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## Gratitude: A Tribute to IEEE Foundation Volunteers and Donors

In September, on World Gratitude Day, the IEEE Foundation took the opportunity to reflect with deep gratitude on the kindness and generosity of the thousands of donors and volunteers helping to expand the IEEE body of work across the globe, transforming the lives of over 700,000 people in 2023.

The IEEE Foundation's core values—Integrity, Excellence, Collaboration, and Stewardship—come to life through the tireless work of our volunteers and the generosity of our donors. Their efforts through IEEE programs foster innovation, support education, and champion humanitarian efforts. Gratitude is deeply embedded in these endeavors, serving as both a driving force and a reflection of our shared successes.

**Ralph Ford, IEEE Foundation President:** "The successes of our donor-funded projects are a testament to the power of our donors' generosity and the transformative impact we can achieve together."



### Fostering Innovation



**Ryan Bales, President, IEEE-HKN:** "I have spoken with many recipient chapters at the annual Student Leadership Conference; they are always incredibly grateful for the support, and enthusiastically share stories of how philanthropic funds helped them grow as a chapter, establish new traditions, and increase participation. The impact of each individual's contribution is amplified by the support of the team. The magnitude of what we're able to accomplish as a group is inspiring to me."

### Supporting Education



**Dr. Rabab K. Ward, Vice President, IEEE Educational Activities:** "I am so incredibly grateful when I see all of the grants go to fund the projects from students and IEEE volunteers. Young people make a difference and inspiring them can change our world."



**Rajendra K. Asthana, Chair, IEEE Life Members Committee:** "IEEE is grateful to donors for their support. Your contributions enabled vital projects like the TryEngineering IEEE STEM Outreach Program, providing resources, scholarships, and hands-on experiences in engineering and technology."

### Championing Humanitarian Efforts



**Tom Coughlin, 2024 IEEE President:** "IEEE Smart Village helps people to be more productive and better informed, enables better education for the children, improves access to healthcare and other services, and generally helps make them part of the worldwide empowered community." This transformative work would not be possible without the generosity of those who believe in the power of technology to change lives.

### Stories of Impact: Gratitude in Action



**Stephanie Gillespie, Chair, EPICS in IEEE:** "When visiting multiple EPICS in IEEE project sites, I have heard from students regarding the learning they do, which builds empathy and professionalism. These are skills every student should have the opportunity to develop, and it is because of donors to the IEEE Foundation that EPICS in IEEE is able to provide these opportunities."



**Celia Shahnaz, Chair, IEEE Women in Engineering Committee:** "The IEEE Women in Engineering Family Cares Grant Program not only empowers professionals in technology but champions inclusivity by recognizing and supporting the diverse caregivers within the global community."

### Thank You

Thank you to all who support the IEEE Foundation. Your contributions make a world of difference. Together, we can continue to deliver opportunity, innovation, and impact across the globe.

To read more about your impact, please visit [ieeefoundation.org/impact](https://ieeefoundation.org/impact). ■

# Boston Students Making Hearing Testing Accessible in Guatemala with EPICS in IEEE and the Jon C. Taenzer Memorial Fund



Hearing loss is a prevalent issue, one that can impact very young children in the early stages of development who are unable to communicate the issue. Without adequate hearing testing, children can potentially experience developmental delays in areas such as speech, social development, and academic performance. The lack of affordable access to hearing tests and screening makes it very difficult for families to ensure the hearing health of their babies, especially in Guatemala, where 400,000 babies do not have access to screening, and thus are prone to experiencing these difficulties.

With the help of a US\$5,950 grant from EPICS in IEEE, a team of students at Franklin W. Olin College of Engineering, Needham, MA, USA and Babson College, Wellesley, MA, USA have collaborated through their joint Affordable Design Entrepreneurship program to create a device to make a difference.

## Sonrisas Que Escuchan: Smiles that Listen

To successfully complete this project, the university team worked alongside the non-profit, Sonrisas Que Escuchan, and their director, Dra. Patricia Castellanos, based out of Guatemala. "The idea is that this device could be produced and used in countries like mine where we have few audiologists, but we are working on baby screenings. The equipment cost is insane, and the default language is mostly English. It's not easy for people that do not speak English to get used to the equipment." The device that the university team is creating hopes to close this barrier, and ensure people from all areas of the globe have access to this type of audiological healthcare. "We wanted to make something user-friendly to make it more accessible to other countries."

The engineering students displayed empathy and professionalism in their work with Dra. Castellanos and Sonrisas que Escuchan. Dra. Castellanos explains, "We face issues in Guatemala that may not be experienced in the US. It can be difficult for students who have not worked in our country to see what our difficulties are, and how limited things can be working in the hospital, especially financially and with limited access to certain equipment. But with these students, they are listening."

## A Rewarding and Educational Experience

The team has learned a lot creating this project, even getting to travel and attend a conference with their prototype. Andrew Chang, a student at Olin College, described his experience, "We got to go to a conference last semester called the CGHH conference [Coalition for Global Hearing Health] that was held in Los Angeles. We got to interview audiologists from all across the world and other audiological professionals and that was an exhausting but very rewarding trip." The team received feedback on their prototype, and interviewed audiologists to gain knowledge from their expertise in the field. What they learned helped to improve their prototype and get even closer to delivering a new step in audiological health care.



*Andrew Chang (right) conducts a usability evaluation of several hearing screening device prototypes with audiologist Titus Ibekwe (left) at the Coalition for Global Hearing Health meeting*

The team recently applied for additional funding from EPICS in IEEE for year two of their project. In year one, the team focused on the feasibility of getting a standalone system to work, in year two they will focus on making a standalone system that is safe and effective enough to use with humans.

