

DANIEL B. LIMBRICK

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ACADEMIC INTERESTS

I lead the Automated Design for Emerging Processing Technologies (ADEPT) research laboratory at North Carolina A&T State University. My research focuses on the design of fault-tolerant systems and emerging computing technologies. Topics of interest include:

- Fault-tolerant microprocessor design
- Three-dimensional integrated circuits
- Integrated circuit simulation and emulation
- High-performance computing
- Engineering education
- Electronic Design Automation (EDA)
- Computer architecture design
- Very-large-scale integration (VLSI) design

EDUCATION

Ph.D., Electrical Engineering, *Vanderbilt University*, December 2012
Dissertation Title: *Impact of Logic Synthesis on Soft Error Rate of Digital Integrated Circuits*
Minor: Computer Science

M.S., Electrical Engineering, *Vanderbilt University*, December 2009
Thesis Title: *Embedding Temporal Signatures to Monitor Microarchitectural Control Flow*
Minor: Computer Science

B.S., Electrical Engineering, *Texas A&M University-College Station*, May 2007

PROFESSIONAL EXPERIENCE

- | | |
|--------------------------|--|
| FALL 2013 - PRESENT | Assistant Professor
<i>North Carolina A&T State University, Greensboro, NC</i>
Department of Electrical and Computer Engineering |
| FALL 2012 - SUMMER 2013 | Postdoctoral Fellow
<i>Georgia Institute of Technology, Atlanta, GA</i>
School of Electrical and Computer Engineering
Georgia Tech Computer-Aided Design (GTCAD) Group
Postdoctoral Advisor: Dr. Sung Kyu Lim |
| FALL 2007 - SUMMER 2012 | Graduate Research Assistant
<i>Vanderbilt University, Nashville, TN</i>
Vanderbilt Security and Fault Tolerance (SAF-T) Group
Radiation Effects and Reliability (RER) Group |
| FALL 2007 - SPRING 2008 | Graduate Teaching Assistant
<i>Vanderbilt University, Nashville, TN</i>
EECE 112 - Engineering Circuit Analysis |
| FALL 2006 - SUMMER 2007; | Test Engineering Intern |

- SUMMER 2008 *Hewlett Packard @ Research Park, College Station, TX*
Firmware Division
- SUMMER 2006 **Undergraduate Research Assistant**
Vanderbilt University, Nashville, TN
Summer Research Program in Hybrid and Embedded Systems
- SUMMER 2004;
SUMMER 2005 **Summer Intern**
Motorola/Freescale Semiconductors, Austin, TX
Computer Platform Division
- SPRING 2003 - SUMMER 2004 **Undergraduate Research Assistant**
Texas A&M University, College Station, TX
Power Systems Automation Laboratory
- SUMMER 2002;
SUMMER 2001 **Summer Intern**
National Aeronautics and Space Administration (NASA), Houston, TX
Summer High School Apprenticeship Research Program (SHARP)

PUBLICATIONS AND SCHOLARLY WORK

Book Chapters

- [B1] Christopher Osiegbu, Seifemichael Amsalu, Fatemeh Afghah, **Daniel B. Limbrick**, and Abdollah Homaifar, "Toward Resident Behavior Prediction in Wireless Sensor Network-Based Smart Homes," in *Advances in Computer Communications and Networks: From Green, Mobile, Pervasive Networking to Big Data Computing*, Kewei Sha, Aaron Strigel, and Min Song, Eds., River Publishers, Series in Communications, pp. 345-362, 2016.

