

ASEE'S ANNUAL REPORT

October 2019–September 2020



Stephanie G. Adams,
ASEE President, 2019–2020



Norman L. Fortenberry,
ASEE Executive Director

ASEE MEMBERS, PARTNERS, AND FRIENDS:

What a year.

As we write to you, the world is still dealing with the coronavirus situation. Your institutions are potentially facing dramatic budget cuts, you have shifted to online instruction, and you've missed out on the activities and events with family and friends that typically mark the passing of a year.

In light of all of this, we are proud of how ASEE and its members rose up to take on the challenge of instruction in a virtual environment. ASEE immediately created a number of Facebook groups where people could collaborate and share best practices on remote learning; the Education and Career Development department of ASEE Headquarters launched numerous webinars around virtual learning; and we launched ASEE Hub, a site that allows members to connect, converse, and collaborate, providing a long-requested resource enhancing member engagement.

Perhaps most impressive was the transition of our Annual Conference. Approximately two months prior to the planned physical start of our biggest event of the year, the ASEE Board of Directors opted to make it a virtual experience, unsure of how our members would respond. We are proud to say that ASEE's elected leadership (especially PIC and program chairs), members (authors, presenters, and more), and staff mobilized to create an experience that was a close approximation to being at the Annual in person. A generous grant from the Kern Foundation covered registration fees for hundreds of ASEE members; the ASEE Board released funds from our reserves to help defer fees for many more. In the end we had approximately 3,000 people attending, about 75 percent of the number in a "normal" year.

Two ASEE Board of Directors' Committees became Commissions this year, in recognition of their trans-society importance, their need to engage constituencies outside the Society in furtherance of their important work, and the benefit to our members of providing these commissions with opportunities to present sessions and papers at our conferences as well as lead studies. The P12 Committee on Engineering Education became the Commission on P12 Engineering Education and the Committee on Diversity, Equity, and Inclusion became the Commission on Diversity, Equity, and Inclusion.

With President Adams's guidance and encouragement, we launched a graduate student task force to examine issues ranging from health to transitioning into, progressing through, and completing engineering graduate programs. This task force is an opportunity for ASEE to be a leader on engineering graduate education and a model for other disciplines and professional societies. You can read more about the task force's work later in this report.

In response to the murder of George Floyd, ASEE's Board of Directors and Commission on Diversity, Equity, and Inclusion issued strong statements, attempting to unify and challenge our members and staff to work together to combat racism. In addition, we issued policy statements on the White House Executive Order on Combating Race and Sex Stereotyping; a planned change to authorized duration of stay for F-1 visa holders; and the prevention of nonimmigrant students from remaining in this country and taking online-only coursework. We also sent a strongly worded letter to Purdue President Mitch Daniels on statements he made seemingly calling into question the scholarship of the engineering education discipline and an academic department on his campus.

President Adams began her term by emphasizing her vision of "One ASEE." The actions indicated above support that notion; we have worked together to address the challenges we've faced. We have recognized that each of us brings unique talents to our collective enterprise and that we are stronger together than apart. The analogy offered by President Adams is to think of ASEE as being made up of "athletes" with different expertise and talents, competing in different events, whose performance in individual events contributes to the overall team score. The various Councils, Divisions, Zones, Sections, Student Chapters, the International Branches, and you, the members, ALL play a role in advancing the mission of the Society! Therefore, each group's voice matters, and their issues become all of our issues. During Dr. Adams's presidency this notion was front and center. And despite the struggles we are facing with COVID-19, we have seen colleagues rally around each other and help each other, regardless of name, rank, or place in ASEE.

We look forward to emerging on the other side of this stressful time with all of you—soon. And we look forward to being stronger, collectively and individually, in the years to come.