The funding for this project was made possible by the Jon C. Taenzer Memorial Fund established by the IEEE Foundation in 2019 with a generous bequest from the Estate of Mr. Taenzer, an IEEE Life Senior Member. The fund supports Mr. Taenzer's wish of providing breakthroughs in aid for people with disabilities.

For more information on EPICS in IEEE, visit [epics.ieee.org](https://epics.ieee.org). Interested in helping EPICS in IEEE expand its reach and support more worthy projects? Contact Danny DeLiberato, CFRE at [d.deliberato@ieee.org](mailto:d.deliberato@ieee.org), call him at +1.732.562.5446, or make a gift online by scanning this QR code. ■



# IEEE TryEngineering STEM Grants Make an Impact in Developing Countries Across the Globe



This year the **IEEE TryEngineering STEM Grants Program** awarded more than US\$61,000 to 53 volunteer-led programs for pre-university outreach activities. A global effort, the call for proposals garnered applications from nine of the ten IEEE regions, including submissions from Germany, Hong Kong, India, Indonesia, Malaysia, Sri Lanka, and Uganda.

A team of IEEE Members involved in pre-university outreach programs, including STEM Champions and the 2024 Pre-university Education Coordinating Committee (PECC), reviewed 462 submissions using a criteria-based rubric. The successful proposals funded a wide range of activities, from robotics workshops and career explorations, to programming and cybersecurity. Highlighted below are just two of the **many funded projects**:

## ***The ConnectXperiece: the Journey into the World of IoT,***

a proposal submitted by the IEEE Education Society and the IEEE Education Society Region 10 Young Professionals AdHoc, brought experiences to high school students over a four day period in various locations. Each session provided students with hands-on experiences in programming using Arduinos and using sensors to collect data.

## ***Innovate Ed: Fostering Innovation Through Project Expos,***

a proposal submitted by the IEEE Signal Processing Society Bombay Section Chapter, hosted a series of events in which brilliant students designed and presented innovative projects across various STEM fields, including robotics, renewable energy, artificial intelligence, and environmental sustainability.

More than 90% of the 2024 STEM grants were awarded to proposals for projects that are taking place in developing countries. These projects were funded in part by the Jon C. Taenzer Memorial Fund with the IEEE Foundation, continuing the Jon C. Taenzer Estate's wish to provide support for developing countries. This generous funding was supplemented by support from IEEE society partners including the IEEE Communication Society, IEEE Oceanic Society, IEEE Signal Processing Society, IEEE Women in Engineering, and IEEE Educational Activities.



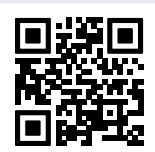
*Students at the Atal Tinkering Lab in Narasaraopet, Andhra Pradesh, India buzzed with excitement*



*Students at the Suchitra Academy International School in Hyderabad, India, are beaming with pride as they are recognized for their winning projects*



Since the launch of the IEEE TryEngineering STEM Grant program in 2021, US\$176,000 has been awarded to 144 programs in more than 40 countries. For more information about TryEngineering, visit [tryengineering.org](https://tryengineering.org) or to make a donation, please scan this QR Code. ■



# First IEEE Smart Village Initiative in China Commissioned: Dacheng Energy Rural Photovoltaic-Thermal Heating



IEEE Smart Village (ISV) is pleased to report that the first ISV initiative in China has been commissioned! This project was funded through the generosity of an onsemi grant. The Dacheng Energy Rural Photovoltaic Power-Heating pilot in Changzhi, Shanxi Province, China is fully operational. This initiative has set up a community enterprise to provide sales, installation, and service to replace the use of coal for heating homes and businesses in rural China. After a strict selection process, the team adopted PhotoVoltaic/Thermal (PVT) Heating technology developed by Nanjing Liangao New Energy Technology Co.

The PVT system combines both electricity generation and heat collection. The PV integrated collector absorbs the heat from the PV cells for domestic hot water or heating and, at the same time, reduces the temperature of the PV module and enhances the PV power generation. The integrated solar energy utilization rate of the system can reach more than 60%.

The PVT system has many advantages such as non-pollution, a short construction cycle, simple maintenance, high energy quality, good stability, long service life, improved solar energy utilization, and it is not restricted by geographical distribution resources.

During the commissioning of the facility, the company's technicians trained the villagers of Changzhi to install and maintain the photovoltaic photothermal integration PVT heating system. In addition to providing the village with clean electricity and heating, this project also helps in reducing the cost of living, stimulating commercial creative thinking, and accelerating the process of green energy development through training in the community.

"We are proud to have provided clean energy solutions to the IEEE Smart Village in Changzhi and empowered its members through education and skill development. By fostering sustainable practices and entrepreneurial spirit, we are creating a brighter, more resilient future for rural communities," shared Vanessa Davis, Global Community Engagement Program Manager at onsemi.

This project in Changzi is just one of many life-changing projects IEEE Smart Village sponsors in all parts of the world. ISV invites you to be part of its transformative journey. Together, we can nurture local enterprises, harness technology, and ignite change in underserved communities worldwide. Learn more about ISV's impactful initiatives at [smartvillage.ieee.org](https://smartvillage.ieee.org).

Interested in supporting IEEE Smart Village's mission? Contact Michael Deering, Sr. Development Officer, at [m.deering@ieee.org](mailto:m.deering@ieee.org) or +1.732.562.3915. Thank you for your generosity and help! ■



Integrated "57kW Photovoltaic and Thermal" heating system for office/industrial building



Scan the QR code to support IEEE Smart Village



## #IEEE GIVING TUESDAY

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# Winner of 2024 IEEE Medal in Power Engineering Award Inspired to Donate Cash Prize



Professor Deepakraj (Deepak) Divan was named the recipient of the **2024 IEEE Medal in Power Engineering** for his outstanding contributions to the technology associated with the generation, transmission, distribution, application, and utilization of electric power for the betterment of society.

