

2012 – ISSUE 20

Sustain Our Core and Grow Our Future

The IEEE Foundation Board of Directors met on 15 November 2011 at which time the 2012 officers were elected. **Professor Leah H. Jamieson**, IEEE Fellow, was elected to serve as 2012 IEEE Foundation President a position held by **Dr. Richard J. Gowen** for the past seven years.

Gowen said he had certain goals when he became president: manage donations, reach out to existing and potential donors, build a grants program for worthwhile projects and focus on relationship building. “I cultivated relationships between donors and the people who were going to use their funds,” he says. “People fund what interests them, so it is important to understand what was needed and then work with donors interested in meeting the needs.”

In addition to supporting peer recognition programs, historical preservation and educational initiatives, the foundation began to support humanitarian efforts around the globe. “The world has major humanitarian needs—which wasn’t originally the purview of what we thought of as IEEE activities,” says Gowen. During his presidency, that changed.

In support of IEEE initiatives the IEEE Foundation now supports several humanitarian initiatives, including the IEEE Humanitarian Technology Fund, and the Engineering for Change initiative. Gowen also provided initial guidance to the IEEE Power & Energy Society (PES) Scholarship Plus Initiative as it embarked on a major fund-raising effort of \$10 million to help boost the number of power engineers in the United States. Read more about this initiative on page 6.

As president, Jamieson plans to sustain this core and grow the future of the Foundation. She describes the role of the IEEE Foundation as *Enabling IEEE Impact*.

In a recent presentation to the IEEE Foundation Board of Directors, Jamieson explained that a changing IEEE



demands an agile IEEE Foundation able to connect with IEEE’s future, one with a growing list of activities. Under Jamieson’s direction and through strategic philanthropy, the IEEE Foundation will conduct a detailed capacity analysis and explore key development and fundraising strategies. “We will examine who are our strategic partners and then analyze their *relevance, focus, scale, impact, and connection*. We will determine how we can connect and partner with them,” Jamieson said.

Other priorities are to leverage IEEE efforts in public visibility while we steward and continue to improve Awards, History Center, Life Members Fund, grants program and the PES campaign. Jamieson said, “In partnership with IEEE, the IEEE Foundation Board and professional staff will set priorities for action and goals for development so we can work toward *Enabling IEEE Impact*.”



IEEE Foundation and Volunteers Meet at

IEEE Sections Congress held 19 - 22 August 2011 in San Francisco, CA, USA was a successful triennial gathering of IEEE members and volunteers from around the world. The event titled, "Empowering the Member to Create the

Future" attracted more than 1200 members and provided a perfect opportunity for IEEE to celebrate exceeding a membership more than 400,000 strong and for the Foundation to increase awareness among them.

Presenting to the Section Leaders

The IEEE Foundation professional staff and volunteers from the IEEE Foundation Board hosted a booth in the exhibit hall and met with volunteers from around the world. These volunteers either received grant money or needed information on how the IEEE Foundation can help their unit, section or chapter. In addition, the Foundation hosted breakout sessions titled: "How the IEEE Foundation Helps Sections Achieve Their Goals" on both Saturday and Sunday during Sections Congress.



Lew Terman, 2008 IEEE President, asks a question at the IEEE Foundation Breakout Session.

In the dynamic panel discussion, **Matthew Loeb** IEEE Foundation Executive Director, **Richard Gowen** 2011 Foundation President and other Foundation and committee members: **Antonio Bastos**, **Arthur Winston**, **George McClure** and **Michael Williams**, and professional staff **Michael Geselowitz** provided section volunteers with an understanding of the IEEE Foundation mission.

The goal was to have participants walk away having learned:

- The IEEE Foundation exists and is a Member benefit.
- The IEEE Foundation mission and how the IEEE Foundation provides philanthropic support to programs of IEEE.
- IEEE Units, Sections, Chapters and Members can apply for grants. Members may submit grant requests to fund projects that will make a significant impact and are of interest to IEEE and IEEE Members.
- IEEE Organizational Units can request establishment of a new fund to support a program/project. The IEEE Foundation assists with fund administration, fund raising and donor stewardship.
- You can make a donation and specify which fund(s) you want to support.

Celebrating with Our Donors

In recognition of the special commitment exhibited by **IEEE Goldsmith Legacy League** members and **IEEE Heritage Circle** members at the Edison, Maxwell and Faraday levels, the IEEE Foundation invites them to attend the IEEE Honors Ceremony and dinner as special guests. 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.



