Curriculum Vitae

Rhonda Kay Gaede

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Employment:

2010-2013	Interim Dean, School of Graduate Studies, University of Alabama in Huntsville, Huntsville, AL
2006-2007	Sabbatical Leave
2005-2006	Acting Associate Dean, College of Engineering, The University of Alabama in Huntsville, Huntsville, AL
2000-present	Associate Professor, Electrical & Computer Engineering Department, The University of Alabama in Huntsville, Huntsville, AL
1994-2000	Assistant Professor, Electrical & Computer Engineering Department, The University of Alabama in Huntsville, Huntsville, AL
1992-1994	Visiting Assistant Professor, Electrical & Computer Engineering Department, The University of Alabama in Huntsville, AL
1992	Adjunct Instructor, Math/Physics Department, Oakwood College, Huntsville, AL
1990-1991	Adjunct Instructor, Mathematics and Technology Departments, Johnson County Community College, Overland Park, Kansas
1989-1990	Staff Engineer, Test Methodologies and Applications, General Technology Division, International Business Machines, East Fishkill, New York • evaluated module designs used in mainframes for testability • developed fault models which accurately represented possible process defects by using a proprietary analog simulation tool • guided the development of software to implement automated fault modeling procedures
1985-1988	Graduate Research Assistant, Electrical & Computer Engineering Department, The University of Texas at Austin, Austin, TX
1983-1985	Graduate Teaching Assistant, Electrical & Computer Engineering Department, The University of Texas at Austin, Austin, TX
1981-1983	Product Engineer, Microprocessor Division, Motorola, Inc., Austin, TX • developed a characterization program for the MC6801U4 microcontroller • tested the MC6801 and peripherals for the MC6800 • served as a liaison between the product engineering, design and assembly groups
1981	Student Assistant, Electrical Engineering Department, Southern Methodist University, Dallas, TX
1978-1980	Co-op Student, Rockwell International, Richardson, TX

Education:
Ph.D. Degree from The University of Texas at Austin, August, 1988
Major: Electrical Engineering
Specialization: Computer Engineering
Dissertation: "Concurrent ATPG Using Functional Decomposition and Binary Decision Diagrams"
Advisor : M. Ray Mercer

M.S.E.E. Degree from The University of Texas at Austin, May, 1986
Specialization: Computer Engineering
Thesis: "Calculation of Greatest Lower Bounds Obtainable by the Cutting Algorithm"
Advisor: M. Ray Mercer
Honors: Awarded the Microelectronics and Computer Technology Corporation Fellowship for graduate study at The University of Texas at Austin, 1985-1987

B.S.E.E. Degree from Southern Methodist University (Magna Cum Laude), May, 1981
Honoraries: Tau Beta Pi, Eta Kappa Nu, Alpha Lambda Delta, Phi Eta Sigma, Kappa Mu Epsilon, Mortar Board, Who's Who Among Students in American Colleges and Universities

Honors and Distinctions:
UAH Foundation Distinguished Teaching Award, 2003
Mentor Users Group Best Paper Award 2001/2002
Outstanding Engineering Young Faculty Member, 2001.
Nominated for UAH Foundation Teaching Award by ECE Department, 1999, 2000, 2001.
UAH Student Government Association Faculty Advisor Award, 1999.

Professional Society Memberships:
IEEE, IEEE Computer Society, ACM, ASEE

Publications:

Journal Articles

8. Jennifer. English, David Coe, Rhonda Gaede, David Hyde, and Jeffrey Kulick, "MEMS Assisted Cryptography for CPI Protection" IEEE Security and Privacy, July/August 2007, pp. 14-21

7. M. M. Thaduri, S.M. Yoo, and R. Gaede, "An efficient VLSI implementation of IDEA encryption algorithm using VHDL", Microprocessors and Microsystems, Volume 29, Issue 1, pp. 1-7, February 2005.