"I feel it is a distinct honor to have been selected to receive the IEEE Power Medal, a recognition from IEEE and my peers on the contributions and impact my work has had in the field of energy," reflects Divan.

He was notably recognized for his contributions to advanced power conversion technologies for the modern electric power grid. Deepak focuses on the challenges of the ongoing energy transition driven by steeply declining prices of new technologies such as photovoltaic solar, electric vehicles, energy storage, and green hydrogen.

Congruent to his awarded work, Divan and his wife, Anu Divan, have chosen to donate a portion of the medal's cash prize to the IEEE Foundation to support the Empower A Billion Lives (EBL) program which recently launched the 2025 challenge (see below for more information). EBL, an IEEE Power Electronics Society (PELS) initiative, is a global competition that Divan led as a volunteer for several cycles.

"I believe in the transformational potential that technology offers, especially for those who have been left behind," Divan shares. "Energy is fundamental to almost everything that we as humans need, and access to energy is a key enabler."

Divan joined the IEEE in 1976, shortly after he graduated from the Indian Institute of Technology Kanpur in India with his B. Tech. He pursued his M.S. and Ph.D. at the University of Calgary in Canada. He believes his IEEE membership has provided the foundation for his professional career, giving him a global community of talented people to collaborate and accelerate the development and dissemination of knowledge.

His passion for the EBL program mirrors this emphasis on holistic thinking and knowledge sharing. EBL arranges teams from several countries to act as 'think tanks' and work together to improve access to sustainable power and electricity. The idea is to use technology as the common thread between the local teams and allow them to learn from one another, accelerating growth on a global scale.

"The most inspiring moments have been those spent with the teams, being a part of a difficult journey where they develop and demonstrate their solutions in real-world conditions," Divan recounts. "To see the passion and commitment of these teams, from across the globe, has been truly inspiring."

Divan is currently the director of the Center for Distributed Energy at Georgia Tech University. And recently co-authored the book **Energy 2040 – Aligning Innovation, Economics and Decarbonization** with Suresh Sharma. ■



Professor Deepakraj (Deepak) Divan and his wife, Anu Divan

## Join the Challenge: Empower a Billion Lives 2025



Empower a Billion Lives (EBL) 2025, an IEEE Power Electronics Society (PELS) initiative, is not just a competition, it's a movement to create transformative solutions that tackle energy poverty head-on. This global biennial competition is aimed at crowdsourcing scalable solutions to bring energy access to millions around the world.

EBL 2025 is seeking passionate, enthusiastic, and talented individuals and teams to join the challenge. The competition is open to student teams, small and medium-sized companies, research labs, international corporations, and non-profit organizations. Learning opportunity: Learn about one of the most pressing issues facing humanity from experts in the field.

Complete competition guidelines, resources, and requirements can be found here: [empowerabillionlives.org/compete](https://empowerabillionlives.org/compete). ■



Scan the QR code if you would like to make a donation to support EBL.

# Meet the 2024 IEEE Presidents' Scholarship Winners



The IEEE Presidents' Scholarship, initially awarded in 1999 and celebrating its 25th Anniversary, recognizes deserving students for an outstanding project that demonstrates an understanding of electrical engineering, electronics engineering, computer science, or other IEEE fields of interest. The winners are selected annually by a group of IEEE member judges from students presenting projects at the Regeneron International Science and Engineering Fair.

## Meet the 2024 winners:

Angelina Kim, a senior at the Bishop's School in La Jolla, CA, USA won this year's IEEE Presidents' Scholarship, a US\$10,000 scholarship payable over four years of undergraduate university study. Kim was recognized for her Autonomous Unmanned Aerial Vehicle (UAV) System for Ocean Hazard Recognition and Rescue: Scout and Rescue UAV Prototype. The autonomous UAV lifeguard system consists of two types of drones: a scout craft and a rescue craft. The scout drone surveys approximately 1 kilometer of shoreline, taking photographs and analyzing them for rip currents, which can be deadly to swimmers. If the scout drone detects a swimmer in distress, it then summons the rescue drone to drop a flotation device outfitted with a heaving rope to help pull the swimmer to shore. Kim plans to study electrical or mechanical engineering in college.

The second-place prize of US\$600 went to Sahiti Busulu, a senior at Basis Independent High School in Fremont, CA, USA. Busulu's project, Carbonflux Network, a sensor node designed to get more data in the transfer of carbon dioxide between the atmosphere and the physical environment, the ecosystem carbon exchange. Bulusu plans to pursue a degree in computer science or environmental science. Whatever field she chooses, she says, she wants to improve the environment with the technology she creates.

The third place prize of US\$400 went to Xiangzhou "Jonas" Sun, a senior at the Webb School of California, in Claremont, CA, USA. Sun's project is a mobile application called Gaze Link. The low-cost smartphone app uses eye-gesture recognition, AI sentence generation, and text-to-speech capabilities to allow people with disabilities linked to ALS to use their phone's front-end camera to communicate. Gaze Link now works with three languages: English, Mandarin, and Spanish and is available through Google Play. Sun says he plans to use his engineering know-how to help people with disabilities.

