

# 2018 IEEE Education Society Awards, 2018 Frontiers in Education Conference Awards, and Selected IEEE Awards

James J. Sluss, Jr., *Past Society President and 2018 Awards Policy and Procedures Chair*  
IEEE Education Society

**T**HE IEEE Education Society, the IEEE Computer Society, and the American Society for Engineering Education Educational Research and Methods Division (ASEE-ERM) sponsored the 48th Frontiers in Education (FIE) Conference in San Jose, CA, USA, held October 3–6, 2018. Claudio R. Brito, President of the IEEE Education Society, and Stephen T. Frezza, Chair of the FIE Steering Committee, presented awards sponsored by the Education Society and the FIE Conference. In addition, the IEEE Undergraduate Teaching Award, which is administered by the IEEE Awards Board and sponsored by the IEEE Education Society, was presented.

Here we continue the tradition, begun in 2005, of publishing the award descriptions and their recipients in the IEEE TRANSACTIONS ON EDUCATION (see the Appendix), in order to present the increasingly important research and development in engineering education.

The 2019 FIE Conference will be held in Cincinnati, OH, USA, on October 16–19, 2019. The conference website is: [www.fie2019.org](http://www.fie2019.org).

## I. 2018 IEEE UNDERGRADUATE TEACHING AWARD

The IEEE Undergraduate Teaching Award was established by the Board of Directors in 1990 to honor teachers of electrical and electronics engineering and the related disciplines.

In the evaluation process, the criteria considered are: excellence in teaching undergraduate students; creative development of the undergraduate curriculum; authorship of course materials for undergraduate students; involvement with undergraduate students through activities, such as advising, project supervision, faculty counseling or advising for student organizations; attracting students to engineering and the scientific profession; and the quality of the nomination.

The 2018 IEEE Undergraduate Teaching Award was presented to *Susan M. Lord*, “for contributions to the development of more inclusive and innovative undergraduate teaching in electrical and computer engineering.”



**Susan M. Lord** (F'15) is an extraordinary educator and a role model for students and colleagues, and she is making engineering education more accessible and appealing to diverse students. She has coordinated redevelopment of the first-year engineering course multiple times to enhance student learning and improve retention at the University of San Diego (USD), San Diego, CA, USA. She also implemented laboratory programs for engineering design to foster continuous improvement. In her drive to make engineering education more welcoming to students of diverse backgrounds, she has conducted research to help faculty better understand who their students are, their pathways into engineering fields, and their classroom experiences. She was the first USD engineering faculty member to incorporate service learning where the students present hands-on science to middle- and high-school classes.

She is a Professor and the Chair of engineering with USD.

## II. IEEE EDUCATION SOCIETY HARRIETT B. RIGAS AWARD

The Harriett B. Rigas Award is presented annually by the IEEE Education Society to recognize outstanding faculty women who have made significant contributions to electrical and computer engineering education. The award consists of an honorarium, engraved gold-plated medal, and Frontiers in Education Conference registration. It was established in 1993 by Hewlett-Packard Enterprise.

The recipient must be a tenured or tenure track woman faculty member in an ABET-accredited engineering program in the United States, with teaching and/or research specialization in electrical/computer engineering.

The 2018 IEEE Education Society Harriett B. Rigas Award was presented to *Sarah Kate Wilson*, “for excellence in communications engineering, education and promoting equity.”



**Sarah Kate Wilson** (F'14) received the A.B. degree in mathematics from Bryn Mawr College and the Ph.D. degree in electrical engineering from Stanford University. She has worked in both academia and industry and is currently a Professor of electrical engineering with Santa Clara University. Her research area includes wireless radio frequency communications, visible light communications, and underwater acoustic communications.

She is currently the Faculty Senate President with Santa Clara University. She served as the Editor-in-Chief of IEEE COMMUNICATIONS LETTERS from 2009 to 2011, and has been an Associate Editor for the IEEE TRANSACTIONS ON WIRELESS COMMUNICATIONS, IEEE COMMUNICATIONS LETTERS, the IEEE TRANSACTIONS ON COMMUNICATIONS, and the *Journal of*

*Communications and Networks*. She was the IEEE Communications Society Director of Journals from 2012 to 2013, overseeing four society journals and their Editors-in-Chief. She was the Elected Vice-President for Publications for the IEEE Communications Society from 2014 to 2015, overseeing all journals, magazines, and online content.

