Diane L. Peters, Ph.D., P.E.

http://dianelpeters.com/index.html

About Me

After graduating from the University of Notre Dame with my bachelor's degree in mechanical engineering, I entered the workforce as an engineer for A. B. Dick Company, a company near Chicago that manufactured small offset printing presses. After working for a couple of years at A. B. Dick, I left to go to Mid-West Automation Systems, Inc., which was purchased by D. T. Industries during my time there. At Mid-West, I designed automated assembly equipment - machines that went into our customers' factories and assembled components into finished products. After leaving Mid-West, I went to work for Western Printing Machinery Company (WPM), where I worked on large equipment for the printing industry - die cutters, delivery tables, angle bar decks, and other equipment you would find in a large paper processing plant.

During the same time that I worked for WPM, I completed my master's degree in mechanical engineering from the University of Illinois at Chicago; I also taught part-time at Oakton Community College, in the Mathematics and Technology division (not at the same time, though!). I left both the positions at Oakton and at WPM to return to school for a doctoral degree. In 2010, I received my Ph.D. in mechanical engineering from the University of Michigan. After completing my Ph.D., I was a post-doctoral scholar at the University of Michigan, taught part-time at Eastern Michigan University, and then went to work at LMS International, now part of Siemens PLM.

In 2013, I accepted a position as an Assistant Professor of Mechanical Engineering at Kettering University in Flint, Michigan. I teach primarily in the area of dynamic systems and controls, and my research focuses on mechatronics and control systems. For more information about my current work, see the links to the left. If any students would like to see what advice I'd give on scholarships, office hours, getting good grades, or going to graduate school, click here.

Publications and Patents

Journal Publications

Engineering PhD Returners and Direct-Pathway Students: Comparing Expectancy, Value, and Cost, E. A. Mosyjowski, S. R. Daly, D. L. Peters, S. J. Skerlos, A. B. Baker, Journal of Engineering Education, April 2018

Drivers of Research Topic Selection for Engineering Doctoral Students, E. A. Mosyjowski, S. R. Daly, D. L. Peters, International Journal of Engineering Education 33:4, 2017

A Procedure for Evaluating the Applicability of a Control Proxy Function to Optimal Co-Design, D. L. Peters, Journal of Engineering Design 27:8, 2016

Design and Control of Vehicle Trailer with Onboard Power Supply, S. Narayanan & D. L. Peters, SAE International Journal of Passenger Cars - Electronic and Electrical Systems, 8(1):32-40, 2015; see also conference version

Relationship between Coupling and the Controllability Grammian in Co-design Problems, D. L. Peters, P. Y. Papalambros, A. G. Ulsoy, Mechatronics 29:1, August 2015

Coupling between Component Sizing and Regulation Capability in Microgrids, T. Ersal, C. Ahn, D. L. Peters, J. Whitefoot, A. R. Mechtenberg, I. A. Hiskens, H. Peng, A. Stefanopoulou, P. Y. Papalambros, J. L. Stein, IEEE Transactions on Smart Grid 4:3, September 2013

Sequential Co-Design of an Artifact and its Controller Via Control Proxy Functions, D. L. Peters, P. Y. Papalambros, A. G. Ulsoy, Mechatronics 23:4, June 2013; see also conference version

Returning to Graduate School: Expectations of Success, Values of the Degree, and Managing the Costs, D. L. Peters, S. R. Daly. Journal of Engineering Education. April 2013

Generalized Coupling Management in Complex Engineering Systems Optimization, S. F. Alyaqout, D. L. Peters, P. Y. Papalambros, A. G. Ulsoy, Journal of Mechanical Design 133:9, September 2011

Control Proxy Functions for Sequential Design and Control Optimization, D. L. Peters, P. Y. Papalambros, A. G. Ulsoy, Journal of Mechanical Design 133:9, September 2011

Pareto Set Analysis: Local Measures of Objective Coupling in Multi-objective Design Optimization, B. D. Frischknecht, D. L. Peters, P. Y. Papalambros, Structural and Multidisciplinary Optimization 43:5, May 2011; see also conference version

