William H. Robinson | Curriculum Vitae

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If you can fill the unforgiving minute
With sixty seconds' worth of distance run...
– Rudyard Kipling

Professional Interests

I lead the **Security And Fault Tolerance (SAF-T) Research Group** at Vanderbilt University, whose mission is to conduct transformational research that addresses the reliability and security of computing systems. We consider strategies in both hardware and software with the goal of maximizing performance and energy efficiency. Our aim is to design, model, verify, and implement robust computing systems that positively benefit stakeholders with consumer, defense, industrial, and medical applications. As a systems researcher, this process requires an understanding of a diverse set of research areas as well as the interrelationship among those areas. Topics of interest include the following:

- Radiation effects in microprocessor design
- Computer architecture design
- Very Large Scale Integrated circuit (VLSI) design
- Fault-tolerant systems
- Secure hardware platforms
- Embedded computing
- Field Programmable Gate Arrays (FPGAs)
- Reconfigurable architectures

Education

Georgia Institute of Technology (Georgia Tech) **Atlanta, GA**
Ph.D. in Electrical and Computer Engineering, *December 2003*
Research Areas: VLSI Design, Parallel Computer Architectures

Georgia Institute of Technology (Georgia Tech) **Atlanta, GA**
M.S. in Electrical Engineering, *June 1998*
Concentrations: Computer Engineering, Digital Signal Processing, Telecommunications
Minor: Computer Science
GPA: 3.88

Florida Agricultural and Mechanical University (FAMU) **Tallahassee, FL**
B.S. in Electrical Engineering, summa cum laude *April 1996*
Minors: Computer and Information Systems (CIS) and Mathematics
GPA: 3.91

Dissertation

Title: *Modeling and Implementation of an Integrated Pixel Processing Tile for Focal Plane Systems*

Supervisor: D. Scott Wills, Sc.D.

Description: Technology improvements to integrate CMOS sensors, analog-to-digital conversion circuitry, and digital processing in a single chip offer the potential for a highly efficient imaging system for multimedia processing. My dissertation presented a study of system-level design issues to develop monolithic focal plane architectures. Research contributions included: (1) a workload characterization of front-end imaging applications to determine architectural design constraints, (2) the development of models to predict performance and efficiency of system components, and (3) an evaluation of design tradeoffs to increase the performance of the focal plane architecture.

Professional Experience

Academic Positions

Vanderbilt University — **Nashville, TN**

Associate Dean, School of Engineering — *January 2016 – Present*

Associate Chair for Electrical and Computer Engineering — *August 2014 – December 2015*

Director of Undergraduate Studies, Electrical Engineering — *August 2014 – December 2015*

Director of Undergraduate Studies, Computer Engineering — *August 2011 – December 2015*

Associate Professor of Electrical Engineering (with tenure) — *August 2010 – present*

Associate Professor of Computer Engineering (with tenure) — *August 2010 – present*

Assistant Professor of Electrical Engineering — *August 2003 – August 2010*

Assistant Professor of Computer Engineering — *August 2003 – August 2010*

Responsibilities while at Vanderbilt

- Director of the Security And Fault Tolerance (SAF-T) Research Group
- Member of the Radiation Effects and Reliability (RER) Research Group
- Member of the Institute for Space and Defense Electronics (ISDE)
- Member of the Institute for Software Integrated Systems (ISIS)
- Instructor for undergraduate and graduate courses in Computer Architecture Reliability, Computer Organization, Digital Logic, Digital Systems Architecture, and FPGA Design

Fisk University — **Nashville, TN**

Adjunct Professor of Computer Science — *August 2011 – present*

- Developed interactions to support dual-degree engineering students

Georgia Institute of Technology — **Atlanta, GA**

Graduate Research Assistant — *October 1996 – August 2003*

Portable Image Computational Architecture (PICA) Research Group
Detailed accomplishments:

- Developed applications for the SIMD Pixel (SIMPil) Processor
- Developed models to characterize integrated pixel design

Georgia Institute of Technology — **Atlanta, GA**

Graduate Teaching Assistant — *June 2001 – May 2002*

Student and Teacher Enhancement Partnership (STEP), an NSF GK-12 Program
Detailed accomplishments:

- Tutored at-risk students in basic science courses and Algebra
- Assisted students with science fair projects, including topic selection, notebook keeping, data analysis, and data presentation
- Introduced new laboratory activity to trigonometry class

Georgia Institute of Technology **Atlanta, GA**
Graduate Teaching Assistant *January 1999 – March 1999*
Instructor for CmpE 1700 Computer and Digital Fundamentals
Detailed accomplishments:
- Class size of 36 students
- Responsible for all lectures and exams

Industry Positions

Ford Motor Company **Dearborn, MI**
Engineer *May 2000 – August 2000*
Noise, Vibration, and Harshness (NVH) Testing
Detailed accomplishments:
- Developed user interface for parametric frame modeling tool
- Developed Frequency Response Function (FRF) based sub-structuring tool using Matlab
- Assisted with free-body modal testing of vehicle components

Andersen Consulting (now Accenture) **Tallahassee, FL**
Analyst *May 1996 – October 1996*
Unemployment Compensation (UC) Tax Implementation
Detailed accomplishments:
- Performed database administrative duties for UC Tax database
- Generated COBOL subroutines to access ORACLE database
- Wrote training manuals for newly assigned programmers

Michelin Tire Corporation **Greenville, SC**
Engineering Intern *May 1995 – August 1995*
Engineering-Major Projects Department
Detailed accomplishments:
- Developed a functional overview of an automated paging system
- Designed and evaluated hardware configurations of the system
- Wrote a proposal for facility-wide implementation of the paging system

Honeywell, Inc. **Clearwater, FL**
Engineering Intern *Summer 1991, 1992, 1993, 1994*
Summer internships as part of the FAMU Life-Gets-Better Scholarship
Detailed accomplishments:
- Debugged microprocessor assembly code
- Designed tooling used in the build process for connector cables
- Drew connector cable schematics for engineering documentation

Publications and Scholarly Work

Book Chapters

[1] R. Nair, C. Nayak, K. Memon, L. Watkins, K. Fairbanks, and **W. H. Robinson**, "The resource usage viewpoint of industrial control system security: An inference-based intrusion detection system," in *Cybersecurity for Industry 4.0 Analysis for Design and Manufacturing*, L. Thames and D. Schafer, Eds.: Springer, accepted for publication.

Journal Publications

[1] T. Reece, S. Sathyanarayana, **W. H. Robinson**, and R. A. Beyah, "On the outside looking in: Towards detecting counterfeit devices using network traffic analysis," in *IEEE Transactions on Multi-Scale Computing Systems*, accepted for publication.

[2] B. T. Kiddie and **W. H. Robinson**, "Relative logic cell placement for mitigation of charge sharing-induced transients," *Semiconductor Science and Technology*, vol. 31, no. 10, 2016.

[3] E. O. McGee, D. T. White, A. T. Jenkins, S. Houston, L. C. Bentley, W. J. Smith, and **W. H. Robinson**, "Black engineering students' motivation for PhD attainment: Passion plus purpose," *Journal for Multicultural Education*, vol. 10, no. 2, pp. 167–193, 2016.

[4] T. Reece and **W. H. Robinson**, "Detection of hardware Trojans in third-party intellectual property using untrusted modules," *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, vol. 35, no. 3, pp. 357–366, 2016.

[5] **W. H. Robinson**, E. O. McGee, L. C. Bentley, S. L. Houston, and P. K. Botchway, "Addressing negative racial and gendered experiences that discourage academic careers in engineering," *Computing in Science & Engineering*, vol. 18, no. 2, pp. 29–39, 2016.

[6] D. A. Black, **W. H. Robinson**, I. Z. Wilcox, D. B. Limbrick, and J. 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.

[7] Y. P. Chen, L. W. Massengill, B. L. Bhuva, W. T. Holman, T. D. Loveless, **W. H. Robinson**, N. J. Gaspard, and A. F. Witulski, "Single-event characterization of bang-bang all-digital phase-locked loops (ADPLLs)," *IEEE Transactions on Nuclear Science*, vol. 62, no. 6, pp. 2650–2656, 2015.

[8] B. T. Kiddie, **W. H. Robinson**, and D. 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. 60:1–60:22, 2015.

[9] N. N. Mahatme, L. Rui, H. Wang, L. Chen, K. Lilja, B. L. Bhuva, L. W. Massengill, S.-J. Wen, R. Wong, and **W. H. Robinson**, "Influence of voltage and particle LET on timing vulnerability factors of circuits," *IEEE Transactions on Nuclear Science*, vol. 62, no. 6, pp. 2592–2598, 2015.

[10] H. Quinn, **W. H. Robinson**, P. Rech, M. Aguirre, A. Barnard, M. Desogus, L. Entrena, M. Garcia-Valderas, S. M. Guertin, D. Kaeli, F. L. Kastensmidt, B. T. Kiddie, A. Sanchez-Clemente, M. Sonza Reorda, L. Sterpone, and M. Wirthlin, "Using benchmarks for radiation testing of microprocessors and FPGAs," *IEEE Transactions on Nuclear Science*, vol. 62, no. 6, pp. 2547–2554, 2015.

[11] L. Watkins, **W. H. Robinson**, and R. A. Beyah, "Using network traffic to infer hardware state: A kernel-level investigation," *ACM Transactions on Embedded Computing Systems*, vol. 14, no. 3, pp. 55:1–55:20, 2015.