Refereed Journal Articles

- [J4] Bradley T. Kiddie, William H. Robinson, and **Daniel B. Limbrick**, "Single-Event Multiple-Transient Characterization and Mitigation via Alternative Standard Cell Placement Methods," *ACM Transactions on Design Automation of Electronic Systems*, Vol. 20, No. 4, pp. 1-22, 2015.
- [J3] Dolores A. Black, William H. Robinson, Ian Wilcox, **Daniel B. Limbrick**, and Jeffrey D. Black, "Modeling of Single Event Transients with Dual Double-Exponential Current Sources: Implications for Logic Cell Characterization," *IEEE Transactions on Nuclear Science*, Vol. 62, No. 4, pp. 1540-1549, 2015.
- [J2] **Daniel B. Limbrick**, Nihaar N. Mahatme, William H. Robinson, and Bharat L. Bhuvu, "Reliability-Aware Synthesis of Combinational Logic With Minimal Performance Penalty," *IEEE Transactions on Nuclear Science*, Vol. 60, No. 4, pp. 2776-2781, 2013.
- [J1] Nihaar N. Mahatme, Indranil Chatterjee, Akash Patki, **Daniel B. Limbrick**, Bharat L. Bhuvu, Ronald D. Schrimpf and William H. Robinson, "An efficient technique to select logic nodes for single event transient pulse-width reduction," *Microelectronics Reliability*, Vol. 53, No. 1, pp. 114-117, 2013.

Refereed Conference Presentations with Proceedings

- [C19] Hao Qiu, Richard A. Peters, William H. Robinson, and **Daniel B. Limbrick**, "The Effects of Radiation-Induced Soft Errors on Hardware Implementations of Object-Tracking Algorithms," *60th IEEE International Midwest Symposium on Circuits and Systems (MWSCAS)*, August 2017.

- [C18] William H. Robinson, **Daniel B. Limbrick**, Bradley T. Kiddie, and Ahmed I. Abdul-Rahman "Design-Based Variability in Simulating Single Event Transients," *17th European Conference on Radiation and Its Effects on Components and Systems (RADECS)*, September 2016.
- [C17] Yosef Borga, **Daniel Limbrick**, and Sung Kyu Lim, "Physical Design Factors that Contribute to Routing Congestion in Monolithic 3D Integrated Circuits", *International Workshop on Logic & Synthesis (IWLS)*, June 2016.
- [C16] **Daniel B. Limbrick**, "Work-In-Progress: Teaching Broadly-Applicable STEM Skills to High School Sophomores Using Linux and Smartphones," *American Society for Engineering Education (ASEE) Annual Conference*, June 2016. **BEST IN SESSION AWARD**
- [C15] Christopher Osiegbu, Seifemichael Amsalu, Fatemeh Afghah, Abdollah Homaifar, and **Daniel B. Limbrick**, "Design and Implementation of an Autonomous Wireless Sensor-based Smart Home," *IEEE International Workshop on Wireless Mesh and Ad-Hoc Networking (WiMAN)*, August 2015.
- [C14] Young-Joon Lee, **Daniel Limbrick**, and Sung Kyu Lim, "Power Benefit Study for Ultra-High Density Transistor-Level Monolithic 3D ICs", *ACM Design Automation Conference (DAC)*, June 2013.
- [C13] Bradley T. Kiddie, William H. Robinson, and **Daniel B. Limbrick**, "Single-Event Multiple-Transients (SEMT): Circuit Characterization and Analysis," *IEEE Workshop on Silicon Errors in Logic - System Effects (SELSE)*, March 2013.
- [C12] Trey Reece, **Daniel B. Limbrick**, Xiaowen Wang, Bradley T. Kiddie, and William H. Robinson, "Stealth Assessment of Hardware Trojans in a Microcontroller," *IEEE International Conference on Computer Design (ICCD)*, October 2012.
- [C11] **Daniel B. Limbrick**, Nihaar N. Mahatme, and William H. Robinson, "Determining the Efficacy of Selective Node Hardening Techniques using Standard Cells," *13th European Conference on Radiation and Its Effects on Components and Systems (RADECS)*, September 2012.
- [C10] **Daniel B. Limbrick** and William H. Robinson, "Impact of Logic Synthesis on Soft Error Rate of Digital Integrated Circuits," *IEEE Computer Society Annual Symposium on VLSI (ISVLSI)*, August 2012.
- [C9] **Daniel B. Limbrick** and William H. Robinson, "Characterizing Single Event Transient Pulse Widths in an Open-Source Cell Library Using SPICE," *IEEE Workshop on Silicon Errors in Logic - System Effects (SELSE)*, March 2012.
- [C8] Trey Reece, **Daniel B. Limbrick**, William H. Robinson, "Design Comparison to Identify Malicious Hardware in External Intellectual Property," *IEEE International Conference on Trust, Security and Privacy in Computing and Communications (TrustCom)*, November 2011.
- [C7] **Daniel B. Limbrick**, Suge Yue, William H. Robinson, and Bharat L. Bhuvva, "Impact of Synthesis Constraints on Error Propagation Probability of Digital Circuits," *Proceedings of the IEEE International Symposium on Defect and Fault Tolerance in VLSI Systems (DFTS)*, October 2011.
- [C6] **Daniel B. Limbrick**, William H. Robinson, Bharat L. Bhuvva, "Synthesis optimization trends on error propagation probability of combinational circuits," *IEEE Workshop on Silicon Errors in Logic - System Effects (SELSE)*, March 2011.
- [C5] Dolores A. Black, Robert A. Reed, William H. Robinson, Jeffrey D. Black, **Daniel B. Limbrick**, and Kevin D. Dick, "Impact of Ion-Induced Transients on High-Speed Dual-Complementary Flip-Flop Designs," *Proceedings of the IEEE International Reliability Symposium (IRPS)*, April 2011.
- [C4] **Daniel B. Limbrick**, Dolores A. Black, Kevin Dick, Nicholas M. Atkinson, Nelson J. Gaspard, Jeffrey D. Black, William H. Robinson, Arthur F. Witulski, "Impact of Logic Synthesis on Soft Error Vulnerability Using a 90-nm Bulk CMOS Digital Cell Library," *Proceedings of the IEEE SoutheastCon*, March 2011.
- [C3] Nihaar N. Mahatme, Indranil Chatterjee, Akash Patki, **Daniel B. Limbrick**, Ronald D. Schrimpf, Bharat L. Bhuvva, and William H. Robinson, "An Efficient Technique to Select Logic Nodes for Single Event

