

# Julie E. Steinbrenner

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ECME 126 | 1111 Engineering Drive  
Boulder, Colorado

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Education	<b>Doctor of Philosophy in Mechanical Engineering</b> Stanford University Thesis: Two-Phase Flow Phenomena in Fuel Cell Microchannels Advisor: Dr. Kenneth E. Goodson	<b>March 2011</b> <i>Stanford, California</i>
	<b>Master of Science in Mechanical Engineering</b> Stanford University	<b>January 2005</b> <i>Stanford, California</i>
	<b>Bachelor of Science in Mechanical Engineering</b> Valparaiso University Summa Cum Laude Christ College Associate, Interdisciplinary Honors College, French minor	<b>May 2003</b> <i>Valparaiso, Indiana</i>
Current Position	<b>Wolenski/Roller Faculty Fellow</b> <b>Senior Instructor</b> <b>Instructor</b> <b>Adjunct Professor</b> <i>Mechanical Engineering Department, University of Colorado</i> <ul style="list-style-type: none"><li>Consistently employ active learning techniques, including team-based design/build/test projects, analysis projects, in-class workshops, hands-on laboratories, and concept-focused clicker questions for classes up to 283 students.</li><li>Prepare students for success after college by emphasizing career preparations, building connections with industry, developing professional skills</li><li>Develop curriculum focused on practical application of fundamental conceptual understanding, and best practices for engineering analysis and decision-making</li></ul>	<b>December 2017 – present</b> <b>August 2019 – present</b> <b>August 2013 – July 2019</b> <b>August 2012 – May 2013</b> <i>Boulder, Colorado</i>
	Graduate Courses: MCEN 5042: Graduate Heat Transfer	Fall 2013, 2014; Spring 2016
	Project-based design courses: ENEN 4600: Interdisciplinary Energy Engineering Projects MCEN 4045: ME Design Projects MCEN 4085: ME Design Projects II GEEN 1400: First Year Design Projects	Fall 2015, 2016 Fall 2012 - 2020 Spring 2013 - 2021 Spring 2014
	Other undergraduate courses: MCEN 2000: Mechanical Engineering as a Profession MCEN 3012: Thermodynamics MCEN 3032: Thermodynamics II MCEN 3022: Heat Transfer MCEN 3021: Fluid Mechanics MCEN 4228: Thermofluids Laboratory	Fall 2016 - 2020 Spring 2016, Spring 2020 Spring 2014 Spring 2013; Summer 2014, 2016, 2017, 2018 Fall 2013, Spring 2021 Spring 2017, 2018, 2019
	New course development or major course redesign: MCEN 4228: Thermofluids Laboratory <i>Developed course consisting of seven modules focused on real-world thermofluids systems, with each module emphasizing a real-world system, a measurement technique, and a technical communication method. Modules include an instrumented commercial AC unit, a purpose-built</i>	

*solar-thermal system, and a reconditioned optical engine.*

MCEN 2000: Mechanical Engineering as a Profession

*Redesigned course to introduce students to the profession of Mechanical Engineering, emphasizing professional skills, such as critical-thinking, problem-solving and communication. Improved career preparation elements by incorporating more industry connections through a Careers in ME Symposium, alumni-conducted mock interviews, student-driven informational interviews, and UROP-funded Research lunches*

ENEN 4600: Interdisciplinary Energy Engineering Projects

*Incorporated elements of project management, engineering economics, costing, risk assessment and uncertainty analysis into a semester-long analysis-based design project with Energy themes, such as “Alternatives to Gas Flaring in the North Dakota Bakken Oil Fields” and “Electrification of Rural Myanmar with Micro-grids”. Brought industry professionals in for guest lectures and brought students to industry for site visits.*

Guest Lectures and Workshops:

Advanced Product Design: Design interviewing	Spring 15
Graduate Seminar: Tips for giving a technical talk to a broad audience	Spring 15
Graduate Intro to Research Seminar: The Peer Review Process	Fall 16
Graduate Intro to Research Seminar: Technical Writing and Editing	Fall 16
Graduate Intro to Research Seminar: Ethics of responsible research conduct interactive workshop with case studies	Fall 13, Fall 14, Fall 16

Program  
Development

***Design Your Career Professional Development Program***

**2017 – present**

*Department of Mechanical Engineering, University of Colorado*

*Boulder, Colorado*

- Conceived and planned new Professional Development Program for Mechanical Engineering Students at CU Boulder, themed to encourage students to apply design thinking to career explorations, and incorporating multiple opportunities for student/industry connections, such as Explore ME Dinners, Industry Tours, and formal and informal one-on-one meetings with practicing engineers
- Proposed new program to undergraduate committee for successful adoption of program as new graduation requirement
- Hired and supervise new senior professional development advisor for department

