



## The President's Perspective

Tuesday 11 September 2001 is a day we will all remember for the rest of our lives. The events of that day reminded us of the fragility of our buildings, of our lives, and of our civilization itself. Our immediate attention was turned to helping those who had been injured or who had lost loved ones or friends, and we grieved together. That was altogether fitting and proper, and through this message I want to extend my personal condolences, and the condolences of my colleagues, to readers of this newsletter who lost family members or friends in those tragic events.

Among the visitors to the World Trade Center soon after the terrorist attack was Secretary General of the United Nations, Kofi Annan. Repeatedly thereafter he condemned the attack in strong terms and stressed the need for the world to unite against this scourge. On 12 October 2001, the Nobel Peace Prize was awarded to the Secretary General and to the international organization itself in recognition of its increasingly active role in policing regional conflicts and working to solve universal challenges such as AIDS and international terrorism.

Speaking to several hundred applauding staff members who met him upon his arrival at the United Nations headquarters, Kofi Annan said the recognition given to the United Nations was "really deserved and needed." "The world is a messy place," he continued, "and unfortunately the messier it gets, the more work we have to do." Then he urged them to get back to work. In a similar spirit, my colleagues and I are back at work, trying to make the IEEE Foundation a significant factor in achieving a world that is less messy and a better place for all people. Through your past support, you have expressed your faith in our efforts — and I am grateful for that.

Now our task is to be worthy of your continuing support by meeting the challenges of our ever-changing world in innovative ways. Among other

things, we must find more ways to enhance our philanthropic efforts through wise use of the electrical and information technologies created by our own profession. As you read the articles in this issue of *The Focus*, please consider which activities you like most or least and let us know how you believe we could strengthen our efforts. You may reach me by email at [supportieee@ieee.org](mailto:supportieee@ieee.org) with your comments and suggestions.

With warm wishes for a new year,  
**Emerson Pugh**  
President, IEEE Foundation



“Through your past support, you have expressed your faith in our efforts — and I am grateful for that.”



# High School Teachers Learn About Computational Science to Enhance Science & Math Education

By: Anne Marie Kelly, IEEE Computer Society

Creating a cadre of high school teachers that can use computational science to enhance science and math education is the goal of the National Computational Science Leadership Program (NCSLP). NCSLP received its primary funding from the National Science Foundation, with additional funding from the Association for Computing Machines (ACM), the IEEE Foundation, the IEEE Computer Society, NASA, and corporate sponsors.

The program was initiated at SC2000, a high performance computing and networking conference cosponsored by the ACM and the IEEE Computer Society. Twenty-five teams of four high school teachers, each representing a broad geographic and socioeconomic demographic, spent the week of SC2000 working on the first phase of their computational science training. Phase one gave them the opportunity to view resource-intensive computational science, scientific collaboration, and leading-edge technologies from well-known research universities, laboratories, and centers. The focus of the instruction was the application of these skills in the classroom. The teachers participated in an introductory computer skills tutorial, and then received more specialized training in modeling tools, including STELLA, Excel, and Mathematica. The teacher teams created foundations for a curriculum model by the end of the conference. Team presentations are available at [www.ecu.edu/si/te/profiles/presentation.cfm](http://www.ecu.edu/si/te/profiles/presentation.cfm).



Teachers gather for a final farewell before leaving NCSLP Summer Institute held July 2001.

After SC2000, the teachers continued to receive support from NCSLP staff, including assistance with troubleshooting computer hardware and software problems and professional development through online monthly instructional conferences. The program ended with a two-week Summer Institute in July held at the University of Alabama at Huntsville and NASA's Marshall Space Flight Center. In total, the program provided 180 hours of training in computational science.

NCSLP teacher participants have praised the project and its impact on their teaching. Valorie Fayfich, from Lanier High School in San Antonio, Texas noted, "I am so excited about the tools that I received at the (SC 2000) conference. . . I have found so much information and tools that will enhance my teaching and help my students to be productive citizens in the future." The program has encouraged outreach efforts by participating teachers. Marcia Talkmitt of Slaton High School in Texas, stated "Though the NCSLP, I have become more passionate in my desire to provide additional mathematical modeling in the classroom. This motivated me to submit a grant proposal to Palm, Inc., requesting PDAs for teachers at my school and our students to use while collecting data for the modeling project we're developing. . . As a result of my involvement with the NCSLP and the associated Palm grant, I have established close relationships with numerous high performance computing centers as well as water and environmental organizations."

Further information about NCSLP may be found at <http://www.ncsec.org>.

