

FOCUS

SEPTEMBER 2021
ISSUE 30



ILLUMINATE



EDUCATE



ENGAGE



ENERGIZE

REACH Impacts Students Around the Globe



Pre-university teachers in the Social Studies and STEM (Science, Technology, Engineering and Mathematics) disciplines are inspired by the free IEEE REACH resources that situate technology and engineering in their social and humanist contexts. During two teacher webinars—the International Technology and Engineering Educator Association’s (ITEEA) annual conference, *Where Technology and Engineering Come to Life*, and the United States’ National Council for History Educators’ (NCHE) conference, *Place and Time*—teachers learned about the REACH program and left equipped with lesson plans, videos and hands-on activities they could use immediately, either remotely or in the classroom. Chandra Porter, a STEM teacher in Atlanta, GA, US stated, “This is awesome! I can use this with my Paper Tower Activity.” “I’m excited to get into it! We’ve done a little of this, but your presentation blows this open for me.” exclaimed Lois MacMillan, a History teacher in Grants Pass, OR, US.

These teachers are not alone in their excitement for REACH’s offerings. In Africa, educators are also being inspired. Three educator training sessions developed from the co-branded REACH/UNESCO pilot program with continued support from the IEEE Africa Council and the IEEE Uganda Section, and delivered by Silver Bolt, a Uganda non-profit education organization. One training program, a UNESCO STEM workshop, with a goal to improve participation of girls in STEM, was supported



Students in Uganda, Africa work on a hands-on activity associated with the REACH Skyscrapers lesson plan. IEEE was invited to present the REACH/UNESCO program to 40 teachers from 8 school districts at a UNESCO STEM mentorship workshop, supported by both IEEE and the Uganda National Commission for UNESCO. The goal was to equip science teachers in the region with tools to realize improvements in participation by women and girls in STEM Education. Teachers participated in IEEE REACH activities just as students would. They walked away inspired and with a new toolkit and STEM pathway for girls.

by both the Uganda National Commission for UNESCO and IEEE. Key stakeholders from both UNESCO and the Uganda Ministry of Education participated in the training sessions. Those in attendance were enthusiastic about the program, which has created a significant interest to include REACH content, concepts and methodology, in future curricula.

A donor supported program of the IEEE History Center, REACH continues to engage educators and inspire students via its mission to raise engineering awareness through the conduit of history. The program assists teachers across disciplines around the globe, provides a new STEM education pathway, and is enhancing female participation in the discipline. ■

A Deep Dive Into IEEE's Recent History



The IEEE History Center has chronicled the last 37 years of the organization and the impact it has had on electrical engineering in the 21st century. *History of IEEE Since 1984* is available on the Engineering and Technology History Wiki, ethw.org. Readers can learn how IEEE transitioned to electronic publishing, its efforts to expand its membership globally, its successful activities to develop standards, and other topics.

As digital technologies became more popular in the 1980s, IEEE worked to keep up with the shift from printed publications to digital versions, according to the document. Before the IEEE Xplore Digital Library, the organization experimented with an electronic index, launched in 1986, and CD-ROMs, which were introduced three years later. Using the index, members were able to order from their computer copies of articles published within a 12-month period. The CDs held about 200,000 documents, including journal papers and conference proceedings.

Membership in IEEE also evolved during the period. Before 1989, IEEE's membership was mostly composed of engineers from the United States. But in the 1990s, the popularity of computers and their impact on society and the strong economy fueled global expansion. Today the organization has more than 400,000 members in more than 160 countries.

The IEEE Standards Association made great strides in developing standards worldwide, according to the report. Its most well-known standard is IEEE 802.11, developed in 1997. It's the official international standard for wireless LANs, operating at 2 megabits per second. *Popular Mechanics* magazine recognized the standard with its 2003 Grand Prize for Computing.

Although the document's main focus is IEEE after 1984, its first chapter covers the merger in 1963 of the American Institute of Electrical Engineers and the Institute of Radio Engineers—which formed IEEE.

The history of IEEE previously was documented in two books that covered the organization's first 100 years. *The Making of a Profession: A Century of Electrical Engineering in America* was written by historian A. Michal McMahon. *Engineers and Electrons: A Century of Electrical Progress* was written by IEEE Fellow John D. Ryder and past IRE president Donald G. Fink. PDFs of the books are available on the Engineering and Technology History Wiki.

"History of IEEE Since 1984" is a living document. Readers with an account on the Wiki can make comments and suggest edits. IEEE History Center staff members will review the comments and, if deemed appropriate, will include them. Individual memoirs of IEEE's history can be added in the first-hand histories section.

ETHW is run by the IEEE History Center and made possible thanks to our generous donors. ■

FIND HISTORY CENTER EVENTS

The IEEE History Center conducts and coordinates many events related to the history of technology. Dedication ceremonies for IEEE Milestones, lectures and other programs are among the free events the History Center offers and maintains a web page of those events which you can find at: ieee.org/about/history-center/events.html

The IEEE History Center

This story was adapted from J. Goodrich "A Deep Dive Into IEEE's Recent History" The Institute in Spectrum Online 29 June 2021.



A plaque was placed in the Franklin Institute in Philadelphia during the IEEE-Franklin Institute Centennial Technical Convocation in October 1984 to celebrate the 100 year anniversary of IEEE.

