

FOCUS

education | innovation | preservation

President's Perspective

IEEE member involvement with the IEEE Foundation is critical to the efforts to advance our profession, the work of IEEE, and the endeavors of engineering professionals worldwide. Building on the momentum of our 40th anniversary, we are forging even closer ties between the Foundation and IEEE. By strengthening the alignment of the goals of both organizations, the Foundation will continue to meet the social imperatives important to IEEE members.



I am pleased to announce that the IEEE Foundation is moving toward a much more focused approach to

fundraising and program support. The approach is strategically designed and will be executed in a way that strengthens organizational ties. At the heart of the new approach is the concept of Signature Programs. Signature Programs are IEEE-run public imperatives with which the Foundation will partner to proactively raise external philanthropic dollars. Each Signature Program must display proven success and fit within one of the Foundation's two Areas of Focus:

1. Education (including History)
2. Applying Technology for Social Impact/Innovation

These programs will be significant, have a broad impact, and will inspire people to connect with the Foundation and with IEEE.

A task force composed of both IEEE and IEEE Foundation Board members and professional staff are revitalizing the IEEE Foundation's mission and vision and exploring ways the two organizations can work together most effectively. The goal is to increase the impact of your donations and support programs that are, in the words of the IEEE's tagline, **Advancing Technology for Humanity**. We look forward to sharing our progress with you in the upcoming months.

The people served by IEEE Foundation programs thank all of you who have donated, making initiatives such as the ones highlighted in this newsletter possible. Please continue to support our efforts as

we continue our work to make the partnership between the IEEE and the IEEE Foundation even more effective. We appeal to you to donate generously now. Consider supporting programs such as those highlighted in this newsletter. You can double your gift through your employer's Matching Gift Program. Visit ieeefoundation.org to learn more about our progress and how your involvement can advance our profession and help bring technology to the world.

Respectfully,



Leah H. Jamieson
IEEE Foundation President

Accelerating Advances

The 2013 IEEE Honors Ceremony theme was Accelerating Advances. The event recognizes technical professionals in a wide variety of disciplines for exceptional achievements and outstanding contributions that have made a lasting impact on technology, society and the engineering profession.

Nineteen IEEE Medals and Recognitions were presented at the Honors Ceremony on Saturday, 29 June in San Diego, CA, USA. IEEE President Peter Staecker served as the Master of Ceremonies with co-presenter IEEE President-Elect Roberto de Marca. The IEEE Foundation is proud of the role it plays in recognizing these pioneers and leaders who dared to dream and turned their ideas into reality.

Individual and corporate sponsors make the program and awards possible. Thanks to the generosity of the IEEE community, the IEEE Foundation sponsors two medals and one service award, as well as numerous other IEEE initiatives.

IEEE Medal of Honor, IEEE's highest-level award, for an exceptional contribution or an extraordinary career in IEEE fields of interest was awarded to **Irwin Mark Jacobs** founding Chairman and Chief Executive Emeritus of Qualcomm, La Jolla, CA, USA, "For leadership and fundamental contributions to digital communications and wireless technology." Irwin Jacobs was honored at a special event at Qualcomm Headquarters on 6 June and presented with his medal.

IEEE Founders Medal, for outstanding contributions in the leadership,



The IEEE Medal of Honor, sponsored by the IEEE Foundation, was presented at a special ceremony at Qualcomm Headquarters in San Diego, CA, USA. Pictured from left are, 2008 IEEE President Law Terman, 2012 IEEE President Gordon Day, IEEE Medal of Honor recipient Irwin Mark Jacobs, IEEE Foundation President and 2007 IEEE President Leah Jamieson, and IEEE President Peter Staecker.

planning, and administration of affairs of great value to the electrical and electronics engineering profession was awarded to **Leo L. Beranek**, Bolt, Beranek and Newman, Cambridge, MA, USA, "For leadership as a co-founder of a premier consulting firm that shaped modern acoustical practice and laid the groundwork for the Internet, and for public service."



IEEE Founders Medal, sponsored by the IEEE Foundation, went to Leo L. Beranek, flanked by IEEE President-Elect Roberto de Marca, on left, and IEEE President Peter Staecker.

