Continuous Gait Assessment for Improved Diagnosis of Normal Pressure Hydrocephalus," \$40,000, 2009-2010
- MITRE (PI: Steve Patek, co-PI: John Lach), "Adaptive Allocation of System Resources in Body Sensor Networks," \$68,000, 2008-2009
- Night Vision Laboratory (PI: John Lach, co-PI: Benton Calhoun), "Ultra Low Power Processing in Wireless Sensor Nodes," \$17,000, 2009
- DARPA (PI: Benton Calhoun, co-PI: John Lach), "REESES: Rapid Efficient Energy Scalable ElectronicS for Embedded Computing," \$300,000, 2009-2010

PAST FUNDED RESEARCH PROJECTS

- National Science Foundation (PI: John Lach), “Highly Flexible Multi-Mode Embedded Systems,” \$300,000, 2004-2008
- National Science Foundation (PI: John Lach, co-PIs: Kevin Skadron, Mircea Stan), “Small-Scale Dynamic Reconfigurability for Large-Scale Benefits,” \$419,784, 2001-2004 (REU: \$12,000 2003-2004)
- National Science Foundation (PI: Miodrag Potkonjak, co-PIs: Farinaz Koushanfar, John Lach), “Manufacturing Variability-Based HW Protection Techniques,” \$150,000, 2007-2008
- National Science Foundation (PI: Kevin Skadron, co-PIs: John Lach, Mircea Stan), “Physically Aware Computer Architecture,” \$161,942, 2004-2007 (REU: \$6,000 2005-2006, \$6,000 2006-2007)
- Electricité de France (PI: John Lach, co-PI: Barry Johnson), “Assessment of Safety Critical Systems Incorporating Application Specific Integrated Circuits,” \$223,900, 2003-2006
- DARPA subcontract through Information Sciences Institute (PI: John Lach, co-PI: Miodrag Potkonjak), “Leveraging Technology Scaling for IC Security,” \$15,000, 2006
- Paul Mellon Prostate Cancer Institute (PI: Scott Acton, co-PI: John Lach), “Real-Time Hardware for Enhancement and Segmentation of Ultrasonic Imagery of the Prostate,” \$98,886, 2004-2005
- Carilion Health System (PI: Martha Anderson, co-PI: John Lach), “Designing Efficient and Objective Methods of Assessing Agitation and Preventing Akathisia in Dementia Patients through Wearable Motion Capture Technology,” \$28,208, 2006
- Empirical Technologies Corporation (PI: John Lach), “First Responders Monitoring Project,” \$20,204, 2006-2007
- Southeastern Center for Electrical Engineering Education (PI: John Lach), “Multi-Mode SOC Synthesis,” \$22,500 (+\$24,003 matching)
- University of Virginia Institute on Aging (PI: John Lach, co-PIs: James Aylor, John Nesselrode), “Wearable Sensor System for Portable, Non-Invasive Collection of Ambient, Biological, Physiological, and Functional Data,” \$26,000, 2004-2005

AWARDS

- Best Paper Award, *IEEE International Conference on Computer Design* – 2007
- All-University Teaching Award – 2005
- Rodman Scholars Outstanding Faculty Award – 2005
- Electrical and Computer Engineering New Faculty Teaching Award – 2003
- University of Virginia Teaching Fellow – 2001-2002
- Best Student Paper Award, *ACM Workshop on Self-Healing, Adaptive, and Self-Managed Systems* – 2002
- UCLA School of Engineering and Applied Sciences Dean's Award – 1998 and 1999

