2019 IEEE Education Society Awards, 2019 Frontiers in Education Conference Awards, and Selected IEEE Awards

James J. Sluss, Jr.●, *Past Society President and 2019 Awards Policy and Procedures Chair*
IEEE Education Society

THE IEEE Education Society, the IEEE Computer Society, and the American Society for Engineering Education Educational Research and Methods Division (ASEE-ERM) sponsored the 49th Frontiers in Education (FIE) Conference in Cincinnati, OH, USA, held October 16–19, 2019. Russell Meier, President of the IEEE Education Society, and James Sluss, 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 [item 1)–15) in the Appendix] in order to present the increasingly important research and development in engineering education.

The 2020 FIE Conference will be held in Uppsala, Sweden, on October 21–24, 2020. The conference website is: www.fie2020.org.

I. 2019 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 2019 IEEE Undergraduate Teaching Award was presented to *Lisa G. Huettel*, "for leadership in curriculum development as well as teaching and mentoring of undergraduate students in electrical and computer engineering."

Lisa G. Huettel (M'99–SM'08) is a Professor of Practice with the Department of Electrical and Computer Engineering, Duke University, Durham, NC, USA. She has helped revitalize the electrical and computer engineering (ECE) curriculum at Duke University with innovative ideas that engage students. She coordinated the transformation of Duke's foundational ECE course, which now integrates topics from throughout ECE with a comprehensive team-based design project. Students can explore the breadth of ECE early in their studies, which has positively affected interest, engagement, and retention. She has incorporated new technologies into her courses, such as using iPods to facilitate the collection and analysis of biological signals, introducing tablets to bridge lectures and laboratories, and adapting musical instruments for signal processing demonstrations. She also integrated the U.S. National Academy of Engineering's Grand Challenges into a range of Duke courses, which has sparked increased student interest.

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 2019 IEEE Education Society Harriett B. Rigas Award was presented to *Min Wu*, "for excellence and outstanding leadership in signal processing, education, and mentoring."

Min Wu (S'95–M'01–SM'06–F'11) received the B.E. degree (Highest Hons.) in electrical engineering and automation and the B.A. degree (Highest Hons.) in economics from Tsinghua University, Beijing, China, in 1996, and the Ph.D. degree in electrical engineering from Princeton University, Princeton, NJ, USA, in 2001.

She is a Professor of electrical and computer engineering and a Distinguished Scholar-Teacher with the University of Maryland at College Park (UMD), College Park, MD, USA. She is currently serving as an Associate Dean for Graduate Affairs for the University's A. James Clark School of Engineering. At UMD, she leads the Media and Security Team with main research interests on information security and forensics, sensing analytics, and multimedia signal processing.

Prof. Wu's research and education have been recognized by numerous awards, including the U.S. NSF CAREER Award, the TR100 Young Innovator Award from the MIT Technology Review, the U.S. ONR Young Investigator Award, the Computer World "40 Under 40" IT Innovator Award, the IEEE Mac Van Valkenburg Early Career Teaching Award, the Innovator of the Year Award from the Daily Record, the IEEE Distinguished Lecturer Recognition, the Meritorious Service Award from the IEEE Signal Processing Society for exemplary service and leadership, and several paper awards from IEEE SPS, ACM, and EURASIP. She was elected as an IEEE Fellow and an AAAS Fellow for outstanding contributions to multimedia security, forensics, and signal processing. She chaired the IEEE Technical Committee on Information Forensics and Security from 2012 to 2013, and has served as a Vice President—Finance of the IEEE Signal Processing Society from 2010 to 2012 and the Editor-in-Chief of the *IEEE Signal Processing Magazine* from 2015 to 2017. She championed many educational activities and support of outreach and broader participation in these roles. She was named an ADVANCE Professor with the University of Maryland and later an ADVANCE Fellow to provide mentoring and support diversity in the university.

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 2019 IEEE Education Society William E. Sayle II Award for Achievement in Education was presented to *Manuel Castro*, "for developing new services and structure inside the IEEE Education Society and promoting worldwide technology-enhanced and blended education in engineering."

Manuel Castro (M'87–SM'94–F'08) received the degree in industrial engineering and the Ph.D. degree in engineering from ETSII/Madrid Polytechnic University, Madrid, Spain.