IEEE Haraden Pratt Award, for outstanding service to IEEE was awarded to **Barry L. Shoop**, U.S. Military Academy, West Point, NY, USA "For vision and leadership in improving IEEE operations and governance, and for building a stronger foundation for IEEE's strategic future."



The IEEE Foundation sponsors the IEEE Haraden Pratt Award for outstanding service to IEEE which was presented to Barry L. Shoop, center, by IEEE President-Elect Roberto de Marca and IEEE President Peter Staecker.

For a complete list of honorees, visit iee.org/about/awards/HonorsPresentations/honors_ceremony.html. You can watch the event on the IEEE.tv network.

Each year, the IEEE Awards Board selects industry leaders, inspiring educators and distinguished colleagues as recipients of the IEEE's prestigious medal and recognition awards. If you know someone who meets the criteria for an IEEE-Level Award, visit iee.org/awards or call +1 732 562 3844 to learn more about the IEEE Awards Program and nomination process.

Celebrating with Our Donors

IEEE Goldsmith Legacy League members and **IEEE Heritage Circle** members at the Edison, Maxwell and Faraday levels are invited to attend the IEEE Honors Ceremony and dinner as special guests of the IEEE Foundation. Together we celebrate the collegial spirit of IEEE membership and honor their peers for exceptional innovations that have made a lasting impact on technology, society, and the engineering profession.

Those who are *Forever Generous* and leave a legacy gift to the IEEE Foundation are members of the **IEEE Goldsmith Legacy League**. Our *Honored Philanthropists* are individuals who have given consistently throughout their career and lifetime. They are members of the cumulative giving donor recognition group, the **IEEE Heritage Circle**.



Richard J. Gowen (Dick) and Nancy Gowen are enjoying dinner at the IEEE Honors Ceremony as guests of the IEEE Foundation. The Gowens are members of both the **IEEE Goldsmith Legacy League** and the **IEEE Heritage Circle** at the Alexander Graham Bell Level. As 1984 IEEE President and IEEE Foundation President from 2005 through 2011, Dick is the longest-serving President of the IEEE Foundation and a dedicated donor. In June, Dick was elected President Emeritus of the IEEE Foundation.

40 Years of Inspiring the Future

The IEEE Foundation has been inspiring the future of technology for the past four decades and its impact has been felt around the world.

Established in 1973 to support the scientific and educational purposes of IEEE, the IEEE Foundation initially accepted and administered donations to fund IEEE awards. It expanded its scope to fund educational, historical-preservation, and peer-recognition programs.

The Foundation depends on the generosity of donors: IEEE members, individuals, corporations, and IEEE organizational units. In 1989, it received US\$4 million from the Trusts of Alfred and Gertrude Goldsmith. In 1998, the IEEE Board of Directors donated US\$7.6 million from the sale of the United Engineering Center building, in New York City. By 2012 the Foundation was managing and investing US\$35.3 million through 130 funds geared to support IEEE initiatives.

Three of the major accomplishments in the past 40 years have been establishing an endowment fund for the IEEE History Center; supporting the IEEE Awards Program including sponsoring IEEE's highest award, the IEEE Medal of Honor; and the establishment of the IEEE PES Scholarship Plus Initiative in 2011 to encourage students to pursue careers in power engineering.

What better time than our 40th Anniversary to build on our past accomplishments to create an even more inspired future? In 2013, the IEEE Foundation is assessing how it can have even greater impact through the IEEE programs it supports. These programs will be significant, inspire closer ties between the Foundation and IEEE, and advance technology for humanity.

Visit ieeefoundation.org to read more about IEEE Foundation past and present.

Grants Program Update

IEEE Foundation has awarded 16 grants totaling more than US\$350,000 thus far in 2013. Widespread support for worthy projects worldwide provided 8 grants in Regions 1-6; 3 grants each to Regions 8 and 9, and Region 10 received 2 grants. Our grants program supports projects in the areas of Education, History of Technology, and Applying Technology for Humanitarian Causes. Your donations make it possible for the IEEE Foundation Board of Directors and the IEEE Life Members Committee to fund projects of interest to IEEE Members through the IEEE Foundation General Fund, the IEEE Life Members Fund and the IEEE Humanitarian Technology Fund.