JOURNAL PUBLICATIONS

- J1. J. Lach, W.H. Mangione-Smith, M. Potkonjak, “Low Overhead Fault-Tolerant FPGA Systems,” *IEEE Transactions on VLSI Systems*, 6(2):212-21, June 1998
- J2. J. Lach, W.H. Mangione-Smith, M. Potkonjak, “Enhanced FPGA Reliability Through Efficient Runtime Fault Recovery,” *IEEE Transactions on Reliability*, 49(3):296-304, September 2000
- J3. A.B. Kahng, J. Lach, W.H. Mangione-Smith, S. Mantik, I.L. Markov, M. Potkonjak, P. Tucker, H. Wang, G. Wolfe, “Constraint-Based Watermarking Techniques for Design IP Protection,” *IEEE Transactions on Computer-Aided Design*, 20(10):1236-52, October 2001
- J4. J. Lach, W.H. Mangione-Smith, M. Potkonjak, “Fingerprinting Techniques for Field Programmable Gate Array Intellectual Property Protection,” *IEEE Transactions on Computer-Aided Design*, 20(10):1253-61, October 2001
- J5. Z. Lu, J. Lach, M. Stan, K. Skadron, “Alloyed Branch History: Combining Global and Local Branch History for Robust Performance,” *International Journal of Parallel Programming*, 31(2):137-77, April 2003
- J6. M. Stan, P.D. Franzon, S.C. Goldstein, J. Lach, M. Ziegler, “Molecular Electronics: From Devices and Interconnect to Circuits and Architecture,” *Proceedings of the IEEE*, 91(11):1940-57, November 2003
- J7. Z. Lu, J. Lach, M. Stan, K. Skadron, “Improved Thermal Management with Reliability Banking,” *IEEE Micro*, special issue on Reliability-Aware Microarchitectures, 40-9, November/December 2005
- J8. V. Vijay Kumar, J. Lach, “Highly Flexible Multi-Mode Digital Signal Processing Systems Using Adaptable Components and Controllers,” *EURASIP Journal on Applied Signal Processing*, Article ID 79595, 9 pages, 2006

- J9. Z. Lu, W. Huang, M. Stan, K. Skadron, J. Lach, "Interconnect Lifetime Prediction for Reliability-Aware Systems," *IEEE Transactions on VLSI Systems*, 15(2):159-72, February 2007
- J10. M.A. Hanson, H.C. Powell Jr., A.T. Barth, K. Ringgenberg, B.H. Calhoun, J.H. Aylor, J. Lach, "Body Area Sensor Networks: Challenges and Opportunities," *IEEE Computer*, 58-65, January 2009
- J11. H.C. Powell Jr., M.A. Hanson, J. Lach, "On-Body Inertial Sensing and Signal Processing for Clinical Assessment of Tremor," *IEEE Transactions on Biomedical Circuits and Systems*, 3(2):108-16, April 2009
- J12. V. Vijay Kumar, J. Lach, "Application Specific Product Generics," *IEEE Computer*, 64-74, August 2009
- J13. B.H. Calhoun, J. Ryan, S. Khanna, M. Putic, J. Lach, "Flexible Circuits and Architectures for Ultra Low Power," *Proceedings of the IEEE*, accepted for publication, 2010

