Mike Ekoniak

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EDUCATION

Doctor of Philosophy, Engineering Education, Virginia Tech (Expected May 2016)

Masters of Engineering, Computer Engineering, Virginia Tech, December 2014
Project Title: "*Teaching Peer Review of Writing in a Large First-Year Electrical and Computer Engineering Class: Comparison of Two Methods"*

Graduate Certificate, Engineering Education, Virginia Tech, December 2014
Coursework in engineering education, learner-centered pedagogies, learning theories, educational research methods (qualitative/quantitative) and assessment

Graduate Certificate, Preparing the Future Professoriate, Virginia Tech, May 2014
Project Title: *"'It's Not a Problem:' An Inquiry into Global Perspectives on Diversity and Higher Education"*

Summer Language Institute
University of Pittsburgh, Pittsburgh, Pennsylvania and Bratislava, Slovakia
Beginning-Advanced Slovak, Summers 2008, 2009, 2010

Bachelor of Science, Computer Engineering, Kettering University, June 2003
Thesis Title: "*Automotive By-Wire Visual Development Display System*"

TEACHING EXPERIENCE

Course Coordinator and Lecturer, *ENGE 1104: Exploration of the Digital Future*
Virginia Tech, Department of Engineering Education – Fall 2013 and Spring 2014

- ENGE 1104 is the second course in the first-year engineering program for students intending to major in Electrical and Computer Engineering or Computer Science
- Responsible for development of course materials and student learning experiences in large lectures and laboratory sections; managed team of 5 lab instructors, 4 graders, and 2 instructors.
- Developed assessment rubrics and coordinated with assistant graders to ensure accurate, helpful, and timely feedback to students
- Taught 125-student large lectures
- Lead weekly coordination meetings with graders and laboratory instructors covering four (Fall) and 15 (Spring) laboratories.

Laboratory Instructor, *ENGE 1104: Exploration of the Digital Future*
Virginia Tech, Department of Engineering Education – Spring 2011, Fall 2012

- ENGE 1104 is the second course in the first-year engineering program for students intending to major in Electrical and Computer Engineering or Computer Science
- Taught two ~32-seat laboratories per semester
- Responsible for assessment of laboratory assignments and exams
- Coordinated the use of laboratory materials between four instructors
- Assisted instructors in large lectures with 250+ students
- Mentored students through a semester-long electrical and computer engineering design project

Laboratory Instructor, *ENGE 1024: Engineering Exploration*
Virginia Tech, Department of Engineering Education – Fall 2011

- ENGE 1024 is the first course in the first-year engineering program for all students intending to major in engineering
- Taught three ~32-seat laboratories
- Responsible for assessment of laboratory assignments and exams
- Assisted instructors in large lectures with 250+ students
- Mentored students through a semester-long sustainable energy design project

Lecturer and Laboratory Instructor, *STEP Engineering Education Course*
Virginia Tech, Center for the Enhancement of Engineering Diversity – Summer 2012

- Student Transition Engineering Program (STEP) is a 5-week program for selected incoming freshmen to gain academic enrichment in several subject areas that are historically difficult for first-year students. The program is run by the Center for the Enhancement of Engineering Diversity (CEED) and is aimed at increasing enrollment and retention of women and historically underrepresented minorities in engineering
- Responsible for two sections of the Engineering Education STEP course, including integrated lecture and laboratory

Teaching Assistant, *ECE 3534/2534: Microprocessor System Design*
Virginia Tech, Department of Electrical and Computer Engineering – Fall 2007, Spring 2008

- ECE 3534/2534 is a course on microcontroller programming and interfacing required of all students in Electrical and Computer Engineering
- Instruction and grading for lab sections of ECE 3534 and ECE 2534
- Course support for all courses taught in the Computer Engineering Lab.

RESEARCH EXPERIENCE

Peer Review of Writing in First-Year Engineering
Virginia Tech

This is an ongoing research project investigating the efficacy of peer review of writing in a first-year engineering course. The goals of this project are to:

- Develop an intervention to add peer review of student writing to a Contemporary Issue Report assignment in an engineering course.
- Deploy the intervention with multiple treatment and control groups
- Investigate the effects on student writing quality when receiving feedback from peers, multiple peers, and experts
- Determine best practices of peer review instruction

Development and deployment of the intervention occurred spring 2013. Pilot data analyzed for my Masters project; analysis of the complete dataset ongoing for PhD dissertation.