6. W. E. Cohen, R. K. Gaede, W. D. Garrett, "Hardware-Assisted Characterization of NAS Benchmarks, Cluster Computing, Volume 4, Issue 3, July 2001, pp. 189-196.

5. W. E. Cohen, David W. Hyde, Rhonda K. Gaede, "Optical Bus-based Distributed Dynamic Barrier Mechanism", IEEE Transactions on Computers, v49, n12, Dec. 2000, pp. 1354-1365.

4. W. E. Cohen, R. K. Gaede and J.R. Rodgers, "Demonstration of Repeatable Non-Intrusive Measurement of Program Performance and Compiler Optimization in Linux
Using IN-Tune", Software Practice and Experience, v30, n8, July 2000, pp. 895-906.

3. Rhonda Gaede, Fenglei Li, David Hyde and Dashen Shen, "Amorphous Silicon Photodetector for Optical Interconnections", Journal of Non-Crystalline Solids Special Issue on Amorphous and Microcrystalline Semiconductors, 266-269 (2000) 1208-1212.

2. J. Rodgers, Rhonda Kay Gaede, and Jeffrey H. Kulick, "IN-Tune: An In-Situ Non-Invasive Performance Tuning Tool for Multi-threaded Linux on Symmetric Multiprocessing Pentium Workstations", Software ‹ Practice and Experience, Volume 29(9), July, 1999, pp. 775-792.

1. Rhonda Kay Gaede, Freddy Golos, Michael D. McMahan and Jeffrey H. Kulick, “Evaluation of a Multi-Process Cache Architecture With a Separate Secondary Cache Per Process”, Computers & Electrical Engineering, volume 24, no. 3/4, May 1, 1998, pp. 201-221.

Refereed Conference Articles

9. A Model-Based Design Approach For Realizing Signal Processing Systems in FPGAs, Rhonda Gaede, David Moody, Michael Adderley, Charles Fulks, Laurie Joiner, Jeffrey Kulick., The International Conference on Engineering of Reconfigurable Systems and Algorithms, 2010 World Congress in Computer Science, Computer Engineering, and Applied Computing, Las Vegas, NV, July 12-15, 2010.

8. "A Model-Based Design Approach to Hardware/Software Co-Design at UAHuntsville",Rhonda Gaede, David Moody, Michael Adderley, Charles Fulks, Laurie Joiner, Jeffrey Kulick, 2010 Workshop on Infrastructure for Software/Hardware Codesign, Toronto, Canada, April 25, 2010.

7. Sin Ming Loo, B. Earl Wells, Rhonda K. Gaede, “Exploring the Hardware/Software Continuum in a Computer Engineering Capstone Design Class using FPGA-based Programmable Logic”, Microelectronic Systems Education Conference, Las Vegas, NV, June 17-18, 2001.

6. D. L. Hecht, K. M. Kavi, R. K Gaede, C. Katsinis, “Fault-Tolerance Using Cache-Coherent Distributed Shared Memory Systems”, Proceedings of the 1999 International Symposium on Parallel Architectures, Algorithms, and Networks (I-SPANÕ99), June 23-25, 1999, Freemantle, Western Australia, pp. 100 - 105. (Acceptance Rate: 49/90+, 54%)

5. C. Katsinis, W. Cohen, R.K. Gaede, J. Kulick, “The Architecture and Performance of the Simultaneous Optical Multiprocessor Exchange (SOME-Bus)
Interconnection Network”, Proceedings of the 1997 International Conference on Parallel and Distributed Processing Techniques, pp. 1391-1399.

4. J. Kulick, W. E. Cohen, C. Katsinis, E. Wells, A. Thomsen, R. K. Gaede, R. G. Lindquist, G. P. Nordin, M. Abushagur and D. Shen, “The Simultaneous Optical Multiprocessor Exchange Bus’, Proceedings of the Second International Conference on Massively Parallel Processing Using Optical Interconnections, October 1995, San Antonio, Texas, pp. 336-344. (Acceptance Rate: 32/66, 48%)

3. K. Torku, S. Parise and R. K. Gaede, ‘Modeling of Bipolar DCS DOT Circuits”, 35th Midwest Symposium on Circuits and Systems, Washington, D. C., August, 1992.