***Student Experiential Education Initiative Development***

**2018 – present**

*Department of Mechanical Engineering, University of Colorado*

*Boulder, Colorado*

- Conceived and planned new Professional Development Program for Mechanical Engineering Students at CU Boulder, themed to encourage students to apply design thinking to career explorations
- Designed experiences incorporating multiple opportunities for student/industry connections, such as Explore ME Dinners, Industry Tours, and formal and informal one-on-one meetings with practicing engineers

***ME Alumni Connect Day***

**2016 – present**

*Department of Mechanical Engineering, University of Colorado*

*Boulder, Colorado*

- With committee comprised of department staff, Advancement personnel, and Department chair, organized and planned annual event to bring alumni to campus for networking lunch, in-class panels, and mock interviews with students.

Leadership  
Positions

**External Relations Committee Chair**

**Summer 2017 – present**

*Department of Mechanical Engineering, University of Colorado*

*Boulder, Colorado*

- Lead and coordinate marketing efforts to attract diverse students, facilitate maintenance and improvements to departmental website and social media
- Facilitate industry collaboration, including coordination of ME Partners, a department-wide industry
- Developed alumni engagement programs which bring over 100 alumni to campus annually to engage with over 600 students during two annual events
- Manage reporting for Industry gift funds to the department
- Collaborate with department, college, and university administrators involved with advancement, alumni and industry relations, internship and professional development educational programming

**Energy Engineering Minor, Inaugural Director**

**August 2014 – Summer 2017**

*University of Colorado*

*Boulder, Colorado*

- Develop curriculum and programming for first interdisciplinary minor within the College of Engineering and Applied Science
- Administrated interdisciplinary Energy Minor program for approximately 60 students with 5 different engineering majors
- Advertised program to undergraduate students, and planned events such as *Exploring Energy Engineering* industry connections panels/discussion
- Established and recruited new industry partners to the Energy Engineering Minor Advisory Panel (EEMAP) consisting of 10 energy industry professionals
- Conducted bi-annual meetings with Industry Advisory Panel and led meetings with faculty curriculum committee, and collaborated with energy-related organizations on campus.
- Coordinated development of two new courses – Oil & Gas Processing and Wind Energy System Design
- Developed and taught new Energy Engineering Projects course for first two offerings

Other Teaching  
Experience

**Physics Instructor,**

**Summer 2011**

**Summer Math And Science Honors (SMASH) Academy**

*Level Playing Field Institute*

*San Francisco, California*

- Taught a 6-week summer honors program for 23 high-achieving seniors from under-resourced high schools
- Developed curriculum, lecture materials, laboratory activities, and evaluation metrics for physics course focused on fundamental kinematics concepts and thermodynamic principles related to energy
- Co-developed a projects-based course in renewable and sustainable community development culminating in small group projects on energy efficiency analysis

**Teaching Assistant**

*Department of Mechanical Engineering, Stanford University*

*Stanford, California*

*Undergraduate Statics*

**Fall 2008**

- Taught and assisted with laboratory sessions to enhance undergraduate student comprehension of fundamental principles of statics, ethics, and design
- Held office hours to assist students with homework problems, wrote and graded exam questions, developed and presented a lecture to 150 students

*Fundamentals of Heat Conduction*

Winter 2008

- Designed and taught problem sessions for 30 graduate students in a technical heat transfer course
- Held office hours to assist students with homework problems
- Wrote homework and exam questions, graded homework and exams

### **Teaching-Related Interests and Training**

- Tutored high school and undergraduate engineering students
- Peer Mentor for freshmen engineering students, Valparaiso University
- Relevant coursework: science course design (1 quarter), Stanford University

Research  
Experience

### **Research Staff Member**

2011 – 2012

*Palo Alto Research Center*

*Palo Alto, California*

- Experimentally analyzed particle-laden flows and phase-change phenomena in multi-scale environments applicable to printing technologies using various prototyping techniques and high-speed imaging, PIV, and shadowgraphy
- Developed Flow-3D general moving object (GMO) simulations of flow fields and particle dynamics in low-Reynolds number flows

