

the institute



PART-TIME Passions

A SPEED DEMON, AND A TELLER OF TALES

IEEE members do more than just work all day. Many have intriguing passions, such as driving race cars and writing adventure novels. **P. 16**

IEEE 802.11: From BlackBerrys To Bunnies

You may be surprised to discover just how many devices that you use every day rely on the IEEE 802.11 Wireless LAN standard. **P. 6**

ELECTION

GETTING TO KNOW APTER, RAY, AND VIG

There's a lot more to the candidates for 2008 President-Elect than you may know. Find out what they're about. **P. 5**

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STANDARDS From risk management to traffic incident management, three IEEE Standards Association products make their debut.

BOOKS Learn about some of the latest Wiley-IEEE Press books, and read an interview with one of the authors.

WHO GOES THERE?

By combining several different biometric-screening systems, such as those that analyze the geometry of a person's palm or the flecks of color in an iris, it's possible to identify someone more accurately. **P. 7**

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– Dr. Marc Verdiell, Director, Optical Technology Office, Intel



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IEEE AROUND THE WORLD

REGION 7: Canada

- 2006: Higher-grade membership (excluding students and life members) increases by 407, bringing total to 12 433.

REGION 6: Western United States

- Palouse Section, in Washington, formed.
- Student branch at University of California, Berkeley, receives US \$1500 IEEE Student Branch Enterprise Award to fund robotics competition.
- 2006: Utah State University, Logan, forms WIE Student Branch Affinity Group.

REGION 3: Southeast United States and Jamaica

- 2006: Student branches add 204 students, bringing total to 4767.
- 2006: Northwest Florida Section forms WIE Affinity Group.

REGION 1: Northeastern United States

- Clarkstown Central School District in Rockland County, N.Y., receives US \$7000 from the IEEE Foundation to fund Project SMART (Science, Math and Rotocraft Technology), in which students ages 11 to 14 assemble a helicopter.
- 2006: Student branches add 161 students, bringing total to 4187.

REGION 8: Europe, Middle East, and Africa

- Region receives US \$9000 IEEE Foundation grant for a historical preservation program, including oral-history interviews with technologists and a history workshop on developments in electrical and computer engineering.
- Middle East Technical University Student Branch in Ankara, Turkey, receives US \$10 000 IEEE Foundation grant for a contest in which students develop Web sites for their universities.

REGION 8 (continued)

- 2006: Higher-grade membership increases by 5.6 percent; the 2359 new members bring the total to 44 417.
- 2006: Student branches add 1544 members, bringing total to 16 439.
- 2006: Bosnia and Kuwait sections form Women in Engineering (WIE) Affinity groups.

REGION 10: Asia and the Pacific

- Three new sections formed: Vietnam and Nanjing and Wuhan sections in China.
- Bangladesh University of Engineering and Technology Student Branch receives US \$1500 IEEE Student Branch Enterprise Award for a design project on "Sustainable Technology Solutions for Providing Information and Communication Technology-Based Services to Rural People."
- Calcutta Section forms WIE Affinity Group.

REGION 10 (continued)

- 2006: Student membership jumps by 5236 to 26 106.
- 2006: WIE Student Branch Affinity Group formed at Royal Melbourne Institute of Technology, Australia. Others formed at Beijing University of Posts and Telecommunications; Easwari Engineering College, Tamil Nadu, India; Thangal Kunju Musaliar Institute of Technology, Karuvellil, India; and University of Auckland, New Zealand.

REGION 9: Latin America

- 2006: Higher-grade membership increases by 6.9 percent, to 7345.
- 2006: Universidad Santiago de Cali, Colombia, and Universidad Inca Garcilaso de la Vega, Peru, form WIE Student Branch Affinity groups.

LEGEND

- REGIONS 1-6
- REGION 7
- REGION 8
- REGION 9
- REGION 10



Check Your Addresses And Get Ready to Vote

The annual IEEE election is fast approaching. To ensure you receive your ballot and package of election materials, check that your IEEE member profile has your current postal and e-mail addresses.

You can access your profile at myIEEE (<http://www.ieee.org/myieee>) or through the Update Profile Application (<http://www.ieee.org/coa>). If you have a problem, contact Member Services, member-services@ieee.org. If you

do not have access to a computer, call Member Services at +1 800 678 4333 or +1 732 981 0060.

The IEEE Board of Directors, at its February meeting, approved several changes to the 2007 election process. This year, the ballot and booklet containing the candidates' biographies will be mailed only to members who voted by paper ballot in the 2006 election. These will also be mailed to new members and those elevated to member or graduate student member grades on or before 30 June 2007,

and who are eligible to vote for the first time.

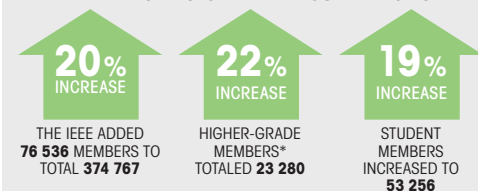
Members who transmitted their ballot electronically or failed to vote in last year's election will not receive the booklet. Instead they will be provided with information on how to access the booklet electronically from the annual election Web site at <http://www.ieee.org/election>.

The ballot package is scheduled to be sent via first-class mail to all eligible voting members on or before 1 September.

For more information, contact Carrie Loh, IEEE Corporate Activities, c.loh@ieee.org.