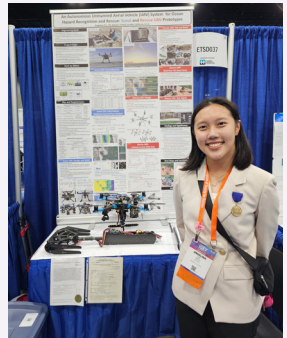
The 25th anniversary award, in the amount of US\$1,000, was given to Abishek Shah, a senior at Green Level High School in Cary, NC, USA, for his AuralStudio development environment. Shah's Aural Studio allows programmers with a visual disability to write, build, run, and test prototypes by eliminating the need for a keyboard and mouse in favor of a custom control pad. It includes a voice-only option for those who cannot use their hands.

The IEEE Foundation has partnered with IEEE Educational Activities to present this prestigious Scholarship since 1999. Donations to the IEEE Presidents' Scholarship Fund of the IEEE Foundation ensure the continuity of support for the IEEE Presidents' Scholarship.

Learn more: <https://www.ieee.org/education/preuniversity/scholarship.html>. Motivated to help increase the prizes for the IEEE Presidents' Scholarship? Contact Eileen R. Heltzer, CFRE at [e.heltzer@ieee.org](mailto:e.heltzer@ieee.org), call her at +1.732.799.4431.

This article is an edited excerpt of the "Meet the Teens Whose Tech Reduces Drownings and Fights Air Pollution" article published in *The Institute* on 9 September, 2024. ■

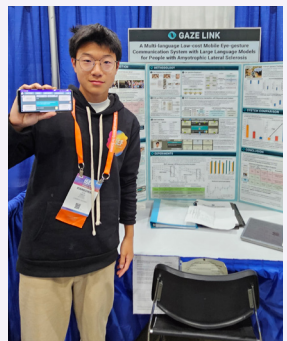
## Our 2024 Presidents' Scholarship Winners



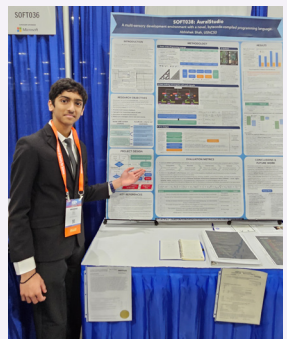
Angelina Kim



Sahiti Busulu



Xiangzhou "Jonas" Sun



Abishek Shah

# Pre-university Educators Find Value in the Versatility of IEEE REACH



Educators understand that there is an interconnectedness between STEM and other disciplines, and they recognize that interdisciplinary approaches in education are essential for real-world learning and problem-solving. **IEEE REACH**, a free open education resource, provides pre-university STEM (science, technology, engineering, and mathematics) and social studies educators with the versatile, interdisciplinary resources they need to make these types of connections come alive in the classroom.

The value of the multifaceted REACH resources is evident when teachers experience the program for the first time. At recent conferences showcasing these resources, educators shared their appreciation for the free and easily accessible inquiry based lesson units.

Melissa Solis, Social Studies Specialist in Austin, TX, USA, was recently introduced to the REACH resources at the REACH exhibit during the 103rd National Council for the Social Studies annual conference held at the end of 2023 in Nashville, TN, USA. She shared that finding REACH at the conference was invaluable, "As an educator, I'm constantly seeking ways to emphasize the interdisciplinary essence of social studies. The resources provided by IEEE REACH are not just ready to implement, but they also empower students to cultivate connections through inquiry, thereby transforming learning into a dynamic and enriching experience...It [REACH] aligns perfectly with our goal of enhancing students' conceptual understanding of the interconnectedness of our world."

In March 2024, at the International Technology and Engineering Educators Association's (ITEEA) annual conference, Kelly McKenna, IEEE REACH Senior Program Manager and Tony Maccarella, IEEE REACH Education Consultant, presented an interactive session featuring the Skyscraper Inquiry Unit, one of REACH's ten available units. STEM educators had the opportunity to participate in a REACH hands-on activity and experienced REACH content for the first time. Through the lens of history, the educators in attendance explored the social influences on the origins of the skyscraper, as well as its subsequent impact on society.

## About IEEE REACH

IEEE REACH, a program of the IEEE History Center, delivers free, interdisciplinary curriculum resources that help pre-university educators teach technological literacy through STEM and social studies education. The resources include: ten Inquiry Units which are inquiry designed lesson plans based on the C3 (College, Career, Civics) Framework, Primary and Secondary sources, Hands-on-activities, Multimedia sources (video and audio), background information for teachers, and additional resources. Explore all the resources REACH has to offer by visiting the website at [reach.ieee.org](https://reach.ieee.org).

Excited to help bridge the technological literacy gap by bringing the history of technology alive in the classroom? Contact Danny DeLiberato, CFRE at [d.deliberato@ieee.org](mailto:d.deliberato@ieee.org), +1.732.562.5446 or make a gift online at [www.ieee.org/donate](https://www.ieee.org/donate) and select IEEE REACH from the drop-down menu. ■



*Teachers at the ITEEA annual conference try the Skyscraper hands-on activity which challenges students to design and build a structure as tall as possible using the supplies provided*

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# IEEE-HKN Celebrates 120 Years: Honoring the Past and Looking to the Future



In 1904, the vision of the HKN founders, Maurice Carr and nine fellow students at the University of Illinois, was to promote the highest ideals of the engineering profession. They could not foresee the vibrant, global society that HKN would become, with over 279 university chapters around the globe helping over 200,000 inductees achieve professional growth and success along their entire career journeys.

As IEEE-HKN celebrates its 120th anniversary, the dynamic nature of the honor society is demonstrated by its welcoming of six new chapters this year as well as the offering of an alumni-graduate student mentoring program. This growth has been made possible with the generosity and vision of HKN donors through the Chapter Success Initiative which enables HKN to support new and dormant chapters and chapter leaders as well as its annual Student Leadership Conference.