The Grainger Foundation and IEEE Foundation Pivot to Support PES Scholars



In a testament to their creativity and resourcefulness during the COVID-19 pandemic, beginning in 2020, The Grainger Foundation and IEEE Foundation collaborated to proactively “repurpose” The Grainger Foundation’s annual PES Student Program funding for 2020 and 2021.

According to IEEE Foundation Senior Development Officer Michael Deering, “The Grainger Foundation has generously donated US\$75,000 to IEEE annually for the past 15 years in the form of travel grants that enable students in the power and energy field to attend three prominent industry conferences/technical meetings – the IEEE Power & Energy Society Transmission and Distribution Conference and Exposition, the IEEE Power & Energy Society General Meeting, and the North American Power Symposium (NAPS).” Due to the COVID-19 pandemic, however, “the 2020 and 2021 PES General Meetings were conducted virtually, 2020 IEEE PES T&D Conference was cancelled, and the 2020 North American Power Symposium was held virtually in 2021.”

To offset the loss of these important opportunities for industry exposure and subsequent travel for students in the power and energy field, representatives of the IEEE Foundation and The Grainger Foundation developed a positive ‘Plan B.’

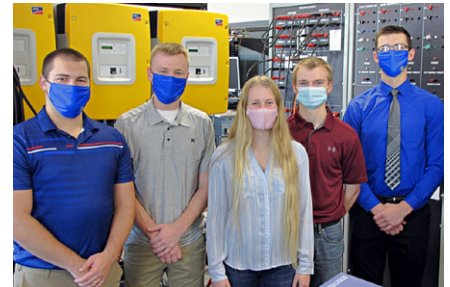
“At the same time that The Grainger Foundation’s annual funding of travel grants wasn’t going to be able to help students attend 2020 PES events and would potentially go unapplied, the IEEE PES Scholarship Plus Program experienced a dramatic dip in donations due to personal financial constraints and corporate budget tightening as a result of COVID-19,” shared IEEE Director of PES Operations Daniel Toland. “We decided to ask The Grainger Foundation if they would consider ‘repurposing’ a significant portion of the 2020 and 2021 Grainger-PES Student Program funding to the IEEE Power & Energy Society (PES) Scholarship Plus Initiative during this very uncertain time, and they graciously agreed.”

The PES Scholarship Plus Initiative provides scholarships and real-world experience to

undergraduates at US-based universities who are interested in careers in power and energy engineering. In a normal year, the program extends scholarships to more than 130 talented students and, to date, more than 600 past PES Scholarship Plus recipients hold full-time jobs in the power industry.

Thanks to their proactive pivot, The Grainger Foundation’s annual funding supports the distribution of PES scholarships to undergraduates for the 2020/21 and 2021/22 academic years. According to Deering, the scholarships provide qualifying students with an award of US\$2,000 in each of their second and third years of college and a US\$3,000 award in their fourth year. “These scholarships help expose students to the field by allowing them to take power and energy classes and complete an internship with a company in the power and energy industry,” said Deering, who noted that some recipients ultimately get hired by the company they interned with while others go on to graduate-level education in the field.

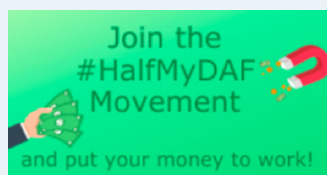
“We’re proud of our longtime partnership with the IEEE Foundation and it made sense to repurpose our funding to benefit the students, especially during this difficult time,” confirmed Gloria J. Sinclair, Senior Vice President & Secretary, The Grainger Foundation.



Excellence in educating engineering students in the electric power and energy field continues to be a strong suit for South Dakota State University (SDSU). This was highlighted by the performance of SDSU undergraduate students Jesse Kreuzfeldt, Matt Stoen, Olivia Corneil, Tyler Fogelson and Kade Griesse, 2020-2021 PES Scholars. Kreuzfeldt and Stoen are repeat recipients and receive \$3,000 scholarships. The others receive \$2,000 scholarships. The five SDSU selections in 2020-21 are among 118 nationwide from 67 schools.

“We’re so grateful for The Grainger Foundation’s support, and being able to repurpose their funds has been a morale booster for our IEEE Foundation team as well,” Deering confirmed. “It’s great to be able to continue to support students during these challenging times while still aligning with The Grainger Foundation’s primary interest in promoting workforce development in the U.S.” ■

Join the #HalfMyDAF Movement



Do you own a Donor Advised Fund (DAF)? The IEEE Foundation is excited to share a way for your money to go further than ever – through the #HalfMyDAF matching-grant challenge movement. Did you know that more than US\$140 billion just sits in Donor Advised Funds? Many of these funds are not spent

despite the overwhelming need by non-profit organizations. The #HalfMyDAF goal is to inspire giving and put these funds to work!

The #HalfMyDaf movement helps DAF contributors take that vital next step—to increase the impact of your dollars. Anyone who directs a grant from their DAF to the IEEE Foundation and commits to donating half the balance from their DAF before 30 September 2021, allows IEEE Foundation to be nominated for a matching grant of up to US\$100,000. The more people who nominate IEEE Foundation, the better our chances of receiving the match.

You can learn more about the #HalfMyDAF challenge at ieeefoundation.org/HalfmyDAF and nominate IEEE Foundation for a matching donation. Thank you for your support. ■

PES Scholarship Impacting Students and Building Careers



The IEEE Power & Energy Society (PES) Scholarship Plus Initiative has a simple goal: to increase the number of well-qualified, entry-level engineers by rewarding top electrical engineering students.