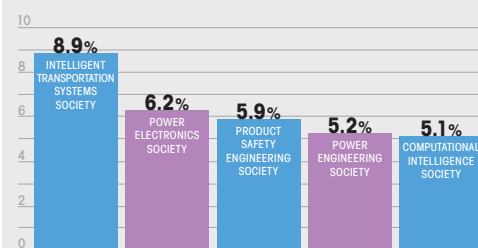
2006 BY THE NUMBERS

NEW MEMBERSHIPS GREW BY DOUBLE DIGITS








* EXCLUDES STUDENT AND LIFE MEMBERS


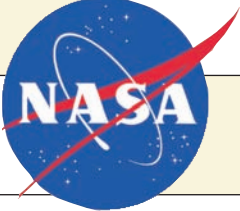
SOCIETIES INCREASED MEMBERSHIP




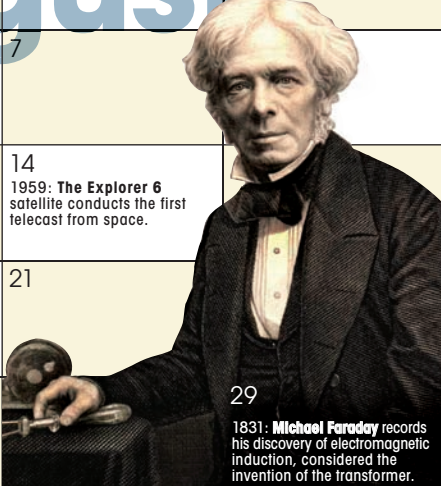


ALL FIGURES SHOW GROWTH OVER 2005

CALENDAR

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
<h1>June</h1>						
Summer is a slow time of the year for events, but a few IEEE meetings are taking place.						
3 1875: Alexander Graham Bell and Thomas A. Watson transmit first speech sounds electrically.	4	5	6	7	8	
10	11 2008 President-Elect candidates debate in Philadelphia. ♡	12 12 to 17 June: IEEE organizational units meet in Philadelphia.		14 1951: First commercial computer, UNIVAC I , put into service by the U.S. Census Bureau.	15 1752: Benjamin Franklin proves theory that lightning and electricity are related.	
17 1928: Amelia Earhart , as a passenger, becomes the first woman to fly across the Atlantic. 	18 	25	27	28	21 1948: The Manchester University Mark I prototype becomes the first stored-program computer to execute a program successfully.	23
					28 	30 1961: Lee de Forest , inventor of the three-element vacuum tube, dies in California.

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
<h1>July</h1>						
1 Nominations due for IEEE medals, corporate recognitions, honorary memberships, service awards, and prize papers.	2 1928: W3XX , the first U.S. television station, starts transmitting.	3	4	5	6 1924: The Radio Corporation of America demonstrates its new method for sending facsimile images by radio.	7
8	9	10 1962: Telstar , the first active communications satellite, is launched.	11	12 2001: A Web worm infects Microsoft Internet information servers, one of the most costly computer attacks.	13 13 to 14 July: Region 5 (Southwestern United States) Teacher In-Service Program (TISP) training workshop, in Dallas.	14
15 1965: NASA's unmanned spacecraft Mariner 4 flies past Mars and sends back to Earth the first close-up images of the planet.	16 1906: Willis Carrier files for a patent for a control system that regulates temperature and humidity, the forerunner of air conditioning.	17	18 1968: Gordon Moore [left] and Robert Noyce start up Intel Corp. in Mountain View, Calif. ♡	19	20 1969: Buzz Aldrin [below] and Neil Armstrong walk on the moon. 	
22 	23	24	26			
29 1958: NASA is established.		31 1964: Ranger 7 , a 2.4-meter-tall unmanned lunar module, transmits pictures of the moon's surface.				

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
<h1>August</h1>						
			1	2 1927: The concept of the negative feedback amplifier comes to Harold Black.	3 1976: Viking 1 sends back its first photos of Mars. 	4
5	6 1926: Western Electric and Bell Labs, along with Warner Bros. and Vitaphone, show first commercial sound movie .	7		9 9 to 11 August: Region 1 (Northeastern United States) summer meeting in Burlington, Vt.		11
12 1981: IBM announces a 16-bit personal computer , which quickly becomes a best seller. >> 		14 1959: The Explorer 6 satellite conducts the first telecast from space.		16	17 17 to 18 August: Region 9 (Latin America) TISP training workshop in Rio de Janeiro.	18
19		21		23	24 1995: Microsoft's Windows 95 operating system gets the most publicized software release ever. >> 	
26	27	29 1831: Michael Faraday records his discovery of electromagnetic induction, considered the invention of the transformer. 		30	31	

IEEE events indicated in red

ELECTION

A CHANGING
INSTITUTE

Welcome to our new look. We've learned through surveys that you often don't read *The Institute* because

you simply don't have time, but you still would like to know what's going on at the IEEE.

To help you, we've changed our design to present information in shorter bites—in articles with fewer details and with URLs for more information. And we're adding summaries of benefits, products, and services; putting stats in graphs; and using more pictures to tell stories.

To make things easier to find, we've separated the newspaper into sections: News is up front, and then come Features, Opinions, Benefits, People, and a general-interest section called Of Note. And we've added several departments: news from around the world, a calendar of events, career information, and stories about members with interesting hobbies. We'll continue to give you highlights of upcoming conferences.