Global Perspectives Program
Virginia Tech, Graduate School

I was one of 14 graduate students selected by Graduate Dean Dr. Karen DePauw to participate in this international education and research program. Together, participants visited 7 European universities in order to learn about higher education from a global perspective and to explore a research topic of our choice. My research investigated the ways in which administrators and professors at the universities we visited view the importance of student and faculty diversity, including the following questions:

- Are there diversity initiatives and how are they implemented?
- How do those initiatives, if they exist, address diversity of sexual identity?
- Are there university organizations that support LGBTQ students or faculty?

Findings from the group were presented at the Swiss Embassy in Washington, DC and individual findings published separately (see publications below).

Research Assistant
Virginia Tech, Department of Engineering Education – Spring 2013, Summer 2013

- Member of the research team on the NSF-funded project *WIDER: Supplement: GSE/RES: A Mixed-Methods Study Of The Effects of First-Year Project Pedagogies on the Retention and Career Plans of Women in Engineering*
- Developed a research plan to explore instructor and student views of teaching practices in order to discover how well extant practices fit the Cognitive Apprenticeship framework
- Conducted and analyzed qualitative interviews and focus groups with lecture and laboratory instructors.
- Designed a survey of students engaged in engineering design projects, administered it over four weeks, and conducted quantitative analysis of the results
- Prepared a report of findings to be used for publication and to inform instructor training in future course offerings

Research Assistant
Virginia Tech, Department of Engineering Education – Spring 2012

- Identified potential research informants and sites for an NSF-funded project.
- Qualitative coding of Draw an Engineer data to explore student conceptions of engineering identity

Research Assistant
Virginia Tech, Department of Electrical and Computer Engineering – 2009 - 2010

- Member of the Mobile and Portable Radio Group (MPRG)
- Led the development of a version of the OSSIE Software Defined Radio platform to run on embedded platforms
- Implemented the OSSIE Embedded port using the OpenEmbedded and BitBake tools with Beagle Board as an initial target
- Mentored an undergraduate researcher on the project

Undergraduate Thesis Project
Kettering University, Department of Electrical and Computer Engineering and
Visteon Corporation, Chassis Advanced Technology

- Title: *Automotive By-Wire Visual Development Display System*
- This thesis documents my design of a reconfigurable hardware/software solution to display diagnostic information received over a vehicle's onboard communication networks on an in-cab LCD screen. This real-time feedback is used in the development of advanced automotive chassis by-wire systems such as brake-by-wire and steer-by-wire.

INDUSTRY EXPERIENCE

Embedded Software Engineer
John Deere Ag Management Solutions, GPS Vehicle Guidance, Urbandale, Iowa
October 2005 – July 2007

- Implemented a system to mitigate the effects of GPS drift by benchmarking a known physical location.
- Proposed and implemented method to auto-dim display on product by determining sunrise and sunset based upon GPS position.
- Designed and implemented a system for transferring customer data from legacy to current products over vehicle CAN network.
- Responsible for all defect resolutions, new features, and enhancements for legacy guidance products.
- Collaborated with program management and customers to determine requirements for new guidance features.

Audio Software Engineer
Visteon Corporation, Audio Platform Software, Dearborn, Michigan
January 2005 – October 2005

- Implemented, tested and documented the power management subsystem for a new radio software architecture.
- Developed specification for an emulated EEPROM implemented in Flash ROM with the goal of reducing materials cost on existing radio platforms.
- Worked with vendors to resolve microprocessor and compiler bugs.

Multiplex Software Engineer
Visteon Corporation, Multiplex Technology, Allen Park, Michigan
July 2003 – December 2004

- Designed, implemented and tested XM Common Bus network driver package.
- Ported flash bootloaders, CAN drivers, and Ford SCP (J1850) drivers to new microprocessors and build environments.
- Advised and mentored interns as part of the Visteon Mentoring Program.

Product Development Engineer, Cooperative Education Thesis
Visteon Corporation, Chassis Advanced Technology, Dearborn, Michigan
October 2002 – June 2003

- Completed senior thesis project as a partnership between Kettering University and Visteon: Automotive By-Wire Visual Development Display System.
- Developed CAN driver package for Motorola MPC555.