### **Charles H. Kruger Stanford Graduate Fellow, Research Assistant**

2003 – 2011

*Microscale Heat Transfer Laboratory, Stanford University*

*Stanford, California*

- Developed two and three-dimensional techniques for white light and fluorescent visualization of two-phase flow regimes in rectangular microchannels relevant to fuel cell applications for comparison with numerical models of stratified films
- Designed and implemented control and measurement system for two phase air-water flow in microchannels

### **Scientific Chateaubriand Fellow**

2007

*Commissariat à l'Energie Atomique (CEA), Fuel Cell Laboratory*

*Grenoble, France*

- Developed and implemented techniques for local measurement of current density in the membrane electrode assembly of a proton exchange membrane fuel cell
- Developed tools for and performed characterization of anisotropic electrical properties of fuel cell components under variable mechanical strain

### **Research and Development Intern**

Summer 2003

*Seagate Technologies, Inc.*

*Longmont, Colorado*

- Designed and constructed a test apparatus and LabVIEW control software to measure torque on actuator assembly of disk drive, with key design requirements including ease of use, accuracy, versatility for drives of various geometries

### **Research Stagiare**

Fall 2002

*IMP-CNRS (French National Research Center)*

*Odeillo, France*

- Performed preliminary research for the development of an optical temperature measurement system for molten silicon under concentrated solar irradiation

Research  
Experience  
(continued)

### NSF Undergraduate Research Student

Summer 2002

*Paul Scherrer Institut, Solar Technology Laboratory*

*Villigen, Switzerland*

- Experimentally determined the effect of carbon reactivity and reactant configuration on products obtained during carbothermic ZnO decomposition at temperatures near 2000K using a 45-kW solar concentrator
- Developed Fortran and MATLAB models to predict the temperature distribution within a solar reactor cavity using radiosity and Monte Carlo radiation modeling

### Multi-disciplinary Undergraduate Research in Turbulence Team Member and Summer Research Student

2000 - 2002

*Valparaiso University*

*Valparaiso, Indiana*

- Coordinated research activities and responsibilities among six engineering and meteorology students as research team leader
- Wrote Visual Basic program for high sample rate measurement of wind velocity using hot wire anemometers at the Atmospheric Boundary Layer Experiment facility in Whitewater, Kansas
- Prepared water flume for turbulent boundary layer testing, including development of an in-situ calibration rig to obtain velocity profiles in the turbulent boundary layer of water using hot-film probes

Engineering  
Education  
Research

D. Kotys-Schwartz, D. Knight, **J.E. Steinbrenner**, A Qualitative Investigation of Success and Challenges with Team Roles in Capstone Design, *2018 Capstone Design Conference*, June 4-6, 2018, Rochester, NY.

K. Pickens McConnell, D. Knight, and **J. Steinbrenner**, Push and Pull: Integrating Industry Across the Student Experience, *2019 ASEE Annual Conference & Exposition*, June 15-19, 2019, Tampa, FL.

A. Scott, M. Kern, **J. Steinbrenner**, Increasing communication avenues between Mechanical Engineering doctoral students, faculty and the administration, *2020 ASEE Virtual Annual Conference & Exposition*, June 22-26, 2020.

K. Pickens McConnell, J. Steinbrenner, From Theory to Impact: A Mixed Media Approach to Shifting Student Perceptions of Faculty Research, *2020 ASEE Annual Conference & Exposition*, submitted, not presented due to COVID.

**J. Steinbrenner**, D. Kotys-Schwartz, D. Knight, Teams, Tantrums, and Tears: Conflict Resolution in 2020, *2020 Capstone Design Conference*, submitted, not presented due to COVID.

K. McConnell, **J. Steinbrenner**, J. Blacklock, M. Gordon, M. Darbeheshti, Workshop Proposal: Mechanical Engineering Roundtables, *ASEE Rocky Mountain Section Regional Conference 2020*, submitted, not presented due to COVID.

Other  
Publications

A. Makowiecki, **J. Steinbrenner**, N. Wimer, J. Glusman, C. LaPointe, J. Daily, P. Hamlington, and G. Rieker, Dual Frequency Comb Spectroscopy of Solid Fuel Pyrolysis and Combustion: Quantifying the Influence of Moisture Content in Douglas Fir, *Fire Safety Journal*. September 2020; vol.116, p.103185.

**J.E. Steinbrenner**, E.S. Lee, C.H. Hidrovo, J.K. Eaton, K.E. Goodson, Impact of channel geometry on two-phase flow in fuel cell microchannels, *J. Power Sources*. June 2011; vol.196, no.11, p.5012-5020.