2. R. K. Gaede, M. R. Mercer, K. M. Butler and D. E. Ross, “CATAPULT: Concurrent Automatic Testing Allowing Parallelization and Using Limited Topology’, Proceedings of the 25th Design Automation Conference, Anaheim, California, June 1988, pp. 597-600. (Acceptance Rate: 124/400+, 31%)

1. R. K. Gaede, M. R. Mercer and B. Underwood, ‘Calculation of Greatest Lower Bounds Obtainable by the Cutting Algorithm’, Proceedings of the 1986 International Test Conference, Washington, D.C., pp. 498-505.

Other Conference Presentations

13. Jennifer English, David Coe, Rhonda Gaede, Jeffrey Kulick, "Protection of Cryptographic Systems Using Reconfigurable MEMS-Based Tamper Sensors", Proceedings of the Reconfigurable Systems, Microsystems, and Nanotechnology Conference, Redstone Arsenal, May 8, 2007

12. Alex Milenkovic, Jeffrey Kulick, Rhonda Gaede, "Tamper Protection ofHardware / Software Systems Using Dynamic Re-configuration Of Instruction Sets and Netlists in FPGAs " Proceedings of theReconfigurable Systems, Microsystems, and Nanotechnology Conference, Redstone Arsenal, May 9, 2007

11. Gladstone Adderley, Rhonda Gaede, Jeffrey Kulick, Verification of Hardware/Software Co-Designed Systems Utilizing Re-configurable Hardware, Proceedings of the Reconfigurable Systems, Microsystems, and Nanotechnology Conference, Redstone Arsenal, May 9, 2007

10. Rhonda Kay Gaede, Jeffrey H. Kulick, Deborah A. Butler, "Designing an Interconnection Test Bed", Proceedings of the Mentor Graphics International Users Group Meeting, February 25-27, 2002, Denver, Colorado.

9. W. E. Cohen, W. D. Garrett, R. K. Gaede, "Parallel Program Traces for Accurate Prediction of Proposed Cluster Performance", The Second International Workshop on Cluster-Based Computing, May 6, 2000, Santa Fe, New Mexico, pp. 37-41.

8. Rhonda Gaede, B. Earl Wells, "An Integrated Facility for Rapid Prototyping", poster presentation, 2000 ASEE Annual Conference & Exposition -- Engineering Education Beyond the Millennium" -- June 18-21, 2000, in St. Louis, MO

7. David W. Hyde, Rhonda Kay Gaede, "Enhancing the Undergraduate VLSI Design Experience Using FPGA-Based Rapid Prototyping", Proceedings of the Mentor Graphics International Users Group Meeting, September 27 - October 1, 1999, Portland, Oregon.

6. Rhonda Gaede, Fenglei Li, David Hyde and Dashen Shen, "Amorphous Silicon Photodetector for Optical Interconnections", Proceedings of the 18th International Conference on Amorphous and Microcrystalline Semiconductors, August 22-27, 1999, Snowbird, Utah.

5. R. G. Lindquist, J. Kulick, W. E. Cohen, R. K. Gaede, B. E. Wells, M. Abushagur, D. Shen, C. Katsinis, and S. T. Kowel, " An Optoelectronic Design of the Simultaneous Optical Multiprocessor Exchange Bus (SOME-Bus)", Photonics West, Optoelectronics '97, Integrated Devices and Applications, Hybrid and Monolithic OEICs, Optoelectronic Interconnects and Packaging IV, SPIE Proceedings 3005, February 12-14, 1997, San Jose, California, pp. 303-312.

4. S. Parise, K. Torku and R. K. Gaede, "Modeling of Bipolar DCS Dot Circuits: H2 Experience", IBM Test ITL Proceedings, Manassas, Virginia, Paper 40, April 1992.