Organic Vapor Jet Printing at Micrometer Resolution Using Microfluidic Nozzle Arrays, G. McGraw, D. L. Peters, S. R. Forrest, Applied Physics Letters 98, January 2011

Conference Publications

Traffic Sign Recognition in Autonomous Vehicles Using Edge Detection, H. Vishwanathan, D. L. Peters, J. Z. Zhang, Proceedings of the 10th Annual ASME Dynamic Systems and Control Conference, Tysons Corner, VA, October 2017

Society of Women Engineers (SWE) Welding and Machining Day: Women's Confidence with Individual Hands-On Manufacturing, S. L. Mann, D. L. Peters, & R. Reck, Proceedings of the ASEE Annual Conference, Columbus, OH, June 2017

Engineering Technology Graduate Students: Roles Professional Societies Have in Their Formation, A. M. Lucietto & D. L. Peters, Proceedings of the ASEE Annual Conference, Columbus, OH, June 2017

From Industry to Graduate School: How Returners (Re)Learn How to Write, D. L. Peters, M. Goldstein, & J. Lax, Proceedings of the ASEE Annual Conference, Columbus, OH, June 2017

Challenges and Benefits of Applied Experience as an Engineering Returner in a Ph.D. Program, E. Mosyjowski, S. R. Daly, & D. L. Peters, Proceedings of the ASEE Annual Conference, Columbus, OH, June 2017

Perceived Self-Efficacy of Master's in Engineering Students Regarding Software Proficiency and Engineering Acumen, E. Gross, D. L. Peters, S. R. Daly, & S. L. Mann, Proceedings of the ASEE Annual Conference, Columbus, OH, June 2017

Practitioner Experience Meets Graduate Academic Research: How Intersections Guide the Work of Returning Engineering Ph.D. Students, J. Murray, S. R. Daly, E. Mosyjowski, & D. L. Peters, Proceedings of the ASEE Annual Conference, Columbus, OH, June 2017

Small-Scale Physical Modeling and Testing of a Vehicle Trailer with Onboard Power Supply, J. Eisenmann, J. Horsley, & D. L. Peters, Proceedings of the ASME 2016 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference, Charlotte, NC, August 2016; **video of trailer**

Design of a Higher Order Attachment for the Quanser Qube, D. L. Peters, Proceedings of the American Control Conference, Boston, MA, July 2016 (invited paper) **CAD files** (Autodesk Inventor format) for Quanser Qube attachment referenced in the paper; **LabVIEW files** for the control of the Quanser Qube attachment

Addition of Lab Experiences to a Course in Dynamic Systems with Vibrations, D. L. Peters, S. Janca, & J. Fornari, Proceedings of the ASEE Annual Conference, New Orleans, LA, June 2016

A Survey of Types of Industry-Academia Collaboration, D. L. Peters & A. M. Lucietto, Proceedings of the ASEE Annual Conference, New Orleans, LA, June 2016

Characterizing Research Process Sophistication in Engineering PhD Students and the Influence of Prior Experiences, E. Mosyjowski, S. R. Daly, D. L. Peters, & S. Skerlos, Proceedings of the ASEE Annual Conference, New Orleans, LA, June 2016

The Changing Role of Professional Societies for Academics, G. Hein, D. Faas, A. Lucietto, J. Nagel, D. L. Peters, R. Reck, M. Verstraete, & D. O'Bannon, Proceedings of the ASEE Annual Conference, New Orleans, LA, June 2016

Development of a Miniaturized Autonomous Vehicle: Modification of a 1:18 Scale RC Car for Autonomous Operation, D. Iyengar, D. L. Peters, Proceedings of the 8th Annual ASME Dynamic Systems and Control Conference, Columbus, OH, October 2015

Redesign of Lab Experiences for a Senior Level Course in Dynamic Systems with Controls, D. L. Peters, R. Stanley, C. Hoff, & J. Casci, Proceedings of the ASEE Annual Conference, Seattle, WA, June 2015