2020 ASEE SOCIETY AWARDS

Benjamin Garver Lamme Award



Jennifer Sinclair Curtis
University of California–Davis

DuPont Minorities In Engineering Award



Ivan Favila
University of Illinois–Urbana-Champaign

Frederick J. Berger Award



Michael D. Johnson
Texas A&M

Isadore T. Davis Award



Scott Danielson
Arizona State University

James H. McGraw Award



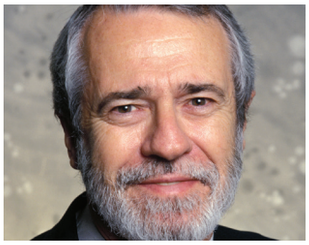
Ken Rennels
Indiana University–Purdue University Indianapolis

John L. Imhoff Award



Rapinder Sawhney
University of Tennessee–Knoxville

Lifetime Achievement Award



Don P. Giddens
Georgia Institute of Technology

National Engineering Technology Teaching Award



Michael D. Johnson
Texas A&M

National Engineering Economy Teaching Excellence Award



Wolter Fabrycky
Virginia Tech

National Outstanding Teaching Award



Brock E. Barry
United States Military Academy, West Point

Sharon Keillor Award



Sarah A. Rajala
Iowa State University

Robert G. Quinn Award



Anthony Butterfield
University of Utah

WILLIAM ELGIN WICKENDEN AWARD



Susan Lord
University of San Diego



Matthew Ohland
Purdue University



Richard Layton
Rose-Hulman Institute of Technology



Michelle Camacho
National Science Foundation

NEW ASEE FELLOWS



Maura Borrego
University of Texas–Austin



Ken Burbank
Purdue University–West Lafayette



Janet Callahan
Michigan Technological University



Monica E. Cardella
Purdue University–West Lafayette



Monica Farmer Cox
Ohio State University



P. K. Imbrie
University of Cincinnati



Agnieszka Miguel
Seattle University



Joe Tranquillo
Bucknell University



Margot A. Vigeant
Bucknell University

GRADUATE STUDENT TASK FORCE

ASEE President Stephanie Adams assembled the ASEE Graduate Student Task Force in late 2019 and issued the following directive:

"The charge is to examine issues ranging from health (e.g., mental, spiritual, emotional, and physical) to transitioning into, progressing through, and completing engineering graduate programs. This task force provides ASEE an opportunity to be a leader in action on engineering graduate education and a model for other disciplines and professional societies. By calling attention to the experiences of graduate students, ASEE will not only create avenues for change through evidence-based and action-oriented responses to the challenges they face but also enrich their experiences as student members of ASEE, ultimately fostering pathways for future professional and lifetime members."

The Task Force surveyed the state of education as it pertains to engineering graduate students, to identify needs and evidence-based best practices and to highlight key areas where ASEE can serve graduate students. The group identified four major issues as they relate to graduate education: group transitions (into, within, and out of graduate school); professional development (equipping students for success in their chosen pursuits); wellness (mental health and well-being); and access (unequal availability and messaging about graduate opportunities across diverse groups, along with a set of actions). It recommended that these actions be explored further in order to identify opportunities for ASEE to provide new offerings and value to its membership.

In addition, the Task Force analyzed the ASEE website, determining that current Ph.D. students perceive the ASEE site as "intended" for them, but current academic faculty do not perceive the ASEE site as suitable for Ph.D. students (and are therefore unlikely to send their students to the site). Through mapping the ASEE site, the Task Force found that there are several resources available to graduate students, but these are scattered across the site.

The Task Force recommended that ASEE should continue to identify more cases in the literature and across institutions in order to provide a comprehensive set of best practices to draw upon. ASEE must assess gaps in current university offerings for graduate students, in light of the Society's strategic priorities and resources, to determine how to best serve its membership to include its graduate students.





PreK–12 ENGINEERING EDUCATION

ASEE's activities in the P–12 arena continued to expand and develop this year.

The P–12 Committee of the Board of Directors was converted into a Commission, giving it a more formal standing in the Society and strengthening ASEE's institutional commitment to it as an activity.

A major ASEE P–12 activity this year was the collaborative effort between Advancing Excellence in P–12 Engineering Education (AE3) and ASEE on the Framework for P–12 Engineering Learning. To summarize the statement on the Framework website:

The framework is a step toward changing the status quo and democratizing engineering learning across all grade levels, preschool through high school. Developed with teachers, school administrators, and researchers working in concert with leaders of the AE3 research collaborative and ASEE, it provides practical guidance by identifying common P–12 engineering learning goals that all students should reach to become engineering literate. The document will add structure and coherence to the P–12 engineering community by serving as a foundation for the development of any and all engineering programs in schools, informing state and national standards-setting efforts, and providing researchers with a common starting point to better investigate and understand P–12 engineering learning.

In July, ASEE announced the Engineering Teacher Professional Development Endorsement program, a system for recognizing professional development opportunities for P–12 educators that align strongly with the 2014 Standards for Preparation and Professional Development of Teachers of Engineering. Teach Engineering was the first program to be endorsed.