Dorothy Feisel, wife of Board member **Lyle Feisel**, and Board member **Arthur Winston** and wife **Lillian**



Former IEEE President **Bud Eldon** and **Jerry Suran**



Betty and Bud Eldon

Sections Congress



Goldsmith Legacy League members **Harry and Donna Schauwecker** with **Richard Gowen**

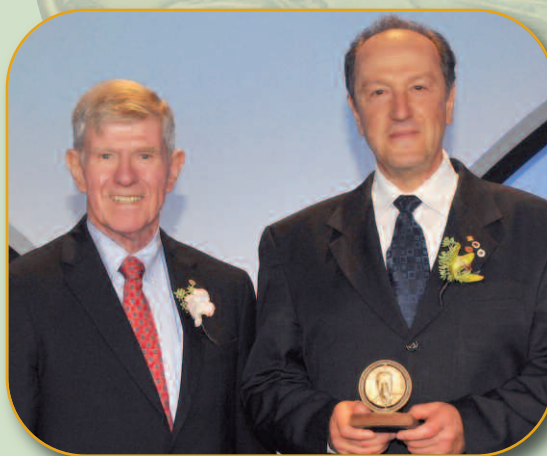
Those who are *Forever Generous* and leave a legacy gift to the IEEE Foundation are members of the **IEEE Goldsmith Legacy League**. Our *Honored Philanthropists* are individuals who have given consistently throughout their career and lifetime. They are members of the cumulative giving donor recognition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



Congratulating Our Honorees

The annual IEEE Honors Ceremony theme was *Power of Persistence*. 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.

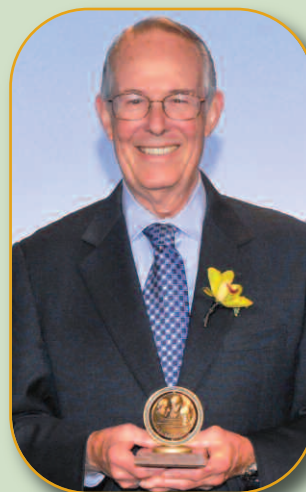
IEEE Foundation is proud to sponsor the following awards which were presented at the 2011 IEEE Honors Ceremony by **Moshe Kam** 2011 IEEE President, **Gordon Day** 2012 IEEE President and **Richard Gowen** 2011 IEEE Foundation President.



2011 IEEE Haraden Pratt Award was presented to **Levent Onural** of Bilkent University, Ankara, Turkey "For leadership in the worldwide promotion of the values embraced by IEEE." **Onural** is pictured here with **Richard Gowen**.



2011 IEEE Medal of Honor was presented to **Morris Chang** of Taiwan Semiconductor Manufacturing Co., Ltd., Hsinchu, Taiwan "For outstanding leadership in the semiconductor industry." Pictured from the left are **Gordon Day** 2012 IEEE President, **Richard Gowen** 2011 IEEE Foundation President, **Chang** and **Moshe Kam** 2011 IEEE President.



2011 IEEE Founders Medal was presented to **James F. Gibbons** of Stanford University, California, USA "For leadership in engineering research, education and administration, and for building bridges between academia and industry."

Smart-girl Individuality is Revolutionizing the Future

By Dr. Karen Panetta, IEEE Fellow

Professor, Electrical and Computer Engineering, Tufts University
IEEE Women in Engineering Magazine, Editor-In-Chief
IEEE Women in Engineering Committee Chair, 2007-2009
IEEE Boston Section Chair

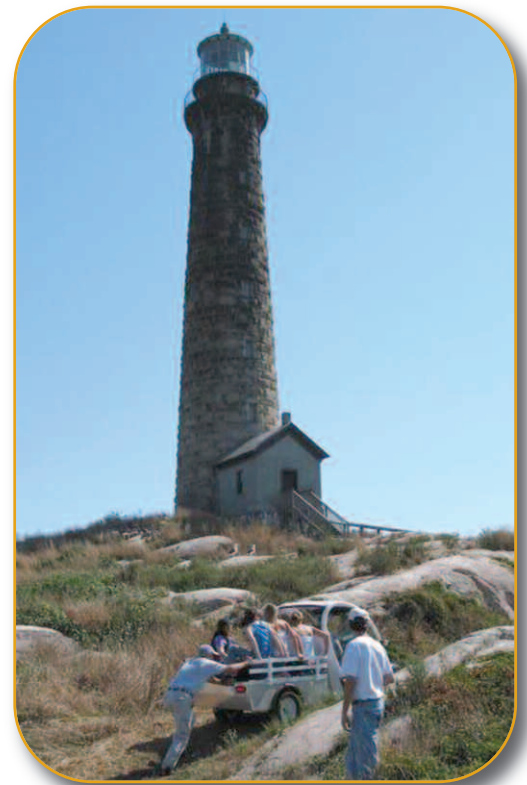
The Nerd Girls project encourages young girls to pursue engineering and science careers and shows youth that engineers are well-rounded, talented individuals changing lives through their multitude of talents.