Transient Reduction,” *11th European Conference on Radiation and Its Effects on Components and Systems (RADECS)*, September 2010.

- [C2] **Daniel B. Limbrick**, William H. Robinson, Bharat L. Bhuvu, “Reliability-Aware Synthesis: XOR logic function case study,” *IEEE Workshop on Silicon Errors in Logic - System Effects (SELSE)*, March 2010.
- [C1] Edward J. Ossi, **Daniel B. Limbrick**, William H. Robinson, Bharat L. Bhuvu, “Soft-error Mitigation at the Architecture-Level Using Berger Codes and Instruction Repetition,” *IEEE Workshop on Silicon Errors in Logic - System Effects (SELSE)*, March 2009.

Other Conference Presentations

- [O5] William H. Robinson, Bradley T. Kiddie, **Daniel B. Limbrick**, Trey Reece, Xiaowen Wang, and Qian Ding, Reliability-aware logic synthesis of integrated circuits (ICs): Layout effects for multiple transients, in *IEEE/IFIP International Conference on Dependable Systems and Networks (DSN) - Fast Abstracts*, June 2012.
- [O4] Ryan C. Bickham, **Daniel B. Limbrick**, William H. Robinson, Bharat L. Bhuvu, “An Analysis of Error Detection Techniques for Arithmetic Logic Units (ALUs),” *Government Microcircuit Applications and Critical Technology Conference (GOMACTech)*, March 2011.
- [O3] Corey T. Toomey, Brian D. Sierawski, Andrew Sternberg, **Daniel B. Limbrick**, Bharat L. Bhuvu, Lloyd W. Massengill, William H. Robinson, S.-J. Wen, R. Wong, S. Martin, “Statistical Fault Injection and Analysis at the Register Transfer Level Using the Verilog Procedural Interface,” *Government Microcircuit Applications and Critical Technology Conference (GOMACTech)*, March 2011.
- [O2] Dolores A. Black, Robert A. Reed, William H. Robinson, Jeffrey D. Black, **Daniel B. Limbrick**, and Kevin D. Dick, “Impact of Ion-Induced Meta-Stable Conditions on Clocked Operations Of DICE Flip-Flops for Reconfigurable Devices,” *Military and Aerospace Programmable Logic Devices Conference (MAPLD)*, November 2010.
- [O1] **Daniel B. Limbrick**, Edward Ossi, Corey Toomey, Bharat Bhuvu, William Robinson, “Characterization of Control Bit Errors in the MIPS R2000 Microprocessor,” *Government Microcircuit Applications and Critical Technology Conference (GOMACTech)*, March 2010.