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In addition, ASEE HQ arranged free registration for 14 P–12 teachers to attend the 2020 ASEE Annual Conference, including access to sessions for one year. Further, sponsors were identified to supply several classroom grants through the PCEE Division to eligible teachers.

At the beginning of the pandemic, in response to the quick pivot teachers and parents had to make to virtual learning, the Commission and HQ staff created the ASEE P–12 Instructors and Parents Facebook group, providing online resources, daily engineering challenges, and collaboration tools. The group has grown to nearly 1000 members and offers continued guidance for teachers and parents and other free resources.

Commission members and HQ staff also led a workshop on engineering resources for teachers at the STEM Leadership Alliance; led a hands-on workshop and engineering education information session for teachers at the First Integrated Asia STEM Summit; and coordinated P–12 summer camps.

DIVERSITY, EQUITY, AND INCLUSION

ASEE's Commission on Diversity, Equity, and Inclusion worked to further the Society's consistent, ongoing efforts to make diversity a central theme of our activities, products, and events.

The Commission issued a strongly worded response to the unjust deaths of George Floyd, Breonna Taylor, Ahmaud Arbery, and so many other Black lives. It charged:

"We live in a country built on a foundation of colonialism and oppression. Even in its internal fights for freedoms, those privileges were not extended to all people without additional battles. At national and local levels, our systems, institutions, and policies maintain many of the early inequities. There is always MORE to be done to eliminate racism, sexism, ableism. … It is important work. It will TAKE ALL OF US WORKING TOGETHER."

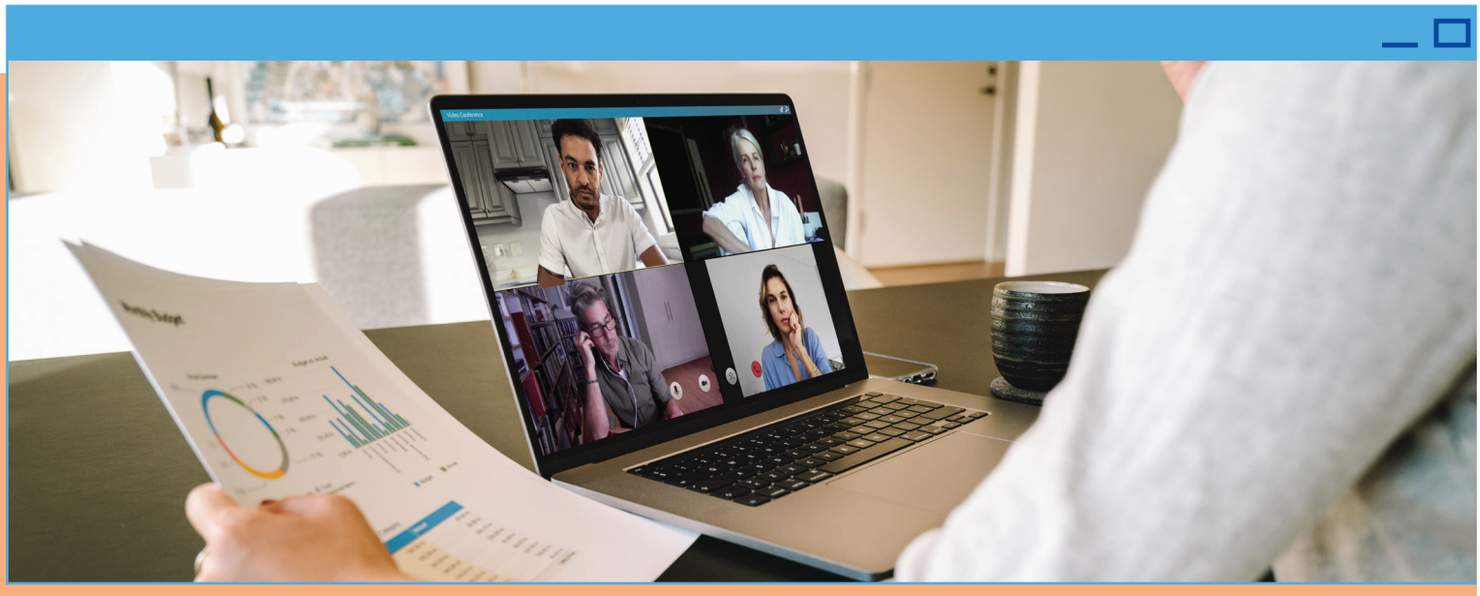
Further, the Commission compiled a list of opportunities and actions for members to begin or continue anti-racist work in engineering education.