[12] N. N. Mahatme, N. J. Gaspard, T. Assis, I. Chatterjee, T. D. Loveless, B. L. Bhuva, **W. H. Robinson**, L. W. Massengill, S.-J. Wen, and R. Wong "Kernel-based circuit partition approach to mitigate combinational logic soft errors," *IEEE Transactions on Nuclear Science*, vol. 61, no. 6, pp. 3274–3281, 2014.

[13] D. Burger, K. G. Stassun, J. Pepper, R. J. Siverd, M. Paegert, N. M. De Lee, and **W. H. Robinson**, "Filtergraph: An interactive web application for visualization of astronomy datasets," *Astronomy and Computing*, vol. 2, pp. 40–45, 2013.

[14] D. B. Limbrick, N. N. Mahatme, **W. H. Robinson**, and B. L. Bhuva, "Reliability-aware synthesis of combinational logic with minimal performance penalty," *IEEE Transactions on Nuclear Science*, vol. 60, no. 4, pp. 2776–2781, 2013.

[15] N. N. Mahatme, I. Chatterjee, A. Patki, D. B. Limbrick, B. L. Bhuva, R. D. Schrimpf, and **W. 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.

[16] N. N. Mahatme, N. J. Gaspard, S. Jagannathan, T. D. Loveless, B. L. Bhuva, **W. H. Robinson**, L. W. Massengill, S. J. Wen, and R. Wong, "Impact of supply voltage and frequency on the soft error rate of logic circuits," *IEEE Transactions on Nuclear Science*, vol. 60, no. 6, pp. 4200–4206, 2013.

[17] H. M. Quinn, D. A. Black, **W. H. Robinson**, and S. P. Buchner, "Fault simulation and emulation tools to augment radiation-hardness assurance testing," *IEEE Transactions on Nuclear Science*, vol. 60, no. 3, pp. 2119–2142, 2013.

[18] **W. H. Robinson** and A. P. Lauf, "Aerial MANETs: Developing a resilient and efficient platform for search and rescue applications," *Journal of Communications: Special Issue on Advances in Communications and Networking*, vol. 8, no. 4, pp. 216–224, 2013.

[19] X. Wang and **W. H. Robinson**, "Asynchronous data sampling within clock-gated double edge-triggered flip-flops," *IEEE Transactions on Circuits and Systems I: Regular Papers*, vol. 60, no. 9, pp. 2401–2411, 2013.

[20] L. Watkins, **W. H. Robinson**, and R. A. Beyah, "A passive solution to the CPU resource discovery problem in cluster grid networks," *IEEE Transactions on Parallel and Distributed Systems*, vol. 22, no. 12, pp. 2000–2007, 2011.

[21] L. Watkins, **W. H. Robinson**, and R. Beyah, "A passive solution to the memory resource discovery problem in computational clusters," *IEEE Transactions on Network and Service Management*, vol. 7, no. 4, pp. 218–230, 2010.

[22] A. P. Lauf, R. A. Peters, and **W. H. Robinson**, "A distributed intrusion detection system for resource-constrained devices in ad-hoc networks," *Ad Hoc Networks*, vol. 8, no. 3, pp. 253–266, 2010.

[23] J. D. Black, D. R. Ball II, **W. H. Robinson**, D. M. Fleetwood, R. D. Schrimpf, R. A. Reed, D. A. Black, K. M. Warren, A. D. Tipton, P. E. Dodd, N. F. Haddad, M. A. Xapsos, H. S. Kim, and M. Friendlich, "Characterizing SRAM single event upset in terms of single and multiple node charge collection," *IEEE Transactions on Nuclear Science*, vol. 55, no. 6, pp. 2943–2947, 2008.

[24] M. C. Casey, A. R. Duncan, B. L. Bhuva, **W. H. Robinson**, and L. W. Massengill, "Simulation study on the effect of multiple node charge collection on error cross-section in CMOS sequential logic," *IEEE Transactions on Nuclear Science*, vol. 55, no. 6, pp. 3136–3140, 2008.

[25] B. Narasimham, B. L. Bhuva, R. D. Schrimpf, L. W. Massengill, M. J. Gadlage, W. T. Holman, A. F. Witulski, **W. H. Robinson**, J. D. Black, J. M. Benedetto, and P. H. Eaton, "Effects of guard bands and well contacts in mitigating long SETs in advanced CMOS processes," *IEEE Transactions on Nuclear Science*, vol. 55, no. 3, pp. 1708–1713, 2008.

[26] B. Narasimham, B. L. Bhuva, R. D. Schrimpf, L. W. Massengill, M. J. Gadlage, O. A. Amusan, W. T. Holman, A. F. Witulski, **W. H. Robinson**, J. D. Black, J. M. Benedetto, and P. H. Eaton, "Characterization of digital single event transient pulse-widths in 130-nm and 90-nm CMOS technologies," *IEEE Transactions on Nuclear Science*, vol. 54, no. 6, pp. 2506–2511, 2007.

[27] B. Narasimham, B. L. Bhuva, W. T. Holman, R. D. Schrimpf, L. W. Massengill, A. F. Witulski, and **W. H. Robinson**, "The effect of negative feedback on single event transient propagation in digital circuits," *IEEE Transactions on Nuclear Science*, vol. 53, no. 6, pp. 3285–3290, 2006.

[28] B. Narasimham, V. Ramachandran, B. L. Bhuva, R. D. Schrimpf, A. F. Witulski, W. T. Holman, L. W. Massengill, J. D. Black, **W. H. Robinson**, and D. McMorrow, "On-chip characterization of single-event

transient pulsewidths," *IEEE Transactions on Device and Materials Reliability*, vol. 6, no. 4, pp. 542–549, 2006.

[29] A. R. Duncan, V. Srinivasan, A. L. Sternberg, **W. H. Robinson**, B. L. Bhuva, and L. W. Massengill, "Comparison of SEUtool results to experimental results in Boeing radiation tolerant DSP (BDSP C30)," *IEEE Transactions on Nuclear Science*, vol. 52, no. 6, pp. 2224–2230, 2005.

[30] **W. H. Robinson** and D. Wills, "Efficiency analysis for a mixed-signal focal plane processing architecture," *Journal of VLSI Signal Processing*, vol. 41, no. 1, pp. 65–80, 2005.

[31] V. Srinivasan, A. L. Sternberg, A. R. Duncan, **W. H. Robinson**, B. L. Bhuva, and L. W. Massengill, "Single-event mitigation in combinational logic using targeted data path hardening," *IEEE Transactions on Nuclear Science*, vol. 52, no. 6, pp. 2516–2523, 2005.

Conference Presentations with Proceedings

[1] L. Watkins, S. Beck, J. Zook, A. Buczak, J. Chavis, **W. H. Robinson**, J. A. Morales, and S. Mishra, "Using semi–supervised machine learning to address the big data problem in DNS networks," in *7th IEEE Annual Computing and Communication Workshop and Conference*, 2017.

[2] N. Malik, J. Chandramouli, P. Suresh, K. Fairbanks, L. Watkins, and **W. H. Robinson**, "Using network traffic to verify mobile device forensic artifacts," in *Workshop – Security and Cognitive Informatics for Homeland Defense*, 2017.

[3] M. Hooper, Y. Tian, R. Zhou, B. Cao, A. P. Lauf, L. Watkins, **W. H. Robinson**, and W. Alexis, "Securing commercial WiFi-based UAVs from common security attacks," in *IEEE Military Communications Conference (MILCOM)*, 2016.

[4] **W. H. Robinson**, D. B. Limbrick, B. T. Kiddie, A. I. Abdul-Rahman, B.-T. Lin and S. A. Olowogemo, "Design-based variability in simulating single event transients," in *European Conference on Radiation and its Effects on Components and Systems (RADECS)*, 2016.

[5] X. Wang and **W. H. Robinson**, "A dual-threshold voltage approach for timing speculation in CMOS circuits," in *IEEE Computer Society Annual Symposium on VLSI (ISVLSI)*, 2016, pp. 691–696.

[6] B. T. Kiddie and **W. H. Robinson**, "The effects of EDA placement modification for mitigating radiation-induced multiple transients," in *IEEE Workshop on Silicon Errors in Logic – System Effects (SELSE)*, 2015.

[7] G. Lontorfos, K. D. Fairbanks, L. Watkins, and **W. H. Robinson**, "Remotely inferring device manipulation of industrial control systems via network behavior," in *9th IEEE Workshop on Network Measurements (WNM)*, 2015, pp. 603–610.

[8] E. O. McGee, **W. H. Robinson**, L. C. Bentley, and S. L. Houston, "Diversity stalled: Explorations into the stagnant numbers of African American engineering faculty," in *2015 ASEE Annual Conference and Exposition*, 2015.

[9] T. Potteiger and **W. H. Robinson**, "A one Zener diode, one memristor crossbar architecture for a write-time-based PUF," in *IEEE 58th International Midwest Symposium on Circuits and Systems*, 2015, pp. 1–4.

[10] H. Quinn, **W. H. Robinson**, P. Rech, A. Barnard, M. Aguirre, M. Desogus, L. Entrena, M. Garcia-Valderas, S. M. Guertin, D. Kaeli, F. L. Kastensmidt, B. T. Kiddie, A. Sanchez-Clemente, M. Sonza Reorda, L. Sterpone, and M. Wirthlin, "The use of benchmarks for high-reliability systems," in *IEEE Workshop on Silicon Errors in Logic – System Effects (SELSE)*, 2015.

[11] **W. H. Robinson**, E. O. McGee, L. C. Bentley, S. L. Houston, P. K. Botchway, and R. Roy "Racial and gendered experiences that dissuade a career in the professoriate," in *Research in Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT)*, 2015, pp. 1–5.