REFEREED PROCEEDINGS

- C1. J. Lach, W.H. Mangione-Smith, M. Potkonjak, "Signature Hiding Techniques for FPGA Intellectual Property Protection," *International Conference on Computer-Aided Design*, 186-9, 1998
- C2. A.B. Kahng, J. Lach, W.H. Mangione-Smith, S. Mantik, I.L. Markov, M. Potkonjak, P. Tucker, H. Wang, G. Wolfe, "Watermarking Techniques for Intellectual Property Protection," *Design Automation Conference*, 776-81, 1998
- C3. J. Lach, W.H. Mangione-Smith, M. Potkonjak, "FPGA Fingerprinting Techniques for Protecting Intellectual Property," *Custom Integrated Circuits Conference*, 299-302, 1998
- C4. J. Lach, W.H. Mangione-Smith, M. Potkonjak, "Efficiently Supporting Fault-Tolerance on FPGAs," *International Symposium on Field Programmable Gate Arrays*, 105-15, 1998
- C5. J. Lach, W.H. Mangione-Smith, M. Potkonjak, "Fingerprinting Digital Circuits on Programmable Hardware," *International Workshop on Information Hiding*, 16-31, 1998
- C6. J. Lach, W.H. Mangione-Smith, M. Potkonjak, "Robust FPGA Intellectual Property Protection Through Multiple Small Watermarks," *Design Automation Conference*, 831-6, 1999
- C7. J. Lach, W.H. Mangione-Smith, M. Potkonjak, "Algorithms for Efficient Runtime Fault Recovery on Diverse FPGA Architectures," *International Symposium on Defect and Fault Tolerance in VLSI Systems*, 386-94, 1999
- C8. J. Lach, W.H. Mangione-Smith, M. Potkonjak, "Enhanced Intellectual Property Protection for Digital Circuits on Programmable Hardware," *International Workshop on Information Hiding*, 286-301, 1999
- C9. J. Lach, W.H. Mangione-Smith, and M. Potkonjak, "Runtime Logic and Interconnect Fault Recovery on Diverse FPGA Architectures," *International Conference on Military and Aerospace Applications of Programmable Devices and Technologies*, D3:1-8, 1999
- C10. J. Lach, W.H. Mangione-Smith, M. Potkonjak, "Efficient Error Detection, Localization, and Correction for FPGA-Based Debugging," *Design Automation Conference*, 207-12, 2000
- C11. Z. Lu, J. Hein, M. Humphrey, M. Stan, J. Lach, K. Skadron, "Control-Theoretic Dynamic Frequency and Voltage Scaling for Multimedia Workloads," *International Conference on Compilers, Architecture, and Synthesis for Embedded Systems*, 156-63, 2002
- C12. Y. Zhang, J. Lach, K. Skadron, M. Stan, "Odd/Even Bus Invert with Two-Phase Transfer for Buses with Coupling," *International Symposium on Low Power Electronics and Design*, 80-3, 2002
- C13. ¹Z. Lu, J. Hein, M. Stan, J. Lach, K. Skadron, "Control-Theoretic Dynamic Frequency and Voltage Scaling," *Workshop on Self-Healing, Adaptive and Self-Managed Systems*, 2002
- C14. J. Lach, J. Aylor, N. Merris, M. Hanson, C. Rehorn, "Wearable Gait Data Collection for Longitudinal Fall Analysis," *International Conference on Aging, Disability and Independence*, 481-9, 2003
- C15. V. Vijay Kumar, J. Lach, "Heterogeneous Redundancy for Fault and Defect Tolerance with Complexity Independent Area Overhead," *International Symposium on Defect and Fault Tolerance in VLSI Systems*, 571-8, 2003
- C16. V. Vijay Kumar, J. Lach, "Flexible Arithmetic Components for Area-Efficient Fault Tolerance," *International Conference on Military and Aerospace Programmable Logic Devices*, D7:1-6, 2003
- C17. J. Lach, D. Evans, J. McCune, J. Brandon, "Power-Efficient Adaptable Wireless Sensor Networks," *International Conference on Military and Aerospace Programmable Logic Devices*, B5:1-8, 2003
- C18. Z. Lu, J. Lach, M. Stan, K. Skadron, "Reducing Multimedia Decode Power using Feedback Control," *International Conference on Computer Design*, 489-96, 2003
- C19. V. Vijay Kumar, J. Lach, "Designing, Scheduling, and Allocating Flexible Arithmetic Components," *International Conference on Field Programmable Logic and Applications*, 1166-9, 2003