In recognition of its 120th Anniversary, IEEE-HKN is holding special events throughout the year, including the first ever International Hackathon with students from around the world competing to solve engineering problems for both prizes and bragging rights and a virtual Fireside Chat with HKN Eminent Members, Vint Cerf and Bob Kahn, hosted by Karen Panetta, 2019 HKN President. HKN alumni have also been gathering at IEEE events across the United States and Canada during the year, including SoutheastCon Region 3 Conference in Atlanta, GA, USA, IEEE Life Members Conference in Austin, TX, USA, IEEE International Conference on Communications in Denver, CO, USA, the IEEE Power & Energy Society General Meeting in Seattle, WA, USA, IEEE World Safety Forum in Washington D.C., USA, and at the June IEEE Meeting Series in Toronto, Canada.

As has been the case for over 120 years, IEEE-HKN's success is made possible by the commitment of its volunteers and donors who give their time and expertise to nurture the next generation of engineering professionals, positioning them to solve humanity's largest challenges. Matteo Alasio, HKN alumni member and former President of the Mu Nu chapter at the Politecnico Di Torino in Turin, Italy shares, "My favorite part of being an HKN member is the sense of community. Being part of a big family that works together to help students and promote professional development is incredibly fulfilling. It's inspiring to collaborate with others who are dedicated to making a positive impact."

Maybe Maurcie Carr could not foresee all the ways in which HKN would grow to support its students and the engineering profession, but he certainly set the stage stating, "Eta Kappa Nu grew because there have always been many members who have been willing and eager to serve it loyally and unselfishly." ■

Scan the QR code for a listing of all the 120th Anniversary events and to see a timeline of IEEE-HKN's proud history.



IEEE-HKN current and former board members cut the cake at the 2024 Life Members Conference in Austin, TX, USA



IEEE-HKN Alumni celebration at the 2024 SouthEastCon in Atlanta, GA, USA



Gamma Theta Chapter celebrating IEEE-HKN Founders Day in 2023



# Direct Philanthropy and Scholarships: A Virtuous Cycle

By John D. McDonald, *IEEE Foundation Vice President of Development, IEEE Life Fellow, National Academy of Engineering Member, CIGRE Honorary Member, Founder/CEO, JDM Associates, LLC, Duluth, GA, USA*

As an IEEE Foundation Director and Vice President of Development, it is with great pleasure that I share the following, real-life example of philanthropy and its practical impact on a deserving student. This account holds valuable lessons for current and future donors, for students, and others who may benefit, and it underscores the value of the Foundation and its dedicated staff and volunteers.

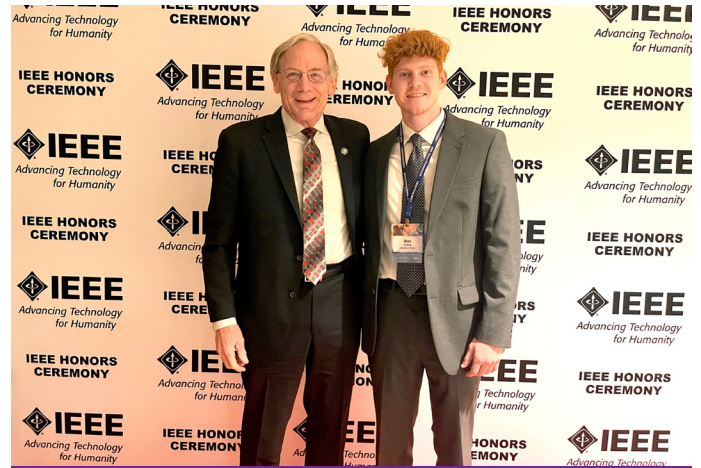
Every year, IEEE presents its most prestigious awards at the [IEEE Vision, Innovation, and Challenges \(VIC\) Summit & Honors Ceremony](#). This event also hosts the [IEEE Knowledge Alliance](#), a mentor-mentee program that matches career professionals with undergraduate students seeking guidance in educational opportunities, career development, volunteering, and leadership.

In April 2023, the Knowledge Alliance matched me with an undergraduate from the University of Florida named Max Petlick. Ahead of meeting in person at VIC, I reached out to Max for a get-acquainted, online chat. Listening to Max, I immediately recognized that he had a budding interest in power and energy, yet he was not yet acquainted with the [IEEE Power & Energy Society \(PES\)](#). As past president of PES (2006-07) and a 53-year IEEE member, I provided Max with the basics, as well as apprising him of the IEEE PES Scholarship Plus program.

When we met at VIC 2023, I appreciated his initiative and willingness to work hard for his goals, as well as his interest in a mentoring relationship. Max was quick to recognize the value of IEEE and PES membership, and he set out to establish a PES student chapter at the University of Florida, Gainesville, FL, USA. He applied for and won a 2024 PES Scholarship Plus Initiative scholarship, was named a Hoveida Scholar and landed a summer internship at JEA (Jacksonville Electric Authority), his hometown municipal utility. Max is a go-getter and we've spent the past year as mentor and mentee at his behest talking about his interests, questions, and direction.

This last point is important for students and young professionals who may read this: you drive the mentor-mentee relationship. I suggest would-be mentees review my recent article, "The Mentor and the Mentee: A Little Philosophy, Lots of Practical Advice," on the IEEE-USA InSight website.

This story addresses the value of the philanthropy that drives the IEEE Foundation and IEEE's many programs for students. In Max's case, the IEEE PES scholarship he won was funded by the Hoveida Family Foundation, whose focus is education and science, established by my long-time colleague and friend, Bahman Hoveida.



