The President's Perspective

In today's fast paced world, we have all, in one way or another, become increasing dependent upon technology. Whether we are using technology for something as important as finding a cure for cancer or as mundane as paying our bills, technology has become a part of our everyday life. As a member of the IEEE, it is a privilege to be part of the community of innovators responsible for creating and advancing technology. Within our community, there is a growing concern regarding the next generation's ability to understand, sustain and support the continued development of technology.

As the President of the IEEE Foundation, I am proud to announce the launching of our new initiative – **Technological Literacy *Matters!*** This initiative seeks support for the efforts of IEEE members, working in cooperation with other groups of engineers and educators, to address the need for improvements in science, math, engineering, and technology education; preservation of the history of technology; and recognition of technology innovators. The goal of the initiative is to "increase the understanding of how technologies are created and how they impact society, individuals, and the environment".

Technological Literacy *Matters!* key components are:

- Educate the public about the nature of technology and its impact on society
- Raise worldwide public awareness of the role of engineering in developing technologies
- Prepare pre-university students to consider engineering as a career path
- Award grants to innovative programs supporting technological literacy
- Preserve the history of electrical engineering and computers
- Recognize engineering excellence

To learn more about **Technological Literacy *Matters!***, please visit our website at www.ieeefoundation.org. It is my hope that you, the people who have invested in our important work, will join me in embracing this new initiative. I invite you to share with me your thoughts and feelings on this program. Please contact me, or any of the members of the IEEE Development Office, at +1 732 562 3915 or send an email to supportieee@ieee.org.

The members of the IEEE Foundation Board of Directors and staff join me in thanking YOU for your continued support of the IEEE through the IEEE Foundation.

Yours Truly,

Richard J. Gowen

Richard J. Gowen
2005 President, IEEE Foundation

Richard (Dick) Gowen (right), 2005 IEEE Foundation President, thanks Theodore (Ted) Hissey (left), for his many years of dedicated service, and presents him with a certificate of resolution by acclamation of the IEEE Foundation Board in recognition of his election as an IEEE Foundation Director Emeritus.

Enabling Careers in Technology
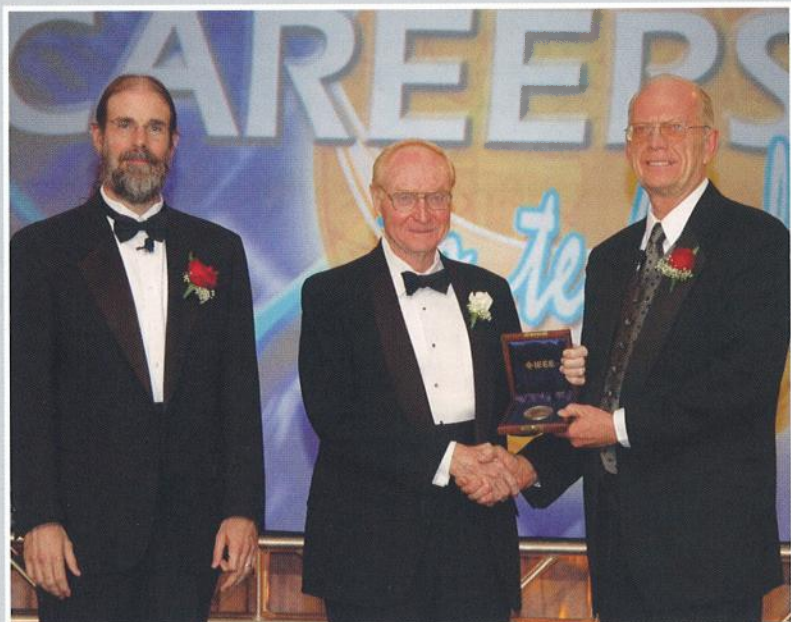
W. Cleon Anderson, 2005 IEEE President, and Michael R. Lightner, IEEE President-Elect, congratulate James L. Flanagan the 2005 IEEE Medal of Honor recipient. The IEEE Medal of Honor, sponsored by the IEEE Foundation, is the Institute's highest award presented when a candidate is identified as having made a particular contribution which forms a clearly exceptional addition to the science and technology of concern to the Institute. Dr. Flanagan, of Rutgers University in Piscataway, NJ, received the IEEE Medal of Honor "for sustained leadership and outstanding contributions in speech technology." *(l. to r. Michael Lightner, Dr. James L. Flanagan, W. Cleon Anderson)*