We're still printing issues every quarter and putting the others on the Web. Because our printed pages are limited, we can't run all the sections in every issue, so we'll be printing some and putting others online. In June on our Web site, for example, you can find a new Books department, which features newly released Wiley-IEEE Press offerings and an interview with one of the authors. The new Standards department features—what else?—new and updated IEEE standards and standards products.

Every redesign of a publication is a work in progress, so let us know what you like and what you don't.

—Kathy Kowalenko, Editor

Getting to Know Apter, Ray, and Vig

BY KATHY KOWALENKO

With IEEE elections three months away, *The Institute* spoke with the candidates already on the ballot for 2008 President-Elect to learn more about them. Marc Apter, Pedro Ray, and John Vig were chosen as candidates by the IEEE Board of Directors.

Apter and Ray are first-time candidates, while this is Vig's second try at the office. He came in second behind Lewis Terman for 2007 President-Elect.

All three men are, in a sense, entrepreneurs. Apter and Vig work as independent consultants after retiring from U.S. government agencies. Ray is the founder of one of the largest architectural design firms in Puerto Rico, and he owns several other companies.

Apter, an IEEE senior member, is a consultant on information assurance and computer security policy for EG&G Technical Services, in Gaithersburg, Md., a subsidiary of URS Corp., in San Francisco. He began consulting following his retirement in 2000 after 36 years at the U.S. Naval Sea Systems Command, in Washington, D.C.

Vig, an IEEE Fellow, is a technical consultant to Systems Planning Corp., in Arlington, Va., and also serves on the technical advisory board of SiTime Corp., a Silicon Valley start-up. He retired in 2006 after 36 years as an electronics engineer leading R&D programs at the U.S. Army Communications and Electronics Research, Development, and Engineering Center, in Fort Monmouth, N.J.

Ray, a senior member, is chief executive of Ray Engineers, a company he founded in Old San Juan. He also owns Magdalena 1212, a builder of luxury, high-rise condominiums, and River Stone Development, which erects office buildings.

The three are familiar with how the IEEE runs, having served on the



The candidates running for 2008 IEEE President-Elect are (from left to right) Marc Apter, Pedro Ray, and John Vig.

IEEE Board of Directors and as directors of its regional or technical activities boards. Vig was director of Division IX in 2002 and 2003, and he was vice president of IEEE Technical Activities in 2005. This is Ray's second year as vice president of Regional Activities, succeeding Apter, who held that position in 2004 and 2005. Ray was IEEE treasurer in 2003 and 2004 and director of Region 9 (Latin America) in 2000 and 2001. Apter was director of Region 2 (Eastern United States) in 2001 and 2002.

TECHNICALLY SPEAKING When *The Institute* interviewed Vig during last year's run [see "Up Close with the President-Elect Candidates," June 2006], he was a recent retiree who had just begun consulting. "I didn't really retire, I just changed jobs," he explains.

Today he offers his expertise on frequency-control issues and on projects that involve quartz crystals and other kinds of oscillators, including cutting-edge technologies such as nanoelectromechanical

systems. He is helping SiTime with its goal of displacing the low end of the quartz business with silicon-based resonators and oscillators.

In Apter's role as a consultant, he works on projects involving information assurance and computer security for EG&G's clients, which include the U.S. Department of Defense. Although he likes the flexibility of working from home and "not sitting and looking at four cubicle walls all the time," he cares less for the other part of his job: drumming up new business and marketing his services.

Ray, as chief executive of Ray Engineers, is responsible for developing strategies for the 100-employee company, marketing its architectural services, and bringing in new business. He likes the challenge of new projects such as the cruise ship terminals and three piers he just completed in Old San Juan. For him, the worst part of his job is dealing with personnel issues. "I think that sentiment is shared by a lot of people," he says.

Who inspired these three to take

up physics and engineering? For Vig and Ray, it was their fathers. Vig's was a successful jewelry manufacturer and a self-educated man. Ray's father was an engineer who owned an engineering firm.

For Apter, it was the school system. When he was in high school, becoming an engineer was the career choice for young men who excelled at math, he says. And Apter excelled. He received his bachelor's of science degree in electrical engineering in 1964 from Pennsylvania State University, in University Park.

Vig earned his bachelor's degree from the City College of New York also in 1964, and master's and doctoral degrees from Rutgers University in New Brunswick, N.J., in 1966 and 1969, respectively—all in physics.

Ray received bachelor's and master's degrees in electrical engineering from Georgia Tech in 1982 and 1983, respectively.

All three candidates say that the key to a successful career is to never stop learning.

"Nearly everything today is interdisciplinary," Vig says. "Not only is

it important for a person to keep up with his or her own field, it's also important to maintain an awareness of advances in other fields of engineering and science. It also helps to know about the soft sciences, such as finance, effective communications, and leadership."

Members should make time to further their education, according to Apter. "An engineering degree is not enough," he says. "Learn how to write and how to make presentations. And consider getting a professional engineer's license. It might make a difference whether you get the next job or the next promotion."

"Whether it's reading books or going to IEEE meetings, you need to continue your education," Ray says. "You need to differentiate yourself. If you don't, you're not going to advance." He returned to school to learn about running a business, and he graduated in 2001 from the Harvard Business School.

"Engineers are used to looking at finite solutions; we like one answer," he says. "Business schools teach you that there's no one solu-

tion; they show you to see the world in different ways."

GREAT THINGS What is it about the IEEE that keeps the three candidates volunteering, year after year? Vig joined shortly after graduating from college, while Apter and Ray joined as student members.