## Special Giving Opportunity

By: Peter A Lewis, Member-at-Large, IEEE Foundation

As a long-time IEEE member, volunteer, and former staff member, I believe that IEEE members have a responsibility to share with the next generation the benefits that we have realized through our affiliation with this premier professional association. It is through support of pre-college and pre-professional education that this may be achieved.

This belief, and the fact that my wife informed me that it is time to downsize our material collections, led me to suggest to my friends that they make

contributions to the *IEEE Foundation – Educational Activities Fund* in lieu of giving me gifts upon my retirement from IEEE. This special giving opportunity provides a mechanism to support educational needs worldwide through the programs of IEEE and the IEEE Foundation.

So next time a birthday, holiday, or even a retirement rolls around, consider suggesting to your family and friends that instead of buying you a present that you really do not need or want, that they make a donation in your honor to the IEEE

Foundation. If you are interested in this giving opportunity, please contact the IEEE Development Office to obtain information about the IEEE Foundation that you can share with your family and friends.

The IEEE Development Office can be contacted by telephone at:

**+1 732 562 3915**

or by email at:

**[supportieee@ieee.org](mailto:supportieee@ieee.org)**



# Engineers Promote Technological Literacy Through In-Service Teachers Project

By: **Douglas Gorham**, IEEE Educational Activities

"Everything You Wanted to Know About Electric Motors But Were Afraid to Ask" is just one of the In-Service Teachers Project topics developed by IEEE volunteers to enhance the level of technological literacy among pre-college educators.

IEEE Section "champions" from Baltimore, MD, Toronto, Canada, San Diego, CA, Worcester, MA, St. Louis, MO, Florida West Coast, The Republic of South Africa, Twin Cities, MN, and Miami, FL participated in the first Educational Activities Board (EAB) In-service Teachers Project training session held in July 2001. The all day session, funded by the IEEE Foundation, focused on developing applicable, hands-on and technologically oriented presentations for pre-college educators and extensive discussion and practical strategies to develop partnerships with local schools and school districts.

Participating IEEE Sections developed a variety of technologically oriented topics, including:

- "Rocket Cars and Newton's Laws" (Miami, FL Section)
- "Signals – Their Math and Sound: Music, Noise, Speech, and the Auditory System" (Toronto, Canada Section)
- "Learn to Program and Test Robots For Classroom Use" (St. Louis, MO Section)
- "How Do We Communicate Using Radio Waves" (San Diego, CA Section).



**Ralph Painter**, IEEE volunteer, helps two teachers assemble an electric motor at the IEEE In-Service presentation held August 2001.

The Florida West Coast Section (FWCS) piloted the In-Service Project with its first presentation entitled "Build Working Models With Household Items" in February 2001. To date, nine IEEE volunteers in the FWCS have participated in four presentations involving 71 middle school and high school teachers who represent over 9,000 students.

Engineers and educators alike have provided positive feedback to the presentations. Ralph Painter, IEEE FWCS volunteer and presenter of the "electric motors" topic stated, "The In-Service Program provides one of those rare opportunities to serve the community and have fun at the same time. The teachers were enthusiastic, receptive and very appreciative of our time and effort. Since every teacher will influence many students, the In-Service Program is a good way to multiply the impact that IEEE members can have on young people." Joe McConkey, a middle school technology educator from King Middle School in Bradenton, Florida said, "The electric motor in-service activity was great! I am currently using it with my students as a hands-on activity."

**What's next?** The second round of training of at least four additional IEEE Section "champions" is scheduled for December 2001. The four Sections scheduled to participate are: Chattanooga, TN, Oakland-East Bay, CA, Dallas, TX, and North Jersey, NJ. On-line training for the In-service Teachers Project will be posted at the IEEE EAB pre-college web site for other interested Sections by June 2002. If you are interested in starting an In-Service Teachers Project in your Section, you may contact Douglas Gorham, IEEE Pre-College Education Project Manager, by email at [d.g.gorham@ieee.org](mailto:d.g.gorham@ieee.org).



**Middle** school science and technology teachers assemble an electric motor at an IEEE In-Service presentation conducted by the IEEE Florida West Coast Section.

## 2001 IEEE Student Branch Centers of Excellence

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

Eastern Mediterranean University in Turkey and Montana State University – Northern, Montana, USA are the latest IEEE Student Branches to be selected to receive a grant up to US\$5,000 to establish an **IEEE Student Branch Center of Excellence**. Designed to enhance the education and learning experience of electrical and computer engineering students; encourage an interest in the profession; and serve

as a central location for IEEE activities on campus, the **IEEE Student Branch Centers of Excellence Program** is now in its fourth year. A total of 23 Centers have been established thanks to financial support from the IEEE Foundation, the IEEE Life Members Committee, and IEEE members who have provided funding for their alma maters.