H. Vincent Poor (left), Professor of Engineering at Princeton University, poses with Mr. Tom Robbins (right), National Instruments, following Dr. Poor's acceptance of the 2005 IEEE James H. Mulligan, Jr. Education Medal. National Instruments is one of the four sponsors of the Mulligan Education Medal.
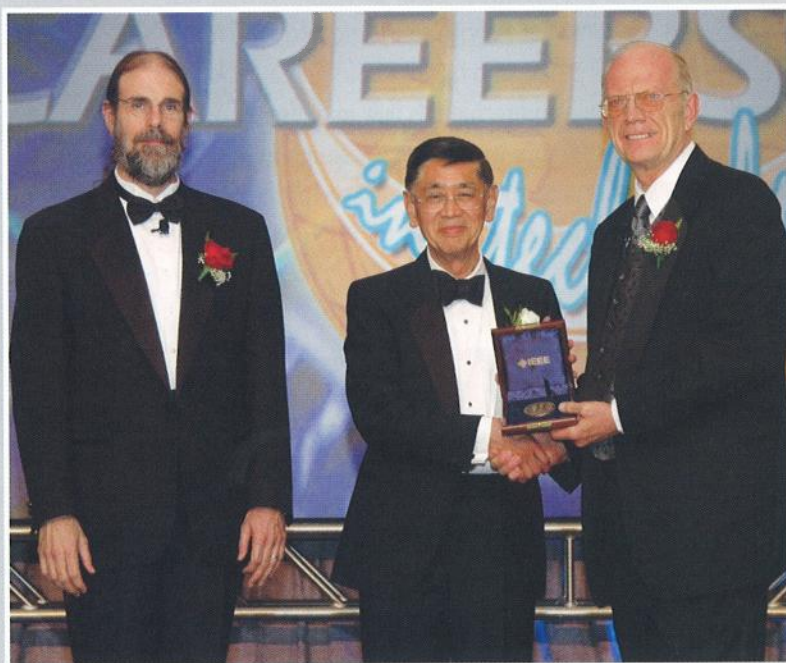

Eugene Wong, Professor Emeritus, University of California, Berkeley, stands with W. Cleon Anderson, 2005 IEEE President and CEO, and Michael R. Lightner, IEEE President-Elect, upon receipt of the 2005 IEEE Founders Medal sponsored by the IEEE Foundation. *(l. to r. Dr. Lightner, Dr. Wong, Cleon Anderson)*


Fern E. Katronetsky (left), IEEE Foundation Executive Director, shares a moment with the 2005 IEEE Foundation President, Richard J. Gowen, and his wife, Nancy Gowen, during the pre-reception of the 2005 IEEE Honors Ceremony. The IEEE Foundation sponsors three prestigious IEEE awards: the IEEE Medal of Honor, the IEEE Founders Medal, and the IEEE Haraden Pratt Award.

