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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.

B.Sc. in Computer Engineering, *Summa cum laude*, Graduated as top student, May 1996
The George Washington University, Washington D.C.

Experience

Director of Advising and Mentoring/Professor (Lecturer):
Electrical and Computer Engineering, University of Utah (Jan. 2004-present)
Teaching (Spring 2015-present)

- Teaching loads: AY21 **27hrs**, AY20 26hrs, AY19 25hrs, AY28 18hrs, AY17 18hrs
- **Supervise individual/group senior theses**, 56 students, Fall 2021-Spring 2022; 531 students between Fall 2007-Spring 2021.
- Supervisor of 2006 Best Senior Project Award, ("ASIC B-directional Level Shifter")
- Improved and taught classes in ECE:
    - Revamping of ECE 1900 to have hands-on interactive activities (collaboration with Dr. Cotter)
    - Reorganized senior projects to have consistency while maintaining a high level of work. Led effort for course credit hour change.
        - Created milestone driven tasks to push students to complete work on time
        - Supervise all communication work for all projects which includes new demo presentations
        - Organize all logistics for technical advising of all projects
    - Improved course content for ECE2280 by adding progressive project that requires the use of computer simulation tools (PSpice and Matlab) along with extending it to a built prototype.
    - Worked with two other professors to improve the content within ECE1250/ECE1240.
    - Worked with faculty to improve laboratory experiments for Introduction to Electrical Engineering course.
    - Co-taught ECE5201 – prepared example problems, exams, along with lecture material.
    - Incorporated improvement comments from industry and students into course material for ECE2280.
    - Developed new course – Introduction to Semiconductor Physics (taught as Junior Seminar).
    - Worked with faculty to improve laboratory experiments for Introduction to Electrical Engineering course.
    - Continuously updating and revising all courses every semester.
    - Development of quality teaching in different modalities (OBS/Zoom Tutorials for a more interactive student experience) to allow for flexibility and consideration of student needs in a more interactive method. (asynchronous, synchronous, in person and remote – I taught my classes with multiple options). https://www.youtube.com/watch?v=2YjOh0fcYgE
- Committee Chair for 10 graduate students. Participated on graduate committees for 4 other students.

Advising Team

- Negotiated and collaborated for acquisition and remodel of **Advising Suite** physical space (MEB 2266) (2015).
- Create, direct, develop, and evaluate the **department Advising** program. **Supervise, hire, train, and evaluate** 3 individuals to provide all undergraduate and graduate advising. Supervise, train, and evaluate 2 other team members that are career line.
- 3 out of 4 **approved proposals** for advising structural change (2015, 2018, 2019, 2022) which resulted in expansion from team of 3 to team of 7 personnel (two new positions created (2019, 2022) and inclusion of 2 instructors). This team works to provide quality advising and student supports for EE and CE graduate and undergraduate students through different modalities (remote, in person, etc.). This team also develops recruitment/retention efforts.
- Created, supervise or oversee, hire, train, and develop **ECE tutoring center** (3-6 student tutors/5 currently). (2019-present)
- Created, supervise or oversee, hire, train, and develop **work study program** (2-5 work study students/4 currently). (2015-present)
- Advise (or supervise advising) and mentor **~600 EE and CE** undergraduate students. Spent **1,600 hours** with students (2021).
- Develop **assessment methods** for student feedback. Collaborated within department for consistent feedback method for EE students. Receive almost 100% response rate for graduating EE students for an anonymous online survey and an in person/remote feedback exit interview of which a group of selected faculty members administer them. Data used to drive changes in the department. Additional student feedback system for all levels of students was developed and is currently available for students to provide feedback at any time in our program. Driven changes have included proposals for curricular change (results in personal

statement detail), lab renovation (71% poor comments about lab facilities before renovation, new labs just starting to be used in Fall), procedural changes, new supports (scholarship program (results in personal statement detail), tutoring program, work study program). Example assessment result showed close to 100% of our student's work which led to class schedule changes and different mode options for students to help with scheduling.

Committee Involvement
- Currently performing service on **8 committees** (2013-present): Scholarship Committee, Lab Improvement Committee, Computer Engineering Curriculum Committee, EE Graduation and Admission Committee, EE Undergraduate Curriculum Committee, Utah System of Higher Education (USHE) Engineering Majors, UAC committee, and ABET committees. My involvement on each of these committees is to represent undergraduate students and to influence and make changes for improvement.
- **ECE scholarship committee chair** (2013-present): lead 6-9 faculty and staff members yearly for 2 reviews/applicant, collaborate with the School of Computing scholarship chair to determine CE (joint degree) distribution, work with College committee for College level distribution, ensure that our students are well represented in the College selections and our students with the most need are also well supported, equally distribute scholarships to everyone that applies and qualifies. The goal is to guide distribution for first-generation students, underrepresented groups, high risk students, and financially needy students to receive higher scholarship amounts since this has been shown to retain these higher risk individuals. Organized 2 new scholarships (Transfer (due to assessment data showing 75% students are transfer), Freshman ECE Scholar Program). The ECE Scholar Program provides underrepresented minority students a cohort, stipend, research experience, and faculty research mentor.
- **ABET committee** (2015, 2018-2021): participated by writing parts of self-study reports for both EE and CE programs, gathering data, suggesting individuals for meetings, had evaluators observe classes I teach and then meeting individually with evaluators.
- Performed service as career-line representative **University Academic Senator** (Fall 2018-Spring 2021).
- Performed service on the **Computer Engineering Committee** and **EE Undergraduate Committee** (2017-present):
  - Duties include being involved in all aspects of the BS EE and CE programs such as curriculum, policies and standards, course assessment process, ABET requirements, except to policy petitions, and overall curriculum practices.
- Performed service on committee to **overhaul and redesign EE major** (2020-present).
- **UAC Committee** (2021-present): This committee is involved in maintaining consistency between UAC and SLC and any other issues that arise with the UAC program. Search committee for UAC faculty hires. Hired 2 UAC faculty members and are in the process of searching for 2 more. Hosted first group of UAC students Summer 2021 for SLC research experiences.