Those who have received the scholarship have plenty to say about how it helped them throughout their journey in the power and energy industry. Stephen Collins, a 2014 University of Southern California graduate, spoke to the impact that being a PES Scholar had on his career.

"The PES Scholarship Plus Initiative played a huge role in kick starting my career in the electricity sector" said Stephen. "The financial support allowed me to free up time to volunteer with my school's Solar Decathlon team, an incredibly valuable experience."

The PES Scholarship Plus doesn't just offer financial support. Internship opportunities and professional connections are additional benefits to the scholarship. Recipients are also given mentors, volunteer professionals

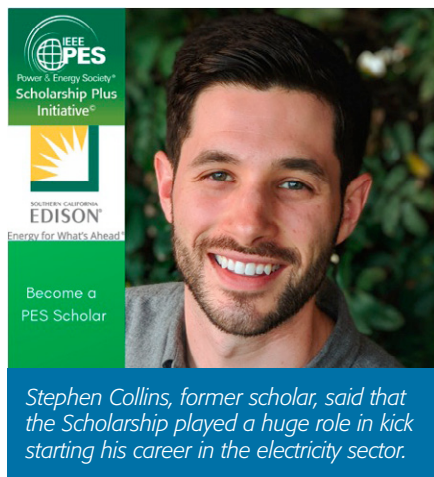
from the industry committed to the success of their recipients.

"The mentoring helped me build the confidence to pursue an exciting career in the space - applying at companies that truly inspired me," said Stephen, acknowledging the help the PES Scholarship Plus provided when it came time to pursue a full-time job.

After completing an internship at Southern California Edison that PES Scholarship Plus helped him land, Stephen was offered a full-time position as an Electrical Engineer. Today, Stephen is a Sr. Advisor at SCE, focused on climate and sustainability risks.

"I've loved every position I've had here, and the PES Scholarship Plus played an important role in helping me get my start," Stephen said.

Read about more successful PES Scholars, thanks to donor support, on ee-scholarship.org. ■



Stephen Collins, former scholar, said that the Scholarship played a huge role in kick starting his career in the electricity sector.

Science Kits Meet Kids' Enthusiasm for Learning



It's clear that since the pandemic began things have been uniquely difficult. But these trying times do not mean that progress has ceased for IEEE-Region 4, and this definitely applies to Science Kits for Public Libraries (SKPL), an outreach program in support of early engineering education that launched in 2017. SKPL offers competitive grants—generally in the US\$1,000-\$2,000 range—enabling public libraries to advance engineering awareness and education by creating hands-on circulating science kit collections. Forty five applications for 2021 grants were received, compared to 22 in 2020, and thanks to donor generosity, at least 15 grants will be awarded in 2021 as compared to 7 grants in 2020.

Libraries in rural towns, suburbs and large cities continue to report kids' enthusiasm



for learning about such subjects as optics, magnetism and robotics through the hands-on science kits. Like paper-and-ink books, the science kits can be used on site or checked out of the library and taken home. The kits give school-age youngsters

an opportunity for self-learning, and hands-on experiences with scientific principles and engineering challenges. Equally important, they're also a lot of fun!

Basic science and technology education is surely vital to the future of our profession and a key part of our stated mission of "Advancing Technology for Humanity." Therefore, it is no surprise that the majority of the financial support for SKPL comes from generous IEEE-Region 4 members and their employers, and dedicated volunteers run the program. Becoming involved in SKPL is easy and the personal rewards are substantial. Please consider donating your time or treasure to this great program. Learn more at r4.ieee.org/skpl. ■

Article submitted by Bill Kennedy, Evanston, IL, USA - IEEE Region 4 volunteer

Electro-Mechanical Underride Crash Prevention System Wins IEEE Presidents' Scholarship



We are excited to announce the 2021 IEEE Presidents' Scholarship winner, and the second and third place winners selected during the virtual Regeneration International Science and Engineering Fair (ISEF). Congratulations to Kerem Bayhan, an eleventh grader from Sakarya, Turkey, who won the IEEE Presidents' Scholarship with his project: Electro-Mechanical Underride Crash Prevention System.

Bayhan looks for simple solutions to current problems. In his research, he found that automobile accidents involving heavy duty vehicles are responsible for a large number of deaths on the road despite the guard bars that commercial tractor trailers have on the back of the trailer that, in theory, should prevent underride crashes. Instead of looking to make improvements to tractor trailers, he decided to create an attachment for cars.

The end result is a hood attachment that when the automobile comes within a certain distance of an object, it extends to form a barrier between the passenger of the car and the object. Bayhan plans to extend this project beyond the boundaries of the scholarship and is attempting to implement this potentially life saving device with car makers. This device, which Bayhan describes to be affordable and reliable, won him the US\$10,000 IEEE Presidents' Scholarship.

Second place winner, Brian Minnick, an incoming freshman at the Massachusetts Institute of Technology, developed a self-replicating 3D printer. This idea won him second place and US\$600.

Boglarka Ecsedi, an incoming freshman at the Georgia Institute of Technology, created a rip current detection system that relies on machine learning. This device earned her third place and US\$400.

Established in 1999 by the IEEE Foundation and administered by IEEE Educational Activities, The IEEE Presidents' Scholarship is donor supported and recognizes a deserving undergraduate student for an outstanding project that demonstrates an understanding



2021 IEEE Presidents' Scholarship recipients Kerem Bayhan, Brian Minnick and Boglarka Ecsedi.

of electrical engineering, electronics engineering, computer science or other IEEE fields of interest.