— 2005 IEEE Honors Ceremony
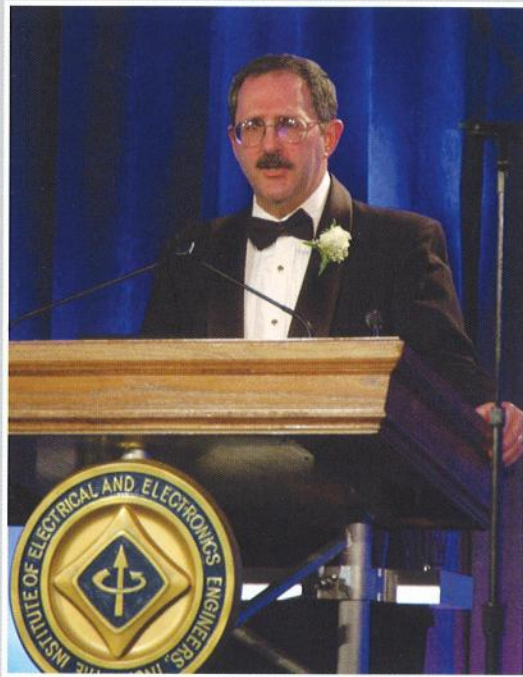
Daniel R. Benigni addresses the audience after receiving the 2005 IEEE Haraden Pratt Award sponsored by the IEEE Foundation.
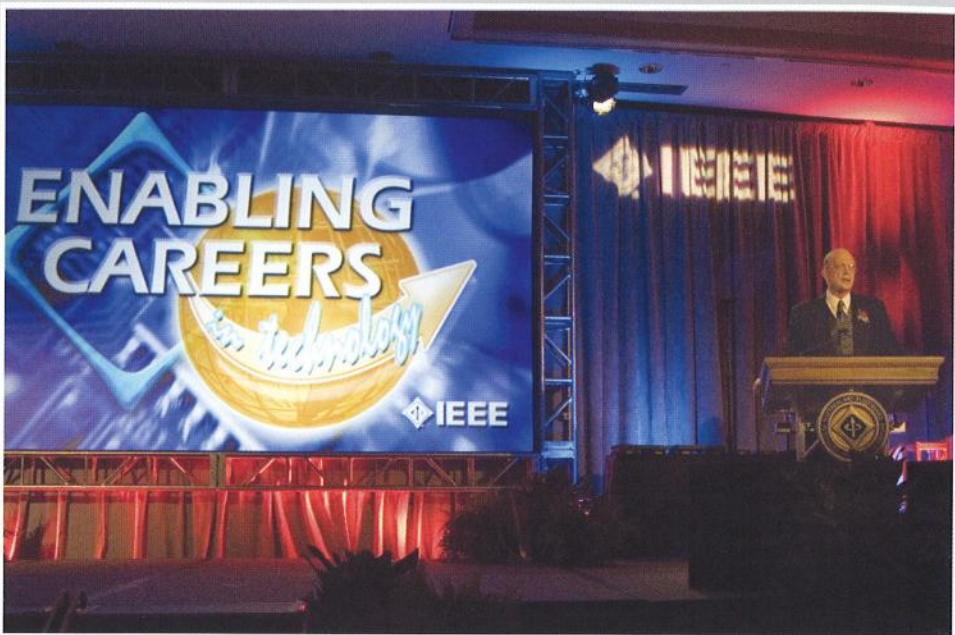
W. Cleon Anderson unveils the theme of the 2005 IEEE Honors Ceremony "Enabling Careers in Technology."

Over 350 people attended the annual IEEE Honors Ceremony held 18 June 2005 in Chantilly, VA, USA. This year's event celebrated the contributions of 17 individuals and two corporations for their role in changing the way we live, work, and communicate.
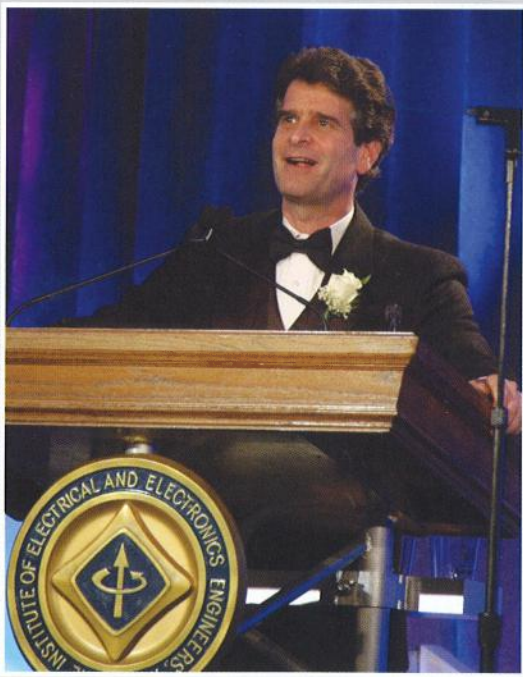
Dean Kamen accepts the IEEE Honorary Membership award, sponsored by IEEE. Mr. Kamen is President of DEKA R&D Corporation, Chairman of Segway LLC, and Founder of FIRST Program. He receives this award "for innovating numerous medical devices, thereby improving the quality of life for many, and for inspiring youth to heightened interest in engineering through imaginative competitions."