The Commission also issued a statement (along with ASEE HQ) in response to the September White House Executive Order on Combating Race and Sex Stereotyping, which would have severely minimized the ability to develop programs explaining and mitigating the impact of stereotype threat on students, educators, and engineering professionals.

The Commission's professional development committee has been very active in expanding its offerings and taking advantage of the virtual environment. Meagan Pollock, Chair of the Commission's Professional Development Committee, said, "Within the liminal state summer 2020 provided, and the swift shift to online learning, our summer series of virtual workshops was a tremendous success. We believe people were eager to find a community and take advantage of new ways to learn and engage in equity and inclusion conversations. The CDEI Professional Development Committee hosted, over three months, twelve interactive sessions across various topics, averaging about 60 people per session." Titles of recorded workshops—available for viewing on the CDEI site and its YouTube channel—include *Expanding Resources that Connect Diversity, Equity, Access & Inclusion with Ethics Education*; *Retracing My Steps: Reflections of a Black Woman Leader in Engineering*; and *Diversity Papers: Tips and Guidelines for Authors and Evaluators*.

The Commission also launched the Cultivating Inclusive Communities project. With nearly 120 participants, it provides a welcoming and supportive environment for educators, administrators and students, practitioners and colleagues, professional engineers, and licensed engineering technologists—from all races, creeds, and genders. This space is inclusive, practices and promotes inclusion, and aims to foster a true sense of belonging for all participants.

In addition to the activities above, the Commission has launched a new constituent DEI award, open to all ASEE groups (divisions, sections, etc.). The Commission continues to administer its Best Diversity Paper Award, launched a Scholar Spotlight Series, and regularly updates its blog.



ASEE DIVERSITY RECOGNITION PROGRAM

The ASEE Diversity Recognition Program (ADRP) is in its second year, publicly recognizing those engineering and engineering technology colleges that make significant, measurable progress in increasing the diversity, inclusion, and degree attainment outcomes of their programs. We recognize the following institutions that received the Bronze award in 2019–2020, bringing the total number of recognized organizations to 101.

Arizona State University

Bucknell University

California State Polytechnic University–Pomona

California State University–Los Angeles

Colorado State University

Cornell University

Dartmouth College

George Mason University

George Washington University

Hofstra University

Michigan Technological University

North Dakota State University

NYU Tandon School of Engineering

Ohio State University

Pennsylvania State University–University Park

Purdue University–West Lafayette

Tufts University

Tulane University

University of California–Riverside

University of Denver

University of Louisville

University of Pennsylvania

University of Texas–Arlington

University of Texas–Austin

University of Wisconsin–Madison

Western Carolina University







EXPANDING ENGAGEMENT



ASEE has produced several webinars on topics such as student success, inclusive teaching, and research impact. Registration and attendance are steadily increasing, reaching individual benchmarks of 200-plus registrations and 100 attendees. As our webinar library grows, we will continue to highlight the value for ASEE members as part of our outreach. We will also explore opportunities to feature ASEE products and services in future webinars, and we will soon offer a webinar on salary negotiations, featuring the results of our salary survey.

Tau Alpha Pi, the honor society for engineering technology, inducted 365 new members and restarted five inactive chapters. It is currently restructuring its activities with an increased emphasis on participation and service among its members.

DATA ANALYTICS AND INSTITUTIONAL RESEARCH

ASEE is the premier source of information for industry, academic, and government leaders who need to know what the potential engineering and engineering technology workforce looks like today and what it could be tomorrow. ASEE data help our industry partners identify new recruits for employment and areas where the graduating workforce can support new technological expansion. ASEE is also a principal resource of research data including detailed engineering research volumes, institutional research areas, and expertise. The Society has over 20 years of experience gathering data from colleges of engineering and engineering technology at four-year institutions. Over the course of the next year, we are expanding to collect data from community colleges focusing on both associate degrees and certificates for engineering-oriented technicians. ASEE has 10 years of detailed salary data for tenured/tenure-track engineering and computer science faculty to allow institutions to benchmark their current compensation against their peers.