[12] L. Watkins, K. Silberburg, J. A. Morales, and **W. H. Robinson**, "Using inherent command and control vulnerabilities to halt DDoS attacks," in *10th International Conference on Malicious and Unwanted Software: The Americas (MALWARE)*, 2015, pp. 3–10.

[13] B. T. Kiddie and **W. H. Robinson**, "Alternative standard cell placement strategies for single-event multiple-transient mitigation," in *IEEE Computer Society Annual Symposium on VLSI (ISVLSI)*, 2014, pp. 589–594.

[14] B. T. Kiddie and **W. H. Robinson**, "Effects of single-event multiple-transients on logic-sensitive standard cell placement," in *IEEE Workshop on Silicon Errors in Logic – System Effects (SELSE)*, 2014.

[15] L. Kou and **W. H. Robinson**, "Impact of process variations on reliability and performance of 32-nm 6T SRAM at near threshold voltage," in *IEEE Computer Society Annual Symposium on VLSI (ISVLSI)*, 2014, pp. 214–219.

[16] T. Reece, B. T. Kiddie, and **W. H. Robinson**, "Identification of trojans in an FPGA using low-precision equipment," in *IEEE 57th International Midwest Symposium on Circuits and Systems*, 2014, pp. 306–309.

[17] L. Watkins, C. Kawka, C. Corbett, and **W. H. Robinson**, "Fighting banking botnets by exploiting inherent command and control vulnerabilities," in *9th International Conference on Malicious and Unwanted Software: The Americas (MALWARE)*, 2014, pp. 93–100.

[18] M. Yue, **W. H. Robinson**, L. Watkins, and C. Corbett, "Constructing timing-based covert channels in mobile networks by adjusting CPU frequency," in *Third Workshop on Hardware and Architectural Support for Security and Privacy (HASP)*, 2014, pp. 2:1–2:8.

[19] Q. Ding, T. Reece, and **W. H. Robinson**, "Timing analysis in software and hardware to implement NIST elliptic curves over prime fields," in *IEEE 56th International Midwest Symposium on Circuits and Systems (MWSCAS)*, 2013, pp. 1358–1362.

[20] B. T. Kiddie, **W. H. Robinson**, and D. B. Limbrick, "Single-event multiple-transients (SEMT): Circuit characterization and analysis," in *IEEE Workshop on Silicon Errors in Logic – System Effects (SELSE)*, 2013.

[21] T. Reece and **W. H. Robinson**, "Analysis of data-leak hardware trojans in AES cryptographic circuits," in *IEEE International Conference on Technologies for Homeland Security (HST)*, 2013, pp. 467–472.

[22] T. Reece and **W. H. Robinson**, "Risk-aversion in laboratory learning," in *6th International Conference of Education, Research, and Innovation (ICERI)*, 2013, pp. 6879–6886.

[23] **W. H. Robinson** and A. P. Lauf, "Resilient and efficient MANET aerial communications for search and rescue applications," in *International Conference on Computing, Networking and Communication (ICNC)*, 2013, pp. 845–849.

[24] **W. H. Robinson**, T. Reece, and N. N. Mahatme, "Addressing the challenges of hardware assurance in reconfigurable systems," in *The International Conference on Engineering of Reconfigurable Systems and Algorithms (ERSA)*, 2013, pp. 71–78. **Invited Paper and Conference Keynote**

[25] S. Sathyanarayana, **W. H. Robinson**, and R. A. Beyah, "A network-based approach to counterfeit detection," in *IEEE International Conference on Technologies for Homeland Security (HST)*, 2013, pp. 473–479.

[26] L. Watkins, C. Corbett, B. Salazar, K. Fairbanks, and **W. H. Robinson**, "Using network traffic to remotely identify the type of applications executing on mobile devices," in *Mobile Security Technologies (MoST)*, 2013.

[27] D. B. Limbrick and **W. H. Robinson**, "Characterizing single event transient pulse widths in an open-source cell library using SPICE," in *IEEE Workshop on Silicon Errors in Logic – System Effects (SELSE)*, 2012.

[28] T. Reece, D. B. Limbrick, X. Wang, B. T. Kiddie, and **W. H. Robinson**, "Stealth assessment of hardware trojans in a microcontroller," in *IEEE 30th International Conference on Computer Design (ICCD)*, 2012, pp. 139 - 142.

[29] R. C. Bickham, D. B. Limbrick, **W. H. Robinson**, and B. L. Bhuva, "An analysis of error detection techniques for arithmetic logic units (ALUs)," in *36th Annual Government Microcircuit Applications and Critical Technology Conference (GOMACTech)*, 2011.

[30] D. A. Black, R. A. Reed, **W. H. Robinson**, J. D. Black, D. B. Limbrick, and K. D. Dick, "Impact of ion-induced transients on high-speed dual-complementary flip-flop designs," in *IEEE International Reliability Physics Symposium (IRPS)*, 2011, pp. SE.8.1–SE.8.7.

[31] D. B. Limbrick, D. A. Black, K. Dick, N. M. Atkinson, N. J. Gaspard, J. D. Black, **W. H. Robinson**, and A. F. Witulski, "Impact of logic synthesis on soft error vulnerability using a 90-nm bulk CMOS digital cell library," in *IEEE SoutheastCon*, 2011, pp. 430–434.

[32] D. B. Limbrick, S. Yue, **W. H. Robinson**, and B. L. Bhuva, "Impact of synthesis constraints on error propagation probability of digital circuits," in *IEEE International Symposium on Defect and Fault Tolerance in VLSI and Nanotechnology Systems (DFT)*, 2011, pp. 103–111.

[33] D. B. Limbrick, S. Yue, **W. H. Robinson**, and B. L. Bhuva, "Synthesis optimization trends on error propagation probability of combinational circuits," in *IEEE Workshop on Silicon Errors in Logic – System Effects (SELSE)*, 2011.

[34] T. Reece, D. B. Limbrick, and **W. H. Robinson**, "Design comparison to identify malicious hardware in external intellectual property," in *IEEE 10th International Conference on Trust, Security and Privacy in Computing and Communications (TrustCom)*, 2011, pp. 639–646.

[35] T. Reece and **W. H. Robinson**, "Hardware trojans: The defense and attack of integrated circuits," in *IEEE 29th International Conference on Computer Design (ICCD)*, 2011, pp. 293–296.

[36] C. T. Toomey, B. D. Sierawski, A. Sternberg, D. B. Limbrick, B. L. Bhuva, L. W. Massengill, **W. H. Robinson**, S.-J. Wen, R. Wong, and S. Martin, "Statistical fault injection and analysis at the register transfer level using the verilog procedural interface," in *36th Annual Government Microcircuit Applications and Critical Technology Conference (GOMACTech)*, 2011.

[37] A. P. Lauf and **W. H. Robinson**, "Fault-tolerant distributed reconnaissance," in *IEEE Military Communications Conference (MILCOM)*, 2010, pp. 1812–1817.

[38] D. B. Limbrick, E. J. Ossi, C. T. Toomey, **W. H. Robinson**, and B. L. Bhuva, "Characterization of control bit errors in the MIPS R2000 microprocessor," in *35th Annual Government Microcircuit Applications and Critical Technology Conference (GOMACTech)*, 2010.

[39] D. B. Limbrick, **W. H. Robinson**, and B. L. Bhuva, "Reliability-aware synthesis: XOR logic function case study," in *IEEE Workshop on Silicon Errors in Logic – System Effects (SELSE)*, 2010.

[40] T. Reece, **W. H. Robinson**, and B. L. Bhuva, "Signature-based detection of hardware trojans with voltage stepping," in *35th Annual Government Microcircuit Applications and Critical Technology Conference (GOMACTech)*, 2010.

[41] X. Wang and **W. H. Robinson**, "A low-power double edge-triggered flip-flop with transmission gates and clock gating," in *IEEE 53rd International Midwest Symposium on Circuits and Systems (MWSCAS)*, 2010, pp. 205–208.

[42] Q. Ding and **W. H. Robinson**, "An FPGA implementation of an elliptic curve cryptosystem coprocessor over prime fields," in *The International Conference on Engineering of Reconfigurable Systems and Algorithms (ERSA)*, 2009, pp. 303–304.

[43] A. P. Lauf and **W. H. Robinson**, "Fault tolerance in MANETs using a task-to-resource reallocation framework," in *International Conference on Computational Science and Engineering (CSE)*, 2009, pp. 753–758.

[44] E. J. Ossi, D. B. Limbrick, **W. H. Robinson**, and B. L. Bhuva, "Soft-error mitigation at the architecture-level using Berger codes and instruction repetition," in *IEEE Workshop on Silicon Errors in Logic – System Effects (SELSE)*, 2009.

[45] A. P. Lauf, R. A. Peters, and **W. H. Robinson**, "Embedded intelligent intrusion detection: A behavior-based approach," in *4th International Symposium on Embedded Computing (SEC)*, 2007, pp. 816–821.

[46] **W. H. Robinson**, M. L. Alles, T. A. Bapty, B. L. Bhuva, J. D. Black, A. B. Bonds, L. W. Massengill, S. K. Neema, R. D. Schrimpf, and J. M. Scott, "Soft error considerations for multicore microprocessor design," in *International Conference on IC Design and Technology (ICICDT)*, 2007, pp. 206–209.