When the Nerd Girls project, begun at Tufts University in 2000, wanted to expand its efforts globally, the IEEE Foundation was there to support the project and help propel the program into international arenas. The project documents young women engineers saving a national historic landmark, which is the last operating twin lighthouse in the United States on Thacher Island. The girls team accomplished this using solar energy powered light beacons to supply electricity to the historic lighthouses. Their LED design has been adopted by the U.S. Coast Guard and is now used in lighthouses all across the United States.

The award winning video “The Nerd Girls” remains one of the most popular videos on IEEE.tv and has become educators’ most valuable resource for showing their female students the “Beauty of Brains”.

The overwhelming response to the Nerd Girls has helped inspire a new series. The IEEE Foundation’s support of the upcoming “Ask Dr. Karen” series creates the “go to” place for

personalized responses about engineering and science education and how to pursue these careers. The series will feature Dr. Karen Panetta, IEEE Fellow and Founder of the Nerd Girls along with girls from around the world to help youth, parents, educators and the public understand how exciting engineering is and how important it is to solving the global challenges facing humanity.



The success of the Nerd Girls project exemplifies that the IEEE Foundation is always at the forefront of recognizing outstanding

Chicago Section Makes Science Kits for Public Libraries

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The IEEE - Chicago Section received a US\$40,000.00 grant from the IEEE Foundation and IEEE Life Members Committee. The award finances the IEEE - Chicago Section's **Science Kits for Public Libraries Grant Project** which will fund public libraries in the development of math and science collections for pre-university students (K-12).

The grant seeks to help educate students how math and science benefit humanity and to provide seed money for the creation of library programs and projects that will make a lasting impression on a community of pre-university students.

Specifically, the grant will defer the cost of science kits - especially those that provide prepared experiments for use by pre-university students and educators including parents, teachers, club leaders, and/or librarians. Ideally the kits will demonstrate to students the skills required for a career in electrical engineering.

The Science Kits for Public Libraries Grant Project is an expansion of a recently completed pilot project supported by IEEE - Chicago Section's, Chicago Fund, one of the 150+ funds held by the IEEE

Foundation. IEEE - Chicago Section identified an educational need and designed the Fund as a way to generate enthusiasm for math and science education-- especially education about electrical engineering. The Mount Prospect Public Library (MPPL) in Mount Prospect, IL was the pilot project for the Fund.

Because of the Chicago Fund, MPPL librarians were able to develop science kits for students of all ages and give students access to prepared experiments and science materials that they might not encounter in the traditional classroom. Additionally, the MPPL librarians created the Mad Scientists Club, an educational program that allows students to conduct experiments at the library with the guidance of a librarian. Watch MPPL's Mad Scientist Club on YouTube and view the kits in action.

The grant is restricted to public libraries with preference given to public libraries located in the territory of IEEE-Region 4 (Midwest including all or parts of Illinois, Indiana, Iowa, Michigan, Minnesota, Nebraska, North and South Dakota, Ohio and Wisconsin). Contact Amy Killebrew, Project Manager at sciencekits@ieechicago.org.

Early Warning System Warns of Natural Disasters

By Dick Carrillo Melgarejo

EWSOLP Project Manager

Research Engineer at CPqD –

Gerência de Engenharia de Sistemas e Soluções
(System & Solution Engineering Management)

In April of 2010, intensive rainfall severely affected many areas of Perú. This natural phenomenon was the main source of mudslides which caused disasters in many villages. In response to these disasters, IEEE student members and some IEEE professional members realized that these kinds of natural disasters could be avoided if an early warning system is deployed in many lakes, especially the lakes that are situated in all Cordillera de los Andes (Mountains situated in Peru). In this scenario, the project idea was submitted for evaluation by IEEE Foundation in order to obtain grant funding. The idea was approved and called: Early Warning System Overflow of Lakes (EWSOLP). IEEE student Members from *Universidad Nacional Mayor de San Marcos* from Lima, Peru began work on the project.