3. D. Zein, G. Ditlow, R. K. Gaede and C. Beh, "FAME: Fault Analysis and Modeling Environment", IBM Test ITL Proceedings, Manassas, Virginia, Paper 13, April 1992.

2. R. K Gaede and C. Beh, "A Stuck Fault Modelling Procedure Based on Circuit Model", IBM Test ITL Proceedings, East Fishkill, New York, Paper 29, September 1989.

1. R. K. Gaede and M. R. Mercer, 'A Method for Empirical Evaluation of the Cutting Algorithm", 9th Annual IEEE Workshop on Design for Testability, Vail, Colorado, May 1986.

Grants and Contracts:

11. Jennifer English, David Coe, Rhonda Gaede, Jeff Kulick, "Protection of Cryptographic Systems using Nano-assisted Physically Uncloneable Functions", SAIC, $33,013, 2008.

10. Rhonda Gaede, Laurie Joiner, Jeff Kulick, "An Infrastructure Foundation for Model-Based Design", SAIC, $48,362.50, 2008.

9. Rhonda Gaede, Jennifer English, Diana Bell, Sherri Meesimer, "EMPOWER: Enrichment and Mentoring to Provide our Workforce with Enhanced Resources", National Science Foundation, $593,673.00, 2008.

8. Jennifer English, David J. Coe, Rhonda Gaede, and Tim Boykin, "Just In Time Mathematics", Education Mini-Gran, UAH, $2500, 2008.

7. Rhonda Gaede, “Collaborative Research: CRI: IAD: Electronic Testing Education, Research and Training Infrastructure”, National Science Foundation, $157,041.00, 2007.

6. Jennifer English, David J. Coe, Rhonda Gaede, "On-Line Math and Engineering Quizzes for Undergraduate Courses in the College of Engineering", Education Mini-Grant, UAH, 2004

5. G.P. Nordin, D. Shen, M.A. Abushagur, J.English, J.H. Kulick, R. K. Gaede, D. Jaeger, “Integrated Research Environment for Intermeshed MEMS Photonics for Computer and Communication Systems”, NSF, $1,419,856, 2001.

4. S. T. Kowel, W. Cohen, R. K. Gaede, B. E. Wells, R. L. Fork, G. P. Nordin, J. H. Kulick, D. Shen, T. Boykin, M. Abushagur, “Integrated Research Environment for Intermeshed Optoelectronics”, NSF, $3,800,000, 1998.

3. R. K. Gaede, “Opti-MOS: A Layout Tool for Integrating Optical Superstructures on CMOS Devices”, NSF, $55,041, 1997

2. B.E. Wells, R. G. Lindquist, R. K. Gaede, “An Integrated Environment for Rapid Prototyping”, NSF, $47,150, 1997.

1. R. K. Gaede, NSF Travel Grant to attend the Second International Conference on Massively Parallel Processing Using Optical Interconnections at which a paper was presented, $825, 1995.

Graduate Student Supervision:

Doctoral Degree Graduates

Maha El Naggar, Doctoral Dissertation, "Analysis and Simulation of an Integrated Optical Receiver, May 2001

David Wells Hyde, Doctoral Dissertation, “Tamper Resistant Cryptographic Processing with Physically Unclonable Functions”, December 2010.

Plan I (Thesis) Master’s Degree Graduates

Gladstone Michael Adderley, Master’s Thesis, “Instrumentation and Real-Time Analaysis for Improving ImpulseC Designs of Hardware-Software Systems”, Summer 2007.

Vinuthna Vattikonda, Master’s Thesis, “Hardware Implementation of Stream Based Trace Compression”, Spring 2005.

Ajayshankar Krishnamurthy, T Master’s Thesis “Distributed Reliable Multicast Protocol for the SOME-Bus Network”, December 2003.

