

ANGELA RASMUSSEN
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EDUCATION

D.Sc. Microelectronics and VLSI Systems, May 2002

Minors in Fluid Mechanics and Communications

THE GEORGE WASHINGTON UNIVERSITY, WASHINGTON D.C.

- Dissertation Title – *Implementation and Modeling of Microfluidic Components Realized Using CMOS Technology*

B.Sc. in Computer Engineering, *Summa cum laude*, Graduated as top student, May 1996

THE GEORGE WASHINGTON UNIVERSITY, WASHINGTON D.C.

- Senior Design Project – *Custom Designed VLSI Chip 4-BIT D/A Converter*
- Senior Group Project – *4 node LAN (PCB Board and Firmware Custom Designed)*

EXPERIENCE

DIRECTOR OF ADVISING AND MENTORING/ASSOCIATE PROFESSOR:

Electrical and Computer Engineering, University of Utah (Jan. 2004-present)

- Director of Mentoring and Advising (2015-present)
 - Directly supervise 2 individuals to provide all undergraduate and graduate advising.
 - Implement new programs for recruitment and retention.
 - Develop software for advising activities.
- Highly involved with ABET Accreditation (Fall 2015)
 - Worked closely with department chair and Dr. Cotter to gather all information and develop documentation
- Reorganized structure for EE Senior Projects
 - Created milestone driven tasks to push students to complete work on time
 - Supervise all communication work for all projects which includes two formal presentations, three demo presentations, and a poster presentation
 - Organize all logistics for technical advising of all projects
 - Developed and taught new lectures to support students to create professional posters, deliver elevator pitches, demo presentations, and communication skills for fielding questions and presenting formal presentations
- Created and supervised new ECE Student Project Expo (Spring 2017-present)
 - All levels of students participated by submitting a project
 - Industry and Faculty judging
 - Awards given for first, second, and third places
 - Positive feedback from both industry and students
 - Recruited Cirque to sponsor event
- Supervisor for individual and group senior theses, (2007-present)
 - Supervising 49 students, Fall 2018-Spring 2019
 - Supervised 390 students in independent or group projects between Fall 2007-Spring 2018
 - Supervisor of 2006 Best Senior Project Award, (“ASIC B-directional Level Shifter”)
- Performed service as University Academic Senate (2018-present), Department Scholarship Committee Chair (2007-present), Undergraduate Curriculum Committee member(2015-present), Graduation and Admission Committee member(2015-present), Computer Engineering Committee member(2017-present), and a special Freshman Curriculum Review Subcommittee (2011).
- Leading efforts for improving undergraduate lab
 - Created needs analysis for changes
 - Leading efforts for renovations
 - Working with committee to oversee lab changes
- Improved and taught classes in Electrical and Computer Engineering
 - Reorganized senior projects to have consistency while maintaining a high level of work.
 - Improved course content for ECE2280 by adding progressive project that requires the use of

- o computer simulation tools (PSpice and Matlab) along with extending it to a built prototype.
- o Worked with two other professors to improve the content within ECE1250.
- o Co-taught ECE5201 – prepared example problems, exams, along with lecture material.
- o Updated course content for ECE2280 and ECE1270/1250 including “fill in the notes”, in class active learning activities, and videos containing examples and methodologies.
- o Incorporated improvement comments from industry and students into course material for ECE2280.
- o Developed new course – Introduction to Semiconductor Physics (taught as Junior Seminar).
- o Worked with faculty to improve laboratory experiments for Introduction to Electrical Engineering course.
- Committee Chair for 10 graduate students. Participated on graduate committees for 4 other students.

EDITOR/CONSULTANT:

McGraw-Hill (Fall 2014-present)

- Provide support and editing of all feedback received for Microelectronic Circuit by Richard Jaeger.
- Created learning objectives for 19 chapters of 5th edition, Microelectronic Circuit by Richard Jaeger.
- Editing online interactive software for assessments of learning objective as supplemental material.

Oxford University Press (Fall 2011-Fall 2013)

- Edited 13 chapters of new 6th edition of Microelectronic Circuits by Sedra/Smith.
- Created unique problems and solutions for 13 chapters published in a new supplemental problems booklet that accompanies the new 6th edition of Microelectronic Circuits by Sedra/Smith.

McGraw-Hill (Fall 2008-Spring 2009)

- Critically reviewed Fundamentals of Electrical Engineering by Rizzoni.