Invited Seminars

- [S5] Daniel B. Limbrick, “Digital Systems @ NC A&T,” presented at Cisco Systems, Research Triangle Park, North Carolina, April 8, 2016.
- [S4] Daniel B. Limbrick, “Electronic Design Automation for Emerging Technologies and Harsh Environments,” presented at North Carolina A&T University, Greensboro, North Carolina, May 8, 2013.
- [S3] Daniel B. Limbrick, “Electronic Design Automation for Emerging Technologies and Harsh Environments,” presented at Southern Methodist University, Dallas, Texas, March 20, 2013.
- [S2] Daniel B. Limbrick, “Impact of Logic Synthesis on the Soft Error Rate of Digital Integrated Circuits,” presented at University of Southern California, Los Angeles, California, April 19, 2012.
- [S1] Daniel B. Limbrick, “Impact of Logic Synthesis on the Soft Error Rate of Digital Integrated Circuits,” presented at University of Maryland, College Park, Maryland, April 9, 2012.

Workshop Presentations

- [W8] Daniel B. Limbrick, “Advice to Undergraduates... or how I decided on attending graduate school,” presented at the Louis Stokes Alliance for Minority Participation Symposium, Prairie View, Texas, March 3, 2017.
- [W7] Daniel B. Limbrick, “Advice to Graduate Students... or what I did with my PhD,” presented at the Louis Stokes Alliance for Minority Participation Symposium, Prairie View, Texas, March 3, 2017.

- [W6] Daniel B. Limbrick, "Simulation, Analysis, and Mitigation of Silent Data Corruptions in Exascale Computing Systems," presented at the Sustainable Research Pathways Workshop, Berkeley, CA, December 7, 2016
- [W5] Daniel B. Limbrick, "Panel: Addressing Challenges in Fostering Diversity in Design Automation," panelist at the CRAW/CDC/NSF Discipline Specific Workshop on Diversity in Design Automation, San Francisco, CA, June 1, 2014
- [W4] Daniel B. Limbrick, "Reliability-Aware Logic Synthesis and Physical Design for Digital Integrated Circuits," presented at the Academic Research Leadership Symposium, Nashville, TN, March 29, 2014
- [W3] Daniel B. Limbrick and Jacqueline Fairley, "Postdoc: Where and Why Do It?" presented at the National Society of Black Engineers (NSBE) National Convention, Nashville, TN, March 28, 2014
- [W2] Daniel B. Limbrick, "Electronic Design Automation for Emerging Technologies and Harsh Environments" presented at the Building Future Faculty Workshop @ North Carolina State University, Raleigh, NC, April 4, 2013
- [W1] Daniel B. Limbrick, "Impact of Logic Synthesis on the Soft Error Rate of Digital Integrated Circuits" presented at the Future Faculty Workshop @ Rice University, Houston, TX, September 11, 2012

SPONSORED RESEARCH ACTIVITIES

Externally Sponsored Research (Total - \$346,083)

Title: Tracking Error Propagation for Large Circuits Deterministically

Sponsor: Southeastern Center for Electrical Engineering Education (SCEEE)

Period of Performance: July 1, 2017 to June 30, 2018

Role: PI

Amount: \$25,500

Title: CI-NEW: Infrastructure for Reliability-Aware Cross-Layered Design of Integrated Circuits