Dr. Wilson was a recipient of the IEEE Women in Communications Engineering Service Award, the IEEE Communications Society Joseph LoCicero Award for Exemplary Service to Publications. She was the Co-General Chair (with Andrea Goldsmith) of the IEEE Wireless Communications and Networking Conference in 2017 in San Francisco, which was awarded the IEEE iCon Award for the Best IEEE Conference of 2017. She is a fellow of the IEEE for contributions to Orthogonal Frequency Division Multiplexing.

### III. IEEE EDUCATION SOCIETY WILLIAM E. SAYLE II AWARD FOR ACHIEVEMENT IN EDUCATION

The William E. Sayle II Award is presented to recognize a member of the IEEE Education Society who has made significant contributions over a period of years in a field of interest of the IEEE Education Society. The award consists of a plaque, a certificate, and paid registration to the Frontiers in Education Conference.

The 2018 IEEE Education Society William E. Sayle II Award for Achievement in Education was presented to *Mark Allen Weiss*, “for contributions to the advancement of computer science education through his books and curricular innovations that have enhanced student learning for both high school and college students.”



**Mark Allen Weiss** (F'18) received the B.E. degree in electrical engineering from Cooper Union in 1983 and the Ph.D. degree in computer science from Princeton University in 1987. He joined Florida International University (FIU) in 1987, where he is currently an Eminent Scholar Chaired Professor of computer science and the Associate Dean for Undergraduate Education with the College of Engineering and Computing. He also created and currently serves as the Interim Founding Director of the School of Universal Computing, Construction, and Engineering Education.

He is most well-known as the sole author of nine textbooks, in 20 U.S. editions. His first textbook entitled *Data Structures and Algorithm Analysis* published in 1991, along with subsequent versions in C, Ada, C++, and Java, have been market leaders for two decades. He served on the Ad-Hoc Committee that advised the College Board on how to incorporate C++ into the Advanced Placement Exam, and then served as a member of the College Board's Advanced Placement Computer Science Development Committee, including a four-year term as the Chair, as it redesigned the Advanced Placement curriculum twice, first from Pascal to C++, and then from C++ to Java. He has been the FIU lead in securing over ten million dollars of external funding for FIU's Information Technology-Related Programs.

Dr. Weiss was a recipient of the 2015 SIGCSE Award for Outstanding Contribution to Computer Science Education, the 2017 IEEE Computer Society Taylor L. Booth Education Award, and the Outstanding Faculty Torch Award from FIU, which is presented by the FIU Alumni Association and FIU President to a single faculty member who has made a lasting impression on the lives of FIU students and alumni. He is an AAAS Fellow and an ACM Distinguished Educator.

### IV. IEEE EDUCATION SOCIETY DISTINGUISHED MEMBER AWARD

The 2018 IEEE Education Society Distinguished Member Award was presented to *James R. Rowland*, “for contributions to the founding of the FIE, long leadership in the Education Society, and many years of service to ABET.”



**James R. Rowland** (F'95) was a recipient of the IEEE Centennial Medal in 1984, the Education Society awards for achievement and meritorious service, and was recognized among the Founders of the IEEE/ASEE Frontiers in Education Conference in 1971. From 1980 to 1990, he served as the Education Society President, as the IEEE Admissions and Advancement Committee Chair, and as a member of three IEEE major boards. He recently chaired the Education Society Fellows Committee for six years. He continues to serve as an ABET Program

Evaluator with over 40 campus visits for IEEE and ASEE.

He received the Ph.D. degree in electrical engineering from Purdue University in 1966. His professional career spanned over 50 years as an electrical engineering professor at three universities. He retired and became a Professor Emeritus in 2017 after 32 years as a Professor with the University of Kansas and had held faculty positions with Georgia Tech and Oklahoma State University.

### V. IEEE EDUCATION SOCIETY MAC VAN VALKENBURG EARLY CAREER TEACHING AWARD

This award recognizes members of the IEEE Education Society who have made outstanding contributions to teaching unusually early in their professional careers, as evidenced by teaching performance, development of new teaching methods, and curricular innovation in fields of interest to the IEEE Education Society. Nominations are evaluated on the basis of the candidate's statement of teaching philosophy and practice, letters of support from students and peers, and student evaluations.