A. Rogacs, **J.E. Steinbrenner**, J.A. Rowlette, J.M. Weisse, X.L. Zheng, K.E. Goodson. Characterization of wettability of thin nanostructured films in the presence

of evaporation. *J. Colloid Interface Science*. September 2010; vol.349, no.1, p.354-360.

C. Fang, **J.E. Steinbrenner**, F.-M. Wang, K.E. Goodson. Impact of wall hydrophobicity on condensation flow and heat transfer in silicon microchannels. *J. Micromechanics Microengineering*. April 2010; vol.20, no.4, 045018.

**J.E. Steinbrenner**, C.H. Hidrovo, F.-M. Wang, E.S. Lee, S. Vigneron, T.A. Kramer, C.H. Cheng, J.K. Eaton, K.E. Goodson. Measurement and Modeling of Liquid Film Thickness Evolution in Stratified Two-Phase Microchannel Flows. *Applied Thermal Engineering*. July 2007; vol.27, no.10, p.1722-7.

F.-M. Wang, **J.E. Steinbrenner**, C.H. Hidrovo, T.A. Kramer, E.S. Lee, S. Vigneron, J.K. Eaton, K.E. Goodson. Investigation of Two-Phase Transport Phenomena in Microchannels Using a Microfabricated Experimental Structure. *Applied Thermal Engineering*, July 2007; vol.27, no.10, p.1728-1733.

C.H. Hidrovo, T.A. Kramer, E.N. Wang, S. Vigneron, **J.E. Steinbrenner**, J.M. Koo, F.M. Wang, D.W. Fogg, R.D. Flynn, E.S. Lee, C.H. Cheng, T.W. Kenny, J.K. Eaton, K.E. Goodson. Two-Phase Microfluidics for Semiconductor Circuits and Fuel Cells. *ICMM2005: 3rd International Conference on Microchannels and Minichannels*, June 13-15, 2005, Toronto, Ontario, Canada (keynote paper). *Heat Transfer Engineering*, May 2006; v.27, no.4, p.53-63.

A.P. Freid, P.K. Johnson, M. Musella, R. Müller, **J.E. Steinbrenner**, R.D. Palumbo. Solar Blind Pyrometer Temperature Measurements in High Temperature Solar Thermal Reactors: A Method for Correcting the System-Sensor Cavity Reflection Error. *J. Solar Energy Engineering*. Feb. 2005; vol.127, no.1, p.86-93.

Presentations,  
Talks, and  
Panels

GEARRS Speaker Training: Effective Presentations *Spring 18, 19*  
UROP Best Practice Colloquium: Emphasizing Impact: A New Vision in Mechanical Engineering *Spring 19*  
TA Professional Development Lunches: Growth Mindset and Designing Your Career *Spring, Fall 18, Spring 19*  
ACTIVE Future Faculty Program: Helping Students Bridge the Gap between Academia & Careers *Fall 18*  
Freshman Orientation Presentation: Growth Mindset *Fall 17*  
Aerospace Ventures Panel: Best Practices for Capstone Senior Design *Spring 16*  
SWE Industry panel panelist *Spring 16*  
ECEE Future Faculty Seminar Series Faculty Panel: Careers in Academia *Spring 15*

Departmental  
Committees

ME Department Executive Committee, AY 17/18, 18/19, 19/20, 20/21  
Chair, External Relations Committee, AY 17/18, 18/19, 19/20, 20/21  
Member of the Graduate Committee, AY 13/14, 14/15, 16/17

Other  
departmental  
Service

*Active participant in departmental functions: faculty search visits, instructor search visits, department meetings, department retreats, Distinguished Seminar Speaker series, and strategic planning*  
SEE Initiative planning and execution meetings, AY 17/18, 18/19, 19/20  
Client for a CMCI Capstone course focusing on marketing strategy for the Department of Mechanical Engineering, 2018  
Wrote sections of ABET report for MCEN 2000 continuous improvement and met with ABET evaluator, 2017  
Wrote outreach section of ARPAC report and met with ARPAC reviewers, 2017, 2018  
Organized Instructor Search, resulting in hire of Dr. Jenifer Blacklock, 2017