JOURNAL OF ENGINEERING EDUCATION (JEE)

Cultivating, disseminating, and archiving quality research in ways that reflect the diversity of experiences and perspectives of the engineering education community are at the core of what ASEE is about. This is also the mission of ASEE's *Journal of Engineering Education* (*JEE*). *JEE* is widely recognized as the premier publication for scholarly research on engineering education. Published quarterly through John Wiley & Sons, *JEE* receives about 400 new submissions annually from authors in more than 40 countries. Its international editorial board coordinates the peer review process. Under the editorship of Lisa Benson, the College of Engineering, Computing, and Applied Sciences and the Department of Engineering and Science Education at Clemson University have provided generous support of *JEE*. During the past 12 months, *JEE* has published articles on design thinking and maker spaces; empathy, ethical reasoning, and socio-technical aspects of engineering; the challenges faced by Black engineering students and graduates as well as women of color in undergraduate engineering; inequities in access to engineering degree programs; and insights from social media about graduate student experiences in engineering. Summaries of these and other articles have appeared as "JEE Selects" columns in ASEE's *Prism* magazine. These summaries show how research can inform the practice of educating a diverse population of students to become the next generation of leaders in engineering. *JEE* launched new initiatives this year to expand its reviewer and author base, including the JEE Mentored Reviewer Program and workshops at international conferences to identify and train new reviewers.

COMMUNICATING FOR THE COMMUNITY

PRISM AWARDS

ASEE's Art and Editorial departments continue their successful collaboration in the Society's standout magazine, *Prism*, the voice for the engineering education community.

Prism won numerous awards this year, including:

APEX AWARDS OF EXCELLENCE:

Beryl Benderly and Mark Matthews, *Prism* Feature Writing. "A Frayed Welcome Mat." March 2019

Lucy Birmingham and Mark Matthews, *Prism* Feature Writing. "In Search of the Next Meal." May 2019

Nicola Nittoli, *Prism* Design & Layout. "In Search of the Next Meal." Cover Story, May 2019

THE 26TH ANNUAL COMMUNICATOR AWARDS

AWARD OF EXCELLENCE:

Beryl Benderly and Mark Matthews, *Prism* Writing— Feature Writing. "A Frayed Welcome Mat." March 2019

Lucy Birmingham and Mark Matthews, *Prism* Writing—Feature Writing. "In Search of the Next Meal." May 2019

AWARDS OF DISTINCTION:

Charles Q. Choi, *Prism* Writing—Feature Writing. "Polar Prospects." February 2019

Miguel Ventura, *Prism* Design Features—Overall Design. "The Mind's Eye." October 2018

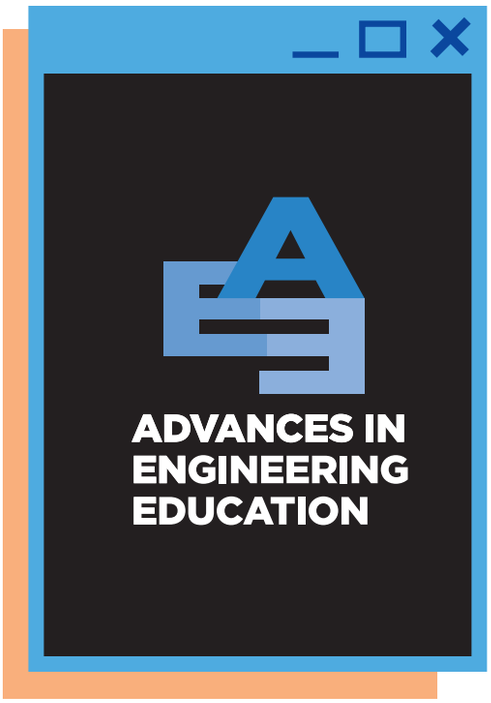
Francis Igot, *Prism* Design Features—Cover Design. "Production Values." October 2019 Cover

Employee Publication–Magazine, Overall Publication. January 2019 *Prism*



ADVANCES IN ENGINEERING EDUCATION (AEE)

Peer-reviewed *Advances in Engineering Education* (*AEE*) documents and disseminates research-informed, education-related innovations in engineering education. Specifically, *AEE* focuses on engineering education practice and the successful, documented implementation of research results, rather than the research itself. Of particular uniqueness to *AEE* is that authors are encouraged to submit papers incorporating the creative use of media, including animation, audio, graphics, and video. This marked *AEE*'s ninth year and a transition point. Larry Shuman, founding Editor-in-Chief of *AEE*, is assisting new editor Holly Matusovich in the transition. *AEE* is now established as an internationally recognized, practice-based, peer-reviewed journal that fills a much-needed niche in the field of engineering education. In 2020, *AEE* published several issues, completing Larry's tenure as founding Editor-in-Chief. Of particular note was a special issue related to teaching during COVID. More than 100 author teams from around the world answered the call and submitted short papers about adaptations they have implemented and assessed. The special issue included 34 papers.