The award includes an honorarium, plaque, and certificate; and paid registration to the Frontiers in Education (FIE) Conference. Full-time (or equivalent) faculty who are within the first ten years following receipt of their Ph.D. (or other appropriate terminal degree), and have had a minimum of two academic years of appointment as a faculty member, may be nominated. Nominees for this award must also be members of the IEEE Education Society and members of the IEEE.

The 2018 IEEE Education Society Mac Van Valkenburg Early Career Teaching Award was presented to *Robert Pilawa-Podgurski*, “for demonstrated passion for teaching and commitment to individual student growth, and his curriculum innovations in hands-on learning in the area of electric power and energy systems.”



**Robert Pilawa-Podgurski** received the dual B.S. degrees in physics and electrical engineering and computer science, the M.Eng. degree in electrical engineering and computer science, and the Ph.D. degree in electrical engineering from the Massachusetts Institute of Technology in 2005, 2007, and 2012, respectively.

He was an Associate Professor of electrical and computer engineering with the University of Illinois Urbana-Champaign. He is currently an Associate Professor with the Electrical Engineering and Computer Sciences Department, University of California, Berkeley. He performs research in the area of power electronics. His research interests include renewable energy applications, electric vehicles, energy harvesting, CMOS power management, high density and high efficiency power converters, and advanced control of power converters. He has co-authored nine IEEE prize papers. He was a recipient of the Choras Award for Outstanding MIT EECS Master's thesis, the Google Faculty Research Award in 2013, the 2014 Richard M. Bass Outstanding Young Power Electronics Engineer Award of the IEEE Power Electronics Society, the Air Force Office of Scientific Research Young Investigator Award in 2015, the UIUC Dean's Award for Excellence in Research in 2016, the UIUC Campus Distinguished Promotion Award in

2017, and the UIUC ECE Ronald W. Pratt Faculty Outstanding Teaching Award in 2017. Since 2014, he has been serving as an Associate Editor for the IEEE TRANSACTIONS ON POWER ELECTRONICS and the IEEE JOURNAL OF EMERGING AND SELECTED TOPICS IN POWER ELECTRONICS.

## VI. IEEE EDUCATION SOCIETY EDWIN C. JONES, JR., MERITORIOUS SERVICE AWARD

The Edwin C. Jones Meritorious Service Award is presented to recognize a member of the IEEE Education Society who has made pioneering contributions to the administrative efforts of the IEEE Education Society over a period of years. The award consists of a plaque, a certificate, and registration to the Frontiers in Education Conference.

The 2018 IEEE Education Society Edwin C. Jones, Jr., Meritorious Service Award was presented to *Diane Rover*, “for excellent contributions to the Education Society, particularly service on the Finance Committee and the Board of Governors.”



**Diane Rover** (F'16) received the B.S. degree in computer science in 1984 and the M.S. and Ph.D. degrees in computer engineering from ISU in 1986 and 1989, respectively. She is a University Professor of electrical and computer engineering with Iowa State University. She currently serves as the alliance Director for the NSF-funded IINSPIRE LSAMP Program. She co-leads projects in the Department funded by the NSF RED and S-STEM programs. She has held various faculty and administrative appointments with ISU and Michigan State

University since 1991. Her teaching and research has focused on engineering education, embedded computer systems, reconfigurable hardware, parallel and distributed systems, visualization, and performance monitoring and evaluation. She has served on the IEEE Education Society Board of Governors and on the IEEE Committee on Engineering Accreditation Activities. She represented IEEE on the Engineering Accreditation Commission of ABET from 2009 to 2014 and served on the EAC Executive Committee. She has also served in the ASEE ECE Division. She is a fellow of ASEE.

## VII. IEEE TRANSACTIONS ON EDUCATION THEODORE E. BATCHMAN BEST PAPER AWARD

This award recognizes the best paper published each year in the IEEE TRANSACTIONS ON EDUCATION, as evaluated on originality, quality, advancement of the art, and effectiveness of presentation in terms of clarity of exposition and coherence.