¹ Best Student Paper Award

- C20. V. Vijay Kumar, J. Lach, "Fine-Grained Self-Healing Hardware for Large-Scale Autonomic Systems," *International Workshop on Autonomic Computing Systems*, 707-12, 2003
- C21. N. Gergel, S. Craft, J. Lach, "Modeling QCA for Area Minimization in Logic Synthesis," *Great Lakes Symposium on VLSI*, 60-3, 2003
- C22. Z. Lu, W. Huang, J. Lach, M. Stan, K. Skadron, "Interconnect Lifetime Prediction Under Dynamic Stress for Reliability-Aware Design," *International Conference on Computer Aided Design*, 327-34, 2004
- C23. J. Lach, J. Brandon, K. Skadron, "A General Post-Processing Approach to Leakage Current Reduction in SRAM-based FPGAs," *International Conference on Computer Design*, 144-50, 2004
- C24. V. Vijay Kumar, R. Verma, J. Lach, J. Dugan, "A Markov Reward Model for Reliable Synchronous Dataflow System Design," *International Conference on Dependable Systems and Networks*, 817-25, 2004
- C25. ²K. Skadron, M. Stan, W. Huang, K. Sankaranarayanan, Z. Lu, J. Lach, "A Computer-Architecture Approach to Thermal Management in Computer Systems: Opportunities and Challenges," *International Conference on Thermal, Mechanical and Thermo-Mechanical Simulation and Experiments in Micro-Electronics and Micro-Systems*, 415-22, 2004
- C26. M.W. Ashburn, J. Lach, M. Sulcoski, "NETSS: A Networked Environment for Testing Suspicious Software," *Systems and Information Engineering Design Symposium*, 163-70, 2004
- C27. V. Vijay Kumar, J. Lach, "Highly Flexible Multi-Mode System Synthesis," *International Conference on Hardware/Software Co-Design and System Synthesis*, 27-32, 2005
- C28. Y. Zhang, Z. Lu, J. Lach, M. Stan, K. Skadron, "Optimal Procrastinating Voltage Scheduling for Hard Real-Time Systems," *Design Automation Conference*, 905-8, 2005
- C29. V. Vijay Kumar, J. Lach, "IC Modeling for Yield-Aware Design with Variable Defect Rates," *Annual Reliability and Maintainability Symposium*, 489-95, 2005
- C30. S. Velusamy, W. Huang, J. Lach, M. Stan, K. Skadron, "Monitoring Temperature in FPGA-based SoCs," *International Conference on Computer Design*, 634-40, 2005
- C31. J. Lach, S. Bingham, C. Elks, T. Lenhart, T. Nguyen, P. Salaun, "Accessible Formal Verification for Safety-Critical FPGA Design," *International Conference on Military and Aerospace Programmable Logic Devices*, B3, 2005
- C32. Z. Lu, J. Lach, M. Stan, K. Skadron, "Banking Chip Lifetime: Opportunities and Implementation," *Workshop on High Performance Computing Reliability Issues*, 2005
- C33. J. Lach, S. Bingham, C. Elks, T. Lenhart, T. Nguyen, P. Salaun, "Accessible Formal Verification for Safety-Critical Hardware Design," *Annual Reliability and Maintainability Symposium*, 29-32, 2006
- C34. Z. Lu, Y. Zhang, M. Stan, J. Lach, K. Skadron, "Procrastinating Voltage Scheduling with Discrete Frequency Sets," *Design Automation and Test in Europe*, 456-61, 2006
- C35. W. Wu, S. Acton, J. Lach, "Real-Time Processing of Ultrasound Images with Speckle Reducing Anisotropic Diffusion," *Asilomar Conference on Signals, Systems, and Computers*, 1458-64, 2006
- C36. H.C. Powell Jr., J. Lach, "Design of Multiple Bandpass Filters with Integer Coefficients for a Microcontroller Environment with an Emphasis on Applications in Wearable Tremor Analysis," *Asilomar Conference on Signals, Systems, and Computers*, 1865-9, 2006
- C37. M.A. Hanson, J. Lach, "Assessing Joint Time-Frequency Methods in the Detection of Dysfunctional Movement," *Asilomar Conference on Signals, Systems, and Computers*, 1870-4, 2006
- C38. Z. Lu, J. Lach, K. Skadron, M. Stan, "Design and Implementation of an Energy Efficient Multimedia Playback System," *Asilomar Conference on Signals, Systems, and Computers*, 1491-7, 2006
- C39. T. Lenhart, J. Lach, "A Formalized Verification Methodology for Soft IP Cores in Safety-Critical Applications," *International Conference on Military and Aerospace Applications of Programmable Devices and Technologies*, E6, 2006
- C40. J. Lach, S. Bingham, T. Lenhart, T. Nguyen, P. Salaun, "RAFFIA – Reliable ASIC/FPGA-based Solutions For I&C Applications," *American Nuclear Society International Topical Meeting on Nuclear Plant Instrumentation, Controls, and Human Machine Interface Technology*, 1032-7, 2006
- C41. ³J. Li, J. Lach, "Negative-Skewed Shadow Registers for At-Speed Delay Variation Characterization," *International Conference on Computer Design*, 354-9, 2007
- C42. M.A. Hanson, H.C. Powell Jr., R.C. Frysinger, D.S. Huss, W.J. Elias, J. Lach, "Teager Energy Assessment of Tremor Severity in Clinical Application of Wearable Inertial Sensors," *IEEE-NIH Life Science Systems and Applications Workshop*, 191-4, 2007