ASSISTANT PROFESSOR:

San Diego State University (Fall 2002-Summer 2003)

- Received outstanding teacher of the year award from the College of Engineering
- Taught Electrical and Computer Engineering core course. Restructured course to include electronic notes for the students. Received outstanding reviews from students.
- Aided in developing proposal for new bioengineering MS program. Wrote proposal for a new MEMS graduate course for this program.
- Applied and was funded for several grants.
- Served on the following committees: Undergraduate Curriculum Committee, Scholarships and Awards, Secretary to the Faculty, Faculty Book Chairperson, and Library Committee. Performed all duties associated with assistant professor of Electrical and Computer Engineering.

RESEARCH AND DEVELOPMENT:

Northrop Grumman – Ryan Aeronautical Center (MALD/MALI PROJECT) (7/00-1/02)

Research, development, implementation, and testing of algorithms and designs to calibrate commercial MEMS accelerometers, pressure sensors, and rate sensors over temperature. Investigation performed using both hardware and software designs. Objective was to make complete hardware system low cost and have the ability to be mass produced. Supported both the hardware and software design for a complete avionics system for unmanned decoy and intercept missiles.

VISITING INSTRUCTOR:

Washington State University (Fall '98)

Restructured a senior digital logic course to include computer-based simulations, design, and layout for submicron CMOS digital logic systems. Taught the course during the fall semester.

RESEARCH ASSISTANT:

The George Washington University (6/96-8/99)

Research in utilizing the CMOS MEMS technology to realize novel devices. Research in implementing accelerometers and microfluidic components. Research in design and fabrication of novel microchannels, pumps, and flow sensors. Research in integration of single microfluidic components. Research in modeling of fluid flow through microchannels.

University of Utah (5/92-6/94)

Research in path programmable logic (PPL) VLSI IC Design. Simulated, tested, documented, and provided technical support for a standard cell database tool for IC design. Simulated, analyzed, and co-published a paper on the inhomogeneity of electrocardiographic fields. (published under Angela Dutson)

TEACHING ASSISTANT:

The George Washington University (Spring '99)

Restructured and taught class (ECE 128) for the testing of designed and fabricated VLSI circuits. Course content was expanded to include high level design of circuits using the Verilog programming language. Design for testability techniques and design of a testable system was also included in the content of the course.

The George Washington University (Summer '99)

Taught class (ECE122) on the design and testing of logic gates, regenerative logic circuits, and semiconductor memory circuits. Restructured course to utilize CAD tools, such as L-EDIT.

The George Washington University (Summer '98)

Taught laboratory digital logic course (ECE67). Redesigned the course to include simulation and design of logic circuits by the computer.

University of Utah (Summer '93)

Taught laboratory course for women pursuing a science career. Laboratory consisted of beginning experiments in physics and basic sciences.

GRANTS

- Real-Time Digital Power system Simulator for Undergraduate Modern Power Systems Teaching Lab (submitted with Masood Parvania), BEEF grant funded 2018 for \$66,000 (max amount)
- Teaching Grant Award, funded 2018 for \$3,361
- Continuous-Time Cyber-Physical Control, Health Assessment and Resilient Response for Microgrids written and submitted by Masood Parvania, ONR, funded 2018 for 3 years (granted \$12,000 for development part of grant)
- Molecular Contact Devices for Integrated Microelectronics, *submitted 2005* (not funded)
- NSF Electronics, Photonics, and Device Technology, *submitted Oct. 2004* (not funded)
- 2 SRC White Papers, *submitted July 2004* (not funded)
- NSF ACT Program, *submitted June 2004* (not funded)
- NSF Sensors and Sensor Networks, *submitted Feb. 2004* (not funded)
- NSF Sensors and Sensor Networks, *submitted March 2003* (not funded)
- Funded Faculty Development Program from SDSU foundation, \$8000 (max amount)
- Funded Research, Scholarship, & Creative Activity grant from the College of Engineering, \$5000 (max amount)
- Funded Faculty Grant-in-Aid from SDSU foundation, \$2800

AWARDS

- Outstanding Service Award from the ECE Department, August 2016 (University of Utah)
- Outstanding ECE Teaching Award from the ECE Department, August 2013 (University of Utah)
- Outstanding Teacher of the Year Award from the College of Engineering, May 2003 (San Diego State)
- Dean's Fellowship (*full tuition and stipend*) awarded for outstanding academic achievement – 1996 to 1998
- Two money awards (*ITEA Scholarship and Hekimian Award*) for outstanding graduate research
- B.C. Cruickshanks award for graduating #1 in Computer Engineering class – May 1996
- Three academic achievement scholarships – 1994 to 1996, GWU
- Five academic achievement scholarships including one for Mechanical Engineering – 1991 to 1993, U of U

PUBLICATIONS

Furse C., Cotter N. & Rasmussen A, "Bottlenecks and muddiest points in a freshman circuits course." ASEE Annual Conference and Exposition, Conference Proceedings. 2018-June.