The 2018 IEEE TRANSACTIONS ON EDUCATION Theodore E. Batchman Best Paper Award was presented to the paper that was selected from papers published in Volume 60, 2017.

Presentacion Rivera-Reyes, Oenardi Lawanto, and Michael Pate, “Students’ Task Interpretation and Conceptual Understanding in an Electronics Laboratory,” *IEEE Trans. Educ.*, vol. 60, no. 2, pp. 265–272, Apr. 2017.



**Presentacion Rivera-Reyes** received the Doctoral degree in engineering education from Utah State University. He was a Post-Doctoral Fellow with the University of Nebraska–Lincoln conducting educational research in the Electrical and Computer Engineering Department. He participated in an NSF-funded study to determine the abstraction threshold in electrical engineering and identify relationships between cognitive processing exhibited by students and their course outcomes. He has experience in the telecommunication industry where he was a Project

Manager developing solutions of high-speed transmission systems for Internet

and mobile service enterprises. He currently serves as a Lecturer with the Department of Engineering Education, School of Engineering and Applied Sciences, State University of New York at Buffalo, where he teaches courses on fundamentals of electric circuits for nonelectrical engineering majors and conducts educational research in undergraduate electrical engineering related to problem-solving and hands-on activities in the classroom and laboratory environments. He is collaborating in a research project to understand the psychological links between spatial visualization skills and engineering problem solving while simultaneously establishing neurological evidence for these links.



**Oenardi Lawanto** received the B.S.E.E. degree from Iowa State University, the M.S.E.E. degree from the University of Dayton, and the Ph.D. degree from the University of Illinois at Urbana–Champaign. He taught and held several administrative positions at one large private university in Indonesia. He is an Associate Professor with the Department of Engineering Education, Utah State University, USA. He has developed and delivered numerous international workshops on student-centered learning and online learning-related topics during his service. His research interests include cognition (and metacognition), self-regulated learning, problem-solving, and online learning.



**Michael Pate** received the bachelor’s and master’s degrees in agricultural education from the University of Arkansas and the Ph.D. degree in agricultural education from Iowa State University. He was teaching in high school for three years. He serves Penn State University as the Nationwide Insurance Associate Professorship of Agricultural Safety and Health, providing leadership as the Extension Safety Specialist. His passion for teaching comes from the desire help students improve their technical problem solving skills. He has focused on advancing educational

methodologies through the investigation and implementation of experiential learning. He genuinely enjoys teaching and has a sincere interest in developing a deeper professional focus on understanding how people learn and apply knowledge in agricultural settings. It is important to him that students investigate the implications and impact of potential solutions to technical problems in agriculture. His teaching philosophy centers on the perspective that problem solving skills are critical for success in all endeavors. His focus is to equip students with the ability to identify system problems, formulate possible solutions, and analyze the impact of alternative solutions on social and economic institutions.

## VIII. IEEE EDUCATION SOCIETY CHAPTER ACHIEVEMENT AWARD

The 2018 Education Society Chapter Achievement Award was presented to the Spanish Chapter “for contributions to the revitalization, sustainability, and services to the IEEE Education Society members in Spain.”

**Manuel Caeiro-Rodríguez** (M’07–SM’11) received the telecommunication engineering degree and the Ph.D. degree in information and communication technologies from the University of Vigo, Spain. He was a recipient of the 2007 Spanish Chapter IEEE Education Society Award to the Best Doctoral Thesis, and other prizes such as the “New Faculty Fellowship” in the 36th Annual Frontiers in Education Conference, the “Education Track Best Paper” and “Conference Best Paper Finalist” in the World Wide Conference in 2002, and the “Highlight Paper” in the World Wide Web Conference in 2001.

He is an Associate Professor with the Department of Telematic Engineering, University of Vigo, where he teaches computer programming, software engineering, and computer architectures with the School of Telecommunications Engineering. His research interests include e-learning technologies and standards, CSCL, process-based systems, educational modeling languages, open educational resources, and learning analytics. He has been a Visiting Researcher with the University of Coimbra, Portugal, IRISA, Rennes, France, MTA-ZSTAKI, Budapest, Hungary, the University of Kumamoto, Japan, and ISEP, Porto, Portugal. He coordinated the research network TELGalicia from 2012 to 2015.