Spectrum's Intern Program Kickstarted by Foundation Grant

By Susan Hassler, Editor-in-Chief, IEEE Spectrum



IEEE Spectrum Journalism Intern *Holli Riebeek* is now the Education and Outreach Specialist at NASA Goddard Space Flight Center (*Sigma Space*). In 2003, she proudly shared her experiences interning at IEEE Spectrum with 2000-2004 IEEE Foundation President and 1989 IEEE President Emerson Pugh.

When I first joined *IEEE Spectrum*, Ken Foster, one of *Spectrum's* most dedicated editorial advisory board members, called me up with an idea. Why not, he said, ask the IEEE Foundation to sponsor a formal internship for journalists eager to specialize in engineering and technology reporting? He agreed to help shepherd our proposal through the grant process, and the rest, as they say, is history. A winner of numerous journalism awards, *IEEE Spectrum* is one of the leading magazines in technology journalism. Its stature makes it possible for *Spectrum* to fulfill an educational role as well, by training young journalists in state-of-the-art technology journalism. One effective way to accomplish this is to have young journalists work closely with experienced editors to produce high-quality materials for publication—in print and online—

an activity that has clear benefits both for the magazine and for the journalists themselves.

So, in 2000, the IEEE Foundation approved a three-year grant to sponsor the "*IEEE Spectrum Journalism Internship*." The project served two needs: it helped *IEEE Spectrum* do additional reporting by providing it with additional editorial staffing, and it provided young journalists with a significant writing and editing opportunity.

We always planned, in part, to measure the success of the project by looking at the success of our interns—did they find permanent journalism jobs or consistent freelance work? Success was almost immediately apparent: Of the original group of interns, one went on to the Carnegie Mellon public affairs department, and another to NASA Tech Briefings.

And after the IEEE Foundation grant ended, we continued to sponsor interns of high caliber, already attracted to *Spectrum* by word-of-mouth recommendations of our internship program. To date, several former interns have joined the staff at *Spectrum*, notably Senior Editor Erico Guizzo, and other former interns have moved on to become writers and editors at *Scientific American*, *New Scientist*, *Discover Magazine*, *MIT Technology Review*, and the *New York Times*. One became a Fulbright scholar, studying space science in Russia.

While we would have eventually established an internship program on our own, the grant we received from the IEEE Foundation enabled us to set up a strong, stable program that has produced quantifiable, long-term results. IEEE, and *Spectrum*, have made a valuable contribution to the technology journalism community through this effort.

Foundation Grants Preserve History

Technology Study Center Opens

IEEE Foundation awarded a grant of US\$19,800 for the establishment of The Sarnoff Study Center in connection with The College of New Jersey's (TCNJ) Sarnoff Collection in Trenton, NJ, USA.

This world-class collection was donated to TCNJ in 2010 and is named for David Sarnoff, the chairman of RCA and founder of the National Broadcasting Company. It contains more than 6,000 objects showcasing RCA's contributions to 20th century electronics and telecommunications. These artifacts can be viewed at tcnj.edu/sarnoff.

The Study Center, opened on 2 October, serves as the central educational component of the Sarnoff Collection. It contains a state-of-the-art classroom which facilitates the use of the collection for hands-on learning and student engagement with the scientific and historical aspects of technological innovation. It also calls attention to the achievements of New Jersey scientists and engineers. IEEE groups are welcome to visit.