He works as a Researcher, a Coordinator, and the Director in different projects, covering topics from systems applications of simulation techniques, solar system, and advanced microprocessor system simulation to telematics and distance learning applications and systems, as well as computer-aided electrical engineering. He currently acts as a Senior Technical Director. He is currently a Professor of electronics technology and the Director of the Electrical and Computer Engineering Department UNED (Spanish University for Distance Education), Madrid, where he was the UNED's New Technologies Vice-Rector, the UNED's Information Services Center Director, the Research and Doctorate Vice-Director, and the Vice-Director of Academic Affairs with the School of Engineering, as well as the Director of the Department. He worked for five years in Digital Equipment Corporation as a Senior Systems Engineer. He publishes different technical, research, and teaching books and articles for journals and conferences as well as multimedia materials, radio, TV programs, and webinars.

Prof. Castro received the Extraordinary Doctoral Award in the UPM and the 1988 Viesgo Doctoral Thesis Award, Improving Scientific Research on Industrial Process Electricity Application, the 1997 and 1999 UNED Social Council Awards for the Best Didactic Materials in Experimental Sciences, the 2001 Award for the Innovative Excellence in Teaching, Learning, and Technology from the Center for the Advancement of Teaching and Learning, the 2019 IEEE William E. Sayle Award for Achievement in Education of the IEEE Education Society, the 2017 Madrid Convention Bureau Award as Madrid Honor Ambassador, the 2017 IGIP Nikola Tesla Award, the IEEE EDUNINE 2017 Meritorious Service Award, the 2012 Tecnologías Aplicadas a la Enseñanza de la Electrónica (TAEE) to the Professional Life, the IEEE EDUCON 2011 Meritorious Service Award (jointly with Edmundo Tovar), the 2010 Distinguished Member Award of the IEEE Education Society, the 2009 Edwin C. Jones, Jr. Meritorious Service Award of the IEEE Education Society, and the 2006 Distinguished Chapter Leadership Award and for collective body of work in the Spanish Chapter of the IEEE Education Society,

with the 2011 Best Chapter Award (by the IEEE Region 8) as well as with the 2007 Chapter Achievement Award (by the IEEE Education Society). He is a member of the Board of the Spanish International Solar Energy Society. He belongs to the organizing committee of IEEE EDUCON (Chair), IEEE FIE (International and Europe Chair, 2000–2006), IEEE EDUNINE, IEEE LWMOOCs (Chair), ISES, TAEE, and SAAEI conferences and program. He is a planning committee member, reviewer, and chairman of several others; the Co-Chair of the conferences COMPSAC 2020, LWMOOCS 2018, REV 2016, FIE 2014, EDUCON 2010, TAEE 2010, and ICECE 2005; as well as the Co-Editor of IEEE-RITA and of the Electronic Journal of Spanish Chapter of the IEEE Education Society. He is a fellow of the IEEE (for contributions to distance learning in electrical and computer engineering education) and a member of Board of Directors of the IEEE as Division VI Director (2019–2020), the Administration Committee and Board of Governors (2005–2021) and the President (2013–2014) of the IEEE Education Society; he was designated as an IEEE Education Society President Emeritus (2017), the Founder and the Past-Chairman (2004–2006) of the Spanish Chapter of the IEEE Education Society, the Chair of the IEEE Spain Section (2010–2011), and the IEEE Region Eight Educational Activities Subcommittee Chair (2015–2016).

IV. IEEE EDUCATION SOCIETY DISTINGUISHED MEMBER AWARD

The 2019 IEEE Education Society Distinguished Member Award was presented to *Lance C. Pérez*, "for contributions to the finance structure and organization of the IEEE Education Society."

Lance C. Pérez received the B.S. degree in electrical engineering from the University of Virginia, Charlottesville, VA, USA, and the M.S. and Ph.D. degrees in electrical engineering from the University of Notre Dame, Notre Dame, IN, USA.