Student Opportunities
- Created and developed new **ECE Student Project Expo** (2017- 2019) with collaborations. New initiative to increase opportunity for students of all levels to submit projects and create more of a community feeling by sharing amongst their peers and to win awards. Judging was done by faculty industry representatives from Cirque, GE, Hill Air Force Base, Intel, L3Harris, Rocky Mountain Power, and Hunt Electric. Informal setting for one on one interactions with industry representatives.{~75 attendees}
- Collaborated to create a new **Utah Power and Energy Career Expo** (Spring 2019-Spring 2020) with collaborations with Dr. Parvania, Career Center (Preston Nielson), and Utah Governor's Office of Energy (Kevin Brooks). New initiative to increase opportunity for students of all levels throughout all Utah schools and Idaho. 13 local and national energy sector companies participated. Led organization of the logistics (food, venue, displays, advertising, etc.) and interactions (set up, mock interviews, communication to companies, etc.). Informal setting for eating lunch with an engineer. {~120 attendees}
- Oversee yearly Technical Open House (2015-present, last 2 years remote). 15 national companies support event (e.g. Raytheon, Sandia National Labs, Corning, plus those involved with Student Expo) through attendance and judging. Public, peers, and faculty involvement through attendance and faculty judging. Demonstration of the student's yearlong senior projects.{~200}
- Involvement yearly for ECE Senior Celebration and Banquet (2015-present, last 2 years remote). Dinner, program, and awards for all graduating senior EE and CE students with our faculty and industry guests. Help with logistics, planning, and execution. Oversee all senior awards selection and presentation information along with presenting all the senior awards. {~300 attendees}
- Communication channel development/promotion (2015-present). Created method for announcements to be sent out to students that includes news, research/internship/volunteer opportunities, reminders, etc. Promote IEEE and uSAC led discord channel.

Program Impact
- Continuously assess, analyze, and propose program changes for reducing barriers. This has resulted in 12 **approved proposals**: EE admissions to major status, increased advising support for probation students, exception to policy procedures, transfer petition procedures, co-op/internship credit procedures, co-op/internship credits, special topics credits, CW writing options, senior project revamping, math/science elective options, reduction of technical elective hours.
- Led efforts for a $1.4 Million **lab renovation** (2018-2021, 2022 switch to committee to oversee 2 room renovations). Created needs analysis, analyzed, and proposed renovation changes for improved learning environment (3 complete rooms out of 5)
- Led efforts in writing a proposal to create CE and EE programs at Asia Campus (2018-2021). Process included approval at **UAC** Admin level and then Korean Government. Proposal accepted and programs started Spring 2021. Efforts are continuing by training new UAC advisors and providing all curricular information and support. Collaboration with the UAC staff for marketing and recruitment. This program will offer a study abroad opportunity for SLC campus students. Student's from SLC campus can act as TA's and mentor's for students at the UAC campus. Students from UAC campus come to SLC for a minimum of 1 year.

- Oversaw **changes in lab** procedures due to Covid. Collaborated for purchase (BEEF grant) of equipment, procedural changes, logistics, expansion to zoom capabilities for TA's, additional TA assistance for all core courses, and remote lab teaching.
- Accepted proposals submitted to the State of Utah and UofU to teach introductory EE course at **AMES and HSUP** program. Collaborated with UofU personnel and advisors at AMES. Our students will have unique <u>teaching opportunity</u> to teach this course.

EDITOR/CONSULTANT/REVIEWER:
<u>NSF PANEL REVIEWER</u> (2022)

<u>McGraw-Hill (Fall 2014-2019)</u>
- 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.

<u>Oxford University Press (Fall 2011-Fall 2013)</u>
- 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.

<u>McGraw-Hill (Fall 2008-Spring 2009)</u>
- 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)

VISITING INSTRUCTOR:
Washington State University (Fall '98)

AWARDS
- Outstanding Service Award from the ECE Department, August 2015 (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

SELECTED 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. Zaghloul, 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. Zaghloul, "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. Zaghloul, "Pumping Techniques Available for use in Biomedical Analysis Systems," and "CMOS Microfluidic Fabrication Technology for Biomedical Applications," *Midwest Symposium on Circuits and Systems*, August 1999, pp. 656 -659 and pp. 791 -794 vol. 2.

A. Rasmussen and M.E. Zaghloul, "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. Zaghloul, "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. Zaghloul, "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. Zaghloul, "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. Zaghloul, "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. Zaghloul, "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