² Keynote

³ Best Paper Award

- C43. H.C. Powell Jr., M.A. Hanson, J. Lach, "A Wearable Inertial Sensing Technology for Clinical Assessment of Tremor," *IEEE Biomedical Circuits and Systems Conference*, 9-12, 2007
- C44. A.T. Barth, M.A. Hanson, H.C. Powell Jr., D. Unluer, S.G. Wilson, J. Lach, "Body-Coupled Communication for Body Sensor Networks," *International Conference on Body Area Networks*, 2008
- C45. N. George, J. Lach, S. Gurumurthi, "Towards Transient Fault Tolerance for Heterogeneous Computing Platforms," *Workshop on Compiler and Architectural Techniques for Application Reliability and Security*, accepted for publication, 2008
- C46. S. Che, J. Li, J.W. Sheaffer, K. Skadron, J. Lach, "Accelerating Compute-Intensive Applications with GPUs and FPGAs," *IEEE Symposium on Application Specific Processors*, 101-7, 2008
- C47. J. Li, J. Lach, "At-Speed Delay Characterization for IC Authentication and Trojan Horse Detection," *IEEE International Workshop on Hardware-Oriented Security and Trust*, 8-14, 2008
- C48. J. Huang, J. Lach, "IC Activation and User Authentication for Security-Sensitive Systems," *IEEE International Workshop on Hardware-Oriented Security and Trust*, 76-80, 2008
- C49. L. Di, M. Putic, J. Lach, B. Calhoun, "Power Switch Characterization for Fine-Grained Dynamic Voltage Scaling," *International Conference on Computer Design*, 605-11, 2008
- C50. S. Bingham, J. Lach, "Exhaustive Integrated Circuit Fault Coverage Analysis Using Formal Methods," *American Nuclear Society International Topical Meeting on Nuclear Plant Instrumentation, Controls, and Human Machine Interface Technology*, 2009
- C51. H.C. Powell Jr., A.T. Barth, J. Lach, "Dynamic Voltage-Frequency Scaling in Body Area Sensor Networks using COTS Components," *International Conference on Body Area Networks*, 2009
- C52. S. Arrabi, J. Lach, "Adaptive Lossless Compression in Wireless Body Area Sensor Networks," *International Conference on Body Area Networks*, 2009
- C53. M.A. Hanson, H.C. Powell Jr., A.T. Barth, J. Lach, "Enabling Data-Centric Energy-Fidelity Scalability in Wireless Body Area Sensor Networks," *International Conference on Body Area Networks*, 2009
- C54. Q. Li, J.A. Stankovic, M. Hanson, A. Barth, J. Lach, "Accurate, Fast Fall Detection Using Gyroscopes and Accelerometer-Derived Posture Information," *International Workshop on Body Sensor Networks*, 138-43, 2009
- C55. A.T. Barth, M.A. Hanson, H.C. Powell Jr., J. Lach, "TEMPO 3.1: A Body Area Sensor Network Platform for Continuous Movement Assessment," *International Workshop on Body Sensor Networks*, 71-6, 2009
- C56. M.A. Hanson, H.C. Powell Jr., A.T. Barth, J. Lach, M. Brandt-Pearce, "Neural Network Gait Classification for On-Body Inertial Sensors," *International Workshop on Body Sensor Networks*, 181-6, 2009
- C57. S. Bingham, J. Lach, "Enhanced Fault Coverage Analysis Using ABVFI," *Workshop on Dependable and Secure Nanocomputing*, accepted for publication, 2009
- C58. D. Rai, J. Lach, "Performance of Delay-Based Trojan Detection Techniques under Parameter Variations," *IEEE International Workshop on Hardware-Oriented Security and Trust*, 58-65, 2009
- C59. J. Huang, J. Lach, "ColSpace: Towards Algorithm/Implementation Co-Optimization," *International Conference on Computer Design*, 404-11, 2009
- C60. M. Putic, L. Di, B.H. Calhoun, J. Lach, "Panoptic DVS: A Fine-Grained Dynamic Voltage Scaling Framework for Energy Scalable CMOS Design," *International Conference on Computer Design*, 491-7, 2009
- C61. B.H. Calhoun, S. Arrabi, S. Khanna, Y. Shakhsher, K. Craig, J. Ryan, J. Lach, "REESSES: Rapid Efficient Energy Scalable ElectronicS," *Government Microcircuit Applications & Critical Technology Conference*, accepted for publication, 2010