From 2008 to 2010, he was a Program Director with the Division of Undergraduate Education, National Science Foundation, Alexandria, VA, USA. He was named the Dean of the College of Engineering, University of Nebraska–Lincoln, Lincoln, NE, USA, in May 2018, following two years as the Interim Dean. An experienced academic and campus leader, he was an Associate Vice Chancellor for Academic Affairs and the Dean of Graduate Studies with the University of Nebraska–Lincoln, where he has been a Faculty Member with the Department of Electrical and Computer Engineering, since 1995. In his previous administrative positions, he was responsible for faculty and leadership development, promotion and tenure, academic space and technology, and graduate education. He led the design and implementation of over $30 million in improvements to the academic facilities and played a pivotal role in the university's entrance into the Big Ten Committee on Institutional Cooperation. As a Faculty Member, he has won numerous teaching awards and has been a Principal Investigator or a Co-Principal Investigator on more than $15 million in federally funded research. His research interests include signal and information processing, engineering education, and faculty leadership development.

Dr. Pérez is a fellow of the American Society of Engineering Education and a member of Eta Kappa Nu and Tau Beta Pi. He has been a member of the IEEE Education Society for over 20 years, and is currently serving his second term as a Member-at-Large of the Board of Governors.

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, a plaque, a certificate, and paid registration to the Frontiers in Education 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 2019 IEEE Education Society Mac Van Valkenburg Early Career Teaching Award was presented to *Samuel J. Dickerson*, "for early career innovations in undergraduate electrical and computer engineering education and contributions to the engineering education research community.
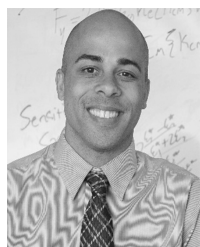
Samuel J. Dickerson received the Ph.D. degree in electrical engineering from the University of Pittsburgh, Pittsburgh, PA, USA.

He is an Assistant Professor with the Swanson School of Engineering, University of Pittsburgh. His general research interests lie in the area of electronics, circuits and embedded systems and in particular, technologies in those areas that have biomedical applications. He has expertise in the design and simulation of mixed-signal integrated circuits and systems that incorporate the use of both digital and analog electronics, as well as optics, microfluidics, and devices that interface to the biological world. He is currently focusing on techniques to improve learning outcomes for electrical and computer engineering undergraduate students. Specifically, he is investigating new techniques to promote reflection and metacognitive behaviors in engineering classrooms.

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 2019 IEEE Education Society Edwin C. Jones, Jr., Meritorious Service Award was presented to *Hamadou Saliah-Hassane* "for sustained wide-ranging pioneering contributions to the IEEE Education Society."

Hamadou Saliah-Hassane received the bachelor's and master's degrees in applied science from the Eìcole Polytechnique de Montreìal, Montreal, QC, Canada, the Technical University degree in electronics from the Institute of Technology, Universiteì de Dakar, Dakar, Senegal, and the Ph.D. degree in electrical and computer engineering from McGill University, Montreal.

He is currently teaching informatics and computer networks and security with TÉLUQ University, Quebec City, QC, Canada. He was the Program Director of a Consortium of three universities in Montreal called Eìcole de Technologies de l'Information, including Universiteì du Queìbec in Montreal (UQAÌM), Montreal, Eìcole de Technologie Supeìrieure, Montreal, and TELUQ University. He is a Senior Researcher with TELUQ, where he is carrying out research on intelligent distributed systems, including smart, trusted, and secured networked educational devices for online laboratories and mobile robotics. He was the Chair of the Electrical Engineering Department, African Regional Engineering School of Mine, Industry and Geology, including seven countries in Niger from 1989 to 1994.

Prof. Saliah-Hassane received the "2005 Achievement Award" from the International Network for Engineering Education for "Research and Innovation on Online Laboratories and for the Advancement of International Collaboration." In 2019, he was granted a Special Award by IEEE Standards Association with appreciation for chairing and contributing to the development of IEEE Standard 1876 – 2019 on "*Networked Smart Learning Objects for Online Laboratories*" approved on May 30, 2019. He is one of the founding members of GOLC, the Global Online Laboratory Consortium, that in 2009 merged with the International Association for Online Engineering, where he has been a member of the Executive Committee since 2019. In 2012, he was recognized with highest academic distinction of "Commander of the Order of Academic Palm" by the Republic of Niger. He is a member of the Professional Engineers of Québec, the American Society for Engineering Education, and the African Engineering Education Association. He was a member of Board of Governors of IEEE Education Society from 2007 to 2013 and from 2014 to 2017 and the Chair of its Standards Committee and the Chair of the IEEE Std. 1876 – 2019 IEEE Standards Working Group on "Standard on Networked Smart Learning Objects for Online Laboratories." He is also a member of the IEEE Learning Technology Standards Committee and the IEEE TRANSACTIONS ON LEARNING TECHNOLOGIES Steering Committee.