Sponsor: National Science Foundation

Period of Performance: September 1, 2016 to August 31, 2019

Role: Co-PI (Lead PI at Institution)

Lead PI: William H. Robinson, Vanderbilt University

Amount: \$250,000

Title: Processor Functional Safety Analysis in the face of Radiation-Induced Soft Errors

Sponsor: kVA

Period of Performance: August 17, 2016 to May 17, 2017

Role: PI

Amount: \$18,750

Title: Professor-In-Residence

Sponsor: Cisco Systems

Period of Performance: July 5, 2016 to August 11, 2016

Role: PI

Amount: \$12,000

Title: Simulation of Soft Errors in Extraterrestrial Environments

Sponsor: North Carolina Space Grant Consortium, New Investigator Award

Period of Performance: July 1, 2016 to June 30, 2017

Role: PI

Amount: \$12,500

Title: Hardware/Software Resilience Co-Design Tools for Extreme-scale High-Performance Computing

Sponsor: Oak Ridge National Laboratory, HBCU/MEI Faculty Summer Research Program

Period of Performance: June 5, 2014 to August 13, 2014

Role: PI

Amount: \$27,333

Internally Sponsored Research (Total - \$255,941)

Title: Tracking Error Propagation for Large Circuits Deterministically

Sponsor: North Carolina A&T State University, Department of Electrical and Computer Engineering

Period of Performance: July 1, 2017 to June 30, 2018

Role: PI

Amount: \$25,500 (Matching Funds)

Title: Simulation of Soft Errors in Extraterrestrial Environments

Sponsor: North Carolina A&T State University, Department of Electrical and Computer Engineering

Period of Performance: July 1, 2016 to June 30, 2017

Role: PI

Amount: \$12,500 (Matching Funds)

Title: Research Equipment for ADEPT Laboratory

Sponsor: North Carolina A&T State University, College of Engineering Research Equipment Funding

Period of Performance: April 1, 2015 to August 31, 2015

Role: PI

Amount: \$77,765

Title: Development of a Linux Teaching Laboratory

Sponsor: North Carolina A&T State University

Period of Performance: February 1, 2014 to August 31, 2014

Role: PI

Amount: \$40,000

Title: Assistive robot for geriatric and handicap application

Sponsor: North Carolina A&T State University, College of Engineering

Period of Performance: October 1, 2013 to August 31, 2014

Role: Co-PI

Lead PI: Abdollah Homaifar

Other PIs: Fatemah Afghah, Ali Karimoddini

Amount: \$100,176

HONORS AND AWARDS RECEIVED

North Carolina A&T State University

- Southeastern Center for Electrical Engineering Education (SCEEE) Development Fund Grant for Junior Faculty (2017)
- IEEE Senior Member (2017)
- Woody Everett Award, Best in Session, Computers in Education Division, American Society for Engineering Education (ASEE) (2016)
- North Carolina Space Grant New Investigators Program (2016)
- Oak Ridge National Laboratory HBCU/MEI Faculty Summer Research Program (2014)

Georgia Institute of Technology

- National Science Foundation FACES Postdoctoral Fellowship (2012 - 2013)

Vanderbilt University

- Vanderbilt University Provost Graduate Fellowship (2007 - 2012)
- Alfred P. Sloan Foundation Minority PhD Program Sloan Fellow (2007 - 2012)
- National Consortium for Graduate Degrees for Minorities in Engineering and Science (GEM) Fellowship (2007 - 2008)

Texas A&M University

- National Society of Black Engineers (NSBE) Academic Technical Bowl (ATB) Regional 1st place winner (2003)
- NSBE Undergraduates Students in Technical Research (USTR) Regional 1st place winner (2003)
- Texas A&M University Department of Physics Mechanics Scholar (2002)
- National Achievement Scholar (2002)
- National Merit Commended Scholar (2002)