Product Development Engineering Co-op
Ford Motor Company, Visteon Electronics Systems and Cleveland Casting Plant
October 1999 – January 2002

- Researched JTAG boundary-scan solutions for the lab environment.
- Characterized communication signals for SPI to RS-232 SDARS receiver controller.
- Implemented vehicle and kiosk-based product demonstrations.
- Designed and maintained a technology portfolio for Satellite Radio technologies.
- Participated in the training of employees on a new production line at Cleveland Casting Plant.

HONORS AND AWARDS

Tau Beta Pi Engineering Honor Society, Inducted 2014

Virginia Tech Diversity Scholar program (1/12 selected), 2013

Virginia Tech Global Perspectives Program and scholarship (1/14 selected), 2013

Phi Kappa Phi Honor Society, Inducted 2012

2nd Place, Virginia Tech College of Architecture and Urban Studies Diversity Video Contest (2012)

U.S Department of Education Foreign Language and Area Studies Fellowship (2008, 2010)

University of Pittsburgh Summer Institute Tuition Scholarship (2009)

Eta Kappa Nu Electrical and Computer Engineering Honor Society, Inducted 2002

Kappa Mu Epsilon Mathematics Honor Society, Inducted 2002

Kettering Merit Scholarship, 1999-2003
Virginia W. Kettering Foundation Scholarship, 1999

SERVICE

Virginia Tech Diversity Scholar Project, *Increasing Awareness of LGBTQ Issues in Engineering*, 2014
Vice President, American Society for Engineering Education Student Chapter (2013-14)
Search Committee Graduate Student Representative for Department of Engineering Education (2012)
Treasurer, American Society for Engineering Education Student Chapter (2011-13)
Representative, Virginia Tech Graduate Student Assembly (2011-12)
Senior Class Representative, Kettering University Student Senate

INTERNATIONAL EXPERIENCE

Virginia Tech Global Perspectives Program; Switzerland, Italy, and France; 2013
Advanced Intensive Slovak Language Course, Bratislava, Slovakia, Summer 2010
Intermediate Intensive Slovak Language Course, Bratislava, Slovakia, Summer 2009
Beginning Intensive Slovak Language Course, Bratislava, Slovakia, Summer 2008
Computer Engineering Semester Abroad, Fachhochschule Ulm, Germany, Spring 2002

PRESENTATIONS

Conference Presentations

1. University and society: Meeting expectations?*. Fourth Global Perspectives Conference*, Embassy of Switzerland, Washington DC, June 2013.
2. Brown, P., Brunhaver, S., Carrico, C., **Ekoniak, M**., & Matusovich, H. (2012). Informed decisions about majors and possible careers in engineering. *Frontiers in Education (FIE) 2012.* Seattle WA, October 2012.

Conference presentations with associated papers are not duplicated here but are listed in the next section.

PUBLICATIONS

Refereed Conference Papers

1. **Ekoniak, M.,** Scanlon, M., & Mohammadi-Aragh, M. J. (abstract accepted). A Case Study of the Effectiveness of Two Modes Of Peer Review Instruction in a First-Year Engineering Course. *American Society for Engineering Education (ASEE) Annual Conference 2015.* Seattle, WA, June 2015.
2. Lutz, B., **Ekoniak, M.,** & Paretti, M. (abstract accepted). Student Perspectives on Capstone Design Learning. *American Society for Engineering Education (ASEE) Annual Conference 2015.* Seattle, WA, June 2015.

3. **Ekoniak, M.** (2013). Engineering culture and LGBTQ engineers' use of social change strategies. *Frontiers in Education (FIE) 2013.* Oklahoma City, OK, October 2013.
4. **Ekoniak, M.,** Scanlon, M., & Mohammadi-Aragh, M. J. (2013). Improving student writing through multiple peer feedback. *Frontiers in Education (FIE) 2013.* Oklahoma City, OK, October 2013.
5. **Ekoniak, M.** & Knott, T. (2013). Extended abstract – Exploration of cognitive apprenticeship practices in a first year engineering course. *Fifth Annual Engineering Experience Conference (FYEE),* Pittsburgh, PA, August 2013.

Other Publications

6. **Ekoniak, M.** (2014). "It's not a problem:" An inquiry into global perspectives on diversity and higher education. Global Perspectives Manual, 5, accepted August 2013.

REFERENCES

Available upon request