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 61, 2018.

Robin R. Fowler and Magel P. Su, "Gendered Risks of Team-Based Learning: A Model of Inequitable Task Allocation in Project-Based Learning," *IEEE Trans. Educ.*, vol. 61, no. 4, pp. 312–318, Nov. 2018.

Robin R. Fowler received the Ph.D. degree in educational psychology and educational technology from Michigan State University, East Lansing, MI, USA.

She is a Lecturer with the Technical Communication Program, University of Michigan. She co-teaches team-based courses with the College of Engineering, including first-year courses and a mechanical engineering laboratory, and serves as a "communication coach" for students working on electrical engineering senior design projects and on multidisciplinary projects with industry sponsors. Her research focuses on student teamwork and communication.

Magel P. Su received the B.S.E. degree in materials science and engineering and a minor in chemistry from the University of Michigan at Ann Arbor, Ann Arbor, MI, USA. He is currently pursuing the Ph.D. degree with the Department of Applied Physics and Materials Science, California Institute of Technology, Pasadena, CA, USA.

He was a Member of the Ultrafast Laser–Material Interaction Laboratory and the Engineering Honors Program with the University of Michigan at Ann Arbor. He also served as an Instructional Aide for several courses, including "Introduction to Engineering," "Introduction to Materials and Manufacturing," and "Structural and Chemical Characterization of Materials."

VIII. IEEE EDUCATION SOCIETY CHAPTER ACHIEVEMENT AWARD

The 2019 Education Society Chapter Achievement Award was presented to the Spanish Chapter Portugal Chapter, "for contributions to the revitalization, sustainability and services to the IEEE Education Society members in Portugal."

Vítor Grade Tavares received the undergraduation and M.Sc. degrees in electrical engineering from the University of Aveiro, Aveiro, Portugal, and the Ph.D. degree in electrical engineering from the Computational NeuroEngineering Laboratory, University of Florida, Gainesville, FL, USA, in 2001.

He is currently a Faculty Member with the University of Porto, Aveiro, and a Senior Researcher with INESC-TEC, Porto, Portugal. In 2010, he was a Visiting Professor with Carnegie Mellon University, Pittsburgh, PA, USA, and a Member of the Scientific Committee Board for the ECE Doctoral Program with the Faculty of Engineering, University of Porto. His research interests include low-power, mixed-signal, and neuromorphic integrated-chip design and biomimetic computing, CMOS RF integrated circuit design for wireless sensor networks, and large-area electronics. He has coordinated several national and locally coordinated European projects.

Dr. Tavares was a co-recipient for the Student Best Paper Award of the IEEE ICUWB 2014 and First Place on TSMC Design Context in 90-nm LP MS/RF, from Europractice, in 2009.

João Nuno Matos received the five-year degree in electronics and telecommunications engineering from the Universidade de Aveiro (UA), Aveiro, Portugal, in 1982, the master's degree in electrical engineering from the Universidade de Coimbra, Coimbra, Portugal, in 1989, and the Doctoral degree in electrical engineering from UA in 1995.

He is a Professor with UA and a Senior Research Scientist with the Instituto de Telecomunicações (IT), Aveiro. From 1982 to 1983, he was with Portugal Telecom Inovação (currently, Altice Labs), Aveiro. Since 1983, he has been with the Universidade de Aveiro, where he is an Associate Professor. From 1990 to 1991, he collaborated with Ensa, Division Spacio, Madrid, Spain. From 1998 to 2000, he was the Head of the Electronics and Telecommunications Department, Aveiro University, Aveiro. He has participated in dozens of research projects. He has authored or coauthored more than a hundred publications, including national and international book chapters, journals, and conferences papers. He has been a reviewer and author of papers in high-qualified magazines and conferences. His main research interests include smart antennas, wireless power transmission, vehicular communications, and software-defined radio.