Engineering Practitioners in PhD Programs: Who Are They and Why Do They Return?, E. Mosyjowski, S. R. Daly, A. B. Baker, D. L. Peters, & S. Skerlos, Proceedings of the ASEE Annual Conference, Seattle, WA, June 2015

Reflections on Teaching and Mentoring, D. L. Peters, Proceedings of the ASEE Annual Conference, Seattle, WA, June 2015

How Professional Society Membership is Affected by Returning Student Status, A. M. Lucietto & D. L. Peters, Proceedings of the ASEE Annual Conference, Seattle, WA, June 2015

Design and Control of Vehicle Trailer with Onboard Power Supply, S. Narayanan & D. L. Peters, Proceedings of the SAE World Congress, Detroit, MI, April 2015

Design of a Cam-Actuated Robotic Leg, D. L. Peters & S. Chen, Proceedings of the IMECE, Montreal, Quebec, November 2014

Student Perceptions of Connections between Statics Class and Co-op Work Experience, D. L. Peters & J. Arbor, Proceedings of the ASEE Annual Conference, Indianapolis, IN, June 2014

The PhD Advising Relationship: Needs of Returning and Direct-Pathway Students, E. Mosyjowski, S. R. Daly, D. L. Peters, S. Skerlos, A. B. Baker, Proceedings of the ASEE Annual Conference, Indianapolis, IN, June 2014 (Best Paper award from Graduate Studies Division)

Designing a Survey Instrument for a National Study of Traditional and Returning Engineering Graduate Students, E. Mosyjowski, S. R. Daly, D. L. Peters, S. Skerlos, Proceedings of the ASEE Annual Conference, Atlanta, GA, June 2013

Control of a 36 Mode Hybrid with Driver Option Selection - Incorporating Urban, Suburban, and Highway Driving, A. R. Mechtenberg, D. L. Peters, Proceedings of the ASME Dynamic Systems and Control Conference, Orlando, FL, October 2012 (invited paper)

Why Do Professionals Return to School For Graduate Degrees?, D. L. Peters, S. R. Daly, Proceedings of the ASEE Annual Conference, San Antonio, TX, June 2012

Model Predictive Control of a Microgrid with Plug-in Vehicles: Error Modeling and the Role of Prediction Horizon, D. L. Peters, A. R. Mechtenberg, J. W. Whitefoot, P. Y. Papalambros, Proceedings of the ASME Dynamic Systems and Control Conference, Arlington, VA, October 2011 (invited paper)

Optimal Component Sizing and Forward-Looking Dispatch of an Electric Microgrid for Energy Storage Planning, J. W. Whitefoot, A. R. Mechtenberg, D. L. Peters, P.Y. Papalambros, Proceedings of the ASME Design Engineering Technical Conference, Washington, D.C., August 2011 (Best Paper award from Design Automation Committee)

The Challenge of Returning: Transitioning from an Engineering Career to Graduate School, D. L. Peters, S. R. Daly, Proceedings of the ASEE Annual Conference, Vancouver, Canada, June 2011 (Best Paper award from Graduate Studies Division)

Sequential Co-Design of an Artifact and its Controller Via Control Proxy Functions, D. L. Peters, P. Y. Papalambros, A. G. Ulsoy, Proceedings of the 5th IFAC Symposium on Mechatronic Systems, Cambridge, MA, September 2010 (See also journal version in IFAC Mechatronics Journal) (invited paper)

Relationship Between Coupling and the Controllability Grammian in Co-Design Problems, D. L. Peters, P. Y. Papalambros, A. G. Ulsoy, Proceedings of the American Control Conference, Baltimore, MD, July 2010 (Journal version submitted to IFAC Mechatronics Journal)

On Measures of Coupling Between the Artifact and Controller Optimal Design Problems, D. L. Peters, P. Y. Papalambros, A. G. Ulsoy, Proceedings of the ASME Design Engineering Technical Conference, San Diego, CA, September 2009

Pareto Set Analysis: Local Measures of Objective Coupling in Multi-objective Design Optimization, B. D. Frischknecht, D. L. Peters, P. Y. Papalambros, 8th World Congress on Structural and Multidisciplinary Optimization, Lisbon, Portugal, June 2009 (See also journal version in Structural and Multidisciplinary Optimization)