If you would like to learn more about this exciting program for students, please contact [student-services@ieee.org](mailto:student-services@ieee.org) by e-mail or +1 732 562 5527 by telephone. If you would like to find out how you can become a supporter of an **IEEE Student Branch Center of Excellence**, please contact the IEEE Development Office at [supportieee@ieee.org](mailto:supportieee@ieee.org) by e-mail or +1 732 562 3915 by telephone.



# Introducing Electrical Engineering/Technology to K-12 Students & Teachers

By: **Kenneth J. Reid**, IEEE Central Indiana Section

*Introducing Electrical Engineering / Technology to K-12*, sponsored by the IEEE Foundation, is a broad and ambitious program. The objective is to increase awareness and appreciation of electrical engineering and technology in K-12 students and teachers. The program allows for a wide variety of activities, allowing us to reach as wide an audience as possible. Specifically, three individual projects are tied together under this title: the *Mobile Electronics Manufacturing Line*, the *Young Scholars Summer Program in Electronics*, and an *Adopt-A-Classroom* project within elementary schools.

## The *Mobile Electronics Manufacturing Line (MEML)*

is a surface mount electronics manufacturing line contained in a 36-foot trailer, capable of being deployed to area schools or special events. Students touring the *MEML* can see the operation in action, and have the opportunity to operate all of the equipment inside, building their own small electronic assembly. The objective of deploying the *MEML* is to engage students in a real world electronics manufacturing operation, where they build their own assemblies. Former deployments have resulted in strong enthusiasm from the students and teachers involved. The *MEML* has been deployed on and off campus eight times in the past year, reaching over 280 students in the Central Indiana area.



Students at the 2001 *Young Scholars Summer Program in Electronics* assemble a Robo Jr. kit.

The *Young Scholars Summer Program in Electronics* allows students to come to a campus and experience classes in the University setting. They are exposed to many hands-on activities. During the 2001 program, students had the opportunity to assemble a Robo, Jr. kit, a basic line tracing robot ideal for student just beginning to explore robotics. This project reaches students from grades 5 through 10.

The *Adopt-A-Classroom* project was started in 1993 and has been very successful in the schools where it has been implemented. The IEEE Central

Indiana Section has sponsored a number of workshops showing engineers and teachers how the program works and how the students can benefit. Students in grades 3 – 6 are introduced to engineering with fun, hands-on activities.

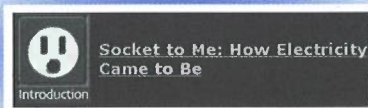
It is our hope that those students exposed to engineering and technology via these projects will develop an appreciation for engineering early enough to influence their career choice. Students who have been involved in these activities have stated that they loved the activities and the parents have expressed their appreciation to the instructors for explaining engineering to their children in a fun and exciting way. To learn more about these projects and their progress, please visit us on the web at <http://www.engr.iupui.edu/~reid/>.

## Virtual Museum to Launch Early 2002

By: **Kim Breitfelder**, IEEE History Center

As anyone reading today's headlines knows, young people are not getting the education needed to succeed in today's competitive and increasingly technology-oriented world. Report after report indicates that enthusiasm for math and the sciences drops off as children enter their teen years. This is especially true of minority students and girls. These facts do not bode well for the corporations who look to these young people to eventually fill technology sector jobs.

In 2000, the IEEE Foundation committed to addressing these concerns by providing a seed grant for a new educational outreach program, the *IEEE Virtual Museum (VM)*. Dedicated to educating pre-college aged students about how different electrical and computing technologies work, the *IEEE VM* promotes understanding of the roles engineering and engineers play in our society,



"*Socket to Me: How Electricity Came to Be*" is one of the IEEE Virtual Museum exhibits.

and strives to better prepare young people to be productive citizens in a progressively more technical world.

Tremendous progress has been made on the *IEEE VM*. As we approach our launch date of early 2002 it is gratifying to see the hard work of so many people coming together to create a new and unique service that reaches out to students and educators. As we

prepare for the launch of the site, we are making plans for the future. In addition to building new exhibits, we will also be collaborating with educational groups and educators, creating teachers' guides, involving IEEE student members, and eventually translating the site into many languages.