Dr. Matos is a member of several conference and journal scientific committees as well as professional organizations. He currently serves the IEEE Portugal Education Chapter as a Treasurer and a Secretary.

IX. IEEE EDUCATION SOCIETY DISTINGUISHED CHAPTER LEADERSHIP AWARD

The 2019 IEEE Education Society Distinguished Chapter Leadership Award was presented to *Manuel Gericota*, "for the revitalization of the Portugal IEEE Education Society Chapter, the creation of communication channels, and the promotion of chapter activities, generating value to its members."

Manuel Gericota (S'00–M'04–SM'17) received the Ph.D. degree in electrical and computer engineering from the Faculty of Engineering, University of Porto, Porto, Portugal, in 2003, in the field of testing and testability of reconfigurable hardware.

He has been a Professor with the Department of Electrical Engineering, School of Engineering, Polytechnic of Porto, Porto, since December 1993, and a Visiting Professor with the Université de Limoges, Limoges, France, since September 2014, He was with the University of South-Eastern Norway, Notodden, Norway, from 2014 to 2018. He is responsible for the participation of the Polytechnic of Porto in the European ERASMUS+ Project e-Learning Innovative Engineering Solutions (2017–2020), and in the European TEMPUS Project Electronics and Optics e-Learning for Embedded Systems (2012–2016). He has worked on several Portuguese and international research projects and has more than 50 publications in several peer-review international journals and conferences. He regularly collaborates as an expert with the European Commission and the Ministry of Sciences of the Russian Federation and as a reviewer for several journals and conferences. His current research interests are focused on hardware/software co-design of embedded systems, reconfigurable computing, new e-learning strategies applied to electrical, electronic, and computer engineering areas, and remote engineering laboratories.

Prof. Gericota chaired the Portuguese Chapter of the IEEE Education Society from 2015 to 2017.

X. IEEE EDUCATION SOCIETY STUDENT LEADERSHIP AWARD

The 2019 IEEE Education Society Student Leadership Award was presented to *Felix Garcia Loro*, "for promoting pioneering contributions and leadership as a Student Member of the IEEE Education Society."

Felix Garcia Loro (GS'12–M'19) received the B.Sc. degree in industrial electronics and control engineering, the M.Sc. degree in electronics engineering, the Ph.D. degree in electronics engineering, and the Doctoral International Mention degree (Hons.) from the School of Industrial Engineering of the Spanish University for Distance Education (UNED, Universidad Nacional de Educación a Distancia, UNED), Madrid, Spain, in 2008, 2014, and 2018, respectively.

He has been working as a Lecturer and a Researcher with the Electrical Telematics Engineering and Chemistry Applied to Engineering Department, UNED, since 2010. He has been the Treasurer and the Secretary of the IEEE Education Branch of Students of the UNED since February 2015, re-elected in 2018.

Dr. Loro is an IEEE Education Society Member, being part of the local committees in conferences supported by IEEE Education Society and an active participant in several IEEE conferences as an author, a presenter, and a reviewer since 2013, especially those related to the Education Society.

XI. 2019 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 2019 FIE Conference Benjamin J. Dasher Best Paper Award was presented to *Campbell Rightmyer Bego*, *Raymond Chastain*, and *Marci DeCaro* for their paper "Multiple Representations in Physics: Deliberate Practice Does Not Improve Exam Scores," 2018 Frontiers in Education Conference.

Campbell Rightmyer Bego received the B.S. degree in mechanical engineering from Columbia University, New York, NY, USA. She is currently pursuing the Doctoral degree with the Department of Psychological and Brain Sciences, University of Louisville (UofL), Louisville, KY, USA, advised by Dr. M. S. DeCaro.