The 2005 IEEE Award Recipients pose for a group picture.

IEEE emeritbadges.org Goes to the 2005 National Scout Jamboree

By: **Ralph Russell**, IEEE Senior Member

The IEEE emeritbadges.org Project, supported in part by a grant from the IEEE Foundation, is working to raise the excitement of girls and boys from around the world about engineering by working through the global scouting movement. The project's mission is to provide a global non-discriminatory pre-college technology education program for boys and girls.

Recently the IEEE emertibadges.org took its efforts on the road and sponsored the Electronics Merit Badge Booth at the 2005 National Scout Jamboree

held in Caroline County, VA. Prior to the event, project volunteers developed instructional materials and microprocessor kits for the scouts to use at the booth. During the nine days of the Jamboree, several hundred scouts, with the help of an army of volunteers, completed the five-hour instructional program and assembled a microprocessor kit, thereby earning the Electronics Merit Badge.

The project volunteers are working hard to expand the reach of the program. In October 2005, IEEE

emeritbadges.org will be taking its technical literacy message to Girl Scouts and their leaders, at the Girl Scouts of the USA National Council Session to be held in Atlanta Georgia, 7–9 October 2005. To globalize the effort, contact was recently made with the World Organization of the Scouting Movement.

To learn more about this exciting program, visit us on the web at www.emeritbadges.org or email emeritbadges@ieee.org.

Scouts working on the microprocessor kit in the IEEE Electronics Merit Badge Booth during the 2005 National Scout Jamboree.

Here a scout shows off his completed Microprocessor Kit.

An army of volunteers helped guide the scouts through the Electronics Merit Badge requirements. Pictured here are the volunteers from just one day.

Using Thomas Edison's Papers to Teach Science

By: **Paul Israel,** Director and Editor,
Thomas A. Edison Papers, Rutgers University

The Thomas A. Edison Papers at Rutgers University used its grant from the IEEE Foundation as the catalyst for developing interest networks and formal collaborations with science educators. Through a series of meetings, the Edison editors brought their content expertise to the heads of two vigorous, collaborative education centers at Rutgers University: the Math and Science Learning Center (http://mslc.rutgers.edu/); and the Center for Math, Science, and Computer Education (http://cmsce.rutgers.edu/). In addition, we developed a database of specific learning, teaching, and resource possibilities for integrating Edison documents and lessons into core curriculum content standards. We placed a Table of On-line Curriculum Resources and Exhibit Material on our website (http://edison.rutgers.edu/curriculum.htm) and plan

to add a Table of Reading Resources, with developmentally appropriate keys.

The work we did under the IEEE Foundation grant provided the groundwork to allow us to follow up an invitation to apply for, and receive, a US$100,000 grant from the GE Foundation to develop curriculum resources with these centers. As a result of the two grants, we were able to work with the MSLC to develop hands-on exhibits relating Edison's work in electrical technologies to science lessons in electricity and magnetism. These were shown at the New Jersey State Museum's Super Science Weekend in May 2005 and will be incorporated into the Rutgers Science Explorer (http://sciencebus.rutgers.edu) providing science programs to New Jersey schools beginning this fall.

Paul Israel demonstrates a hands-on model of Thomas Edison's electromagnetic ore separator to a couple of school children during the New Jersey State Museum's Super Science Weekend in May 2005.