The main element of this early warning system is composed by a sensor which will perform periodic measurements of any lake with high risk to overflow; this information will be sent to a central system which will deliver the alert information to any population at risk of suffering from any natural disaster. The telecommunication solution has two main development branches: one is developing a GSM/GPRS (wireless cellular network) solution and the other is developing a

satellite solution as a communication platform. At this time the prototype of the first stage is finished and the EWSOLP module will be working, the idea is to test the prototype during rainy season in Peru.

Without the IEEE Foundation grant, this social activity focused to save lives from such natural disasters could not have become reality.

Congratulations go to IEEE student members: Jaime Luque and Luis Rivera, and to Flavio Carrillo Goméro, professor at *Universidad Nacional Mayor de San Marcos*, because they were mainly responsible for developing this technical solution that will save many lives.



IEEE Student Members from Peru performing measurements with the prototype based in GSM/GPRS technology in Conococha lake, at the middle of *Cordillera de los Andes*.

Call for Grant Applications

IEEE Foundation grants are made possible thanks to our donors who generously give to the three grant making funds of the IEEE Foundation: the IEEE Foundation General Fund, the IEEE Humanitarian Technology Fund and the IEEE Life Members Fund.

The IEEE Foundation awards grants to IEEE units and other charitable organizations for innovative projects that further the scientific and educational purposes of IEEE.

To be considered for grant funding, your project should have a clearly defined objective and provide support in the focus areas of education, history of technology and applying technology for humanitarian causes.

- **Education:** The IEEE Foundation supports projects that expand and enhance engineering, science and technology education opportunities for teenagers through mid-career professionals to positively impact workforce development and involvement in IEEE.

- **History of Technology:** The IEEE Foundation supports projects that increase awareness among the general public of the impact and influence of early technology on the present and future.
- **Applying Technology for Humanitarian Causes:** The IEEE Foundation supports projects that implement or disseminate replicable, sustainable, technology-based solutions for humanitarian issues in underserved and underprivileged areas.

The IEEE Foundation reviews grant applications in two cycles per year. Submissions are accepted until 11:59 p.m. Eastern Time on the deadline dates.

If your Unit, Section or Chapter has an innovative project in the areas of interest mentioned above, you are welcome to apply for a grant through the IEEE Foundation Web page. Prior to submitting an application, please review the IEEE Foundation's grant guidelines. All the information you need about applying for a grant can be found at ieeefoundation.org.

New PES Initiative Encourages Students to Consider EE



Past IEEE PES President, VP-S&C, **Wanda Reder**, on left, congratulates PES Scholars from South Dakota State University, from left, **Richard Fitzpatrick, Jeremy Nelson, Cole Sandness and Ryan Kleinjan**.

The Center for Energy Workforce Development reports that the U.S. power engineering field could experience 50 percent attrition during the next five years. As individuals leave the profession, they will take with them their knowledge of the current electric power system, on which the new smart grid will be integrated. The power industry is facing a major challenge—a lack of skilled power engineers which could jeopardize the grids.

To encourage more people to study power engineering, the IEEE Power & Energy Society (PES) launched the IEEE PES Scholarship Plus Initiative in late 2010 and recently awarded its first scholarships to 93 students at 51 U.S. universities. These students were selected by industry and academic representatives based on: academic preparation, extra-curricular activities and leadership, interest in engineering — power and energy

engineering in particular and overall potential for a successful engineering career.

PES established the IEEE Power & Energy Society Scholarship Fund with US\$1 million. Administered by the IEEE Foundation, more than US\$4 million in donations has been committed from individuals and corporations with an overall goal of raising US\$10 million by 2013.

The IEEE PES Scholarship Plus Initiative, provides multi-year scholarships and career experience opportunities to full-time, qualifying U.S. electrical engineering undergraduate students. Its goal is to support 300 to 500 students each year. As long as the scholar continues to meet renewal standards, he or she will receive up to three years of financial aid: US\$2000 for each the first and second years and \$3000 the third year — and up to two years of much-valued career experiences. Offered in the United States now, the plan is to expand the program worldwide.

To help PES Scholars obtain a career experience, they must register on the PES-Careers Web site, designed to connect engineering students and recent graduates with employers offering internships and jobs. Employers can post job openings and candidates can post their resumes and profiles.

You or your company can support the program by contributing to the PES Scholarship Fund (www.ieee.org/donate) or by providing internships for PES Scholars and other students (www.pes-careers.org).