ACTIVITIES

- IEEE Transactions on Computers: Associate editor (2005-present)
- IEEE Transactions on Computer Aided Design of Integrated Circuits and Systems: Associate editor (2006-present)
- ACM Transactions on Embedded Computing Systems: Special issue co-editor (2004)
- BodyNets: Publicity chair (2009), Technical program committee member (2010)
- CASES: Technical program committee member (2005)
- DATE: Technical program committee member (2007)
- GLSVLSI: Steering committee member (2006-present), General chair (2005), Technical program committee co-chair (2004), Publicity chair (2003), Technical program committee member (2003-present)
- HOST: Technical program committee member (2008-present)
- ICCD: Technical program committee member (2004-2006)

- ISCAS: Review committee member (2004-present)
- MAPLD: Technical program committee member (2003-2006), Workshop organizer (2005-2006)
- Wireless Health: Steering committee member (2010), Publicity chair (2010), Technical program committee member (2010)
- University of Virginia School of Engineering and Applied Science Undergraduate Research and Design Symposium, Chair (2003, 2004)
- Organized and led an effort to propose a departmental plan to the NSF Department-Level Reform of Undergraduate Engineering Education Program focused on improving the quality and student-appeal of our undergraduate Electrical Engineering program (2004-2006)
- Led an inter-departmental committee to establish a computer engineering graduate program jointly administered by the Computer Science and Electrical and Computer Engineering Departments (program unanimously approved by the School of Engineering and Applied Science faculty in May 2002)
- Helped organize an electrical engineering undergraduate recruiting effort, including informational sessions for undeclared undergraduates and open houses for high school students and the general community (resulted in an approximately 40% increase in electrical engineering declarations in the first year)
- Developed a graduate-level course on modern logic synthesis techniques to complement the integrated circuit physical design computer-aided design courses offered in the School of Engineering and Applied Science
- Restructured the computer engineering undergraduate capstone digital design course including the development and implementation of a new semester-long design project
- Regular reviewer/referee for several conferences and journals, a Senior Member of the IEEE, and a member of the ACM, IEEE Computer Society, IEEE Circuits and Systems Society, IEEE VLSI Systems and Applications Technical Committee, ACM SIGDA, and Eta Kappa Nu