William D. Garrett, Master’s Thesis "A Trace-Based Approach to Modeling Interconnection Networks", May 2001.

Susan M. Tweeton, Master’s Thesis, “Bytewise Selectable 32-Bit EDAC Implemented in VHDL”, May 1999.

Fyodor N. Golos, Master’s Thesis: “Performance Analysis of the Process Cache for Both Instruction and Data Traces”, December 1998.

David Wells Hyde, Master’s Thesis, “A Receiver Model for a Fully Connected Multiprocessor System”, April 1996.

Plan II (Project) Master’s Degree Graduates

Supraja Gaini, Paper Title: “Functional Testing of Semiconductor Random Access Memories and Fault Tolerance Schemes Used in RAMS”, June 1993.

Plan II (Course Only) Master’s Degree Graduates

William Tsao, Spring 1993
Lee Ming Sim, Spring 1993
Maya Chirumamilla, Spring 1993
Iranna Sanulli, Summer 1995
M. A. Kallemullah, Fall 1995
Girish Malipeddi, Fall 1996
Narendar Yalamanchilli, Summer 1998
John Hall, Spring 1999
Brennon Meals, Spring 1999
John Berg, Spring 1999
Sonia Cutts, Spring 1999
Thuan Dinh, Spring 1999

Tuyen Diep, Spring 1999
Bradley Helton, Spring 1999
Heather Huber, Spring 1999
Julie Nguyen, Spring 1999
Satish Balasubramanian, Fall 2001
Ramanan Rajagapolan, Spring 2001
Steven Conrad, Spring 2001
Insuk Sickler, Spring 1999

Teaching Activities:

New Courses Developed and Taught

CPE 628 Fault Tolerant Computing
CPE/EE 610 Introduction to VHDL Modeling
CPE 633 Fault Tolerant Computing Systems

Courses Revised and Taught

CPE 582 Introduction to VLSI Design
CPE/EE 422/502 Advanced Logic Design (Computer Arithmetic)
CPE 433 Advanced Techniques in Computer Design

Curriculum Enhancement

- Introduced LogicWorks (a logic simulation tool) into CPE 201 Digital Logic Design Laboratory.
- Introduced SPIM (a simulator for the MIPS 3000) into CPE 433 - Advanced Techniques for Computer Design.
- Introduced the use of Mentor Graphics design for test tools in CPE 628 - Fault Tolerant Computing.
- Maintained the Mentor Graphics tools which are used by the undergraduate VLSI design classes and various graduate classes, including CPE 628, CPE 582 - Introduction to VLSI and CPE 682 - Advanced Topics in VLSI Design
- Participated in the creation of a shared Ph.D. in computer engineering with UAB
- Obtained donation of IKOS Hardware Accelerator and Voyager Software, $50K.
- Coordinated sections of CPE 197 to assure consistency (Fall 1997, Fall 1999).
- Participated in program development for AMCOM software engineering interns and ADTRAN TDP program.

Laboratory Development

Rapid Prototyping Laboratory (currently used for CPE/EE 422/502, CPE/EE 493, CPE 427, CPE437) result of NSF Grant

Undergraduate Honors Project Supervision

Jared Bell, Project Title: "Rapid Prototyping Using Reprogrammable Logic", Spring 1998.
Tiffany Brooks, Project Title: "A VHDL Model of a Reconfigurable Set-Associative Cache Memory System", Spring 1995
Lysle E. Shields, Project Title: "Creating Dedicated Processors Using a C to VHDL Translator", Fall 1994.