Dr. Caeiro-Rodríguez is currently acting as the Spanish Chapter of the IEEE Education Society Chairman from 2018 to 2019. The other members of the board are: Óscar Martínez Bonastre, Universitat Miguel Hernández, as the Elected and Future Chairman; Javier García Zubía, University of Deusto, as the Past Chairman; José Ángel Sánchez Ortiz, I.E.S. Juan Antonio Castro-Talavera de la Reina, as a Secretary; Francisco Mur Pérez, UNED, as a Treasurer; and Francisco Javier Arcega Solsona, University of Zaragoza, Elio San Cristóbal Ruiz, UNED, and Pedro Muñoz Merino, University Carlos III, as a members.

## IX. IEEE EDUCATION SOCIETY DISTINGUISHED CHAPTER LEADERSHIP AWARD

The 2018 IEEE Education Society Distinguished Chapter Leadership Award was presented to *Martin Reisslein*, “for leadership in promoting important activities in the Phoenix Chapter of the IEEE Education Society.”



**Martin Reisslein** (S'96–M'98–SM'03–F'14) received the Ph.D. degree in systems engineering from the University of Pennsylvania in 1998. He is a Professor with the School of Electrical, Computer, and Energy Engineering, Arizona State University, Tempe. He currently serves as an Associate Editor for the IEEE TRANSACTIONS ON MOBILE COMPUTING, the IEEE TRANSACTIONS ON EDUCATION, IEEE ACCESS, and *Computer Networks*. He is the Associate Editor-in-Chief of the IEEE COMMUNICATIONS SURVEYS AND

TUTORIALS, the Co-Editor-in-Chief of *Optical Switching and Networking*, and chairs the steering committee of the IEEE TRANSACTIONS ON MULTIMEDIA. He has been chaired the Phoenix Chapter of the IEEE Education Society since 2005.

## X. IEEE EDUCATION SOCIETY DISTINGUISHED CHAPTER LEADERSHIP AWARD

The 2018 IEEE Education Society Distinguished Chapter Leadership Award was presented to *Predrag Pale*, “for leadership in promoting important activities in the Croatia Chapter of the IEEE Education Society.”



**Predrag Pale** received the master's degree from the Faculty of Electrical Engineering and Computing, University of Zagreb. He has initiated and led diverse projects, ranging from the small to the nationwide, from short term to spanning several years in the broad area of human activities.

His work has been in basic computer technologies, designing, building and deploying hardware and software, operating systems, and computer networks. The major part of his over 25 years of professional activity was devoted to the application

of information and communication technologies, accumulating broad experience in applying ICT in areas from civil engineering to medicine, from libraries, government, business, and finance to media and education. Working in the industry he gained fundamental experience in design, production, and application.

Mr. Pale envisioned, initiated, and led the Croatian Internet project, the System of Scientific Information of Croatia, the National Library System, and other large scale projects. From 1993 to 2000, he was a Deputy Minister of Science and Technology in charge of ICT. He founded, developed, and led a ministry department, a government agency, several NGOs and companies both in Croatia and internationally.

Through all those activities he learned not only technological but also organizational knowledge and skills, greatly enhanced through learning opportunities with top international organizations, such as Harvard University, William Davidson Institute, Management Centre Europe, and Business Management Consultants, across the fields of project management, change management, knowledge management, team, time, goal management and organization and management of state and local government.

In 1990, he started teaching at the Faculty of Electrical Engineering and Computing, University of Zagreb. Since 1997, he has been actively experimenting with, and researching, the use of ICT in education. By observing himself and others, learning more from his mistakes than successes, and listening to the knowledge, experience, and wisdom of international experts in change management, he created his own “recipe” for successful management. Mixing recognized, contemporary theories with his own experience and views, he help his audience to find their own paths, methods, and solutions.

He was a recipient of the National Medal “Danica Hrvatska” with effigy of “Ruđer Bošković” and with the “State Award for Science.”

## XI. IEEE EDUCATION SOCIETY STUDENT LEADERSHIP AWARD

The 2018 IEEE Education Society Student Leadership Award was presented to *Kavyashree Prakashan*, “for showing the lighted path of success to volunteers with the potential through the global platform of IEEE to enhance the skills within the Education Society and also for being an inspiration for peer groups to be an innovator that leads to leadership for better living.”