Life Members Support GE Film Restoration

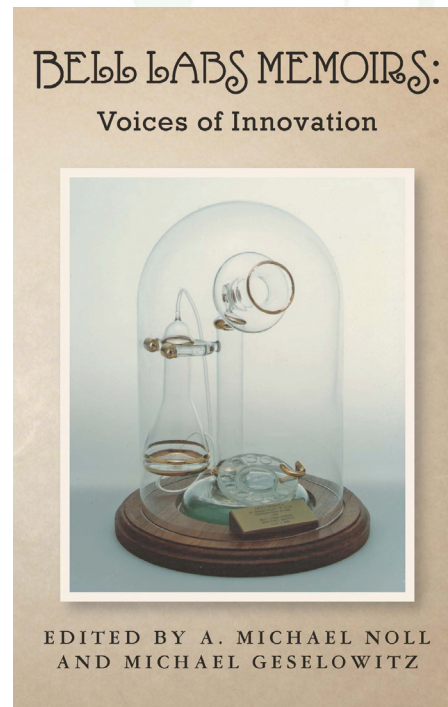
The IEEE Life Members Committee awarded a grant for US\$13,133 to the Schenectady Museum, NY, USA for use in preserving a significant collection of 16mm films from the General Electric Corporation. The films, dating from 1915-1985, tell the story of the electrification of the United States and include early advertising films, educational science films, and films documenting engineering and manufacturing processes.

The grant allowed The Schenectady Museum to digitize its collection of more than 1,500 motion pictures, create a YouTube channel "Schenectady Invention and Technology Films," and re-house the films in acid-free containers. Some of the films had not been viewed by the public in more than 90 years; but as of 1 May, 2013, the YouTube channel youtube.com/user/SchdyInventTech contained 376 videos, 564 subscribers and 243,502 video views. It averages 30,000 views and 80 new subscribers per month. The most popular videos include Thomas Edison, welding, X-rays, Man-Made Diamonds and the 1960s GE robotic projects.

IEEE History Center is Publishing History

By Robert D. Colburn, Research Coordinator, IEEE History Center

As part of its mission to bring the history of technology to a wide audience, the IEEE History Center has been busy with a number of publishing initiatives. The Center is proud to unveil *Bell Labs Memoirs: Voices of Innovation* which is available in trade paperback and Kindle® editions from Amazon.com.



Bell Labs Memoirs: Voices of Innovation examines the innovative spirit and creative energy of Bell Labs during the directorship of William Baker, as described by twelve people who worked there. The culture of Bell Labs comes to life through their first-hand accounts. The research done at Bell Labs led to many devices and techniques that helped build our present world. Acoustic cameras, adaptive predictive coding, block diagram compilers, cryptography, diamond crystal research, digital communication, echo research, inverse filtering, light-emitting diodes (LEDs), magnetic bubble memories,

microwaves, organic field effect transistors, pulse code modulation, synthetic speech, transistors, traveling-wave tubes, and vocoders are among the topics recalled by the contributors to this book.

Two additional IEEE History Center books will be available on Amazon.com at the end of this year. *New York Power* by Joseph J. Cunningham describes the history of the electrification of New York City, one of the densest electrical loads in the world. *The Birth of Electric Traction: The Extraordinary Life and Times of Inventor Frank Julian Sprague* recounts the life and accomplishments of the inventor who made electric railways possible and their signaling safe.

These books will join an already impressive list that the History Center has published on-line. Twenty-six additional publications are available for free, on-line on the Global History Network (GHN) in the Archival Collections at ieeeghn.org.

The IEEE History Center is financially supported by numerous Institutions and individuals. Your generous support is greatly appreciated in helping to maintain the numerous activities of the Center.

Empowering Bright Minds

Your generous donations help empower the world's brightest and most capable young minds. Funds held by the IEEE Foundation provide annual financial support for technologically related education programs. You can make tax-deductible (in US) donations to these Scholarship Funds as well as more than 130 IEEE Managed Funds at ieee.org/donate or by check payable to the IEEE Foundation, specify the fund you wish to support, and mail to: IEEE Foundation, 445 Hoes Lane, Piscataway, NJ 08854, USA. To discuss alternative giving methods, please call the IEEE Development Office at +1 732 562 3915 or e-mail donate@ieee.org.

Teenager's Creation Wins Presidents' Scholarship

The 2013 IEEE Presidents' Scholarship Award went to Isaac Christopher Portocarrero-Mora, 18, Colegio Vocacional Monsenor Sanabria, San Jose, Costa Rica for the Development of a New Communication Method and Mechanism for Deaf-Blind People. The honor, presented in May at the Intel Science and Engineering Fair (ISEF) in Phoenix, AZ, USA comes with a US\$10,000 scholarship to be paid out over four years of undergraduate study, a plaque, framed certificate and free membership to the IEEE for the duration of the scholarship.