For Vig, it's "all the great things the IEEE does. The IEEE's products and services—primarily publications, conferences, standards, educational products, and geographic activities—are making the world a better place," he says.

Ray likes the networking opportunities. "I enjoy the people, and I've made a lot of friends around the world," he says. "I like to be part of this community, and I cherish the relationships I've built."

Apter has stayed, he says, because he counted on the IEEE to help him at each stage of his career. When he started out, he turned to its publications to get the practical information he needed. "The information matched up perfectly to the type of job I had," he

says. Later in his career, it was meeting experts at conferences. Now the networking opportunities are more important to him.

In their spare time, the three men know how to have fun. Ray likes to ski and cruise around the Caribbean on his yacht with his wife, Nilsa, and their two daughters.

Apter travels with his wife, Rose, and their five children and six grandchildren. He also enjoys reading biographies and history books.

Vig pursues his passion of ballroom dancing with his wife, Arianna. He also volunteers for the Environmental Commission in his hometown of Colts Neck, N.J., and is the editor of the township's Web site.

The ballot package for the election is scheduled to be sent via first-class mail to voting members by 1 September. Apter, Ray, and Vig may be joined on the ballot by members who successfully petition the IEEE membership to become candidates for 2008 President-Elect.

To learn more about each of the candidates, visit <http://www.ieee.org/election>. ■

IEEE 802.11: From BlackBerrys To Bunnies

BY JOHN R. PLATT

The next time you place a call on your BlackBerry or play a game on your Nintendo Wii, you may have the IEEE 802.11 Working Group to thank.

The latest BlackBerry models build upon the strength of the IEEE 802.11 Wireless LAN standard to create a communications network that saves companies money while keeping their employees better connected. How? Well, in addition to making typical phone calls through cellular networks, many BlackBerrys, such as the model 7270, also operate on IEEE 802.11 wireless networks, connecting users at a corporate site to local files and allowing them to place secure phone calls through a voice-over-Internet-Protocol (VoIP)

service. Users can stay connected via the Internet, instead of on more expensive and sometimes less reliable services.

Other communications devices, such as the Linksys WIP300 Wi-Fi VoIP phone, also depend on IEEE 802.11 WLAN standards to provide users with a variety of connection options. Manufactured by Cisco Systems, the Linksys phone features IEEE 802.11g networking for broadband Internet connections. It also can connect via traditional cellphone networks, as well as via Bluetooth and three other wireless network standards.

GAMES, TOO Road warriors aren't the only ones using IEEE 802.11 standards. Digital war-

riors may find the WLAN specifications just as vital to their game play, without even knowing it.

Take the Nintendo Wii, for example. Although the Wii's haptic controllers get the most newspaper coverage, the game system uses IEEE 802.11 to connect to home computer networks, allowing online, multiplayer gaming, and fast downloads of software updates and patches. In effect, IEEE 802.11 untethers the device from the wall and allows gamers to keep their systems performing at maximum levels.

Another fun device is the Nabaztag Wi-Fi Smart Rabbit, a 23-centimeter-tall plastic bunny manufactured by the French company Violet. The Smart Rabbit uses IEEE 802.11 to connect to your computer network, then moves its ears and lights up when you get e-mail. The bunny also can read RSS feeds out loud, announce weather reports,

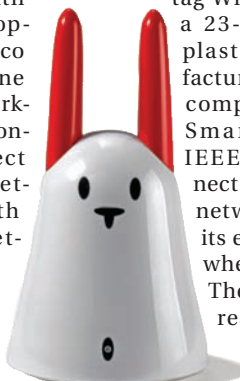
and play MP3s, among other things. At last year's Wired NextFest in New York City, a chorus of 100 Nabaztags was programmed to sing an original opera. Your own usage may vary.



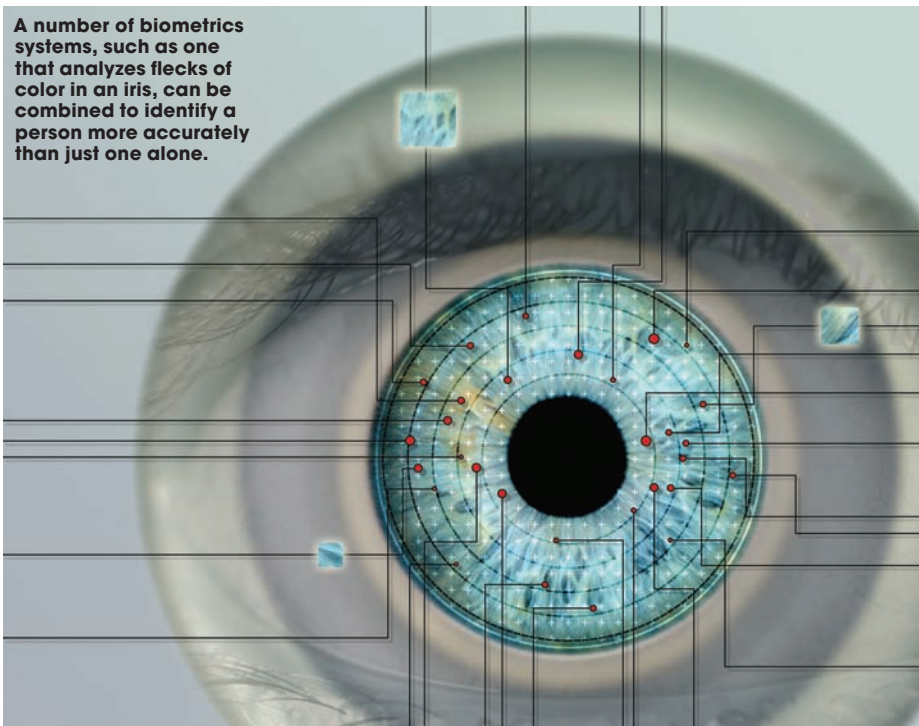
HEALTH CARE IEEE 802.11 is also poised to make a mark with physicians. A medical tablet PC coming soon from Philips and Intel and a similar device from