**Kavyashree Prakashan** received the bachelor's degree in computer science and engineering from the St. Xavier's Catholic College of Engineering, Nagercoil, India. She is an active volunteer in the IEEE Madras Section and served as the Immediate Past Chairperson of the IEEE Education Society Student Branch Chapter – 62851. She showed her vibrancy by volunteering for all the events of her Chapter, and of the IEEE Education Society, WIE Affinity Group and Computer Society. The signature of her volunteerism was her publishing a paper “Transformation of Health Care System Using Internet of Things in Villages” in IEEE Xplore and also her organizing events like AISTA-2017, a National Level Technical Symposium, the preliminary of SS12 Project Contest-2017, and many more. Her volunteer experience made her a good leader, creating her own vision of “be the creators, not the followers because education is a way of exploring.” Apart from her IEEE activities, she also served as the Joint Secretary for her Department, and as an executive member of many other clubs too, while maintaining her academic background.

## XII. FRONTIERS IN EDUCATION CONFERENCE BENJAMIN J. DASHER BEST PAPER AWARD

The Benjamin Dasher Best Paper Award is given to the best paper presented at the annual Frontiers in Education Conference, as demonstrated by technical originality, technical importance and accuracy, quality of oral presentation, and quality of the written paper appearing in the Conference Proceedings. Papers are nominated for the award by reviewers.

A committee with representation from each of the organizing societies (ERM, IEEE Ed. Soc., IEEE Comp. Soc.) is formed to review nominated papers. During the FIE meeting, the committee attends presentations of the nominated papers. The committee then makes a final recommendation to the FIE Planning Committee for the Ben Dasher Award winner based on the overall quality of both the paper and the presentation.

The 2018 FIE Conference Benjamin J. Dasher Best Paper Award was presented to *Beverly Ma, Jacqueline Doyle, Jacqueline Rohde, Hank Boone, Allison Godwin, Geoff Potvin, Lisa Benson, and Adam Kirm* for their paper “Understanding the Pathways of Students with Normative Attitudes in Engineering,” 2017 Frontiers in Education Conference.



**Beverly Ma** received the B.S. degree in mechanical engineering from the University of Nevada, where she is currently pursuing the master's degree with PRiDE Research Group. Her research examined the experiences of normative and non-normative students in the cultures of engineering. She will be working to implement an engineering curriculum with Engineering for Kid in Las Vegas, NV, USA.



**Jacqueline Doyle** received the B.S. and M.S. degrees in physics from Purdue University and the M.S. and Ph.D. degrees in physics from Florida International University. She is a Post-Doctoral Fellow with the Harvard-Smithsonian Center for Astrophysics, where she works in science education research. Her previous work has focused on engineering education and physics education research. Her research interests include diversity and equity efforts in STEM, how students develop their domain-specific identities, and understanding

how student and teacher misconceptions in the sciences affect their learning and professional development.



**Jacqueline (Jacki) Rohde** received the Bachelor of Science degree in bioengineering from Clemson University in 2017. She is currently pursuing the graduation degree with the School of Engineering Education, Purdue University. She was a National Scholar as part of Clemson University's most prestigious merit-based scholarship. Her research interests in engineering education include the development of student identity and attitudes, with a specific focus on the preprofessional identities of engineering undergraduates planning to

join fields outside of industry, such as medicine, law, and academia. She was a recipient of the National Science Foundation Graduate Research Fellowship for her work in understanding engineering students' nontraditional career pathways. She is also a Founding Member of the university's chapter of Grand Challenge Scholars, a program sponsored by the National Academy of Engineering.



**Hank Boone** received the B.S. and M.S. degrees in mechanical engineering from the University of Nevada, Reno. He is an Academic Success Coach with Nevada State College. His research focuses on first generation engineering college students' engineering identity, belongingness, and how they perceive their college experience. This research revealed that first generation students in engineering are successful and have shown that it is possible for students to feel they belong in engineering more so than their continuing generation counterparts. His current work

as a Success Coach allows him to actively utilize his research to create programs that support a high percentage of nontraditional students as well as first generation students that are located at Nevada State College. He worked under Adam Kirm on a project looking at non-normative engineering students and how they may have differing paths to success during the M.S. degree.