*John D. McDonald (left) IEEE Foundation Director and Vice President of Development with Max Petlick (right), Hoveida Scholar, at the 2023 IEEE Vision, Innovation, and Challenges (VIC) Summit & Honors Ceremony*

This year the IEEE Foundation hosted a virtual meet-and-greet, which I moderated, between students who had won a 2024 scholarship and Bahman Hoveida. This event offered the students an opportunity to interact with and learn directly from a successful professional. I was gratified to see Max meet Bahman – the questing student and the successful entrepreneur – exploring each other's world to mutual benefit.

There's no greater feeling as a mentor than to use your experience to help others achieve their own success. When a student or young professional meets challenges, accomplishes achievements or simply clarifies their professional and personal path – and they tell you they couldn't have done it without your help – that can provide a higher reward than your own successes. Never forget the help and support others provided in your own career and success. In my own perspective, donating and mentoring represent excellent opportunities to give back and pay forward. ■

# IEEE Milestones Program Celebrates 40th Anniversary



The IEEE Milestones Program honors significant technical achievements in all areas associated with IEEE: Engineering, Computer Sciences and Information Technology, Physical Sciences, Biological and Medical Sciences, Mathematics, Technical Communications, Education, Management, and Law and Policy. This program is one of the most visible ways IEEE educates the public about the technological achievements in its fields of interest. All IEEE Milestones recognize the technological innovation and excellence for the benefit of humanity found in unique products, services, seminal papers and patents – honoring the achievement rather than a place or a person.

The IEEE Milestones Program began with an April 1983 proposal by Dr. Friedel, the IEEE History Center's first director, for establishing a program for designating significant achievements in electrical engineering and computing. Previous to that, IEEE collaborated with ASCE and ASME in joint landmarks designated by those organizations.

In October 1984, the IEEE Board of Directors approved the first two IEEE Milestones: Hearts Content and Signal Hill.

To date, IEEE has dedicated more than 250 Milestones. (For a full list, visit [ethw.org](http://ethw.org).) Among the recently dedicated IEEE Milestones are: Google's PageRank Algorithm, Ethernet, TCP/Internet, the A-O Compiler work by Grace Hopper, the semiconductor laser, 193-nm photolithography, and the IEEE 802 standard. IEEE Milestones have been dedicated in all ten IEEE regions, and dedications sometimes take place over multiple locations. In 2023, 40 plaques (20 in English, 20



*Milestone dedication of the A-O Compiler and Initial Development of Automatic Programming, 1951-1952. Pictured: Vijay Kumar (Nemirovsky Family Dean of Penn Engr.), Laura Stubbs (Sr. Dir. of Penn Engr. Office of Diversity), Rear Admiral Michael Richman (US Navy Deputy Commander for Cyber Engr.), Kate McDevitt (Philadelphia Section Vice Chair), Kathleen Kramer (IEEE 2024 President-Elect), André DeHon (Prof. of Electrical & Systems Engr.)*

in French) were placed in 20 locations across Canada for the Trans-Canada Microwave System. (This accounted for the casting and shipping of almost half a ton of bronze plaques.)

The Milestone Program is overseen by the IEEE History Committee, administered through the IEEE History Center [ieeefoundation.org/about/history-center](http://ieeefoundation.org/about/history-center), and partially funded with donations to the IEEE History Center Fund of the IEEE Foundation. ■

## Interested in proposing a Milestone?

Scan the QR Code for more information.



- Milestones are proposed by any IEEE member, and are sponsored by the IEEE section(s) where the plaque(s) will be placed.
- Any IEEE organizational unit (societies, student branches, etc.) may cosponsor milestone proposals in their technical field.
- To be proposed as an IEEE Milestone, an achievement must be at least twenty-five years old, have benefited humanity, and have had widespread geographic importance.
- Each approved Milestone is recognized with a dedication ceremony and a carefully crafted bronze plaque.

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[ieeefoundation.org/monthly](http://ieeefoundation.org/monthly)



# Dr. Mani L. Bhaumik: The Pioneer Behind the IEEE Jagadish Chandra Bose Medal in Wireless Communications

By Tanya Steinhauser, Senior Digital Marketing and Communications Specialist, IEEE Awards

 In the realm of wireless communications, innovation and excellence are paramount. **The IEEE Jagadish Chandra Bose Medal in Wireless Communications**, the newest of IEEE's highest level award portfolio, will stand as a shining testament to those who have made remarkable contributions to this field. And behind this esteemed award lies a remarkable individual whose generosity and vision have paved the way for honoring the brightest minds in the wireless communications industry – IEEE Life Fellow, Dr. Mani Bhaumik.

"Wireless Communications holds a very special meaning not just for me but for all of humanity," said Bhaumik. "Today, it is hard to imagine the functioning of our global technological society without this very essential element. From ubiquitous GPS guidance to billions of personal cell phones and the impending wireless internet soon to be available everywhere on our planet, the functioning of human life is unimaginable without wireless communication."

## The Story of a Visionary

A renowned physicist and philanthropist, Dr. Mani Bhaumik has long been a trailblazer in the world of science and technology. Born in a remote village in India, Bhaumik overcame immense odds to pursue his passion for knowledge. His journey took him from the fields of rural Bengal to the hallowed halls of academia in the United States, where he made groundbreaking discoveries in laser technology that revolutionized the field. Bhaumik became an IEEE Life Fellow in 1982 for contributions to the research and development of high-energy lasers and new laser systems.