POLICY ENGAGEMENT

ASEE represents its members and their interests by engaging federal leaders on issues relevant to engineering and engineering technology.

In 2020, ASEE was particularly active in responding to proposed changes from the White House and various agencies. In July, ASEE argued that changes to the Student and Exchange Visitor Program of U.S. Immigration and Customs Enforcement would have a significant negative impact on many ASEE individual and institutional members. The announced changes prohibited nonimmigrants pursuing academic (F-1 visa) and vocational (M-1 visa) coursework from taking a fully online course load and remaining in the United States. ASEE's statement on this issue received numerous signatures in support, representing over 30 peer institutions.

> "In July, ASEE argued that changes to the Student and Exchange Visitor Program of U.S. Immigration and Customs Enforcement would have a significant negative impact on many ASEE individual and institutional members."

In the fall, U.S. Immigration and Customs Enforcement provided notice of a new rule establishing a maximum period of four years for authorized stay for international students and other holders of certain nonimmigrant visas. Though it was "intended to decrease the incidence of nonimmigrant student overstays and improve the integrity of the nonimmigrant student visa," ASEE argued that a likely effect would be to increase uncertainty and cause disruption to the study plans of the nearly 60 percent of engineering doctoral students who are on such visas, as well as the many international students pursuing master's or bachelor's degrees. Limiting such students' visas would likely constrict the flow of talent to our shores, reduce degree completion within our universities, and diminish the quality and quantity of work that fuels our nation's economic growth and global competitiveness.

Also in the fall, ASEE argued that the White House Executive Order on Combating Race and Sex Stereotyping was inimical to the values of the Society and of the United States. ASEE emphasized that the order was destructive of its stated goals of reducing divisiveness and promoting excellence and collaborative achievement in the workplace and requested its immediate rescission.

ASEE engages with entities such as Lewis-Burke Associates LLC, our government relations firm; the STEM Education Coalition; the Alliance for Science and Technology Research in America; and the Coalition for National Science Funding in order to maintain our stature as an influencer.

In 2020 ASEE's annual Public Policy Colloquium of engineering deans brought almost 200 participants to Washington for a two-day event of briefings on the federal landscape as it relates to STEM funding and support. The event culminated with trips to Capitol Hill to hear from members of Congress and to meet with representatives.

The Engineering Technology Council now uses its annual meeting, the Engineering Technology Leaders Institute, as an opportunity for policy discussion. The October 2019 meeting, "Engineering Technology: Connecting, Building & Maintaining Relationships," convened the community in Washington for a multiday collaborative event, culminating with visits to the Hill.



VIRTUAL CONFERENCE

ASEE staff, members, and leadership acted quickly to move our Annual Conference online, with barely two months' lead time. We are happy to say that it was a resounding success. You could say that our members and attendees did what they do best: adapt and innovate.

Though everyone missed Montréal's cobbled streets and exquisite cuisine, we came together while keeping apart in response to the COVID-19 pandemic. Once again, we opened the event with the violin virtuoso Kai Kight, who greeted us with music and inspiring words. Aldert Kamp, from the Delft University of Technology in the Netherlands, gave Monday's Keynote Live Q&A, while Remi Duquette from Maya Heat Transfer Technologies did the plenary honors on Tuesday.

A generous grant from the Kern Foundation/Engineering and a release of funds from the ASEE Board allowed hundreds of members to attend who might not otherwise have been able to.

Among other highlights, Immediate Past President Stephanie Adams passed the gavel thousands of miles to incoming President Sheryl Sorby. Anurag Purwar from Stony Brook University performed a live demo of a robot kit and app; Joshua Honorat, winner of the ASEE/Engineering CAS student video contest, presented during the Tuesday Keynote. Attendees have access to all presented content until the 2021 Annual.