**Allison Godwin** received the B.S. degree in chemical engineering from Clemson University and the Ph.D. degree in engineering and science education. She is an Assistant Professor of engineering education with Purdue University. She was also the NSF Graduate Research Fellow for her research on female empowerment in engineering. Her research focuses what factors influence diverse students to choose engineering and stay in engineering through their careers and how different experiences within the practice and culture of engineering foster or hinder

belongingness and identity development. She was a recipient of the National Science Foundation CAREER Award focused on characterizing latent diversity, which includes diverse attitudes, mindsets, and approaches to learning, to understand engineering students' identity development for her research and the National Association for Research in Science Teaching 2015 Outstanding Doctoral Research Award for her research on female empowerment in engineering. She has also been recognized for the synergy of research and teaching as an invited participant of the 2016 National Academy of Engineering Frontiers of Engineering Education Symposium.



**Geoff Potvin** is an Associate Professor with the Department of Physics and the STEM Transformation Institute, Florida International University. He has extensive experience in survey development and quantitative and mixed-methods designs. He teaches highly reformed student-centered introductory physics courses (Modeling Physics) which leverage student engagement and peer interactions for improved learning outcomes and student empowerment, and has taught active-learning undergraduate mathematics and graduate

STEM education research courses. His research interests include gender issues in the physical sciences and the cultures of STEM and the connection to the recruitment and retention of future practitioners.



**Lisa Benson** received the B.S. degree in bioengineering from the University of Vermont and the M.S. and Ph.D. degrees in bioengineering from Clemson University, where she is a Professor of engineering and science education. Her research centered most recently on her CAREER project, student motivation and learning in engineering, which focuses on student perceptions, beliefs and attitudes about their future in engineering and how that affects their approaches to solving problems. Drawing from theoretical frameworks of future time perspective,

possible selves, expectancy-value theory, and self-regulated learning, this research has revealed connections between students' perceptions of their possible future careers and their expectations about what they should be working on in the present as engineering students. A new direction that has emerged from this work is examining aspects of epistemic cognition, or the processes that students engage in related to building their knowledge and skills in engineering, within students' educational experiences. Her research has expanded to include student trajectories through engineering based on their perceptions of belongingness and identity within engineering cultures. She is an Editor of the *Journal of Engineering Education*.



**Adam Kirm** received the B.S. degree in biomedical Engineering from the Rose-Hulman Institute of Technology and the M.S. degree in bioengineering and the Ph.D. degree in engineering and science education from Clemson University. He is an Assistant Professor of engineering education with the University of Nevada, Reno. His research focuses on the interactions between engineering cultures, student motivation, and their learning experiences. His projects involve the study of student perceptions, beliefs and attitudes toward becoming engineers,

their problem-solving processes, and cultural fit.

### XIII. FRONTIERS IN EDUCATION CONFERENCE HELEN PLANTS AWARD BEST NONTRADITIONAL SESSION AT FIE 2017

The Helen Plants Award is given for the best special (non-traditional) session at the FIE conference, as demonstrated by originality, session content and presentation (including the use of written materials and visual aids), and participation of session attendees.

The 2018 FIE Conference Helen Plants Award was presented to *Sarah Zappe*, *Stephanie Cutler*, and *Thomas A. Litzinger* for their Special Session “Teaching to Promote a Growth Mindset,” 2017 Frontiers in Education Conference.



**Sarah Zappe** received the B.A. degree in psychology from the University of Connecticut and the M.S. and Ph.D. degrees from Penn State University, where she is specialized in educational psychology emphasizing applied measurement and testing. She is an Associate Research Professor and the Director of Assessment and Instructional Support with the Leonhard Center for the Enhancement of Engineering Education, Penn State University, where she is responsible for developing instructional support programs for faculty, providing evaluation

support for educational proposals and projects, and conducting educational research. Her research interests primarily involve creativity, innovation, and entrepreneurship education. She has a growth mindset for leading workshops about growth mindset.