## A Gift that Inspires Innovation

Dr. Mani L. Bhaumik made a generous donation to the IEEE Foundation to establish the IEEE Jagadish Chandra Bose Medal in Wireless Communications. Named after the legendary Indian scientist who pioneered wireless communication, this Medal, presented by the IEEE Board of Directors, aims to honor individuals who have made significant advancements in the field, pushing the boundaries of what is possible, and inspiring future generations to innovate.

"J.C. Bose was the indisputable pioneer of millimeter wavelength technology almost a century ago, with a US patent to boot," explains Bhaumik. "However, the pioneering work of this unsung hero has not received appropriate recognition. My humble effort in establishing the foundation to fund the IEEE Jagadish Chandra Bose Medal in Wireless Communications is a sincere attempt to epitomize his invaluable contribution."

Dr. Bhaumik says that another motivation was that his own professor and mentor, S.N. Bose (known for developing the theory of Bose-Einstein statistics) was one of J.C. Bose's students.



Dr. Mani L. Bhaumik (right) received his IEEE Heritage Circle, Alessandro Volta Level, Honored Philanthropist, certificate from IEEE Past President Saifur Rahman (left)

## Celebrating Excellence in Wireless Communications

The IEEE Jagadish Chandra Bose Medal in Wireless Communications serves as a beacon of excellence, recognizing those who have dedicated their careers to advancing the field. From groundbreaking research to innovative technologies, recipients of this prestigious award will embody the spirit of innovation and discovery that defines the world of wireless communications.

The first recipient of the award will be announced this December and the medal will be presented for the first time during the 2025 IEEE Honors Ceremony in Tokyo, Japan.

Visit the IEEE Awards website at [corporate-awards.ieee.org](https://corporate-awards.ieee.org) to learn more. ■



Scan the QR code if you are interested in following in Bhaumik's footsteps. You too can donate to the IEEE Awards program.

# IEEE Heritage Circle: Our *Honored Philanthropists* Provide a Circle of Impact

**The IEEE Heritage Circle**, the cumulative giving donor recognition program of the IEEE Foundation, acknowledges the philanthropic spirit of those who have given back to IEEE throughout their career and lifetime. The IEEE Foundation designates each donor as an esteemed "*Honored Philanthropist*," recognizing their generosity to the IEEE Foundation. These generous donors help fund the donor-supported programs that take the necessary steps to provide progress and change by applying engineering and technical advances. They connect brilliant innovators to advance technological initiatives that promote growth, sustainability, and new ways to empower communities, ultimately aiming to create a better world for all.

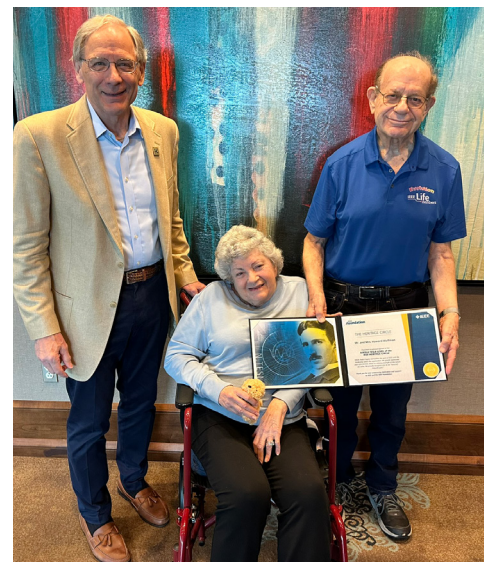
Giving levels in the Circle start at a cumulative US\$10,000 donation and continue through the US\$5,000,000+ giving level.

In 2023, the IEEE Foundation welcomed 44 new *Honored Philanthropists*, bringing the total membership to 370. Additionally, 27 members were elevated to a higher level due to their generous giving.

"We are delighted to see continuous progress in the growth of the number of donors recognized through the Circle and remain steadfast in our commitment to encourage investment in IEEE social impact programs, at all levels of giving, as our donors are what makes the future we strive for possible," shared Karen A. Galuchie, IEEE Foundation Executive Director.

If you are interested in becoming an *Honored Philanthropist*, contact the IEEE Foundation team at [donate@ieee.org](mailto:donate@ieee.org). ■

## ***Honored Philanthropists* receiving certificates recognizing their dedication to giving back to IEEE**



# How Your IRA Can Drive Impact with the IEEE Foundation

Did you know that IRA holders age 70½ and older can make Qualified Charitable Distributions (QCD – also known as an IRA Charitable Rollover) up to US\$105,000 per year (and up to US\$210,000 per year for married couples) from their IRA to the IEEE Foundation without having to count the transfers as income for United States federal tax purposes? For IRA holders age 73 and older, QCDs are eligible to be counted toward an individual's required minimum distribution!

As an IEEE supporter, you can use this strategy to maximize your philanthropic impact while reducing your taxable income. IEEE and the IEEE Foundation (both IRS recognized 501(c)(3) organizations) and any of its donor-supported programs can accept QCDs from most IRA providers. You can find more information needed to process your gift on our website at [www.ieeefoundation.org/ira](http://www.ieeefoundation.org/ira).

As a member of the Life Members Committee, Julian Bussgang realized how much IEEE relies on donations to fulfill its mission. Having reached his 70½ birthday, Julian had the opportunity to support the Foundation by giving through the IRA Charitable Rollover provision. He found it was "a wonderful and 'painless' way to make donations!"

Peter M. Silverberg, an IEEE Life Senior Member, calculates what the amount of IEEE Member Dues would be and sends that to the Foundation from his IRA as a QCD. This allows him to make QCDs without having to count the transfers as income for federal tax purposes, plus being that he is older than 73, it is eligible to be counted toward his minimum required distribution. According to Peter, "when I retired I lost all my workplace friends, but IEEE does not retire." Peter continued, "now I have a social-technical group of buddies."