Motion Computing are expected to improve information accuracy and work flow for health care systems. The Philips/Intel device, for example, combines a touch-screen interface with IEEE 802.11 networking and a digital camera to create a data system for hospitals and other medical facilities. The Motion Computing C5 medical tablet PC [photo], meanwhile, has the option of taking RFID readings, making for faster patient processing as medical personnel scan the wrist straps patients receive at check-in.

For information on the IEEE 802.11 Working Group for WLAN Standards, visit <http://www.ieee802.org/11>. ■



A number of biometrics systems, such as one that analyzes flecks of color in an iris, can be combined to identify a person more accurately than just one alone.



Who Goes There?

Advances in biometrics make identification faster and more accurate **BY TRUDY E. BELL**

Those charged with guarding a nation's borders and critical facilities all share one essential challenge: they want to authenticate the identity of all who pass, minimizing the chance of letting unauthorized persons through (false positives) or of stopping people who are authorized to pass (false negatives).

In addition, checkpoints at airports and customs posts have an equally pressing need: to move people through quickly and avoid long waiting lines.

So what are a nation's guardians to do? Do they go for accuracy or speed?

Can they have both? The answer could be yes—by combining multiple screening techniques that would, in effect, compensate for each one's shortcomings.

Ever since the terrorist attacks of 9/11, the use of biometrics—the characterization of human beings based

on physiological and behavioral features and traits—has grown. Such techniques are not all new. Photographs and fingerprints have been used for a century. More recently, systems have been devised for measuring the geometry of the palm or hand; recognizing the pattern of blood vessels in a retina or the flecks of color in an iris; or marking the pattern in a person's DNA. And there are still other techniques, including ones that recognize voices or the way people walk.

LET'S MEET To share information about the newest advances, the IEEE is cosponsoring the Biometrics Symposium 2007, to be held from 11 to 13 September in Baltimore. Three IEEE groups—the Computational Intelligence Society, the Signal Processing Society, and the Technical Activities Board's Committee on Biometrics—are the symposium's technical sponsors.

The symposium will feature papers on cutting-edge recognition, identification, and identity-verification methods, such as identifying individuals using electroencephalograms. Among other sessions are ones addressing the securing of identity data by combining encryption with biometrics; the societal and legal implications of biometrics—which addresses privacy and civil liberties concerns; and the development of standard tests for verifying the performance claims of equipment designers and manufacturers.

There are two basic concerns about the technologies used to screen large numbers of people, according to IEEE Fellow Evangelia Micheli-Tzanakou, professor and director of the Computational Intelligence Laboratories at Rutgers University in New Brunswick, N.J. "One is storing and retrieving the data—which only now is becoming less difficult as computers

get faster and more capable," says Micheli-Tzanakou, the IEEE's liaison to the symposium's planning committee. "The other is error tolerance—how much you let the machine err in identifying someone."

MULTIMODAL ATTACK If one biometric measurement is good, how much better are several? The more things measured, the more accuracy can go up. No one technique is good enough on its own.

"The buzzword is multimodal biometrics—authenticating a person's identity by matching four or five different biometric measurements instead of just one," says IEEE Senior Member Kostantinos Plataniotis, associate professor of electrical and computer engineering at the University of Toronto. Multimodal biometrics involves security screening that goes beyond a human guard or a machine matching a person's face to the photograph in, say, a passport. Instead, the person's iris or retina also might be scanned to see if stored patterns match a given identity, and the inside of a cheek might be scraped for a fast DNA test.

"Each biometric measurement technique has an accuracy problem. It is extremely unlikely, however, that four or five biometric measurements would combine in exactly the same way for the identification of more than one person," Micheli-Tzanakou explains. Moreover, the different biometrics could cross-check identity in case an aspect of the person changes.

"Face recognition is extremely good, but a person's face can change surprisingly

with illness, diet, or age, as well as with the application of cosmetics, a change in hair color or style, or a sun-tan," she continues. "Voice recognition can be temporarily thrown off by congestion from a cold. But again, it is unlikely that four or five biometric measurements would all change at once."

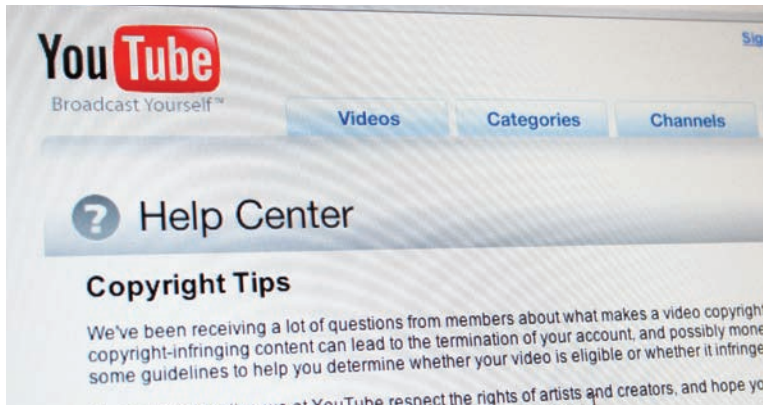
A number of biometric characteristics can be checked relatively quickly, proponents say. "Gait analysis—observing the periodicity of how someone walks—can be done from a distance, without a person's knowledge," Plataniotis says. Placing a hand over a detector to check the geometry of the fingers and palm, speaking into a microphone for a voice check, and pressing a thumb to a sensor to verify a thumbprint are all checks that can be done without long delays.