RESEARCH TRAINING AND SUPERVISION

Current Graduate Students Supervised

- **Ahmed Yiwere**, Ph. D. in Electrical Engineering (expected May 2022)
- **Ebenezer Tachie-Menson**, M.S. in Electrical Engineering - (expected May 2019)
- **Monique Kirkman-Bey**, Ph. D. in Electrical Engineering (expected May 2018)
(co-advised with Dr. Numan Dogan)
- **Ahmed Issa Abdul-Rahman**, M.S. in Electrical Engineering - May 2017
- **Yosef Borga**, M.S. in Electrical Engineering - December 2015
- **Miriam Njuguna**, M.S. in Electrical Engineering - December 2015

Non-Thesis Master's Degrees Supervised

- **Roopa Ganta**, M.S. in Electrical Engineering - May 2015

Master's Thesis Committees

- **Shimika Bowers**, M.S. in Electrical Engineering - August 2015
- **Monique Kirkman-Bey**, M.S. in Electrical Engineering - August 2014

Undergraduate Students Supervised

- **Davidson Metis**: Simulation of Soft Errors in Extraterrestrial Environments (Summer 2017)
- **Dennis Azorlibu**: Simulation of Soft Errors in Extraterrestrial Environments (Spring 2017)
- **Luke Abers**: Digital Systems Modeling for Identity and Verification (Summer 2016)
- **Leroy Harrill**: Digital Systems Modeling for Identity and Verification (Summer 2016)
- **Dominiqueca Edwards**: Simulation of Soft Errors in Extraterrestrial Environments (Spring 2017); Injecting Faults in Binary Adders (Fall 2015 - Spring 2016)
- **Katrina Rosemond**: Simulation of Soft Errors in Extraterrestrial Environments (Spring 2017 - Summer 2017); Water Testing with Digital Microfluidics (Fall 2015 - Spring 2016)
- **Matthew Bartley**: Digital Circuit Simulations Using Xilinx ISE and Modelsim in Linux (Summer 2015)

High School Students Supervised

- Miles Davis (Fall 2017 - Spring 2018)
- Darian Whitaker (Fall 2017 - Spring 2018)

TEACHING EXPERIENCE

ECEN 375/COMP 375 - Computer Architecture and Organization

This undergraduate course covers the design, organization and architecture of computer systems. Topics include central processing unit architecture, instruction set architecture, instruction level parallelism, microcode, system interconnections, memory systems, input/output systems; interrupt handling, peripherals and communications networks.

- Fall 2017

ECEN 626 - Electronic Design Automation (formerly 685/885 Special Topics)

This graduate course covers the following electronic design automation concepts: logic synthesis, partitioning, floorplanning, global routing, detailed routing, compaction, and performance-driven layout. Also discussed are the applications of a number of important optimization techniques, such as network flow, Steiner tree, scheduling, simulated annealing, generic algorithm, and linear/convex programming.

- Spring 2017, Fall 2015, Spring 2015, Spring 2014

ECEN 685 - Digital System Verification (Special Topics)

This graduate course prepares students to be entry-level industrial standard cell ASIC verification engineers. The course gives the student an understanding of issues and tools related to ASIC verification, with a focus on the methodologies supported by the SystemVerilog language. Students verify complex digital functional blocks, finding most of the contained bugs, using SystemVerilog. Students also demonstrate an understanding of the basic methodologies used in ASIC Verification and their implementation using SystemVerilog.

- Fall 2016

ECEN 721 - Fault-Tolerant Digital System Design

This graduate course covers reliability, test generation, self-checking techniques, principles and applications of fault-tolerant design techniques.

- Spring 2016

ECEN 327 - Digital Logic

This undergraduate course involves the study of fundamental combinational and sequential logic circuit analysis/design. Combinational concepts covered include Boolean algebra, k-maps, basic logic gates, and small/medium scale integrated circuits. Sequential concepts covered include basic latches/flip-flops, counters, memory registers, and basic synchronous systems.

- Spring 2014, Fall 2013

ECEN 328 - Digital Logic Laboratory

This undergraduate course deals with the implementation of basic combinational and sequential logic systems. Small and medium scale integrated circuits are utilized in addition to programmable logic devices.