Co-Design of a MEMS Actuator and its Controller Using Frequency Constraints, D. L. Peters, K. Kurabayashi, P. Y. Papalambros, A. G. Ulsoy, Proceedings of the Dynamic Systems and Control Conference, Ann Arbor, MI, October 2008

Patents (Pending and Issued)

Microfluidic Device and Method Using Double Anodic Bonding, Stephen Forrest, Gregory McGraw, Siddharth Harikrishna Mohan, Diane L. Peters, Publication Number US 2013/0068165 A1 (pending)

Die Holder Assembly for Rotary Cutting System, Paul G. Kapolnek, Timothy G. Kapolnek, David J. Kapolnek, Michael K. Musgrave, Diane L. Peters, Kent M. Troxel, US Patent Number 8,015,904 B2, Issued September 2011

Doctoral Dissertation

Coupling and Controllability in Optimal Design and Control, D. L. Peters, Ph.D. Thesis, University of Michigan, January 2010

Professional Service

Society of Women Engineers

SWE is an organization that's been very valuable to me, as I've progressed through my career. I've made friends, built an extensive network, received encouragement, and learned a lot. Because of the value I see in SWE, I chose to become a Life Member some time ago.

Currently, I serve SWE as the faculty advisor for Kettering's A and B collegiate sections and as the Coordinator for faculty advisors and counselors. In the past, I have served in multiple roles, including the Region H MAL representative and the chair of the Women in Academia committee for the 2016 SWE Fiscal Year.

FIRST Robotics

I'm involved with FIRST Robotics as a mentor for Team 1506, Metal Muscle. We've done some great stuff, and made some really interesting robots over the past two years. We've also done some team-building activities; in one of these, we went to a Ropes type of course.

Tau Beta Pi

I've been a member of Tau Beta Pi since my junior year at Notre Dame, where I was inducted into the Indiana Gamma chapter. I currently serve as one of the faculty advisors to Tau Beta Pi at Kettering University. The Tau Beta Pi students at Kettering have done some really great things; one of their recent service projects was building agility equipment for the shelter at Animal Control in Genesee County.

American Society for Engineering Education

I joined ASEE while I was at the University of Michigan, and currently serve in both the Graduate Studies Division and the Mechanical Engineering Division.

Awards

Society of Women Engineers (SWE) Outstanding Faculty Advisor Award, 2017

American Society for Engineering Education (ASEE) Mechanical Engineering Division New Educator Award, 2017

Fellow of the Society of Women Engineers, 2016

Honorary Member of the Robot Society, 2015

SWE Member at Large (MAL) Outreach Award, 2015

Senior Member, IEEE, 2014

ASEE Graduate Studies Division Best Paper Award, 2014

ASEE-ERM Apprentice Faculty Grant, 2013

ASME Design Engineering Division - Design Automation Committee Best Paper Award, 2011

ASEE Graduate Studies Division Best Paper Award, 2011

University of Michigan College of Engineering Distinguished Achievement Award, 2010

University of Michigan College of Engineering Marian Sarah Parker Prize, 2009

University of Michigan College of Engineering Distinguished Leadership Award, 2009

Second Place, Oral Presentation Competition, Design and Control Systems Session, University of Michigan Graduate Symposium, 2009

Finalist, Society of Women Engineers Graduate Student Poster Competition, 2009

NSF Graduate Research Fellowship Honorable Mention, 2007

Rackham Merit Fellow, University of Michigan, 2006

Teresan Scholar, Alumnae of CST, 2006

SWE Chicago Regional Section Technical Award, 2006

SWE Chicago Regional Section Consistent Contributor Award, 2005

SWE Chicago Regional Section Membership Award, 2004

SWE Distinguished New Engineer Award, 2002

ASME Chicago Section Outstanding Young Engineer, 2000-2001

SWE Chicago Regional Section Individual Contributor Award, 1999

Notre Dame Steiner Prize, 1993

Notre Dame Scholar, 1989

National Merit Scholar, 1989