Grainger Foundation Heightens Awareness & Appreciation of Power Engineering

By: **Michael Deering**, IEEE Development Office

John Meredith (left), 2005 IEEE Region 5 Director, presents Dr. Thomas M. Jahns (right) with the IEEE Nikola Tesla Award during the 2005 IEEE International Electric Machines and Drives Conference, held in San Antonio, Texas, USA.

Heightened awareness and appreciation of power engineering is the goal of The Grainger Foundation. In March 2005 it awarded US$100,000 to the IEEE Foundation and assumed co-sponsorship of the IEEE Nikola Tesla Award. Known for its generous philanthropic support to fund promising areas of emerging technologies among power engineering programs of universities within the United States, The Grainger Foundation's co-sponsorship will bring added recognition to IEEE members who are exceptional in power engineering research, education and application. David Grainger, President of the Foundation noted, "Sponsorship of the IEEE Nikola Tesla Award is appropriate for The Grainger Foundation. New developments in engineering science and technology through the creation of commercially viable products are the lifeblood of industry. Increasing awareness of individuals who bring proven innovation and practical utility to the marketplace is most appropriate."

" The Grainger Foundation's co-sponsorship will bring added recognition to IEEE members who are exceptional in power engineering"

The IEEE Nikola Tesla Award is presented annually to an individual or a team that has made outstanding contributions to the generation and utilization of electric power. This year's Award recipient is Dr. Thomas M. Jahns, an IEEE Fellow and Grainger Chair Professor of Power Electronics and Electrical Machines at the University of Wisconsin – Madison. Dr. Jahns has been a driving force behind the development of high-performance permanent magnetic (PM) synchronous machine drives, distinguished by magnets in their spinning rotors. During his professional career at General Electric, Dr. Jahns has made important technical contributions leading to successful applications of PM drives in machine tools, home appliances, and aerospace actuators.

Remembering Harold Sobol

By: **Karen Galuchie**, IEEE Development Office

Dr. Harold Sobol, one of the most accomplished engineers and innovators in microwave engineering, died 22 September 2004. Dr. Sobol is remembered for his many contributions to the microwave and communications fields. He was an outstanding leader in the microwave industry and, in his later years, was a major contributor to the telecommunications industry. After succeeding in industry, he joined the University of Texas at Arlington and created a graduate course track in telecommunications. His career spanned 52 years.

Throughout his career, Dr. Sobol was an active IEEE volunteer. He dedicated his time and talents to both the IEEE Microwave Theory and Techniques Society (MTT-S) and the Communications Society (ComSoc). He was an IEEE Life Fellow and was recognized numerous times for his technical achievements and service to the IEEE.

On 15 June 2005, the 2005 International Microwave Symposium (IMS 2005) held a Special Session to honor Dr. Sobol's many contributions to the microwave and communications industries, and to IEEE. Four (4) technical presentations were presented to cover his 52-year career. The 100-minute session ended with a presentation by his wife, Marion Sobol, on her life with him in the early years, and the positive effects he had on people in his life.

"Dr. Sobol was a remarkable man and his loss is deeply felt by all those who knew him."

Dr. Sobol was a remarkable man and his loss is deeply felt by all those who knew him. He was a mentor to all who worked with him. To create a lasting legacy that will preserve and perpetuate the memory of this man, who believed in the importance of MTT-S and education, the Sobol Family – working with the MTT-S and the IEEE Foundation – created the *Harold Sobol Memorial Fund*. Beginning in 2006, this Fund will support the awarding of the *Harold Sobol Travel Grant* to talented students participating in the annual Student Paper Competition at the IEEE International Microwave Symposium. The winner(s) will receive US$500 and a certificate.

Dr. Harold Sobol, IEEE Life Fellow – 1930 to 2004.