Last year, several biometric techniques were applied to a new passport introduced by a dozen European Union nations. The passport relies on a photograph taken to exact specifications for machine face recognition, and it also includes a chip that stores biometric data about its owner. Data can be encrypted to prevent identity theft, and the chips can be queried and read from a couple of meters away. Similar chips are also appearing on airline boarding passes.

The hope is that in the future people will simply walk through a security checkpoint while monitoring devices chug away in the background, taking the identifying measurements of their bodies and comparing them with readings on a passport or boarding pass—with little or no delay. Stay tuned. ■

FOR MORE INFORMATION on the IEEE Biometrics Symposium 2007—which is cosponsored by the Center for Identification Technology Research, a consortium of the (U.S.) National Science Foundation, universities, and industrial companies—visit <http://www.citer.wvu.edu/bsym2007>. Information about standards for biometrics can be found at the U.S. National Biometric Security Project at <http://www.nationalbiometric.org>.

MARKETPLACE OF IDEAS



RESPONSES TO MARCH'S QUESTION

Will a Toned-Down YouTube Tank?

YouTube, the video-sharing Web site owned by Google, became popular by allowing users to upload almost any video, but that may soon change. YouTube has promised to use antipiracy software to track down and remove content that violates copyright law. Critics say taking down that content will lead to the Web site's demise because YouTube thrives on the free sharing of popular copyrighted TV shows and movie clips.

HOW DO YOU THINK THE ANTIPIRACY CRACKDOWN WILL AFFECT THE POPULARITY OF YOUTUBE?

A Necessary Measure

I think the enforcement of antipiracy laws and use of antipiracy software will reduce YouTube's popularity, but this must be done.

If I write an article or a book and pirate material for it, I'm subject to criminal prosecution. The same should be true for people who illegally upload copyrighted material to the Internet.

EMANUEL R. BAKER
Los Angeles

For Hobbyists

When I want to view commercial TV programs on my computer, I go to the shows' Web sites. These days most have entire episodes or at least short synopses available for viewing.

When I go to YouTube, I'm looking for personal videos, usually from fellow hobbyists who are into model railroading or people with other interests I share. I don't think removing copyrighted material will significantly decrease YouTube's usefulness.

RAY TURNER
San Jose, Calif.

Bootleg News

The most-viewed videos on YouTube are amateur videos, which are usu-

ally royalty-free. Moreover, big news stories that introduced people to YouTube were based on those videos. For example, I was among millions of Egyptians who watched footage of Egyptian police abuse.

The British Broadcasting Corp. recently announced it will not hunt down its illegally shared copyrighted material on YouTube, and it may even replace some of these videos with higher-quality versions. I think many of the media companies will follow the BBC's policy. It is the media companies that benefit most from YouTube—not the other way around.

WESAM ELSHAMY
Cairo

Shared Memories

YouTube is part of pop culture. It's often used as a way to remember past events and to convey opinions about social issues. Here's an example of how YouTube fulfills this purpose:

RCTV, the oldest TV channel in Venezuela, is about to lose its broadcast license for what seem to be purely political reasons. Clips from the station's popular shows have been uploaded to YouTube, initiating wide

discussion of the licensing situation. As a Venezuelan residing outside my country, I think it would be a pity to see what may be the best public record of the soon-to-be closed channel banned on YouTube.

IVAN VERA
Enschede, Netherlands

Venue for Artists

I have never used YouTube for viewing commercial TV shows and movie clips. Instead, I like to look at clips from enthusiastic amateurs and professionals who want to advertise their art to a wide audience. I hope any lawsuit against YouTube doesn't lead to the demise of video-sharing sites just as legal challenges led to the demise of Napster.

I would like to see a strengthening of YouTube's antipiracy software and the continued free sharing of clips that copyright owners put into the public domain.

PETER TOBIAS
Minnetonka, Minn.

An Altered Form

This popular Web site gives budding artists an outlet to express their creativity without the expense of an agent, producer, or studio. It's similar in function to the label-less music sites where recording artists can post their work and gain fans without having to deal with the music industry's bureaucracy. But with this new technology comes new problems.

As a society, we have agreed to provide some protection for intellectual property: to acknowledge the right

of creators to control what they have created and gain some remuneration for their efforts. Just because a new technology makes it easier to violate those rights, it does not make such violations acceptable. I feel it is ethically irresponsible—even though it is simple—to post anything without an owner's express permission.

YouTube will survive, but in a slightly altered form. If it doesn't, then it shouldn't.

DENARD LYNCH
Saskatoon, Sask., Canada

Free Stuff

The antipiracy crackdown on YouTube will certainly affect its popularity. The simple reason is, to quote Linus Torvalds, "Software is like sex; it's better when it's free." If something is free, we grab it, and it often doesn't matter whether we need it or not.