[47] **W. H. Robinson**, A. O. Austin, D. L. Geddis, D. C. Llewellyn, and M. C. Usselman, "Incorporating engineering into high school Algebra and trigonometry: An initiative of the Georgia Tech Student and Teacher Enhancement Partnership (STEP) program," in *ASEE Annual Conference and Exposition*, Session 2665 – Mathematics in the Transition, 2003. **Nominated for Best Paper Award**

[48] **W. H. Robinson** and D. S. Wills, "Analysis of area-time efficiency for an integrated focal plane architecture," in *Proceedings of the SPIE - The International Society for Optical Engineering, Image and Video Communications and Processing*, 2003, pp. 272–283.

[49] **W. H. Robinson**, G. Triplett, and D. S. Wills, "Component modeling for an integrated digital pixel," in *15th Annual Meeting of the IEEE Lasers and Electro-Optics Society (LEOS)*, 2002, pp. 37–38.

[50] **W. H. Robinson** and D. S. Wills, "Design of an integrated focal plane architecture for efficient image processing," in *15th International Conference on Parallel and Distributed Computing Systems (PDCS)*, 2002, pp. 128–35.

[51] **W. H. Robinson** and D. S. Wills, "Cost modeling for early image processing applications," in *2nd International Workshop on Digital and Computational Video (DCV)*, 2001, pp. 29–34.

[52] **W. H. Robinson**, D. S. Wills, M. Brooke, and N. Jokerst, "IRIS: an integrated, scalable focal plane architecture," in *11th Annual Meeting of the IEEE Lasers and Electro-Optics Society (LEOS)*, 1998, pp. 184–85.

Conference Presentations without Proceedings

[1] L. C. Bentley, E. O. McGee, **W. H. Robinson**, S. L. Houston, P. K. Botchway, and R. Roy, "Engineering at the intersection: Black women's experiences in engineering doctoral programs," in *2016 AERA Annual Meeting*, 2016.

[2] S. L. Houston, E. O. McGee, **W. H. Robinson**, L. C. Bentley, and P. K. Botchway, "Engineering the thermostat: Examining factors that warm up and cool out doctoral students' faculty aspirations," in *2016 AERA Annual Meeting*, 2016.

[3] H. Quinn, **W. H. Robinson**, P. Rech, A. Barnard, M. Aguirre, M. Desogus, L. Entrena, M. Garcia-Valderas, S. M. Guertin, D. Kaeli, F. L. Kastensmidt, B. T. Kiddie, A. Sanchez-Clemente, M. Sonza Reorda, L. Sterpone, and M. Wirthlin, "The use of benchmarks for high-reliability systems," in *IEEE Nuclear and Space Radiation Effects Conference (NSREC)*, 2015.

[4] Y. P. Chen, L. W. Massengill, B. L. Bhuva, W. T. Holman, T. D. Loveless, **W. H. Robinson**, N. J. Gaspard, and A. F. Witulski, "Single-event characterization of bang-bang all-digital phase-locked loops (ADPLLs)," in *IEEE Nuclear and Space Radiation Effects Conference (NSREC)*, 2015.

[5] E. O. McGee, **W. H. Robinson**, L. C. Bentley, and S. L. Houston, "Diversity stalled: Explorations into the stagnant numbers of African American engineering faculty," in *2015 AERA Annual Meeting*, 2015.

[6] H. Quinn, **W. H. Robinson**, P. Rech, A. Barnard, M. Aguirre, M. Desogus, L. Entrena, M. Garcia-Valderas, S. M. Guertin, D. Kaeli, F. L. Kastensmidt, B. T. Kiddie, A. Sanchez-Clemente, M. Sonza Reorda, L. Sterpone, and M. Wirthlin, "The use of benchmarks for radiation testing," in *Military and Aerospace Programmable Logic Devices (MAPLD) Workshop*, 2015.

[7] N. N. Mahatme, T. Assis, N. Gaspard, T. D. Loveless, B. L. Bhuva, **W. H. Robinson**, L. W. Massengill, S. J. Wen, and R. Wong, "Power-aware mitigation of combinational logic single event effects," in *IEEE Nuclear and Space Radiation Effects Conference (NSREC)*, 2014.

[8] N. N. Mahatme, N. J. Gaspard, S. Jagannathan, T. D. Loveless, B. Bhuva, **W. H. Robinson**, L. W. Massengill, S.-J. Wen, and R. Wong, "Impact of supply voltage and particle LET on logic single-event error rates," in *IEEE Nuclear and Space Radiation Effects Conference (NSREC)*, 2013.

[9] D. B. Limbrick, N. N. Mahatme, and **W. H. Robinson**, "Determining the efficacy of selective node hardening techniques using standard cells," in *21st European Conference on Radiation and its Effects on Components and Systems (RADECS)*, 2012.

[10] **W. H. Robinson**, B. T. Kiddie, D. B. Limbrick, T. Reece, X. Wang, and Q. 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*, 2012.

[11] D. A. Black, R. A. Reed, **W. H. Robinson**, J. D. Black, D. B. Limbrick, and K. D. Dick, "Impact of ion-induced meta-stable conditions on clocked operations of DICE flip-flops for reconfigurable devices," in *ReSpace / MAPLD (Military / Aerospace Programmable Logic Devices)*, 2010.

[12] N. N. Mahatme, I. Chatterjee, A. R. Patki, D. B. Limbrick, R. D. Schrimpf, B. L. Bhuva, and **W. H. Robinson**, "An efficient technique to select logic nodes for single event transient pulse-width reduction," in *11th European Conference on Radiation and its Effects on Components and Systems (RADECS)*, 2010.

[13] J. D. Black, D. R. B. II, K. M. Warren, R. D. Schrimpf, D. A. Black, R. A. Reed, D. M. Fleetwood, **W. H. Robinson**, P. E. Dodd, N. F. Haddad, and A. D. Tipton, "Characterizing SRAM single event upset in terms of single and double node charge collection," in *IEEE Nuclear and Space Radiation Effects Conference (NSREC)*, 2008.

[14] M. C. Casey, A. R. Duncan, B. L. Bhuva, **W. H. Robinson**, and L. W. Massengill, "Importance of modeling multiple transients in combinational logic using a modified version of SEUtool," in *IEEE Nuclear and Space Radiation Effects Conference (NSREC)*, 2008.

[15] B. Narasimham, B. L. Bhuva, R. D. Schrimpf, L. W. Massengill, M. J. Gadlage, O. A. Amusan, W. T. Holman, A. F. Witulski, **W. H. Robinson**, J. D. Black, J. M. Benedetto, and P. H. Eaton, "Characterization of digital single event transient pulse widths in 130 nm CMOS," in *IEEE Nuclear and Space Radiation Effects Conference (NSREC)*, 2007.

[16] B. Narasimham, B. L. Bhuva, R. D. Schrimpf, L. W. Massengill, M. J. Gadlage, W. T. Holman, A. F. Witulski, W. H. Robinson, J. D. Black, J. M. Benedetto, and P. H. Eaton, "Effect of guard bands in mitigating long SETs in advanced CMOS processes," in *9th European Conference on Radiation Effects on Components and Systems (RADECS)*, 2007.

[17] K. A. LaBel, M. Berg, D. Black, **W. H. Robinson**, J. Scott, and A. Jordan, "Trade space involved with single event upset (SEU) and transient (SET) handling of field programmable gate array (FPGA) based systems," in *2006 Workshop on Hardened Electronics and Radiation Technology (HEART)*, 2006.

[18] B. Narasimham, B. L. Bhuva, W. T. Holman, R. D. Schrimpf, L. Massengill, A. F. Witulski, and **W. H. Robinson**, "The effect of negative feedback on single-event transient propagation in digital circuits," in *IEEE Nuclear and Space Radiation Effects Conference (NSREC)*, 2006.

[19] B. Narasimham, R. L. Shuler, B. L. Bhuva, R. D. Schrimpf, W. T. Holman, A. F. Witulski, L. W. Massengill, J. D. Black, and **W. H. Robinson**, "Quantifying the effect of guard bands in reducing the collected charge using an autonomous pulse characterization technique," in *IEEE Nuclear and Space Radiation Effects Conference (NSREC)*, 2006.

[20] A. R. Duncan, V. Srinivasan, A. L. Sternberg, **W. H. Robinson**, B. L. Bhuva, and L. W. Massengill, "Comparison of SEUtool results to experimental results in Boeing radiation-tolerant DSP (BDSP C30)," in *IEEE Nuclear and Space Radiation Effects Conference (NSREC)*, 2005.

[21] V. Srinivasan, J. W. Farquharson, **W. H. Robinson**, and B. L. Bhuva, "Evaluation of error detection strategies for an FPGA-based self-checking arithmetic and logic unit," in *2005 Military and Aerospace Programmable Logic Devices Conference (MAPLD)*, 2005.

[22] V. Srinivasan, A. L. Sternberg, A. R. Duncan, **W. H. Robinson**, B. L. Bhuva, and L. W. Massengill, "Single event mitigation in combinational logic using targeted data path hardening," in *IEEE Nuclear and Space Radiation Effects Conference (NSREC)*, 2005.

[23] D. Lunardini, B. Narasimham, V. Ramachandran, V. Srinivasan, R. D. Schrimpf, and **W. H. Robinson**, "A performance comparison between hardened-by-design and conventional-design standard cells," in *2004 Workshop on Radiation Effects on Components and Systems (RADECS)*, 2004.

[24] **W. H. Robinson**, "The Georgia Tech Student and Teacher Enhancement Partnership (STEP) Program: One-on-one tutoring for the Georgia high school graduation test," in *27th Annual Conference of the Professional and Organizational Development Network in Higher Education*, 2002.

[25] **W. H. Robinson**, "The Georgia Tech Student and Teacher Enhancement Partnership (STEP) Program: High school graduation test preparation in science," in *9th Georgia Conference on College and University Teaching*, 2002.