Director Emeritus of the IEEE Foundation and IEEE Life Fellow Peter A Lewis collaborated with 1999 IEEE President and IEEE Fellow Kenneth R. Laker in 1999 to start the IEEE Presidents' Scholarship. In his IEEE Oral History Laker said, "I came up with the name IEEE Presidents' Scholarship with an "s" and then an apostrophe in order to honor all the IEEE Presidents." The goal of the Scholarship was two-fold; to recognize outstanding pre-university students for their creativity and innovation and to obtain recognition for IEEE as a leader in pre-university science and engineering education.

"The science fair was celebrating its 50th anniversary in 1999. By that time, the fair had been expanded to become the International Science and Engineering Fair

and was sponsored by Intel. This appeared to be an appropriate time and venue to launch the IEEE Presidents' Scholarship," said Lewis, who was an IEEE staff member at the time, serving as Managing Director of Educational Activities. A review of comments from past recipients indicates that the original goals of the scholarship have been achieved. "The IEEE Presidents' Scholarship also serves as an incentive for other IEEE units to initiate and expand scholarship programs within specific fields of interest," said Lewis.

The IEEE Presidents' Scholarship is able to nourish brilliant minds and create opportunities to dream, thanks to your donations. Almost 100 donors provided US\$120,000 in support to this Scholarship. Read the full story by Issac Ryu in the 12 August edition of The Institute at spectrum.ieee.org. ■

EPICS in IEEE – Developing Future Leaders



EPICS in IEEE (Engineering Projects in Community Service) was founded on the principles of service learning, education and engineering. Those who work through EPICS find themselves immersed in projects that solve real world problems through the expansive world of engineering.

Almost a decade ago, Samarth Deo was studying for his bachelor's degree at Jawaharlal Nehru Technological University. With a degree in electronics and computer engineering, Deo wanted to go beyond the classroom. Developing solutions to real-world problems by applying what he learned in books and in the classroom became a priority.

After meeting and talking with IEEE volunteers who introduced him to EPICS, the opportunity was too great to pass on. Samarth said, "When I heard about the program, it sounded great. It actually sounded exactly what I would want to do other than what I was learning in the classroom and that's exactly where my journey began."

Samarth's first project with EPICS was the development of a mobile app for young students and children to help them learn in the classroom. Working alongside other IEEE

volunteers, Samarth worked to create this app for children in need while also applying what he learned during his time in school.

Through service learning, Samarth found himself working on a project that would make a difference in people's lives. While his technical skills grew through experience, he was able to develop other crucial skills that would later on play a significant role in his career. "Executing an EPICS in IEEE project made me learn a lot about, of course, community impact, the service learning part...at the same time, it also gave me the opportunity to develop some leadership skills and management skills within myself," he said.

Following his initial project with EPICS, Samarth would continue to work with EPICS in IEEE as a volunteer and would eventually take up leadership positions in the IEEE Sweden Section. Then, after working eight years in the Sweden Section, he was elected as Chairperson of EPICS. His growth as a leader and the impact he had on communities across the world made him an excellent candidate to lead EPICS.

The growth that he experienced during his first project has had a direct influence on Samarth's life since then.



Samarth Deo, Chair of EPICS in IEEE.

EPICS IN IEEE

Outside of IEEE, Samarth has worked as a manager for several departments at ABB and Hitachi ABB Power Grids. In these leadership roles, he has supervised teams of developers to deliver a quality product all while using the skills he learned from EPICS. The leadership and management skills that he learned almost ten years ago continue to guide him in his career. Samarth said, "all of this, in a way, shaped me and my future. And today what I do, in my work, is more or less what I started back then. The leadership qualities that someone sees in me is all coming from the project that I did then. It started right there."

The ecosystem that exists within EPICS is what develops future leaders. Volunteering for projects then seeing the difference they make not only inspires hope but also inspires individuals to further themselves as professionals and as people.

When someone invests in EPICS in IEEE, they aren't just investing in a specific project. They are investing in a group of future leaders and trailblazers in engineering. Like Samarth, volunteers work to make an impact on communities across the world while also developing essential skills that strengthen them as leaders. "I can tell you, I've seen some fantastic projects around the world, and I've been learning all the while looking at these projects and I think that is the motivation behind being with IEEE and volunteering with EPICS in IEEE." ■

IEEE-PELS EBL II Builds on Prior Success



Building on the success of IEEE-PELS Empower a Billion Lives I (EBL), where teams from 70 countries participated in events, field demonstrations, and the global final, EBL II seeks to build on prior success and engage teams once again to develop solutions that will have a great impact in energy access.

As in EBL- I, all sponsor funds for EBL- II will go directly to supporting teams. A primary focus of EBL- II is to reduce technology and market risk, and for teams to develop and do field demonstrations of holistic solutions that are robust, scalable, environmentally sustainable and economically viable – aimed at people who live on less than US\$1.90 per day. Teams from companies, entrepreneurial start-ups, research institutions and student groups provide regional and cultural relevance to the solutions.