NISHANT MODAK
Akola, India

Building a Community

YouTube is a community; there are ongoing debates on politics and religion, do-it-yourself information, and amateur music. The site has a lot of guitar-tutoring videos where people demonstrate how to play popular tunes. YouTube is a perfect venue for that kind of thing. Even engineering stuff is posted.

It's still fun, even without *The Daily Show* clips, which have been removed, but I bet they'll return before the year is out.

JIM LYNCH
Grand Island, N.Y.

Does Your BlackBerry Chain You to Work?

A study released in February by the research group Digital Life America shows that people are split over whether it's good to be constantly connected to work through wireless "smartphones" such as the BlackBerry. Although many smartphone users report they feel more productive, others say there are major drawbacks, including working longer hours and having less personal time.

IS ALWAYS BEING CONNECTED TO YOUR JOB A BLESSING OR A BURDEN?

MAIL: The Institute, IEEE Operations Center, 445 Hoes Lane, Piscataway, NJ 08855-1331 USA;
E-MAIL: institute@ieee.org; **FAX:** +1 732 235 1626.

RESPOND TO THIS QUESTION
by e-mail, fax, or regular mail. Space may not permit publication of all responses, but we'll try to draw a representative sample. Responses will appear in the September issue and may be edited for brevity. Suggestions for questions are welcome.

LETTERS

In the Name of Safety

I found "Standards for Car Talk" [March, p. 1] most informative. However, I believe the author is being naive when he writes, "More intrusive uses, such as tracking cars that speed or ignore stop signs and traffic lights, probably would not be allowed in the United States, both for privacy's sake and lest they discourage car owners from adopting the system."

Once the WAVE or a similar car-tracking system is installed on the majority of vehicles (likely by federal mandate), state and local authorities will be licking their chops over the potential revenue that could be extracted from a car owner by automatically sensing minor or alleged infractions of traffic regulations. The political pressure to allow this will be tremendous, all in the name of "safety," of course.

CHARLES SULLIVAN
Greensboro, N.C.

Incentives Needed

As an inventor of a safety system called Smart Automobile, which senses dangerous driving behavior before warning the driver or the police, I found "Standards for Car Talk"

to be very interesting. However, the author's comment that tracking cars that speed or ignore stop signs and traffic lights probably would not be allowed in the United States seemed unreasonable.

For a system like mine the insurance industry should offer incentives, such as reduced insurance premiums for car owners using the system, because the price of traffic safety is not quantifiable.

VIC PHANUMPHAI
Bangkok

Expertise Essential

While "Puzzled by Peer Review?" [March, p. 12] has many useful suggestions for providing service as a reviewer to IEEE journals, it creates the impression that general editing skills are sufficient. I have found it is essential to have knowledge of the subject matter to perform a good review. The technical merit of an engineering article cannot be judged without that.

DAVID A. DE WOLF
Blacksburg, Va.

Ignore Gender

I get really tired of the women-in-engineering articles ["Real-World

Projects Can Make a Difference," March, p. 14]. I would assume that 75 percent of members who read *The Institute* are male, and most probably do not care about the lack of women engineers. The field's demographics are what they are, and I think most people see this as a nonissue. If women want to pursue engineering, fine. If they don't, that is fine, too.

The issue should rather be about getting more U.S. engineers, and better benefits and recognition of engineers in the U.S. workplace. Persuading young people who are more interested in sports, music, and drugs to become engineers is probably an impossible task, but it is more vital than concentrating on women alone.

ROBERT RODGERS
Gibsonia, Pa.

Don't Blame the Internet

The two March articles on plagiarism ["Copy-and-Paste Papers" and "The Plagiarism Problem," p. 10 and

p. 11] both make the same error: that the Internet is to blame. The Internet is no more to blame for plagiarism than a car is to blame for running over a pedestrian in a crosswalk. When we are dealing with human behavior, it is important that we properly attribute responsibility for any actions. The Internet may make it easier to cheat, but it is the cheater who is to blame.

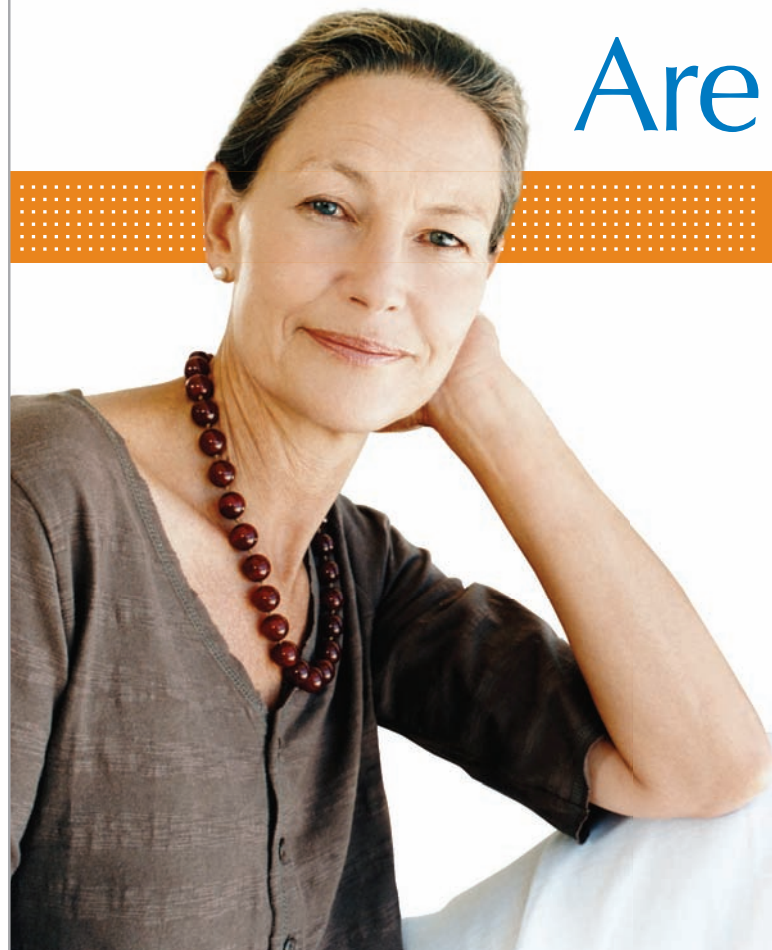
BOB COLLINS
Sunnyvale, Calif.