A. Rasmussen, C. Mavriplis, M.E. Zaghoul, O. Mikulchenko, K. Mayaram, "Simulation and Optimization of Microfluidic Flow Sensors," *Sensors and Actuators A*, vol. 88, issue 2, Feb. 2001, pp. 121-132.

A. Rasmussen, M. Gaitan, L.E. Locascio, M.E. Zaghoul, "Fabrication Techniques to Realize CMOS-compatible Microfluidic Microchannels," *IEEE JMEMS*, June 2001, pp. 286 –297.

O. Mikulchenko, A. Rasmussen, K. Mayaram, "A Neural Network Based Macromodel for Microflow Sensors," *Proc. Of 3rd Int. Conf. On Modeling and Simulation of Microsystems*, San Diego, CA, March 27-29, 2000

A. Rasmussen and M.E. Zaghoul, "Pumping Techniques Available for use in Biomedical Analysis Systems," *Midwest Symposium on Circuits and Systems*, August 1999, pp. 656 -659 vol. 2.

- A. Rasmussen and M.E. Zaghoul, "CMOS Microfluidic Fabrication Technology for Biomedical Applications," *Midwest Symposium on Circuits and Systems*, August 1999, pp. 791 -794 vol. 2.
- A. Rasmussen and M.E. Zaghoul, "The Design and Fabrication of Microfluidic Flow Sensors," *ISCAS '99*, June 1-3, 1999, pp. 136-139, vol. 5.
- L. Sellami, S. K. Singh, R. W. Newcomb, A. Rasmussen, and M. E. Zaghoul, "VLSI Floating Resistors for Neural Type Cell Arrays," *The International Journal of Circuits, Systems, and Computers*, accepted for publication April 1999
- A. Rasmussen, L.E. Locascio, M. Gaitan, and M.E. Zaghoul, "Utilization of standard CMOS layers for microchannels," *ASME Int. Mechanical Engineering Congress and Exposition (IMECE '98)*, MEMS November 1998, DSC-Vol. 66, pp. 407-411
- A. Rasmussen and M.E. Zaghoul, "In the Flow with MEMS: Translating the Physical to Electrical with Flow Sensors Based on Microelectromechanical Systems," *IEEE Circuits and Devices Magazine*, July 1998, vol. 14, no. 4, pp. 12-25.
- A. Rasmussen and M.E. Zaghoul, "CMOS analog implementation of cellular neural network to solve partial differential equations with a microelectromechanical thermal interface," *40th Midwest Symposium on Circuits and Systems*, Sacramento, CA, Aug. 3-6, 1997, pp. 1326-1329
- L. Sellami, S. K. Singh, R. W. Newcomb, A. Rasmussen, and M. E. Zaghoul, "CMOS Bilateral Floating Linear Resistor for Neural-Type Cell Arrays," *Proceedings of the Asilomar Conference on Circuits, Systems, and Computers*, pp. 1136-1140, Pacific Grove, CA, Nov. 3-6, 1997
- C.R. Johnson, R.S. MacLeod, co-author: A. Dutson(maiden name), "Effects of anisotropy and inhomogeneity on electro cardiographic fields: a finite element study," *IEEE EMB Society 14th Annual International Conference*, IEEE Press, 1992

PROFESSIONAL AFFILIATIONS

- Institute of Electrical Engineers (IEEE)
- American Society for Engineering Education (ASEE)
- American Society of Mechanical Engineers (ASME)
- IEEE Computer Society
- IEEE Women in Engineering
- Pi Tau Sigma (*National Mechanical Engineering Honor Society*)
- Tau Beta Pi (*National Engineering Honor Society*) - (*Secretary 1995-1996*)
- Society of Women Engineers (SWE)
- Golden Key National Honor Society