IEEE Presidents' Scholarship winner, Portocarrero-Mora, created a communication device that transmits voice or text from a cellphone or tablet computer to a glove embedded with vibrating sensors that the deaf and blind can interpret.

Inspired by Hugle

In celebration of its 25th anniversary, TechSearch International, Inc. donated US\$5,000 and partnered with IEEE Women in Engineering (WIE) to establish the IEEE Frances B. Hugle Engineering Scholarship for women going into the field engineering. Frances Hugle graduated from the University of Chicago in 1946 with degrees in chemistry, physics, and philosophy

and received her M.Sc. from the University of Cincinnati. She co-founded Hugle Industries, Siliconix, Stewart Warner Microcircuits, Inc. and Opto-Electronics Devices, Inc. In each of these companies she served as director of R&D and as chief engineer. She held 16 patents in electronics and was a pioneer in the invention of tape automated bonding.

To encourage young women to follow in Hugle's footsteps, IEEE

WIE will annually select one scholar in her third year of undergraduate study in an engineering curriculum at an accredited university or college in the United States to receive a US\$2,500 scholarship. Student Membership in the IEEE is required.

Students Join Technical Community

To preserve the memory of James A. Rooks an IEEE Life Fellow, active volunteer, and pulp and paper industry leader, the IEEE Foundation in cooperation with the IEEE Industry Applications Society (IAS), and the Rooks family established the IEEE-IAS James A. Rooks Memorial Fund. The fund supports the IEEE-IAS James A. Rooks Memorial Student Intern Program which provides registration, travel and living expenses for up to four student interns who are working for consulting companies to attend the annual IEEE IAS Pulp and Paper Industry Conference (PPIC). The intent is to bring new industry engineers into the technical community before graduation so that they see the value of participation in the conference and in IAS.



Pictured from the left are PPIC Chair Alex Wu, Jonathan Green, the Student Intern from University of South Carolina and intern at International Paper in Georgetown SC, USA, and Monty Artz, Senior Electrical Engineer at the Georgetown Mill at the June 2013 IAS Pulp and Paper Conference.

Giving Students Power

The IEEE Power & Energy Society (PES) Scholarship Plus Initiative is a scholarship and career experience program created in response to the looming workforce shortfall in the power and energy industry. The goal is simple; to increase the number of well-qualified, entry-level engineers by helping students. To date, 549 scholarships have been distributed to students at more than 119 universities in the US and Canada.

The PES Scholarship Plus Initiative is made possible by the IEEE Power & Energy Society, the IEEE Foundation and organizations and individuals that support the future workforce of the electric power and energy industry. There are two ways you can support the Initiative.

1. Through a financial contribution, please contact us for details and levels of support information.

2. By providing internships, co-ops and/or other student summer employment to PES Scholars, Visit ee.scholarship.org for more information.

High School Student Wins Scholarship

Augustus Chang, who plans to study bio-engineering at the University of California, San Diego, USA is the 6th annual recipient of the IEEE Daniel J. Senese Memorial Scholarship. Made possible by donations from IEEE employees and volunteers, IEEE awards this scholarship to a senior from Piscataway High School, located down the road from IEEE Operations Center in Piscataway, NJ, USA, who plans to major in a field of interest of IEEE.

The Daniel J. Senese Memorial Scholarship was established as a tribute to former IEEE Executive Director Daniel J. Senese in honor of his interest in encouraging the study of science and technology.



2012 PES Scholars (left to right): Eric DePinto, Nicole Zimmerman, Stephen Collins, Sruti Nuthalapati, Ross Beppler. Eric, Stephen and Ross were also selected as the John W. Estey Outstanding Scholars from their respective Regions. Sruti and Ross were selected as Outstanding Scholars again in 2013.

IEEE Foundation

The IEEE Foundation, Incorporated cultivates relationships and resources to advance the IEEE core purpose to foster technological innovation and excellence for the benefit of humanity. It is an organization qualified under US Internal Revenue Code 501(c)(3) and is eligible to receive tax-deductible contributions in the United States. For other countries, please check with your local tax advisor regarding tax deductibility of charitable contributions.

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