Invited Seminars

[1] "How Life Got Better – A Scholar's Journey to the Professoriate," *Florida A&M University*, Tallahassee, FL, Invited by Dedra O'Neal, presented at the Scholars' Speak Series of the Florida A&M University Scholarship Program and the Division of Student Affairs, October 2016.

[2] "Diversity Stalled: Challenges and Opportunities for Broader Participation within Engineering Academic Careers," *Texas A&M University*, College Station, TX, Invited by P. K. Imbrie, presented at the Institute of Engineering Education and Innovation (IEEI), February 2016.

[3] "Hardware Security: Ensuring a Root of Trust for Computing Systems," *Carnegie Mellon University*, Pittsburgh, PA, Invited by Shawn Blanton, presented at the Center for Silicon System Implementation (CSSI), November 2015.

[4] "Hardware Security: Ensuring a Root of Trust for Computing Systems," *Georgia Institute of Technology*, Atlanta, GA, Invited by Raheem A. Beyah, presented at the Georgia Tech Information Security Center (GTISC), October 2015.

[5] "Resilience and Security for a Diverse Computing World," *National Science Foundation*, Arlington, VA, Invited by James Donlon, April 2015.

[6] "Addressing the Challenges of Hardware Assurance for Trustworthy Systems," *University of California, Berkeley*, Berkeley, CA, Invited by Aimee Tabor, presented at the Team for Research in Ubiquitous Secure Technology (TRUST) Security Seminar, March 2015.

[7] "Addressing the Challenges of Hardware Assurance for Trustworthy Systems," *University of South Alabama*, Mobile, AL, Invited by Rebecca G. Bace, presented at the Center for Forensics, Information Technology and Security (CFITS) – Wednesday Lecture and Network Forum on Information Assurance for Computing Professionals, February 2015.

[8] "Addressing the Challenges of Hardware Assurance in Reconfigurable Systems," *Tennessee State University*, Nashville, TN, Invited by Dean S. Keith Hargrove, presented at the Engineering Research Day of the University-Wide Annual Research Symposium, April 2014.

[9] "Building Reliable Computing Systems: The Challenges of Nanoscale Technologies," *Fisk University*, Nashville, TN, Invited by Dean Lee Limbird, presented at the Cool Science Café, October 2012.

[10] "Integrated Mixed-Signal Embedded Systems for Video Processing," *Florida Agricultural and Mechanical University*, Tallahassee, FL, Invited by Prof. Reginald E. Perry, May 2003.

[11] "Integrated Mixed-Signal Embedded Systems for Video Processing," *University of Florida*, Gainesville, FL, Invited by Prof. Mark E. Law, April 2003.

[12] "Integrated Mixed-Signal Embedded Systems for Video Processing," *Vanderbilt University*, Nashville, TN, Invited by Prof. Arthur J. Brodersen, April 2003.

Workshop Presentations

[1] W. H. Robinson, "Creating a Research Program," presented at the *IEEE Global Virtual Mini-Conference Series on Early Career Faculty Development (ECFD)*, December 2014.

[2] W. H. Robinson and R. A. Beyah, "The Role of Mentoring in Academia: An Invaluable Tool at Every Level," presented at the *National Society of Black Engineers (NSBE) 40th Annual Convention*, Nashville, TN, March 2014.

[3] W. H. Robinson and R. A. Beyah, "Preparing in Advance for Tenure," presented at the *2014 Research Symposium for PROMISE: Maryland's Alliance for Graduate Education and the Professoriate (AGEP)*, College Park, MD, February 2014.

[4] W. H. Robinson and R. A. Beyah, "Got S.W.A.G.? (**S**ecrets to **W**inning in **A**cademia's **G**ame)," presented at the *National Society of Black Engineers (NSBE) 38th Annual Convention*, Pittsburgh, PA, March 2012.

[5] W. H. Robinson and R. A. Beyah, "Got S.W.A.G.? (**S**ecrets to **W**inning in **A**cademia's **G**ame)," presented at the *National Society of Black Engineers (NSBE) 37th Annual Convention*, St. Louis, MO, March 2011.

[6] W. H. Robinson, "Graduate School Preparation Workshop," presented at the *National Society of Black Engineers (NSBE) Fall Regional Conference*, Nashville, TN, November 2003.

Panel Presentations

[1] "Leveraging Your Chair and Dean Effectively," presented at the *2016 Society of Hispanic Professional Engineers (SHPE) Faculty Development Institute*, Seattle, WA, November 2016.

[2] "The Ins and Outs of Administrative Diversity Positions in Academia," presented at the *ACM Richard Tapia Celebration of Diversity in Computing*, Austin, TX, September 2016.

[3] "Viewing Engineering Education through the Lens of Social Science: A Candid Dialogue on Race and Gender," presented at the *123rd ASEE Annual Conference & Exposition*, New Orleans, LA, June 2016.

[4] "NSF CAREER Proposal Development," presented at the *Vanderbilt Junior Faculty Workshop for the College of Arts and Science*, Nashville, TN, May 2016.

[5] "Demystifying the Promotion and Tenure Process," presented at the *the 2016 Academic Careers Workshop*, Houston, TX, April 2016.

[6] "Joys of Administration: How to Get the Position," presented at the *the 2016 Academic Careers Workshop*, Houston, TX, April 2016.

[7] "Launching a Research Program," presented at the *the 2016 Academic Careers Workshop*, Houston, TX, April 2016.

[8] "Engaging Your Chair and Dean Effectively," presented at the *2016 Academic Research and Leadership Network Research Symposium*, Boston, MA, March 2016.

[9] "Advancing Your Career: Influence of Role Models and Mentors," presented at the *First CRA-W/CDC Workshop on Diversity in Design Automation and Test: Putting D(iversity) in Design Automation and Test*, Pittsburgh, PA, May 2011.

Other Presentations

[1] W. H. Robinson, "Everyone can Achieve a PhD – **P**erseverance and **H**ard Work Towards your **D**ream" presented at the *10th Annual Scholarship Banquet*, The Lively Lakeland District of the African Methodist Episcopal (AME) Church, Lakeland, FL, May 2014.

[2] W. H. Robinson, "Evolving as an Engineer: The Life and Times of a Vanderbilt Professor," presented at the *Vanderbilt Chapter Meeting of the Society of Asian Scientists and Engineers*, Nashville, TN, February 2013.

[3] W. H. Robinson, "Evolving as an Engineer: The Life and Times of a Vanderbilt Professor," presented at the *Fisk-VU Bride Seminar*, Nashville, TN, September 2012.

[4] W. H. Robinson, "Evolving as an Engineer: The Life and Times of a Vanderbilt Professor," presented at the *IEEE Vanderbilt Chapter Meeting*, Nashville, TN, March 2012.

[5] W. H. Robinson, "Applying Time Management and Priorities to Academics," presented at the *Go To High School, Go To College Program of the Tau Lambda chapter of Alpha Phi Alpha Fraternity, Inc.*, Nashville, TN, April 2010.

[6] W. H. Robinson, "Detection of Malicious Hardware in Integrated Circuits," presented at the *Defense Advanced Research Projects Agency (DARPA) Computer Science Study Panel – Session 6*, Institute for Defense Analyses, Alexandria, VA, October 2009.

[7] W. H. Robinson, "Detection of Malicious Hardware in Integrated Circuits," presented at the *Defense Advanced Research Projects Agency (DARPA) Computer Science Study Panel – Session 5*, Institute for Defense Analyses, Alexandria, VA, July 2009.

[8] W. H. Robinson, "Careers and College Majors," presented at the *Go To High School, Go To College Program of the Tau Lambda chapter of Alpha Phi Alpha Fraternity, Inc.*, Nashville, TN, April 2009.

[9] W. H. Robinson, "The Big Picture of Engineering," presented at the *Senior Institute Kick-off for the Nashville Big Picture High School*, Vanderbilt University, Nashville, TN, August 2009.

[10] W. H. Robinson, "An Integrated Approach to Soft Error Mitigation in CMOS Digital Systems," presented at the *Spring 2008 Industrial Advisory Board (IAB) Meeting*, Vanderbilt University Department of Electrical Engineering and Computer Science (EECS), Nashville, TN, April 2008.

[11] W. H. Robinson, "Surviving (and Thriving) in Engineering," presented at the *Surviving Engineering Seminar*, Vanderbilt University Chapter of the National Society of Black Engineers (NSBE), Nashville, TN, November 2007.

[12] W. H. Robinson, "Got Time?" presented at the *Time Management Seminar*, Vanderbilt University Chapter of the National Society of Black Engineers (NSBE), Nashville, TN, September 2006.

[13] W. H. Robinson, "Seven Keys for Straight A's," presented at the *Straight A's Seminar*, Vanderbilt University Chapter of the National Society of Black Engineers (NSBE), Nashville, TN, September 2004.

[14] W. H. Robinson, "What are you going to do? Finding and fulfilling your purpose." presented at the *Closing Luncheon*, Vanderbilt University Chapter of the National Society of Black Engineers (NSBE), Nashville, TN, April 2004.

[15] W. H. Robinson, "Reflections of a GK-12 Fellow," presented at the *Vanderbilt-Meharry-TSU GK-12 Program Meeting*, Nashville, TN, November 2003.

[16] W. H. Robinson, "Integrated Mixed-Signal Embedded Systems for Video Processing," presented at the *3rd Annual Empowering Minority Engineers to Reach for Graduate Education (EMERGE) Workshop*, Atlanta, GA, April 2003.

Sponsored Research Activities

Summary: While at Vanderbilt University, I have been involved with a total of over $14.5M in sponsored research.