To view the list of PES Scholars or for more information on the PES Scholarship Plus Initiative please visit ee-scholarship.org.

Senese Memorial Scholarship Awarded

Lekshmi Sivakumar, who plans to study engineering at Cornell University, is the 5th 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, 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. You can make a tax-deductible (in US) donation to the Scholarship Fund at ieee.org/donate.

Student Sponsored by James A. Rooks Memorial Endowment



The IEEE Pulp and Paper Industry Committee sponsors electrical engineering students to attend its annual conference. Young engineers working as interns for manufacturing companies attend at no cost. This initiative is made possible

by the James A. Rooks Memorial Fund established by the IEEE Foundation. **Dane Zellers** attended the conference as a result of the Fund.

Three Grants Awarded In Support of Flood Victims

In July 2010 the IEEE community responded with generosity and compassion for the the 2.5 million people affected by the devastating floods in Pakistan. Donations to the IEEE Foundation for the IEEE Pakistan Engineering Educational and Professional Development Rebuilding Fund grew to more than US\$100,000.

Fund disbursements were managed by the IEEE Region 10 Director in consultation with the leadership of the IEEE Sections in Pakistan and the Region Committee. In 2011 grants were awarded to academic institutions, charitable organizations, or used for equipment, services, scholarships and classroom and laboratory materials. They also may support programs for training or retraining to help engineering and technology professionals.

The following 3 grants will provide relief in Pakistan:

1. Project for Flood Affected Areas Nowshera

University of Engineering & Technology Peshawar, a public sector University, spearheaded a project for the Nowshera District. This grant will assist more than 50,000 by providing:

- Vocational training
- Preparatory training for pre- engineering students
- Facility development in flood affected areas

2. Computer Based Training in Regional Center D.G. Khan for Flood Affected Areas of Southern Punjab Districts

This grant to Allama Iqbal Open University will provide virtual and remote educational opportunities to those living in rural areas that aren't able to leave their homes. The grant will provide:

- Full scholarship for students of computer-based training
- Rebuilding of laboratory infrastructure

3. Support Schools and Colleges of Flood affected areas of District Rajan Pur

This grant to Sha'oor The Society of Air University in Islamabad will support more than 4,500 high school and college students faced with serious financial constraints to pursue a quality education. The grant will provide:

- Workshops to motivate students
- Counseling to assist students with post trauma stress
- Student exchange programs to enhance exposure to, and interest in, science and technology careers
- Training to teachers and some local personnel to sustain the new projects

The flood hit all provinces of Pakistan and in some areas the infrastructure has all but disappeared. Communities are left with physical and psychological scars. The very scale of devastation makes it an ongoing and daunting task. Generous donations from IEEE members all around the world helped to facilitate redevelopment and provide students with opportunities to learn despite the devastation.

Honoring our Board Members



IEEE Foundation Board Member **John Meredith** received IEEE-USA's highest honor for his "passionate leadership in promoting lifelong learning for IEEE members." The Robert S. Walleigh Distinguished Contributions to Engineering Professionalism Award recognizes Meredith for professionalism, technical achievements, and literary contributions to public awareness and understanding of the engineering profession in the US.



IEEE Foundation President **Leah Jamieson** was selected as one of the 2011 Class of Members of the American Academy of Arts and Sciences. An IEEE Fellow, Prof. Jamieson is the John A. Edwardson Dean of Engineering and Ransburg Distinguished Professor of Electrical and Computer Engineering at Purdue University. She was inducted 1 October 2011, at a ceremony in the Academy's headquarters in Cambridge, Massachusetts

along with 211 other individuals from the arts and science community including at least five other IEEE members.



IEEE Foundation Vice President, **Arthur W. Winston**, was awarded the IEEE Educational Activities Board (EAB) Meritorious Service Citation "for exemplary leadership, ongoing service and dedication in support of the IEEE EAB, its standing committees and special projects." Winston is director emeritus of the Gordon Institute at Tufts. When he was VP of IEEE Educational Activities in 1998 and 1999, he obtained outside funding and extended the

interests of the EAB to include preuniversity education. That led to the creation of several programs targeted at improving students' technical literacy, including the first IEEE Web sites for that purpose. Those sites led to the creation of the Teacher In-Service Program (TISP) and TryEngineering.org. TISP partners IEEE volunteers with preuniversity educators to offer the teachers lessons on a variety of technical subjects. TryEngineering.org introduces students, teachers, and parents to engineering.

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