She worked as a tunnel ventilation Engineering Consultant and developed computational fluid dynamics expertise with Columbia University. She obtained a professional engineering license in the state of NY. Through her experiences in various projects and teams, she not only acquired the skills to be an effective engineer but also became curious about the cognitive processes involved in engineering problem solving, specifically those involving spatial reasoning and knowledge transfer. These interests have brought her to the field of engineering education where she is actively studying STEM learning and engineering retention. Working collaboratively with engineering, science, and psychology faculty,

she has investigated several psychology-based educational practices in STEM classrooms, including spaced retrieval practice, deliberate practice, exploratory learning, active learning, and the flipped classroom. Her studies are designed to improve student learning while working toward a better psychological understanding of STEM learning mechanisms. In addition, through retrospective, longitudinal data analysis, she has identified bottleneck and barrier courses at the J. B. Speed School of Engineering, UofL, which are future opportunities for intervention. Many of these projects have been collaborations facilitated by the GEARS research team (Guild for engineering Education, Achievement, Retention, and Success) at the engineering school. Throughout each experiment's design, implementation, and analysis, collaborators have guided and mentored her, and edited and greatly improved her papers. From these collaborations, she has developed deep appreciation for the complexities both within the learning brain and within the classroom. She plans to continue to bring psychological research into engineering education while using experimental methods to gain knowledge about the processes required specifically in the field of engineering.

Raymond Chastain is a Faculty Member with the Department of Physics and Astronomy, University of Louisville, Louisville, KY, USA. He has been teaching math and physics for more than ten years at both the high school and college level. In addition to his teaching, he is also engaged in physics education research, particularly in investigating the factors that lead to student success in the introductory physics sequence. His current research interests include examining the benefits of exploratory learning, the use of mindset interventions with students, and using structured grading assignments as a metacognitive learning strategy. He has also been involved in the design and implementation of multiple programs aimed at improving student learning at retention at both the K–12 and college levels, including several programs working with K–12 teachers to strengthen their understanding of the physics material they are teaching and the pedagogy used to deliver it.

Marci DeCaro is an Associate Professor of psychological and brain sciences with the University of Louisville, Louisville, KY, USA, where she directs the Learning and Performance Lab. She is a member of an interdisciplinary group of researchers and practitioners at the examining methods to improve learning and retention in undergraduate engineering courses with the University of Louisville (GEARS). Her research examines the cognitive processes supporting learning and performance in both laboratory and educational settings.

XII. Frontiers in Education Conference Helen Plants Award Best Nontraditional Session at FIE 2018

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 Frontiers in Education Conference Helen Plants Award was presented to *Mel Chua*, *Ian Smith*, and *Samir Jain* for their Special Session "Alternate-Universe FIE: An Engineering Education Conference Session from a World Where the Majority of Engineers are Deaf," 2018 Frontiers in Education Conference.

Mel Chua is an Electrical/Computer Engineer, auditory low-pass filter, and multimodal polyglot, currently working with the Biomedical Engineering Department, Georgia Tech, Atlanta, GA, USA, in the Studio for Transforming Engineering Learning and Research. Before returning to academia, she spent several years in the open-source software and hardware industry. Her research focuses on faculty development, learning in hacker/maker communities, qualitative research methodologies, and prototyping alternate ontologies of curricular culture in engineering education.
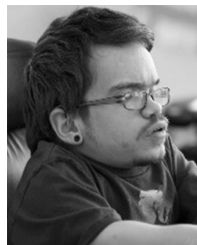
Ian Smith is a Deaf Software Engineer, currently working on devtooling for distributed systems at darklang.com. He also co-founded Project Alloy (https://projectalloy.org), which seeks to address issues of equity and representation at tech conferences. Other interests include transit accessibility and linguistics.

Samir Jain received the B.S. and M.S. degrees in biomedical engineering from Georgia Tech, Atlanta, GA, USA.

He is a Medical Device Product Development Engineer currently working with Abbott Structural Heart doing research and development on implant valve leaflet repair. Other interests include scifi, board games, and CAD.

XIII. 2018 Frontiers in Education Conference Best Diversity Paper Award

The Best Diversity Paper Award is a new award given for the 2018 best paper with a focus on a diversity, equity, and/or inclusion topic.

The 2018 Frontiers in Education Conference Best Diversity Paper Award was presented to *Dina Verdín*, *Allison Godwin*, and *Gerhard Sonnert* for their paper "Understanding How First-Generation College Students' Out-of-School Experiences, Physics and STEM Identities Relate to Engineering Possible Selves and Certainty of Career Path," 2018 Frontiers in Education Conference.