Service Activities:

Departmental Service

Departmental ABET Coordinator, 2014-2015
Chair Search Committee 2014-2015
Catalog Review for undergraduates and graduates 2007
CPE ABET Coordinator 2000-2010
Undergraduate Curriculum Committee, 1992-1998
Undergraduate Curriculum Committee Chair, 1997-1998
Computer Engineering Technical Interest Group, 1992-present
Prepared ABET Review Materials, 1994 and 1997

Chair Search Committee, 1997-1998
Assistant Chair, Bits and Bytes Day, 1996-1997
Chair, Bits and Bytes Day, 1998
Computer Engineering Speaker, Bits and Bytes Day, 1996-1998
Key Computer Engineering Advisor, 1994-present
Certified Computer, Electrical and Optical Engineering students for graduation, 1993-1998
Certified Computer and Optical Engineering students for graduation 1998-1999
Faculty Advisor of Eta Kappa Nu, 1993-2004
Created Computer and Electrical Engineering undergraduate flier
Updated Optical Engineering undergraduate flier
Spearheaded CPE graduate recruiting efforts
Advertised for adjunct instructors
Prepared recruiting mailers for high school students
Graduation Certification 1993-1999 (515 Total)

College Service

Dean Evaluation Committee, 2014-2015
Chair, Academic Progress Committee 2009-2012
Engineering Open House 1999-2006
College Assessment Team 2000-2010
Diversity Committee, 1992-1998
Meetings with College of Engineering Prospects, 1993-present
Provided Computer, Electrical, and Optical Engineering material for college flyer

University Service

QEP Committee 2015-present
Honors Council 2014-2015
First Year Experience Curriculum Committee, 2013-2014
Chair, Class Size Committee 2010
Huron IT Review Committee 2008
SACS Library and Media Committee 2004
Distinguished Teaching Award Committee, 2004, 2008
Student Affairs Advisory Board 2006-2010
Honors Council 2003-2007
University Computer and Network Services Committee 2005-present
University Campus Planning Committee 2004-2008
University Bookstore Committee 2001-present
Faculty Senate President Elect 2008
Faculty Senate President 2008-2009
Faculty Senate 2001-Present
Faculty Senate Executive Committee 2003-2006
Faculty Senate Curriculum Committee Chair 2003-2006
Graduate Council 2001-2003
Library Committee 2002-2004
Commencement Committee 2001-2007
Faculty Senate Governance and Operations Committee 2001-2003
Graduate Council Curriculum Committee 2002-2003
Graduate Council Credentials Committee 2002
Who's Who Selection Committee, 1997-1998
Women's History Month Speaker, 1998
Coop of the Year Selection Committee, 1997
University Women's Club
Corresponding Secretary, 1993-1994 and 2000-2001, Phantom Tea Chair, 1993-1994,
Membership Chair, 1994-1995, President, 1995-1996, Scholarship Chair, 1996-1997, Yearbook

Chair, 1997-1998, Silent Auction Acquisitions Chair, 1998-1999, 1999-2000, and 2001-2002, Nominating Committee Chair, 1999-2000, 2000-2001, 2002-2003

Professional Service

Reviewer for American Society for Engineering Education, Women in Engineering Division, 2013-present
President, University Special Interest Group of Mentor Graphics Users Group
Program Committee, Mentor Users Group Conference
Judge, 2003, 2004 Design Automation Conference Student Design Contest
Reviewer for National Science Foundation MIPS Program
Reviewer for Journal of Parallel and Distributed Computing
Reviewer for Computers & Electrical Engineering
Reviewer for International Performance, Computing, and Communications Conference
University Liaison for AUTOTESTCON 2002

Community Service

Thrivent Financial for Lutherans

President 2011-2015, Thrivent Builds Chapter Specialist 2007-2010, President North Alabama Chapter 2004-2006, Vice President North Alabama Chapter 2003

Zeta Tau Alpha Fraternity

Fraternity Education Officer, 1995-1996, President, 1996-1997, 1997-1998, 2002-2003, Treasurer, 1998-2000, Panhellenic Representative 1996-1997, Secretary/Treasurer 2000-2001

Messiah Lutheran Church

Finance Chair Church Council 2007-2008, Vice President Church Council 2003-2005, Director of Cantabile Handbell Director 2005-present, Director of Notabella Handbell
Choir 1998-present, Choir Director Search Committee, 1998.