The launch of EBL- II began with a virtual Energy Access Workshop held on 30 June 2021. Leading experts on energy access and the IEEE will also discuss how IEEE can have a greater impact in the critical area of energy access. To view the past winners and to find out about competing or sponsoring, please visit www.empowerabillionlives.org. ■



This Engineer Has Made Rural Electrification in Kenya Her Mission



For the project, Smart Village partnered with the Maa Trust, a nonprofit that aims to combine education, technology and vocational training to enhance opportunities for children in Maasai Mara. After completing her assignment last year, Chelangat joined Smart Village, where she is responsible for pursuing funding opportunities.

She hasn't left hands-on power-engineering work behind, however. She is helping to provide electricity and Internet connectivity to telehealth centers in Kenya so doctors can interact with patients who live in remote areas. The project is in partnership with IEEE Smart Village, the Rotary eClub of Silicon Valley, the Global Telehealth Network, and Rotary International.

For her humanitarian efforts, Chelangat received the 2019 IEEE Region 8 Women in Engineering Clementina Saduwa Award. The honor recognizes female engineers who, through their engineering and career achievements, have demonstrated support for women in the profession and have established a record of excellence. It was named after IEEE Member Clementina Saduwa, who was killed at age 29 in 2007 in a random act of violence.

"Volunteering through IEEE has expanded my mind and has allowed me to meet people from different walks of life," Chelangat says. ■

This story was adapted from J. Goodrich "This Engineer Has Made Rural Electrification in Kenya Her Mission," The Institute in Spectrum Online 12 APR 2021, where you can read the full story at spectrum.ieee.org.

Mercy Chelangat joined IEEE in 2017 as a student member. "Mercy is highly motivated and passionate about IEEE Smart Village and IEEE," says Robin Podmore, IEEE Life Fellow and cofounder of IEEE Smart Village.



Growing up in Sotik, Kenya, Mercy Chelangat saw firsthand how much technology can help under-served communities. When she was young, she and her family visited Nairobi, Kericho, and other Kenyan cities and saw how having reliable electricity could improve lives. It wasn't until 2016 that transmission lines were installed in Sotik, a town in the southern part of the Great Rift Valley ridge. Chelangat's desire to provide the town's homes, stores and farmers with electricity motivated her to pursue a career in power engineering.

After graduating from college in 2017, she worked for several Kenyan companies, striving to provide clean energy to communities around the country. But she

felt as though she wasn't leaving a lasting impact on people's lives, so in 2018 she decided to become a full-time volunteer for the IEEE Power & Energy Society's Kenya Chapter. She was the secretary and treasurer and worked to increase membership through social-media outreach. Through her work for the chapter, she learned about IEEE Smart Village, a program that brings electricity—as well as educational and employment opportunities—to remote communities. IEEE Smart Village is one of the donor-supported initiatives of the IEEE Foundation. The group asked her to manage an electrification project inside Kenya's Maasai Mara National Reserve, where she assessed communities' needs.

IEEE-USA Celebrates Fifth Anniversary of MOVE Disaster Relief and Outreach Program



In March, IEEE-USA celebrated five years of the MOVE emergency relief and community outreach program. Since March 2016, MOVE (an IEEE-USA initiative) volunteers have deployed 21 times on disaster relief missions, and have helped more than a quarter million people. "I'm so proud of what this program has accomplished so far," said Mary Ellen Randall, MOVE Program Director and 2021 IEEE Treasurer. "There is nothing more rewarding than helping people in their time of need. From Texas to Florida to New York, our volunteers have been there to offer support, and we aim to do even more in the future."

MOVE's trained volunteers and flagship Mobile Outreach Vehicle have served in nine states across the southern and eastern United States, logging nearly 18,000 volunteer hours supporting disaster relief efforts. Depending on needs, MOVE provides communications support, electrical power and technical assistance in partnership with the American Red Cross.

"In the last five years, the IEEE-USA MOVE Community Outreach Initiative has made a significant impact as a community partner, working alongside the American Red Cross," said Barry Porter, Regional CEO, American Red Cross Eastern North Carolina. "They have helped the Red Cross carry out our

MOVE COMMUNITY OUTREACH AN IEEE★USA INITIATIVE

mission to relieve human suffering in the face of emergencies. We are truly grateful for those who had the vision to create, fund and put into operation this wonderful asset that makes a difference in communities impacted by large-scale disasters."

In 2016, MOVE's inaugural year, volunteers and the truck were deployed for a total of eight weeks, aiding in five disaster situations, including Hurricane Hermine in North Carolina, Hurricane Matthew in Florida and North Carolina, floods in Louisiana and West Virginia, and wildfires in Tennessee.

But that's not all. MOVE also conducts community outreach and facilitates teaching opportunities for students and the public to learn about STEM (Science, Technology, Engineering, and Math). These outreach deployments have included the Atlanta Science Festival, National Scout Jamboree, and an American Red Cross community smoke alarm installation program.

Even more is on the horizon. MOVE is discussing an expansion with international partners to set up teams in several countries around the world. To that end, volunteers are also developing a new modular equipment



On 30 July, IEEE MOVE volunteers accepted the keys to a truck donated by Cisco Systems. This additional truck allows the volunteers to deploy two vehicles in response to disasters in the US.

system to fit each team's unique scale and situational needs.

"Our volunteers are always ready to go," said David Iams, IEEE-USA Staff Coordinator for MOVE. "Whether it's to provide relief after a tornado or hurricane, or to help teach and inspire the next generation of engineers, they always answer the call."