Coordinated Fluids Preliminary Exam, 2017, 2018  
 Coordinated Heat Transfer Preliminary Exam, 2016  
 Mentor for Lead TA, Adrienne Scott, in Mechanical Engineering, AY 18/19  
 Mentor for Lead TA, Tim Morrissey, in Mechanical Engineering, AY 16/17, 17/18  
 Client for WRTG 3035 projects related to ME student professional development, 2016, 2019  
 Task force for Senior Design program expansion, 2016  
 Presented at Fall IAC meeting task force discussion, 2015  
 Task force for Heat Transfer course review, 2015  
 FE Review session for Heat Transfer and Fluid Mechanics, AY 12/13, 13/14  
 Intro to Research Seminar Coordination, F 13, F 14  
 GEARRS presentation critiques and participation, S 13 – 19

College-level  
Committees

Search Committee for CEAS Senior Director of Student Professional Development, F 18  
 CEAS Internship Working Group, AY 18/19  
 Faculty Advisor, Engineering Excellence Fund (EEF) Committee, AY 16/17, 17/18, F 18  
 Undergraduate Executive Committee Member, AY 15/16, 16/17  
 Undergraduate Executive Committee Task Force on Writing in the Curriculum, 2016  
 Faculty Director of CEAS Energy Engineering Minor, AY 15/16, 16/17  
 Energy Engineering Minor Task Force, AY 14/15

Other college-  
level service

Participate in BOLD coffee hours with students, 2017  
 BOLD S-STEM mentor, 2017, 2018, 2019  
 Meetings to coordinate ME/EE Interdisciplinary Capstone Exchanges, AY 17/18, 18/19  
 Client for WRTG 3035 project examining Energy Engineering Minor, 2017  
 Participant in Advancement meetings with industry partners, advisory board members  
 Faculty facilitator for Freshman Orientation Presentation: Growth Mindset, F 17  
 Recruited female undergraduate students at BOLD Mocktails event, F 15, F 17, F 18  
 Faculty Student Mentorship Program, AY 14/15  
 College of Engineering Strategic Planning Retreat, F 13

Student  
Advising

Technical Writing consults: Chelsea Cheveran, Paul Schroder, Torrey Hayden  
 Resume advising and job search and career discussions, dozens of students annually.  
 Letters of Recommendation, typically over 10 students annually.  
 Thermofluids Laboratory Module Development: Alexander Khaldy, Kaiyang Zheng, Griff Wendland, Scott Oubre, Daniel Navarro, Majed Al Hulayel, Eric Witter, Winston Mosley, Nasha Nasry, Mirza Fatini Mohd Rosidi  
 Independent study: Technical Writing, Simon Hafner, BS/MS Student in Mechanical Engineering, 2018, 2019  
 Independent study: Thermo-fluid system modeling using commercial software, Alexander Thompson, BS/MS Student in Mechanical Engineering, 2017  
 Independent study: Thermo-fluid system modeling using commercial software, Alexander Enright, BS/MS Student in Mechanical Engineering, 2017  
 Independent study: Thermal modeling of Solar Thermal Water Heater (with NREL),

Chinmay Morankar, MS Student in Mechanical Engineering, 2016

Independent Study: Redesign of a dynamometer for high-mileage vehicle diagnostics,  
Jeffrey Gonzales and Sam Orzinski, BS Students in Mechanical Engineering, 2015

Dissertation Committee Member	Steven Isaacs, PhD student in Mechanical Engineering, 2020
	Kyle Karber, PhD student in Mechanical Engineering, 2018
	Shanshan Xu, PhD student in Mechanical Engineering, 2017
	Amanda Luketa, MS student in Mechanical Engineering, 2015
	Miles Abarr, PhD student in Mechanical Engineering, 2015
	Berkeley Almand-Hunter, PhD student in Mechanical Engineering, 2015
	Qian Li, PhD student in Mechanical Engineering, 2014
	Suraj Thiagarajan, PhD student in Mechanical Engineering, 2014
Comprehensive Exam Reviewer	Steven Isaacs, PhD student in Mechanical Engineering, 2017
	Kyle Karber, PhD student in Mechanical Engineering, 2017
	Shanshan Xu, PhD student in Mechanical Engineering, 2016
	Didier Muvandimwe, PhD student in Mechanical Engineering, 2014
	Berkeley Almand, PhD student in Mechanical Engineering, 2014
	Qian Li, PhD student in Mechanical Engineering, 2013
	Suraj Thiagarajan, PhD student in Mechanical Engineering, 2013
	Ph.D. Qualifying Examination Committee
Julian Quick, PhD student in Mechanical Engineering, 2018	
Corey Trujillo, PhD student in Mechanical Engineering, 2018	
Alex Rybchuk, PhD student in Mechanical Engineering, 2018	
Elizabeth Strong, PhD student in Mechanical Engineering, 2018	
Mike Meehan, PhD student in Mechanical Engineering, 2018	
Skyler Kern, PhD student in Mechanical Engineering, 2018	
Jeff Glusman, PhD student in Mechanical Engineering, 2018	
Ryan Cole, PhD student in Mechanical Engineering, 2017	
Sam Whitman, PhD student in Mechanical Engineering, 2017	
Xinpeng Zhao, PhD student in Mechanical Engineering, 2017	
Olga Doronina, PhD student in Mechanical Engineering, 2017	
Elise Mesenbring, PhD student in Mechanical Engineering, 2016	
Caelen Lapointe, PhD student in Mechanical Engineering, 2016, 2017	
Nathan Malarich, PhD student in Mechanical Engineering, 2016	
David Pfothenauer, PhD student in Mechanical Engineering, 2016	
Andres Villada, PhD student in Mechanical Engineering, 2016	
Tim Ritter, PhD student in Mechanical Engineering, 2016	
Nathan Malarich, PhD student in Mechanical Engineering, 2016	
Aaron Lampaugh, PhD student in Mechanical Engineering, 2016	
Steven Issacs, PhD student in Mechanical Engineering, 2016	
Yao Zhai, PhD student in Mechanical Engineering, 2015/2016	
Alec Thomas, PhD student in Mechanical Engineering, 2015	
Xin Qian, PhD student in Mechanical Engineering, 2015	