Funding as a Single Investigator, Total: $1,149,001

Title: Facilitating Academic Careers in Engineering and Science (FACES) Career Initiation Grant
Sponsor: Georgia Institute of Technology *$20,000*
Period of Performance: 09/01/2003 – 12/31/2008

Title: Feasibility Study to Develop Reliability-Aware High-Level Synthesis
Sponsor: Vanderbilt University, University Central Discovery Grant Program *$42,703*
Period of Performance: 05/01/2006 – 06/30/2008

Title: Reliability-Aware High-Level Synthesis for Integrated Circuits in Multicore Microprocessors
Sponsor: Southeastern Center for Electrical Engineering Education *$18,000*
Period of Performance: 09/01/2007 – 08/31/2008

Title: FY08 Computer Science Study Panel – Phase 1
Sponsor: Defense Advanced Research Projects Agency *$100,000*
Period of Performance: 04/01/2008 – 03/31/2009

Title: CAREER: An Integrated Approach to Soft Error Mitigation in CMOS Digital Systems
Sponsor: National Science Foundation *$400,000*
Period of Performance: 06/01/2008 – 05/31/2013

Title: Computer Science Study Panel – Phase 2
Sponsor: Defense Advanced Research Projects Agency *$498,182*
Period of Performance: 04/01/2009 – 09/30/2011

Title: Support for the Academic and Research Leadership Symposium at the National Society of Black Engineers Convention
Sponsor: National Science Foundation *$49,957*
Period of Performance: 07/01/2014 – 06/30/2015

Title: Support for the International Symposium on Hardware-Oriented Security and Trust (HOST)
Sponsor: National Science Foundation *$10,159*
Period of Performance: 10/01/2014 – 09/30/2015

Title: Support for the International Symposium on Hardware-Oriented Security and Trust (HOST)
Sponsor: National Science Foundation *$10,000*
Period of Performance: 1/01/2016 – 12/31/2016

Funding for Collaborative Projects as Lead Principal Investigator, Total: $2,175,916

Title: Study to Identify a Strategy and Approach to Develop an Advanced Radiation-Hardened Microprocessor Technology/Architecture Capable of Meeting Future Satellite and Missile Systems Requirements
Sponsor: Johns Hopkins University Applied Physics Laboratory *$280,000*
Period of Performance: 09/01/2006 – 09/30/2007
Lead PI: W. H. Robinson
Co-PIs: T. A. Bapty, B. L. Bhuva, L. W. Massengill, S. K. Neema, and R. D. Schrimpf

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Title: EAGER: Collaborative Research: Characterizing Microarchitectural Mechanisms for Network Delay Signatures
Sponsor: National Science Foundation *$100,000*
Period of Performance: 09/01/2012 – 08/31/2013
Lead PI: W. H. Robinson
Co-PI: R. A. Beyah (Georgia Institute of Technology)

Title: SHF: Small: Collaborative Research: Delay Signatures: Blurring the Boundary between the Network and the Processor
Sponsor: National Science Foundation *$500,000*
Period of Performance: 08/01/2013 – 7/31/2016
Lead PI: W. H. Robinson
Co-PI: R. A. Beyah (Georgia Institute of Technology)

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

Sponsor: National Science Foundation *$400,000*

Period of Performance: 09/01/2016 – 8/31/2019

Lead PI: W. H. Robinson

Co-PI: D. B. Limbrick (North Carolina A&T State University)

Title: Coaching toward the Professoriate: Race and Gender Conscious Mentoring for Black Doctoral Students in Engineering and Computing

Sponsor: National Science Foundation *$895,916*

Period of Performance: 09/15/2016 – 09/14/2019

Lead PI: W. H. Robinson

Co-PI: E. O. McGee

Funding for Collaborative Projects as Co-Principal Investigator, Total: $11,281,153

Title: RHAP – Institute for Space and Defense Electronics (ISDE) Radiation Effects Modeling and Simulation of Electronics and Technologies

Sponsor: U.S. Navy / Draper Labs *$481,800*

Period of Performance: 06/01/2004 – 12/31/2004

Lead PI: R. D. Schrimpf

Co-PIs: L. W. Massengill, D. M. Fleetwood, W. H. Robinson, R. A. Weller, and K. F. Galloway

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Title: Team for Research in Ubiquitous Secure Technology (TRUST)

Sponsor: National Science Foundation *$3,200,000*

Period of Performance: 06/01/2005 – 05/31/2010

Lead PI: J. Sztipanovits

Co-PIs: D. C. Schmidt, G. Karsai, and W. H. Robinson

Title: Research, Development, Test, & Evaluation (R, D, T, & E) of Radiation Effects in Analog and Mixed Signal Technology

Sponsor: Mission Research Corporation *$813,263*

Period of Performance: 06/01/2005 – 06/31/2006

Lead PI: L. W. Massengill

Co-PIs: B. L. Bhuva, W. T. Holman, W. H. Robinson, R. A. Reed, and R. D. Schrimpf

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Title: Technology Readiness for Radiation-Hardened Electronics Design in Support of Minuteman

Sponsor: Air Force Minuteman Guidance Replacement Program *$604,009*

Period of Performance: 06/08/2007 – 12/31/2008

Lead PI: B. Templeton

Co-PIs: D. M. Fleetwood, R. D. Schrimpf, L. W. Massengill, and W. H. Robinson

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Title: Beta Version of RTL-Level Single Event Simulator

Sponsor: Cisco Systems, Inc. *$180,000*

Period of Performance: 11/14/2008 – 02/28/2010

Lead PI: B. L. Bhuva

Co-PIs: W. T. Holman, W. H. Robinson, L. W. Massengill, and R. A. Reed

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Title: Team for Research in Ubiquitous Secure Technology (TRUST)

Sponsor: National Science Foundation *$3,200,000*

Period of Performance: 06/01/2010 – 05/31/2015

Lead PI: J. Sztipanovits

Co-PIs: D. C. Schmidt, G. Karsai, and W. H. Robinson

Title: Planning Grant: I/UCRC for Integrated Design-for-Reliability for Electronics

Sponsor: National Science Foundation *$11,500*

Period of Performance: 02/01/2012 – 01/31/2013

Lead PI: B. L. Bhuva

Co-PIs: R. A. Reed, W. H. Robinson, R. D. Schrimpf, and L. W. Massengill

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Title: Diversity Stalled: Explorations into the Stagnant Numbers of African American Engineering Faculty

Sponsor: National Science Foundation *$349,918*

Period of Performance: 03/01/2014 – 02/28/2017

Lead PI: E. O. McGee

Co-PI: W. H. Robinson

Title: The Astro-Materials Collaboration: Positioning Vanderbilt and Fisk for Leadership in Future NASA Missions

Sponsor: Vanderbilt University, University Central Discovery Grant Program *$100,000*

Period of Performance: 05/09/2014 – 06/30/2016

Lead PI: K. G. Stassun

Co-PIs: R. D. Schrimpf, W. H. Robinson, A. Burger, and T. E. Peterson

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Title: BPE-OT: Beyond the Basics: Race and Gender Conscious Mentoring for Black Faculty Candidates in Engineering

Sponsor: National Science Foundation *$340,663*

Period of Performance: 09/01/2014 – 12/31/2016

Lead PI: E. O. McGee

Co-PI: W. H. Robinson

Title: Collaborative Research: AGEP Transformation Alliance: Bridging the PhD to Postdoc to Faculty Transitions for Women of Color in STEM

Sponsor: National Science Foundation *$2,000,000*

Period of Performance: 10/01/2016 – 09/30/2021

Lead PIs: K. G. Stassun, A. Burger (Fisk University), and S. H. Kugler (Wake Forest University)

Co-PIs: M. S. Hutson, C. M. McCabe, R. N. Pitt, W. H. Robinson, K. Holley-Bockelmann (Fisk), and L. Limbird (Fisk)

Honors and Awards

Vanderbilt University

Chancellor's Research Award for Equity, Diversity, and Inclusion *2016*

First African American to earn promotion with tenure in the Vanderbilt University School of Engineering *2010*

Modern-Day Technology Leader, National Black Engineer of the Year Awards (BEYA) *2009*

Received a National Science Foundation (NSF) Faculty Early Career Development (CAREER) Award *2008*

Selected for the Defense Advanced Research Projects Agency (DARPA) Computer Science Study Panel *2008*

Received a Southeastern Center for Electrical Engineering Education Development Fund Grant *2007*

Appeared in a feature article of Black Issues in Higher Education (November 20, 2003, Vol. 20, No. 20, pp. 40-43) as a 2003 Award Recipient of the Facilitating Academic Careers in Engineering and Science (FACES) Career Initiation Grant.

Georgia Institute of Technology

Appeared in a feature article of Atlanta Business Journal (Winter 2006, Vol. 14, No. 1, pp. 64-67) as part of "Georgia Tech's Star-Studded 16," a record for engineering doctoral degrees for African Americans in an academic year.