If you'd like to learn more about the MOVE program, become a volunteer, or donate to support MOVE's emergency relief and outreach efforts, please visit move.ieeeusa.org. ■



Celebrating 10 Years of IEEE SIGHT

SIGHT Day 2021, celebrated on 28 April, was a tremendous success in raising awareness about SIGHT, creating a spirit of community for the global network, and recognizing HAC/SIGHT volunteers for their meaningful and impactful work. This year's theme was "Celebrating 10 years of IEEE SIGHT." SIGHT Groups from around the world held their own panel sessions, webinars and events with more than 1,500 participants from 6 IEEE Regions. If you weren't able to attend a virtual event, you can visit the SIGHT website at sight.ieee.org to view the recordings. You can also make a donation to the SIGHT fund of the IEEE Foundation to commemorate the 10 Years of IEEE SIGHT and help SIGHT transform the lives of individuals and communities around the world. Thank you to all the SIGHT Day Champions and supporters for joining the celebration, and making it a truly special occasion. ■

Celebrating the 2021 IEEE Medal and Recognition Recipients



Celebrating the 2021 IEEE Medal and Recognition recipients whose groundbreaking technological advances shape our lives and the future of the profession is a privilege and a responsibility that IEEE takes very seriously. The 2021 IEEE Vision, Innovation, and Challenges Summit and Honors Ceremony is an annual highlight for IEEE that recognizes the accomplishments and contributions of technology "Giants." The event was held as a virtual celebration 11–13 May. Videos of all speakers, Q&A sessions, and award presentations can be viewed on the Awards Channel on IEEE.tv

To kick off the events on 10 May, a Virtual Toast, sponsored by the IEEE Foundation, congratulated and celebrated awardees, donors and sponsors. IEEE President and CEO Susan Kathy Land, Foundation Vice President of Programs Marko Delimar, IEEE Executive Director and Chief Operating Officer Stephen Welby, and IEEE Awards Board Chair Karen Panetta welcomed the attendees and IEEE Honorees whose engineering achievements are driving our society forward in ways never imagined even 50 years ago.

IEEE's highest honor, the IEEE Medal of Honor, is supported by the IEEE Foundation. This year it was awarded to Jacob Ziv, an international icon of information theory, "for fundamental contributions to information theory and data compression technology, and for distinguished research leadership." Ziv's innovative tools for practical data compression enable the fast and efficient transfer of files over the Internet that we now take for granted and revolutionized how we store information. Ziv is best known for his development, with Abraham Lempel, of the Lempel-Ziv (LZ) algorithms, which have an immense impact on the daily lives of computer users and on the operations of commercial electronic products worldwide. Read more about Ziv in an IEEE Spectrum article and in the annual IEEE Awards Booklet, which features all of the 2021 Medal and Award recipients.

The ceremony also included the inaugural presentation of the IEEE Mildred Dresselhaus Medal, supported by Google. Kristina M. Johnson, President, The Ohio State University, is the first recipient of this award. A role



Jacob Ziv, an international icon of information theory, received IEEE's highest honor, the IEEE Medal of Honor, supported by the IEEE Foundation.

model for women in engineering and a champion for increasing the participation of underserved populations in science and technology fields, Johnson is an internationally recognized leader in engineering, education, the private sector, government, and has impacted the movie industry.

Our ability to energize innovation through the celebration of those who push the boundaries of thinking, break new ground, and improve lives takes the dedication and commitment of many individuals and organizations. We extend our sincere gratitude to our generous

IEEE Awards

award supporters, donors, nominators, endorsers, volunteers, the IEEE Awards Board and Committees, IEEE Presidents, IEEE Board of Directors, and IEEE professional staff for their continued support of IEEE Awards.

We also thank and recognize the philanthropy of the following 2021 Medal & Recognition recipients for donating their cash prize back to IEEE: IEEE Founders Medal Recipient Henry Samueli, IEEE Robert N. Noyce Medal Recipient Lisa Su, IEEE Richard M. Emberson Award Recipient Lew Terman and IEEE Jack S. Kilby Signal Processing Medal Recipient Emmanuel Candès. Their donations improve the human condition, empower the next generation of engineers and scientists, educate and raise awareness, energize and recognize innovation, and preserve the history of technology.

Nominations for an IEEE Medal or Recognition are due 15 June annually. Nominations for an IEEE Technical Field Award are due 15 January annually.

In addition to the IEEE Medal of Honor, the IEEE Foundation supports the IEEE Haraden Pratt Award and the IEEE Founders Medal. ■

amazonsmile
You shop. Amazon gives.

When You Shop, Please Try AmazonSmile

You can simultaneously shop and support IEEE Foundation. On smile.amazon.com, find the exact same Amazon experience with the added bonus that AmazonSmile donates a portion of the eligible purchase price to the IEEE Foundation when you select us as your charity. Imagine how that would add up if every IEEE member directed their Amazon purchases to the IEEE Foundation to benefit IEEE programs. ■

Mitsubishi Electric Research Laboratories Supports Two IEEE Awards in the Field of Signal Processing



We are delighted to announce that Mitsubishi Electric Research Laboratories (MERL) now supports the presentation of the 2022–2031 IEEE James L. Flanagan Speech and Audio Processing Award and the IEEE Fourier Award for Signal Processing. MERL is the US subsidiary of the corporate research and development organization of Mitsubishi Electric Corporation. MERL conducts application-motivated basic research and advanced development in physical modeling and simulation, signal processing, control, optimization, and artificial intelligence.