CURRENT GRADUATE STUDENTS (EXPECTED GRADUATION DATE)

- Saad Arrabi (PhD 2013)
- Adam Barth (PhD 2011)
- Jeff Brantley (PhD 2014)
- Shanshan Chen (PhD 2013)
- Kyle Craig – co-advised with Benton Calhoun (PhD 2013)
- Nishant George (PhD 2011)
- Jiawei Huang (PhD 2011)
- Taeyoung Kim – co-advised with Benton Calhoun (PhD 2014)
- Harry Powell (PhD 2010)
- Samuel Ridenour (MS 2011)
- Puqing Wu (PhD 2013)

ALUMNI – PHD

- Scott Bingham (PhD 2009)
“Fault Coverage Analysis of Integrated Circuit Designs Through Assertion-Based Verification and Fault Injection (ABVFI)”
University of Virginia Award for Excellence in Scholarship in the Sciences & Engineering – 2007
First job: Northrop Grumman
- Mark Hanson (PhD 2009)
“Wireless Body Area Sensor Network Technology for Motion-Based Health Assessment”
Achievement Rewards for College Scientists (ARCS) Scholar – 2007-2009
University of Virginia Award for Excellence in Scholarship in the Sciences & Engineering – 2008
First job: Manager of Assistive Technology Initiatives, Alarm.com Incorporated
- Zhijian Lu (PhD 2006)
“Runtime Management Techniques for Power- and Temperature-Aware Computing”
ECE Louis T. Rader Graduate Research Award – 2007
Best Student Paper Award, *ACM Workshop on Self-Healing, Adaptive, and Self-Managed Systems* – 2002
First job: Marvell Technology Group
- Vinu Vijay Kumar (PhD 2005)
“Application-Specific Small-Scale Reconfigurability”

ECE Louis T. Rader Graduate Research Award – 2005
Ballard Fellow – 2003-2004
First job: Texas Instruments DSP R&D

ALUMNI – MASTERS

- Adam Barth (MS 2009)
- Jason Brandon (MS 2004)
- Latriese Jackson (ME 2009)
- Travis Lenhart (MS 2007)
- Jie Lie (MS 2008)
Best Paper Award, *IEEE International Conference on Computer Design* – 2007
4th place University of Virginia Engineering Research Symposium – 2007
- Yoshihiro Masui (MS 2006)
- Harry Powell (MS 2006)
- Mateja Putic (MS 2008)
- Devendra Rai (MS 2009)
- Kranti Uppala (ME 2005)
- Wenqian Wu (MS 2006)

ALUMNI – UNDERGRADUATE RESEARCH

- Alla Aksel (BS 2004)
2nd place at the SEAS Undergraduate Research and Design Symposium
- Joshua Anderson (BS 2007)
- Matthew Ashburn (BS 2004)
- Daniel Bagley (BS 2006)
- Robert Baummer (BS 2004)
- Brian Cason (BS 2007)
- Teya Flick (BS 2003)
- Jackie Fok (BS 2003)
- Niroop Gonchikar (BS 2002)
- Yonathan Habtemichael (BS 2009)
- David Hammack (BS 2005)
- Jennifer Henderson (BS 2003)
- Justin Hornback (BS 2002)
- Adam Kamihara (BS 2006)
- Connor Kyle (BS 2002)
- David Lattimore (BS 2002)
- Hampton Maher (BS 2004)
- Sholanda McCullough (BS 2008)
- Jason Mondesir (BS 2009)
- Martin Rauscher (BS 2004)
- Christopher Rehorn (BS 2004)
- Matt Skancke (BS 2005)
- Christopher Skarka (BS 2002)
- Brian Stascavage (BS 2009)
- Kathy Takeguchi (BS 2002)
- Arun Thomas (BS 2003)
- Gustavo Torrico (BS 2003)
- Paul Tschirhart (BS 2007)
- Carlos Valle (BS 2008)
- Tia Webb (BS 2003)