Office of Minority Educational Development (OMED) Tower Award *2004*

Ford Foundation Dissertation Fellowship for Minorities *2002*

NSF GK-12 Student and Teacher Enhancement Partnership (STEP) Fellowship *2001*

Facilitating Academic Careers in Engineering and Science (FACES) Fellowship *2001*

Eta Kappa Nu Electrical Engineering Honor Society *2000*

Alfred P. Sloan Scholarship *1996*

President's Fellowship *1996*

Florida Agricultural and Mechanical University

Recipient of the Outstanding Alumni of the Quasquicentennial Award *2012*

Recipient of the inaugural Young Alumni Award: A 40 Under 40 Celebration *2010*

National Science Foundation Minority Graduate Fellowship *1996*

Tau Beta Pi Engineering Honor Society *1993*

Golden Key National Honor Society *1993*

Phi Eta Sigma Freshman Honor Society *1992*

Life-Gets-Better Scholarship *1991*

National Achievement Scholar *1991*

Miscellaneous

Marquis Who's Who in America *2009*

Outstanding Young Man of America *1998*

Charles H. Chapman Award for Outstanding Scholarship *1994, 1995, 1996*

Research Training and Supervision

Doctoral Dissertations Supervised

Jeffrey D. Black: Ph.D. in Electrical Engineering *August 2008*

Title: *Pattern Identification of Multiple Cell Upsets in Static Random Access Memories to Relate Experimental Test Results to Single Event Upset Mechanisms*

Initial Employment: Vanderbilt University

Adrian P. Lauf: Ph.D. in Electrical Engineering *May 2010*

Title: *Distributed Sensing with Fault-Tolerant Resource Reallocation for Disaster Area Assessment*

Initial Employment: University of Louisville

Dolores A. Black: Ph.D. in Electrical Engineering *December 2011*

Co-advised with Prof. Robert Reed

Title: *Direct Ionization-Induced Transient Fault Analysis for Combinational Logic and Sequential Capture in Digital Integrated Circuits for Lightly-Ionizing Environments*

Initial Employment: Configurable Space Microsystems Innovations & Applications Center (COSMIAC)

Daniel B. Limbrick: Ph.D. in Electrical Engineering *December 2012*

Title: *Impact of Logic Synthesis on the Soft Error Rate of Digital Integrated Circuits*

Initial Employment: North Carolina Agricultural and Technical State University

Trey Reece: Ph.D. in Electrical Engineering *December 2014*

Title: *Assessing and Detecting Malicious Hardware in Integrated Circuits*

Initial Employment: MD Handoff

Bradley T. Kiddie: Ph.D. in Electrical Engineering *December 2016*

Title: *Single-Event Multiple-Transient Characterization and Mitigation via Standard Cell Placement Methods*

Initial Employment: Intel Corporation

Doctoral Dissertation Committees

Liguo Yu: Ph.D. in Computer Science *August 2004*

Cordelia Brown: Ph.D. in Electrical Engineering *May 2005*

Shanshan Jiang: Ph.D. in Computer Science *December 2009*

Yanchuan Cao: Ph.D. in Computer Science *May 2011*

Gm Tareq Hossain: Ph.D. in Computer Science *August 2011*

Jia Bai: Ph.D. in Computer Science *May 2013*

Fan Qiu: Ph.D. in Computer Science *May 2014*

Thiago Assis: Ph.D. in Electrical Engineering *December 2015*

Zhenkai Zhang: Ph.D. in Computer Science *December 2015*

Master's Theses Supervised

Varadarajan Srinivasan: M.S. in Electrical Engineering *May 2006*

Title: *Mitigation of Soft Errors in ASIC-Based and FPGA-Based Logic Circuits*

George E. Sewell: M.S. in Electrical Engineering *August 2007*
Title: *Security for the Processor-to-Memory Interface using Field Programmable Gate Arrays (FPGAs)*

Adrian P. Lauf: M.S. in Electrical Engineering *December 2007*
Title: *HybrIDS: Embeddable Hybrid Intrusion Detection System*

Olabode Ajiboye: M.S. in Electrical Engineering *August 2009*
Title: *Sensor Computation and Communication for Remote Structural Monitoring*

Daniel B. Limbrick: M.S. in Electrical Engineering *December 2009*
Title: *Mitigation of Radiation-induced Soft Errors Using Temporal Embedded Signature Monitoring*

Trey Reece: M.S. in Electrical Engineering *December 2009*
Title: *Detection of Malicious Hardware in ASICs and FPGAs*

Ryan C. Bickham: M.S. in Electrical Engineering *May 2010*
Co-advised with Prof. Bharat Bhuva
Title: *An Analysis of Error Detection Techniques for Arithmetic Logic Units*

Xiaowen Wang: M.S. in Electrical Engineering *May 2011*
Title: *A Clock-Gated, Double Edge-Triggered Flip-Flop Implemented with Transmission Gates*

Bradley T. Kiddie: M.S. in Electrical Engineering *May 2012*
Title: *Layout-based Fault Injection for Combinational Logic in Nanometer Technologies*

Dan Burger: M.S. in Electrical Engineering *May 2013*
Co-advised with Prof. Keivan Stassun
Title: *Developing Interactive Web Applications for Management of Astronomy Data*

Jianshu Qian: M.S. in Electrical Engineering *August 2013*
Title: *Improved Bufferless Routing via Balanced Pipeline Stages*

Lingbo Kou: M.S. in Electrical Engineering *May 2014*
Title: *Impact of Process Variations on Soft Error Sensitivity of 32-nm VLSI Circuits in Near-Threshold Region*

Non-Thesis Master's Degrees Supervised

Julian W. Farquharson: M.S. in Electrical Engineering *August 2007*
Zhengyu Yang: M.S. in Electrical Engineering *August 2011*

Master's Theses Committees

Eli R. Hooten: M.S. in Electrical Engineering *December 2010*
Corey T. Toomey: M.S. in Electrical Engineering *May 2011*
Eddie J. Ossi: M.S. in Electrical Engineering *December 2011*

Tanmay Misra: M.S. in Electrical Engineering *May 2014*

Visiting Scholars Supervised

Suge Yue: Beijing Microelectronic Technology Institute *June 2007 – April 2008*

Current Graduate Students Supervised

Bor-Tyng Lin: Ph.D. in Electrical Engineering *expected May 2019*
Semiu A. Olowogemo: Ph.D. in Electrical Engineering *expected May 2019*
Timothy Potteiger: Ph.D. in Electrical Engineering *expected May 2019*
Hao Qiu: M.S. in Electrical Engineering *expected December 2016*
Xiaowen Wang: Ph.D. in Electrical Engineering *expected December 2016*

Undergraduate Research Supervised

William Whiteley: Evaluation of the DST-3100 Platform for Future Use *Spring 2004*
Andrew Park: Enhancements to SEUTool *Summer 2006*
Andrew Park: VLSI Synthesis using Hardware Description Languages *Spring 2007*
Morakinyo Olugbade: An Overview of Multi-Core Technology *Spring 2008*
Charreau S. Bell: Embedded System Design using the Nios II Processor *Spring 2009*

Teaching Experience

CS 231 Computer Organization:
Required for undergraduate computer science and computer engineering majors.

This undergraduate course presents the entire hierarchical structure of computer architecture, beginning at the lowest level with a simple machine model (e.g., a simple von Neumann machine). Topics include: (1) microprocessors, (2) memory hierarchy, (3) process and thread management, (4) I/O handling, and (5) assembler concepts. Students gain an understanding of the interactions of hardware and software in a general-purpose computer system.

Fall 2003 Enrollment: 18 undergraduate students
Fall 2004 Enrollment: 18 undergraduate students
Fall 2005 Enrollment: 15 undergraduate students

EECE 116 / 116L Digital Logic:
Required for undergraduate computer science, computer engineering, and electrical engineering majors.

This undergraduate course presents the fundamental concepts for constructing digital systems. Topics include: (1) numbering systems, (2) Boolean algebra, (3) combinational logic, (4) graphical simplification, (5) sequential logic, (6) registers, and (7) state machines. Students are also introduced to the basics of hardware description languages.

Fall 2010 Enrollment: 31 undergraduate students
Fall 2011 Enrollment: 47 undergraduate students
Fall 2012 Enrollment: 59 undergraduate students
Fall 2013 Enrollment: 82 undergraduate students
Fall 2015 Enrollment: 78 undergraduate students
Fall 2016 Enrollment: 94 undergraduate students

EECE 277 FPGA Design:

Designated as a Design Domain Expertise course for undergraduate electrical and computer engineering majors.

This undergraduate course presents both the design and the applications of field-programmable gate arrays (FPGAs). Topics include: (1) Electronic Design Automation (EDA) tools for design, placement, and routing, (2) Hardware Description Languages (HDL) for simulation and synthesis, and (3) state machine specification, design, and simulation. Students work in teams on laboratory assignments and a cumulative design project using FPGA hardware design kits. Skills developed include designing embedded systems, as well as developing test benches for design verification.

Spring 2005 Enrollment: 23 undergraduate and graduate students
Spring 2006 Enrollment: 15 undergraduate and graduate students
Spring 2007 Enrollment: 12 undergraduate and graduate students
Spring 2008 Enrollment: 7 undergraduate and graduate students
Spring 2009 Enrollment: 9 undergraduate and graduate students
Spring 2010 Enrollment: 20 undergraduate and graduate students
Spring 2012 Enrollment: 13 undergraduate and graduate students
Fall 2014 Enrollment: 19 undergraduate and graduate students

EECE 343 Digital Systems Architecture:
Designated as a gateway course in the computers domain of the electrical engineering graduate program.

This graduate course presents advanced concepts that improve the performance of computing systems. Topics include: (1) modern microarchitectures, (2) memory systems, (3) storage systems, and (4) parallel computing. Students also examine case studies of microprocessors, and work in teams to evaluate system performance on benchmark suites.