“MERL is proud to support the recognition of outstanding contributions to signal processing by sponsoring both the IEEE James L. Flanagan Speech and Audio Processing Award and the IEEE Fourier Award for Signal Processing. These awards

celebrate the creativity and innovation in the field that touch many aspects of our lives and drive our society forward,” said Anthony Vetro, VP and Director, MERL.

“We are thrilled to welcome MERL to our family of IEEE Award supporters,” said Dr. Karen Panetta, IEEE Awards Board Chair. “By underwriting these two important IEEE Technical Field Awards, MERL continues to make a mark by supporting the advancement of technology that makes lasting changes in the world,” she added.



The donation ensures that the legacy of these prestigious Technical Field Awards will remain in IEEE’s Awards portfolio honoring leaders and visionaries who shape the future for the benefit of humanity, one innovation at a time. ■

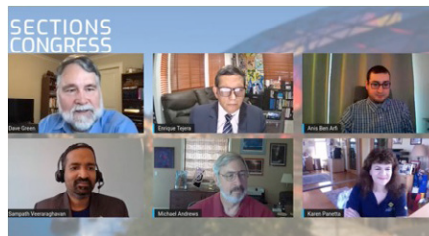
The IEEE Board of Directors established the IEEE James L. Flanagan Speech and Audio Processing Award in 2002 for an outstanding contribution to the advancement of speech and/or audio signal processing. In 2012, the IEEE Board of Directors added the IEEE Fourier Award for Signal Processing to the portfolio of IEEE Technical Field Awards to recognize an outstanding contribution to the advancement of signal processing, other than in the areas of speech and audio processing. The deadline to nominate a worthy candidate for the Flanagan Award or the Fourier Award is 15 January, annually.

Breaking New Ground with IEEE Sections Congress 2021

The 2021 Virtual IEEE Sections Congress, held 9-11 April, broke new ground. For the first time since the triennial gathering of volunteer leadership began in 1984, the Congress was open to all IEEE volunteers and members to attend. As a result, the virtual event hosted more than 1,572 people, the highest number of attendees ever.

“Sections Congress has been a longstanding in-person event for IEEE Section and Region leaders,” explained Christie Giambalvo, director, geographic activities, Member & Geographic Activities (MGA). “Due to the pandemic, we worked together to shift to a virtual format that was also free to attend. Because of that, volunteers at any level and from every organizational unit (OU), as well as all IEEE members, were welcome to attend. We had volunteers from every OU this year.”

The Foundation continued its steadfast financial support of and participation in this important grassroots educational program for IEEE volunteer leaders. For SC2021, the



Foundation was honored to perpetuate the memory of longtime IEEE volunteer leader John Meredith and provide its sponsorship in John’s name, thanks to donations made to the John Meredith Memorial Fund which is dedicated to IEEE programs that match John’s passions: volunteerism, education, maritime and the history of technology. Thanks to the support from IEEE Foundation, 27 virtual sessions and 22 live exhibitors were able to promote programs and initiatives to the Sections Congress attendees.

The Foundation partnered with four of our program volunteer leaders to present one of the 27 virtual sessions, “Ways to Engage your OU in IEEE Humanitarian &

Philanthropic Programs”, which was moderated by IEEE Foundation Secretary David Green and IEEE Humanitarian Activities Committee Global Chair Sampath Veeraraghavan. The session helped IEEE OUs discover how to engage with and implement humanitarian & philanthropic programs that illuminate, educate, engage and energize human potential. Our expert panel of IEEE volunteer leaderships explored eight donor support programs - IEEE SIGHT, EPICS in IEEE, TryEngineering, IEEE REACH, IEEE Milestones, IEEE Life Members, IEEE Awards and IEEE-HKN.

Sections Congress 2021 content can be found in the IEEE Center for Leadership Excellence. A valid IEEE username and password are required to access the material. The incredible volunteer feedback received tells us that our volunteers see tremendous value in cross-unit collaboration opportunities and coming together as one IEEE. We look forward to seeing all of you in 2023 for the next face to face Sections Congress! ■

IEEE-HKN

Supporting a Bright Future for Engineering Students

Joseph Hughes' association with IEEE made an indelible mark on his life and career – so much so that he's now helping to provide opportunities in engineering education for others. After joining IEEE and the Delta Chapter of Eta Kappa Nu (HKN) as a student at Illinois Institute of Technology, Chicago, IL, US, Joseph joined the faculty of Georgia Institute of Technology Atlanta, GA, US in 1986



Joseph Hughes planned his legacy gift which will support IEEE-HKN and IEEE educational programs.

and became actively involved in IEEE and the Accreditation Board for Engineering and Technology (ABET).

Among other milestones, Joseph went on to serve as President of the IEEE Education Society as well as a member of the IEEE Technical Activities and IEEE Educational Activities Boards, involvements which both enhanced his professional development and widened his network of industry colleagues and friends.

Upon his recent retirement from Georgia Tech after 34 years, Joseph opted to include the IEEE Foundation in his estate plan as an esteemed member of the

IEEE Goldsmith Legacy League, through which members can leave a legacy gift to benefit future generations of engineers, and directed his bequest to IEEE-HKN and IEEE educational programs designed for pre-university and university students. "I've become more attentive to the concept of legacy – not because I worry about how I'll be remembered, but because I want to ensure the future of things that matter to me," he explained.