- Fall 2017 (2 sections), Spring 2017 (2 sections), Fall 2016 (2 sections), Spring 2016 (2 sections), Fall 2015 (2 sections), Spring 2015 (2 sections), Fall 2014 (2 sections), Spring 2014 (2 sections), Fall 2013 (2 sections)

Other

- GRE Math Workshop Lecturer (Fall 2010, Fall 2011)

- Tennessee Louis Stokes Alliance for Minority Participation (TLSAMP) Tutor (Fall 2010)

SERVICE

Professional Affiliations

- Institute of Electrical and Electronics Engineers (IEEE)
 - Senior Member (2017 - present)
 - Member (2012 - 2017)
 - Student Member (2007 - 2012)
 - Computer Society (2011 - Present)
- Association for Computing Machinery (ACM)
 - Member (2012 - Present)
 - Student Member (2010 - 2012)
- American Society for Engineering Education (ASEE)
 - Member (2014 - Present)
- SAE International (formerly Society of Automotive Engineers)
 - Professional Member (2017 - Present)
- Academic Research and Leadership Network (ARL)
 - Member (2014 - Present)
- National Society of Black Engineers
 - Collegiate Member (2002 - 2012)
 - Pre-College Initiative (PCI) Member (1998-2002)

Organizing Committee Member

- Academic Research and Leadership Symposium (2015)
 - Faculty Development Track Co-chair
- 9th Workshop on Silicon Errors in Logic - System Effects (2013)
 - Session Chair

Organizing Committee Volunteer

- 31st IEEE International Conference on Computer Design (2013)
 - Registration Committee Volunteer
- Parallel Architectures and Compilation Techniques (2009)
 - Registration Committee Volunteer

Peer Reviewer

- Conference/Journal Paper Reviews
 - ASEE National Conference (2016)
 - ASEE Southeastern Section Conference (2016)
 - Microelectronics Reliability Journal (2013, 2014)

- IEEE Transactions on Nuclear Science (2013, 2016, 2017)
- Design Automation Conference (DAC) (2013)
- IEEE Journal on Emerging and Selected Topics in Circuits and Systems (JETCAS) (2011)
- Wiley's Security and Communication Networks Journal (2010)
- Grant/Fellowship Panels
 - National Defense Science and Engineering Graduate (NDSEG) Panel (2016)
 - NSF Division of Computing and Communication Foundations (CCF) Panel (2016, 2017)
 - NSF Directorate for Computer & Information Science & Engineering Panel (2015, 2016)
 - ASEE/DoD SMART Scholarship for Service Program Judge (2014)

University, College of Engineering, and Department Service at North Carolina A&T University

- Chair of the Committee on Funding Graduate Program (2014 - 2015)
- NC A&T College of Engineering Graduate Research Poster Competition Judge (2014, 2015, 2016)
- Computer Engineering Curriculum Committee (2013-2014)

Service and Activities at Vanderbilt University

- Vice President for Diversity Affairs Selection Committee (2009)
- National Society of Black Engineers
 - Graduate Student Representative (2008-2009)

Service and Activities at Texas A&M University

- National Society of Black Engineers
 - Regional Academic Excellence Chair (2004-2005)
 - Chapter Telecommunications Chair (2004-2005)
 - Chapter Academic Excellence Chair (2003-2004)

Diversity and Outreach Efforts

- Digital Systems Training Academy (Spring 2016 - present)
 - Partnership between NC A&T and Cisco
 - Weekly workgroup with undergraduates
 - Teaches Linux, Verilog, TCL, shell scripting, and research
- STEM Scholars Program Founder and Director (Fall 2015 - present)
 - Partnership between NC A&T and STEM Early College at NC A&T
 - Bi-weekly seminar with high school sophomores
 - Teaches Linux, algorithms, and research
- FIRST LEGO League Jr. Robotics Coach - Cone Elementary School, Greensboro, NC (Fall 2014)