	Shanshan Xu, PhD student in Mechanical Engineering, 2014
	Kyle Karber, PhD student in Mechanical Engineering, 2014
Invited Reviewer	Scientific Reports
Professional Development Workshops Attended	Toward a More Inclusive College, BOLD Workshop, 2017 Inclusive Pedagogy with Dr. Saundra McGuire, 2017 Teaching your First Day of Class, FTEP workshop, 2015 Effective Use of Clickers, FTEP workshop, 2013 What do you want them to learn today?: learning goals and formative assessment, FTEP workshop, 2013 Writing Effective Clicker Questions, FTEP workshop, 2013
Grants	UROP Development Grant for Research Lunches in MCEN 2000: Mechanical Engineering as a Profession, 2018 Gift funding in support of SEE Initiative, \$100k+, 2018 EEF Grant for Module Development for Thermofluids Laboratory Course, \$33.5k, 2016
Honors and Awards	Sullivan-Carlson Innovation in Education Award, 2020 Charles A. Hutchinson Memorial Teaching Award, 2019 College of Engineering and Applied Science Outstanding Faculty for Teaching, 2019 Wolenski/Roller Faculty Fellowship, 2017-present Outstanding Service Award for Department of Mechanical Engineering, 2018 Outstanding Undergraduate Educator for Department of Mechanical Engineering, 2017 Outstanding Graduate Educator for Department of Mechanical Engineering, 2016 Chateaubriand Scientific Fellowship, 2007 Charles H. Kruger Stanford Graduate Fellowship in Science and Engineering, 2004-2007 Best Poster Award, HeatSET, 2005 Stanford Graduate Engineering Fellowship, 2004 Edgar J. Luecke Z* Award for Leadership and Service, 2002 Alumni Association Distinguished Student Award, 2002 Outstanding Leadership and Service Award, 2002 Bruce and Linda Eastmond Award for Outstanding Senior Engineering Student, 2002 Herman C. Hesse Award for Outstanding Freshman Engineering Student, 1999 Merit Scholarships: Valparaiso University Founders, Robert C. Byrd, and National Merit
Patents	United States Patent 9,819,134, <i>Tool for stripping and crimping a wire</i> , November 14, 2017. United States Patent 9,211,703, <i>Temperature dependent shape elements for void control in ink jet printers</i> , December 15, 2015
Community Involvement	Faculty Mentor for Science Research Seminar student design team from Monarch High School studying Double Wishbone Suspension Dynamics, AY 15/16 University of Colorado – Boulder Lutheran Campus Ministry Board, 2012 – present El Camino Colorado mentor, 2014-2016 Judge for Northglenn High School Physics Project-Based Learning Course Fair, 2015 Tau Beta Pi – Engineering Honor Society, 2000-2002: Vice-President of Valparaiso Chapter, 2001-2002

Society of Women Engineers – VU Student Chapter, 1998-2002. President, 1999/2000.  
Treasurer, 1998

Dean's Student Advisory Committee for the Valparaiso University College of Engineering,  
1999-2002

Languages

English (native), French (proficient)