Joseph encourages other IEEE members to pay tribute to those who helped them by helping others coming up in the field. "If someone spends their career in one or more IEEE fields of interest, an estate gift is a way to pay back those who came before you and created your opportunities as well as a way to pay it forward to ensure that opportunities will be there for the next generation," he said. "Supporting the IEEE Foundation with an estate gift accomplishes these objectives while allowing for the inevitable changes that will occur within our profession in the coming decades."

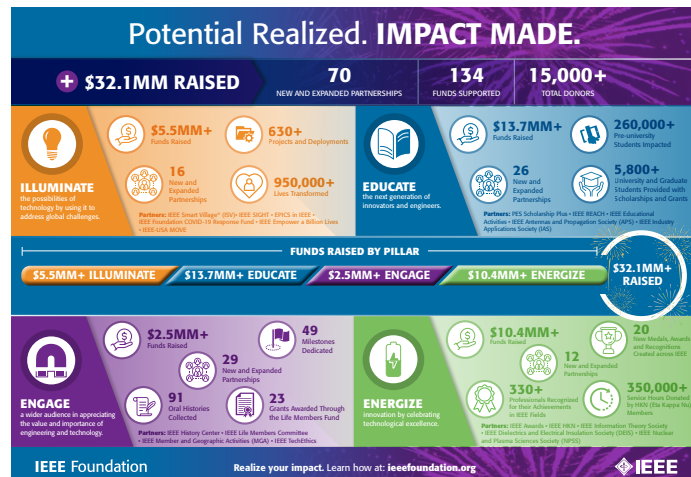
Learn more about leaving your legacy at ieeefoundation.org/how-to-give.



IEEE-Eta Kappa Nu

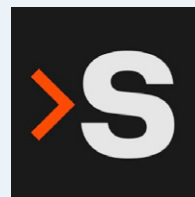
#IEEECampaign

Celebrating Success and the Impact Made



The IEEE Foundation surpassed its US\$30 million goal for the **Realize the Full Potential of IEEE** Campaign. More than 15,000 donors contributed to the Campaign. Its aim was to raise awareness of IEEE initiatives that address pressing global challenges such as access to the Internet, reliable electricity and education programs for science, technology, engineering and math. We proudly announced this achievement before the end of 2020 and are excited to have you celebrate and continue the momentum into this year. Our sincere gratitude to all of the donors, supporters and volunteers for helping us achieve this ambitious goal and make major impacts throughout IEEE and within the four pillars where your philanthropic support makes impacts: Illuminate, Educate, Engage and Energize.

"The depth of the philanthropic support the campaign garnered was tremendous. I, and the IEEE Foundation Board of Directors, are grateful for your generosity and support, especially during this particularly challenging year," said IEEE Foundation President John R. Treichler. Let's continue to realize our full potential—and make an impact—for years to come. ■



Take a Tour of the New Website for IEEE Spectrum and The Institute at spectrum.ieee.org
The new website has been designed to give members a personalized experience.

IEEE Foundation

As the philanthropic partner of IEEE, the IEEE Foundation inspires an engaged community and leverages the generosity of donors to enable IEEE programs that enhance technology access, literacy, and education and supports the IEEE professional community. The IEEE Foundation works across IEEE to invest in more than 200 IEEE programs that bring the promise of technology, and the knowledge to use it, to the world. We categorize the IEEE programs supported by your donations under four main topics: Illuminate, Educate, Engage and Energize, though their benefits actually span multiple categories.

The IEEE Foundation, a tax-exempt 501(c)(3) organization in the United States. Charitable contributions to the IEEE Foundation are tax deductible to the fullest extent allowed by law in the United States. For other countries, please check with your local tax advisors.



2021 IEEE Foundation Board of Directors

John R. Treichler, *President*

Ralph Ford, *1st Vice President /Vice President, Development*

Marko Delimar, *Vice President, Programs*

Fred Mintzer, *Treasurer*

David G. Green, *Secretary*

Directors-At-Large

Alex Acero

John D. McDonald

Jerry L. Hudgins

Nita Patel

Teck Seng Low

Sarah A. Rajala

Francisco Martinez

Ex-Officio Members

Janina Mazierska, *Chair, IEEE History Committee*

Karen Panetta, *Chair, Awards Board*

T. Scott Atkinson, *Chair, IEEE Life Members Committee*

David H. Whyte, *Chair, IEEE Canadian Foundation*

Ronald Jensen, *IEEE-Eta Kappa Nu Board of Governors*

IEEE Foundation Professional Staff

Karen A. Galuchie, *Executive Director/Assistant Secretary*

Richard Allen, *Senior Manager, Development Operations and Annual Giving*

Patricia Cats, *Development and Operations Specialist*

Michael Deering, *Senior Development Officer*

Daniel DeLiberato, *Development Officer*

Cynthia Dent, *Senior Accountant*

Michael Heelan, *Manager of Accounting Foundation & Grants*

Karen Kaufman, *Senior Manager, Communications*

Chris Wright, *Programs and Governance Manager*

Lauren Young, *Donor Relations & Annual Giving Specialist*

IEEE prohibits discrimination, harassment and bullying.
For more information visit ieee.org/nondiscrimination.



Learn: ieeefoundation.org

Like: facebook.com/IEEEFoundation

Donate: ieee.org/donate

E-Mail: donate@ieee.org

Follow IEEE Foundation



IEEE Foundation
445 Hoes Lane
Piscataway, NJ 08854-4141
USA