Spring 2004 Enrollment: 5 graduate students and 5 undergraduate students (co-listed with EECE 292-02)
Fall 2005 Enrollment: 17 graduate students
Fall 2006 Enrollment: 12 graduate students
Fall 2007 Enrollment: 13 graduate students
Fall 2008 Enrollment: 20 graduate students
Fall 2009 Enrollment: 11 graduate students
Spring 2011 Enrollment: 17 graduate students
Spring 2012 Enrollment: 17 graduate students
Spring 2014 Enrollment: 20 graduate students
Spring 2015 Enrollment: 15 graduate students
Spring 2016 Enrollment: 19 graduate students

EECE 396 Computer Architecture Reliability:
Special topics course.

This graduate course presents techniques in computer architecture design that can mitigate the effects of soft errors in microprocessors. Reliability is examined from both a hardware perspective and a software perspective. Topics include: (1) architectural vulnerability factors, (2) fault injection, (3) error detection and correction (EDAC), and (4) redundant multi-threading.

Spring 2009 Enrollment: 10 graduate students

Professional Service and Activities

Professional Affiliations

Association for Computing Machinery (ACM)
Senior Member — *2009 – present*
Special Interest Group on Computer Architecture (SIGARCH)
Member (2003 – 2009)

American Society for Engineering Education (ASEE)
Member — *2003 – present*
Electrical and Computer Engineering Division
Minorities in Engineering Division

Institute of Electrical and Electronic Engineers (IEEE)
Senior Member — *2009 – present*
Circuits and Systems Society
Computer Society
Education Society
Nuclear and Plasma Sciences Society
Photonics Society (1998 – 2009)
Member (2003 – 2009)
Student Member (1998 – 2003)

National Association of Diversity Officers in Higher Education (NADOHE)
Member — *2016 – present*

National Society of Black Engineers (NSBE)
Lifetime Member — *2014 – present*
Member (2003 – 2014)

SPIE – The International Society for Optical Engineering
Member — *2003 – 2009*
Electronic Imaging Technical Group

Program Committee Member

DAC: Design Automation Conference — *2013*
CISIS: International Conference on Complex, Intelligent, and Software Intensive Systems — *2012*
EC: International Workshop on Embedded Computing — *2006*
ERSA: International Conference on Engineering of Reconfigurable Systems and Algorithms — *2008 – 2013*
ESMSC: International Workshop on Embedded Single and Multicore Systems on Chips — *2007*
HASP: Hardware and Architectural Support for Security and Privacy — *2014 – 2016*
HOST: International Symposium on Hardware Oriented Security and Trust — *2011 – 2014, 2017*
HPCA: International Symposium on High-Performance Computer Architecture — *2009, 2011*
ICCD: International Conference on Computer Design — *2012*
ICESS: International Conference on Embedded Software and Systems — *2011 – 2012*
ICPP: International Conference on Parallel Processing — *2015, 2016*
IMIS: International Conference on Innovative Mobile and Internet Services in Ubiquitous Computing — *2011*
ISCA: International Symposium on Computer Architecture — *2017*
MILCOM: Military Communications Conference — *2012*
PPREW: Program Protection and Reverse Engineering Workshop — *2015*
RESPECT: Research on Equity and Sustained Participation in Engineering, Computing, and Technology — *2016*

SEC: International Symposium on Embedded Computing *2007*
SELSE: Silicon Errors in Logic – System Effects *2007, 2013 – 2017*
SMD: International Workshop on SoC and MCSoC Design *2006*

Organizing Committee Member

2017 SELSE: Workshop on Silicon Errors in Logic – System Effects *Publicity Chair*
2016 HOST: IEEE Hardware Oriented Security and Trust *General Chair*
2016 SELSE: Workshop on Silicon Errors in Logic – System Effects *Publicity Chair*
2015 HOST: IEEE Hardware Oriented Security and Trust *General Chair*
2015 SELSE: Workshop on Silicon Errors in Logic – System Effects *Publicity Chair, Poster Session Chair*
2014 ARLS: Academic and Research Leadership Symposium *Co-Chair, Faculty Development Thread*
2014 HOST: IEEE Hardware Oriented Security and Trust *Finance Chair*
2014 SELSE: Workshop on Silicon Errors in Logic – System Effects *Publicity Chair*
2013 HOST: IEEE Hardware Oriented Security and Trust *Finance Chair*
2013 SELSE: Workshop on Silicon Errors in Logic – System Effects *Publicity Chair*
2012 HOST: IEEE Hardware Oriented Security and Trust *Finance Chair*
2011 HOST: IEEE Hardware Oriented Security and Trust *Finance Chair*
2010 NSREC: IEEE Nuclear and Space Radiation Effects Conference *Session Chair*
2009 PACT: IEEE Parallel Architectures and Compilation Techniques *Registration Chair*
2007 SELSE: Workshop on Silicon Errors in Logic – System Effects *Poster Session Chair*
2007 SEC: IEEE Symposium on Embedded Computing *Session Chair*

Editorial Roles

Associate Editor: IEEE Transactions on Nuclear Science *2016–2019*
Associate Editor: IET Computers & Digital Techniques *2016–2019*

Peer Reviewer

ACM Transactions on Embedded Computing Systems *2008 – 2010*
IEEE Design & Test of Computers *2009, 2011*
IEEE Transactions on Aerospace and Electronic Systems *2010, 2011*
IEEE Transactions on CAD of Integrated Circuits and Systems *2008, 2014, 2015*
IEEE Transactions on Computers *2011, 2012, 2014, 2015*
IEEE Transactions on Emerging Topics in Computing *2013 – 2015*
IEEE Transactions on Information Forensics & Security *2011, 2016*
IEEE Transactions on Knowledge and Data Engineering *2012*
IEEE Transactions on Nuclear Science *2005, 2006, 2008, 2009, 2011 – 2016*
IEEE Transactions on Parallel and Distributed Systems *2016*
IEEE Transactions on Reliability *2014*
IEEE Transactions on Systems, Man, and Cybernetics–Part C: Applications and Reviews *2012*
IEEE Transactions on Very Large Scale Integration Systems *2007, 2013, 2014*
Integration, the VLSI Journal *2007, 2008, 2010, 2012*
Journal of Electronic Testing: Theory and Applications *2013*

Journal of Supercomputing	*2008*
Journal of System Architecture	*2012*
Microelectronics Reliability Journal	*2005, 2008 – 2012, 2014, 2015*
NSF Ad-Hoc Reviewer	*2008*
NSF CCF Panel	*2006, 2008, 2011 – 2014*
NSF S-STEM Panel	*2006*
NSF IGERT Panel	*2005*
OSA Applied Optics	*2009*
Proceedings of the IEEE	*2014*
Solid State Electronics, An International Journal	*2008*

University, School of Engineering, and Department Service at Vanderbilt

Vice Chancellor's Advisory Council – Office of Equity, Diversity, and Inclusion	*2016 – present*
Deans' Working Group on COACHE Faculty Satisfaction Survey	*2016*
Faculty Senate	*2016 – 2019*
Vanderbilt Brain Institute Director Search Committee	*2016*
Vanderbilt Graduate Student Housing Working Group	*2016*
Faculty Search Committee for Electrical Engineering	*2016*
Chancellor's Strategy and Planning Committee for Diversity, Inclusion, and Community	*2015 – 2016*
VUSE Committee on Faculty Development and Diversity	*2015 – present*
Director of the Vanderbilt Center for Music, Science and Technology Search Committee	*2014 – 2015*
Provost's Study Group on Immersion Vanderbilt	*2014 – 2015*
Chair of the VUSE Strategic Plan Working Group on Engineering Immersion	*2014*
Director of Undergraduate Studies for Electrical Engineering	*2014 – 2015*
Nominating Committee for VUSE Senate and Graduate Faculty Council Elections	*2014*
Vanderbilt Greek Life Task Force Committee of the Faculty Senate	*2013 – 2016*
Ad Hoc Committee for VUSE Teaching Award	*2012, 2014 – 2015*
VUSE Curriculum Committee	*2011 – 2015*
Director of Undergraduate Studies for Computer Engineering	*2011 – 2015*
Graduate Faculty Council	*2011 – 2014*
VUSE Dean Search Committee	*2011*
Panelist for the Vanderbilt University Grant and Fellowship Workshop	*2009*
VU-EDGE Faculty Host for Deans of Honors Colleges at Historically Black and Hispanic Serving Universities	*2009*
Academic Adviser for Electrical Engineering, Class of 2010	*2006 – 2011*
Ad Hoc Committee on Computer Engineering	*2006 – 2007*
Graduate student recruiting at the National Society of Black Engineers (NSBE) National Convention	*2005 – 2008*
Chancellor's Scholars Advisory Council	*2005 – 2008*
Faculty-in-Residence Committee	*2005*
Provost's Graduate Fellowship Committee	*2004 – 2006, 2009*
Vision for Engineering at Vanderbilt Committee	*2004 – 2005*

Academic Adviser for Electrical Engineering, Class of 2004 *2004 – 2005*

Service and Activities at the Georgia Institute of Technology

Black Graduate Student Association, Treasurer *1997 – 1999*

Georgia Tech Student Foundation Investments Committee *1997*

Intramural Athletics *1998 – 2002*

Diversity and Outreach Efforts

Steering Committee Member, Academic and Research Leadership (ARL) Network and Symposium *2013 – present*

Outreach Director, Team for Research in Ubiquitous Secure Technology (TRUST) *2007 – 2015*

Sloan Faculty, Alfred P. Sloan Minority Ph.D. Program at Vanderbilt University *2004 – 2009*

Tennessee Louis Stokes Alliance for Minority Participation (T-LSAMP) Research Symposium Judge *2004, 2008*

Miscellaneous

Alpha Phi Alpha Fraternity, Inc. *Life Member*

The 100 Black Men of Middle Tennessee, Inc. *Treasurer, Development Committee Member*