Since work began on the *IEEE VM* it has become clear that we are not just building a web site; rather we are building an educational resource and tool of which the web site is a major, but not the sole, component. As we continue to develop the web site, we will be cultivating a relationship between educators, students, and the world of technology. Please visit the IEEE Virtual Museum at <http://www.ieee.org/museum> and join us for a tour of the mysteries of science and technology, past and present.



# Global Equivalency of Accreditation for University Engineering Program

By: Lynn Murison, IEEE Educational Activities

Slovakian Minister of Education, Dr. Milan Ftáeník, was among the 50 distinguished invited participants from Central and Eastern Europe who attended the 8-9 July 2001 *IEEE Engineering and Computer Science Educational Program Accreditation Workshop* in Bratislava, Slovakia. Leaders of industry, government, universities, and IEEE Sections met to consider the problems and promises of global equivalency of academic accreditation for university engineering programs. Accreditation identifies engineering and computing programs that meet established quality criteria. Being accredited is a mark of achievement for a university, attracting the best and brightest students.

During the Workshop, funded by the IEEE Foundation, participants from Germany, Greece, Mexico, Slovakia, the United Kingdom, and the United States addressed the intellectual and the practical considerations in the quest for global equivalency in accreditation. The major theme of this workshop was the role of



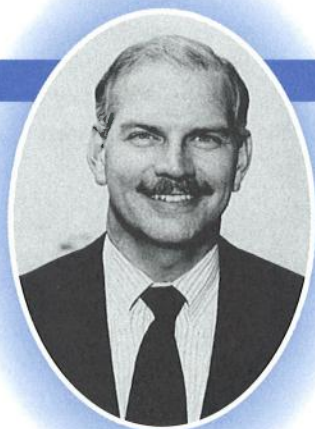
**Dr. Milan Ftáeník**, Slovakian Minister of Education, welcomes the participants to the *IEEE Engineering and Computer Science Educational Program Accreditation Workshop*.

IEEE members in the existing worldwide accreditation systems, and establishing accreditation systems in countries and regions where they no longer exist.

"The exchange of experience among the representatives from the United States, unifying Europe, and others," said Daniel Donoval, a workshop organizer from the Slovak University of Technology, "could contribute to the international acceptance of accredited study programs." He went on to say, "Many of the participants, particularly those from countries where there was no tradition in accreditation, appreciated the presentations and are looking forward to receiving the proceedings from the workshop on CD-ROM."

The Workshop Proceedings are available on CD-Rom from IEEE Educational Activities.

As a result of this Workshop, Jerry R. Yeorgan, former IEEE-EAB Vice President and the 2002 ABET President, was invited to make a presentation on 1-2 October 2001 to an assembly of the universities of Croatia. If you are interested in learning more about the Workshop or the possibility of a presentation at your university, you may contact James T. Cain, Chair of the newly established IEEE EAB Committee on Global Accreditation Activities at [t.cain@ieee.org](mailto:t.cain@ieee.org).



**H. Vincent Poor**

## IEEE Graduate Teaching Award

H. Vincent Poor, a Professor from Princeton University, Princeton, NJ, is the recipient of the 2001 IEEE Graduate Teaching Award. He is being recognized "for exemplary teaching, inspired guidance of graduate students, developing graduate curricula, and inculcating enthusiasm in graduate research in classical and computational electromagnetics." This award, sponsored by the IEEE Foundation, was presented during the 2001 IEEE International Symposium on Information Theory at the Omni Shoreham Hotel in Washington, DC, USA.

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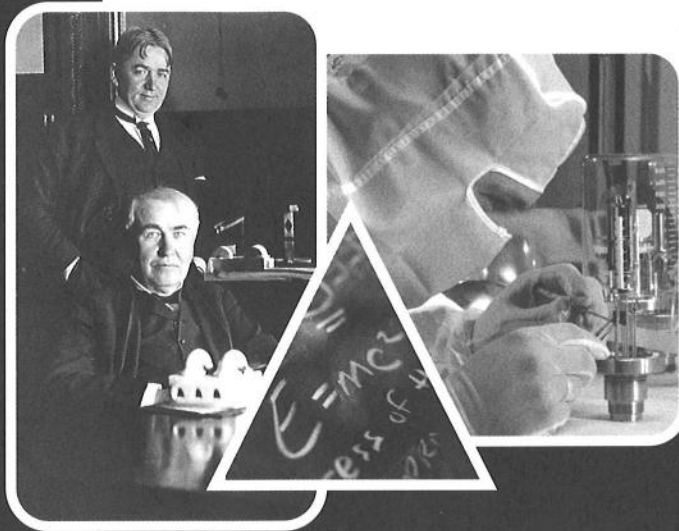
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