The Sobol Family invites you to pay tribute to Harold Sobol and join them in supporting the *Harold Sobol Memorial Fund*. By making a donation to the *IEEE Foundation – Harold Sobol Memorial Fund*, in his memory, you will not only be perpetuating the memory of Harold Sobol, but you will help provide travel funds for students who are selected to present their work at the annual IEEE International Microwave Symposium. You can make a gift by returning the enclosed business reply envelope and checking off the box marked *"Harold Sobol Memorial Fund"*. If you have any questions or wish to discuss alternate methods of giving, please contact the IEEE Development Office by telephone at +1 732 562 3860, or by email at supportieee@ieee.org.

Teen Combines His Passion for Engineering and Filmmaking to Win the 2005 IEEE Presidents' Scholarship

By: **Allison Ickowicz**, IEEE Educational Activities

Designing, building and optimizing a low cost, compact gyro-based servo stabilization device for a professional hand-held motion picture camera earned Adam Daniel Sidman, a 17 year old junior from Palmer High School in Colorado Springs, Colorado the 2005 IEEE Presidents' Scholarship. The winning project, "Camera Stabilization: Take 2" was selected from a field of over 1400 projects by a group of IEEE volunteer judges at the 56th Intel International Science and Engineering Fair (Intel ISEF) which was held 8–14 May 2005 in Phoenix, AZ.

Adam Daniel Sidman shows off his scholarship winning project "Camera Stabilization: Take 2".

Adam will receive US$2,500 toward each of four years of undergraduate study, for a total of US$10,000, along with IEEE Student and Student Society memberships, a framed certificate, and an engraved plaque. IEEE President-elect Michael Lightner presented the IEEE Foundation supported Scholarship during the awards ceremony.

The device Adam entered into the ISEF was his first major prototype and merged his two passions, filmmaking and engineering. When asked about his project, Adam said, "I've always been really into film and began producing my own films during eighth grade. Filmmakers are always looking for new ways to move a camera smoothly across a set. I noticed that the two common camera stabilization devices available are rather straining to the operator, difficult to use and maneuver, and are pretty cost prohibitive. I wanted to design a device that would be easy to use, truly portable, offers complete control and fluid maneuverability, and that would isolate the camera from the movement of the operator."

> ## "Adam is waiting for his patent to be granted before marketing his product."

Driven by his desire to create a camera stabilization device that is more effective and easier to use than current options, as well as less expensive to manufacture, Adam has spent over 700 hours on the project since last year. He uses micro-electromechanical system (MEMS) based gyro sensors mounted to a gimbaled camera rig to measure the angular rate of the camera's rotation.

Presently, Adam is waiting for his patent to be granted before marketing his product. A professionally manufactured device would be relatively cost effective to produce since it could be built with inexpensive materials such as MEMS gyro sensors. A high school junior, Adam has not yet selected a university, but ultimately intends to study both film and engineering. He believes that engineering and film can be applied together, and feels that his future career lies in the conjunction of the two disciplines.

Adam's parents served as a key driving factor for first entering the device into the local regional fair. Adam's father, Dr. Michael D. Sidman, serves as an engineering consultant and is an IEEE Senior Member. This is the first time the Presidents' Scholarship has been awarded to the child of an IEEE member.

HOW YOU CAN HELP

You can help ensure the continuation of the IEEE Presidents' Scholarship by making a charitable contribution to the *IEEE Presidents' Scholarship Fund*. Scholarships provide the financial resources students need to pursue their engineering dreams.

The IEEE Presidents' Scholarship is the largest pre-university scholarship offered by the IEEE and recognizes a deserving student for an outstanding project that demonstrates an understanding of electrical engineering, electronics engineering, computer science, or other IEEE fields of interest. Charitable contributions may be made using the business reply envelope enclosed in this newsletter.

AS the philanthropic arm of the IEEE, the IEEE Foundation raises and distributes charitable funds to advance technology and education for the benefit of society. Our mission is to support activities that further the scientific and educational purposes of the IEEE.

The IEEE Foundation achieves its mission through the awarding of grants and the administration of over 80 restricted funds that support a variety of educational, historical preservation, and peer recognition programs of IEEE Units.