**Stephanie Cutler** received the B.S. degree in mechanical engineering from Virginia Commonwealth University and the M.S. degree in industrial and systems engineering and the Ph.D. degree in engineering education from Virginia Tech. She is an Assessment and Instructional Support Specialist with the Leonhard Center for the Enhancement of Engineering Education, Penn State University. Her research and teaching focus on supporting instructors (faculty and graduate students) as they work to improve

their teaching and aiding the evaluation of the teaching innovations they implement in their classrooms. She maintains a growth mindset with respect to her research, teaching, and special session facilitation. She was a recipient of the Helen Plants Award along with her colleagues for the Special Session: *Lord of the Ph.D.: Fellowship of the Dissertation: A Guide to the Engineering Ph.D. in 2014 and Innovation T-Ball: Everybody Wins!!* in 2017. She has been a member of the American Society for Engineering Education since 2009.



**Thomas A. Litzinger** received the B.S. degree in nuclear engineering from Penn State University, the M.Eng. degree in mechanical engineering from Rensselaer Polytechnic Institute, and the Ph.D. degree in mechanical and aerospace engineering from Princeton University. He is the Assistant Dean for Educational Innovation and Accreditation, the Director of the Leonhard Center for the Enhancement of Engineering Education, and a Professor of mechanical engineering with Penn State University. His research in engineering education

involves curricular reform, teaching and learning innovations, assessment, and faculty development. He has over 50 publications related to engineering education, including lead authorship of an invited chapter on translation of research to practice for the first edition of the *Cambridge Handbook of Engineering Education Research*. He teaches design and thermal sciences. His disciplinary research on combustion in engines and rockets has resulted in over 120 publications. He serves as an Associate Editor for *Advances in Engineering Education*. He is a fellow of ASEE and ASME.

### XIV. FRONTIERS IN EDUCATION CONFERENCE RONALD J. SCHMITZ AWARD

The Ronald Schmitz Award is given to recognize outstanding and continued service to engineering education through contributions to the Frontiers in Education Conference.

The 2018 Frontiers in Education Ronald J. Schmitz Award was presented to *Deacon Steve Frezza*, “for outstanding service to the Frontiers in Education Conference.”



**Deacon Steve Frezza** is a Professor of software engineering and the Chair of the Computer and Information Science Department, Gannon University, Erie, PA, USA. He has published numerous conference papers and journal articles on innovations in software engineering curriculum development and philosophy of engineering and computing. His research interests include global software engineering, affective domain learning, engineering education research, as well as philosophy of engineering and engineering education. He

is regularly involved in supporting the regional entrepreneurial ecosystem, as well as projects that serve the regional community. He is an Active Member and a Volunteer for both the IEEE Computer Society and the American Society for Engineering Education. He maintains a Professional Software Engineering Master Certification from the IEEE.

### APPENDIX RELATED WORK

- 1) E. C. Jones, Jr. and J. Sluss, Jr., “2017 IEEE Education Society awards, 2017 Frontiers in Education Conference awards, and selected IEEE awards,” *IEEE Trans. Educ.*, vol. 61, no. 1, pp. 74–83, Feb. 2018.
- 2) E. C. Jones, Jr., “2016 IEEE Education Society awards, 2016 Frontiers in Education Conference awards, and selected IEEE awards,” *IEEE Trans. Educ.*, vol. 60, no. 1, pp. 67–77, Feb. 2017.
- 3) E. C. Jones, Jr., “2015 IEEE Education Society awards, Frontiers in Education Conference awards, and selected IEEE awards,” *IEEE Trans. Educ.*, vol. 59, no. 1, pp. 59–68, Feb. 2016.
- 4) E. C. Jones, Jr., “2014 IEEE Education Society awards, Frontiers in Education Conference awards, and selected IEEE awards,” *IEEE Trans. Educ.*, vol. 58, no. 1, pp. 58–66, Feb. 2015.
- 5) E. Tovar, “2013 IEEE Education Society awards and Frontiers in Education Conference awards,” *IEEE Trans. Educ.*, vol. 57, no. 2, pp. 122–128, May 2014.
- 6) M. Castro, “2012 IEEE Education Society awards and Frontiers in Education Conference awards,” *IEEE Trans. Educ.*, vol. 56, no. 2, pp. 246–251, May 2013.
- 7) M. Castro, “2011 IEEE Education Society awards and Frontiers in Education Conference awards,” *IEEE Trans. Educ.*, vol. 55, no. 2, pp. 291–298, May 2012.
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