Start by contacting your financial or legal advisor. Their answer will define your next steps. They may need information about the IEEE Foundation to initiate the transfer (see below for Legal Name and Tax ID number). Ask your IRA administrator about making a direct transfer to the IEEE Foundation, Inc. or have the administrator send a check from your account to us. To be tax-free, the donation must go directly from your account to the IEEE Foundation, Inc. without passing through your hands.

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Making a QCD is a powerful way to reduce your taxable income while making an impact on IEEE's philanthropic programs.

*The information in this article is for educational purposes only and is not intended as legal, tax, or investment advice. If you are considering a donation from your IRA, consult your tax and legal advisors to determine the best options for you. ■*



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# IEEE Foundation Happenings



*IEEE Foundation Vice President of Development, John McDonald, spoke with the IEEE-Eta Kappa Nu Beta Chapter at Purdue University, USA earlier this year. John has been a member of IEEE and HKN for more than 50 years.*



*Sarah Spurgeon, IEEE Foundation Director, represented and spoke about the IEEE Foundation during the IEEE Milestone Dedication Ceremony for the Cavity Magnetron 1939-1944 by the UK&I Section*



*Alex Acero, pictured right, IEEE Foundation Director, presented the 2024 IEEE Spoken Language Processing Student Travel Grant at the IEEE International Conference on Acoustics, Speech and Signal Processing in Seoul, Korea. The IEEE Foundation is proud to hold the funds that support this valuable initiative for students*



*Lorena Garcia, IEEE Foundation Director, presented an invited talk about the IEEE Foundation during the IEEE Latin American Electronic Devices Conference (LAEDC) 2024 in Guatemala. She also hosted a display table to help the attendees appreciate our role in the IEEE eco-system*

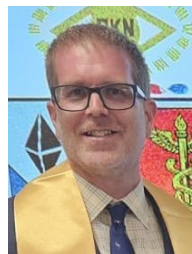
## Welcome to Our Newest Board Members

Philip Krein (left) and Saurabh Sinha (right) will become important additions to the IEEE Foundation Board beginning in January 2025. Join us in welcoming them.



## Meet Our 2025 Ex-Officio Board Members

The IEEE Foundation Board welcomes the following Ex-Officio Board members for 2025: IEEE Eta Kappa Nu (HKN) - Sean Bentley (left) IEEE Awards - Michael Peter Kennedy (right).



## Visit the IEEE Foundation's Upcoming Display Tables



- 15-16 Nov 2024 at the IEEE-HKN Student Leadership Conference in Charlotte, NC, USA
- 21-23 Nov 2024 at the IEEE Meeting Series in Dallas, TX, USA
- 21-23 Jan 2025 at IEEE PES Grid Edge in San Diego, CA, USA
- 13-15 Feb 2025 at the IEEE Meeting Series in Bellevue, WA, USA
- 16-20 Feb 2025 at the IEEE International Solid-State Circuits Conference (ISSCC) in San Francisco, CA, USA
- 26-30 Mar 2025 at IEEE SoutheastCon/IEEE Region 3 in Concord, NC, USA

## IEEE Foundation Philanthropic Workshop



In September, the IEEE Foundation presented the IEEE Foundation Workshop. There were 31 attendees (17 staff and 14 volunteers) representing 11 IEEE programs who came together for 1½ days to learn and strengthen collaboration. Thank you to our Workshop Committee, especially Sarah Rajala, Chair and Howard Michel, Past Chair; presenters from IEEE Spectrum, Educational Activities, the IEEE Foundation and IEEE Humanitarian Technologies; and the IEEE Foundation professional team, especially Eileen Heltzer and Andrea Ternyila. Pictured here, (L to R) Lorena García, IEEE Foundation Director and Workshop attendee with Workshop speakers Karen Galuchie, Deb Guilck, Sarah Rajala, John McDonald, Eileen Heltzer, Natalie Zundel, and Ananda Grant. Not Pictured is speaker Mark Montgomery, IEEE Spectrum.

## IEEE WIE Manga Stories Encourage Exploration of STEM



IEEE Women in Engineering (WIE) brings its readers stories about Riko-chan, the girl who solved everyday issues through STEM. These stories are a result of the Manga Story contest organized by IEEE WIE and IEEE Japan Council to bridge the gender gap and promote gender diversity. The stories are available not only to the IEEE members but also to the public and can be used as a tool to engage the younger generation in STEM activities, particularly girls, through IEEE WIE's 1,100+ Affinity Groups globally. Each issue is now available in 5 languages—English, Japanese, Spanish, Portuguese, and Simplified Chinese.

### 2024 Manga Contest – Winners Announced!

- Avengers of the Power Grid by Aditie Garg
- Riko-chan & the SmartMeds Box by Alba Benny
- Riko-chan & the Power of Wind Energy by Nazia Sultana
- Riko-chan & the Seismic Safety System by Lais C. Baptista
- Riko-chan's Furry Innovation by Elmira Ali Mohammadzadeh
- Riko-chan & the Smoke Filled Room by Carolyn Sher-DeCusati

Want to help WIE expand its pool of resources? Contact Eileen R. Heltzer, CFRE at [e.heltzer@ieee.org](mailto:e.heltzer@ieee.org), or call her at +1.732.799.4431. ■

### Riko-chan & Bruno: Barking Up the STEM Tree



**Scan the QR code now!**  
 Don't miss the issue featuring Bruno the IEEE Foundation Chief Canine!

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