Dina Verdín received the B.S. degree in industrial and systems engineering from San José State University, San Jose, CA, USA, and the M.S. degree in industrial engineering and the Ph.D. degree in engineering education from Purdue University, West Lafayette, IN, USA.

Her research interest focuses on changing the deficit base perspective of first-generation college students by providing asset-based approaches to understanding this population. She is specifically interested in understanding how first-generation college students author their identities as engineers and negotiate their multiple identities in the current culture of engineering.

Dr. Verdín is a 2016 recipient of the National Science Foundation's Graduate Research Fellowship and a Ford Foundation Honorable Mention. She has won several awards, including the 2019 College of Engineering Outstanding Graduate Student Research Award and the Alliance for Graduate Education and the Professoriate Distinguished Scholar Award. Her dissertation proposal was selected as part of the top three in the 2018 American Educational Research Association Division D In-Progress Research Gala.

Allison Godwin received the B.S. degree in chemical engineering and the Ph.D. degree in engineering and science education from Clemson University, Clemson, SC, USA.

She is an Assistant Professor of engineering education with Purdue University, West Lafayette, IN, USA. Her research focuses on what factors influence diverse students to choose engineering and to stay in engineering through their careers, and on how different experiences within the practice and culture of engineering foster or hinder belongingness and identity development.

Dr. Godwin's research earned her a National Science Foundation CAREER Award focused on characterizing latent diversity, which includes diverse attitudes, mindsets, and approaches to learning to understand students' identity development within the normative (i.e., white and masculine) structures of engineering education. She has won several awards for her research, including the 2016 American Society of Engineering Education Educational Research and Methods Division Best Paper Award and the 2018 IEEE Frontiers in Education Benjamin J. Dasher Award. In the classroom, she has also been honored with numerous awards for teaching, including being invited as a participant in to the 2016 National Academy of Engineering Frontiers of Engineering Education Symposium and being awarded the 2018 Purdue University School of Engineering Education Award for Excellence in Undergraduate Teaching, and the 2018 Purdue University College of Engineering Exceptional Early Career Teaching Award.

Gerhard Sonnert received the M.P.A. degree from Harvard University, Cambridge, MA, USA, and the Doctoral degree in sociology from the University of Erlangen, Erlangen, Germany.

He is a Lecturer of astronomy with Harvard University, a Research Associate with the Science Education Department, Harvard-Smithsonian Center for Astrophysics, and an Associate with the Harvard Physics Department. He has conducted several large empirical studies in STEM education. As a Sociologist of science, he has focused his work on gender aspects in STEM (*Gender Differences in Science Careers* and *Who Succeeds in Science?: The Gender Dimension*, both 1995, with G. Holton). Other interests include science policy (*Ivory Bridges: Connecting Science and Society*, 2002, with G. Holton), history of science (*Einstein and Culture*, 2005), and migration (*What Happened to the Children Who Fled Nazi Persecution*, 2006, with G. Holton). He also teaches a course on astrosociology.

APPENDIX
RELATED WORK

1) J. J. Sluss, Jr., "2018 IEEE Education Society and Frontiers in Education Conference awards," *IEEE Trans. Educ.*, vol. 62, no. 1, pp. 57–63, Feb. 2019.
2) E. C. Jones, Jr., and J. J. Sluss, Jr., "2017 IEEE Education Society and Frontiers in Education Conference awards," *IEEE Trans. Educ.*, vol. 61, no. 1, pp. 74–83, Feb. 2018.
3) E. C. Jones, Jr., "2016 IEEE Education Society and Frontiers in Education Conference awards," *IEEE Trans. Educ.*, vol. 60, no. 1, pp. 67–77, Feb. 2017.
4) E. C. Jones, Jr., "2015 IEEE Education Society and Frontiers in Education Conference awards," *IEEE Trans. Educ.*, vol. 59, no. 1, pp. 59–68, Feb. 2016.
5) E. C. Jones, Jr., "2014 IEEE Education Society awards and Frontiers in Education Conference awards," *IEEE Trans. Educ.*, vol. 58, no. 1, pp. 58–66, Feb. 2015.
6) 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.
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