Addition & Correction

In "Three Share Education Prize" (March, p. 4), it should have been noted that Harold S. Goldberg was the first chair in 1973 of the IEEE United States Activities Committee, which was a committee of the IEEE Board of Directors.

John J. Guarrera, 1974 IEEE President, died on 6 December 2006, not 7 December as noted in "In Memoriam" (March, p. 19).

Send your letters, which may be edited for brevity, to *The Institute*, IEEE Operations Center, 445 Hoes Lane, Piscataway, NJ 08855-1331 USA; fax: +1 732 235 1626; e-mail: institute@ieee.org.



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Envisioning The Future IEEE

Alan Kay, a renowned visionary and pioneer in modern computer science, once said, "The best way to predict the future is to invent it."

As we consider the future of the IEEE, we are reinventing our organization in the context of a fast-changing profession and a fast-changing world. Unlike the three- to five-year strategic plans of the recent past, our time horizon is now 10 to 15 years.

The IEEE is not alone among professional organizations taking a longer look ahead. The (U.S.) National Academy of Engineering's Engineer of 2020 project, in seeking to identify the attributes of the engineer of the future, found that tomorrow's broadly educated engineers will be analytical, business savvy, and effective communicators. They will also be lifelong learners, business and public service leaders, as well

as ingenious, flexible, ethical, and creative individuals.

That matches much of what the IEEE has found in its own global research. For the past several years, the IEEE has been examining such topics as workplace changes, emerging technologies, and global trends in the profession. For example, data on workplace trends indicate that in 10 years, 90 percent of engineering knowledge will be available on the computer.

Furthermore, few technology professionals will have permanent jobs, and the use of teams of task-focused, project-specific specialists, consultants, and contractors will be more the norm than it is today. Global economic integration and advances in technology are increasing the intensity of work—that is, increasing workloads and drastically shortening deadlines—as well as the rate of technology change and the pressure on personal lives. The bar for innovation is rising, and our profession is multidisciplinary and collaborative—requiring hitherto unequalled cooperation and communication.

Other research has continued on IEEE internal processes for publishing, running conferences and meetings, improving the value of membership, and addressing changes in the international market for standards. Armed with such research and surveys of IEEE members and our customers, the IEEE Board of Directors is applying strategic thinking to examine what the IEEE of the next decade and beyond will look like.

Opening dialogues among Board

members have focused on how strategic thinking can affect the organization's direction and structure. Discussions are expanding to include more groups of volunteer leaders in the publications, standards, regional, educational, and technical activities areas, as well as in IEEE-USA. Initial discussions have confirmed the IEEE's core purpose and values, among them fostering technological innovation for the benefit of humanity; promoting service to society, the profession, and our members; encouraging volunteerism and a global focus; and building community worldwide.

Groups also were challenged to think about worthy goals for the next 15 years and to describe the IEEE of the future. One participant suggested, "The IEEE will be recognized as a major player in supporting the advances that will enhance the well-being of the world." Another said, "Technical professionals will recognize participation in the IEEE as an essential element of their successful careers."

One megaisue looms large: membership. The IEEE needs to determine the fundamental roles of its members and better understand members' and other stakeholders' needs, wants, and preferences. And we must understand better than we ever have how to be relevant to both traditional and totally new audiences. Through the process of strategic thinking, we can create the kind of organization that will make our envisioned future a reality.

You'll be hearing more about this effort to create the IEEE of 2020 and beyond. I invite you to share your vision of how the IEEE can prepare itself for the future by writing to me at jamieson.column@ieee.org. ■



Leah H. Jamieson

Leah H. Jamieson
IEEE President and CEO

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A Quartet of Web Site Updates

Some useful enhancements have been added to four IEEE services during the last few months **BY JOHN R. PLATT**



IEEE XPLORE

<http://www.ieee.org/ieeexplore>

IEEE Expert Now educational products and IEEE Standards Online subscription packages have recently been added to the IEEE Xplore digital library.

IEEE members can now buy individual peer-reviewed tutorials from the Expert Now collection. The hour-long, interactive, multimedia courses contain the latest information on existing or emerging technologies presented by leading experts. To review the course catalog, visit <http://ieeexplore.ieee.org/modules/modulebrowse.jsp>.

Moving the IEEE Standards Online subscription packages from their own database into IEEE Xplore makes searching for a standard easier than ever before. You can now search standards by keyword or sorted by the standard's number. Draft standards are also available, as are archived standards and even those that have been withdrawn.

There are also new links to interpretations of standards, as well as to related documents and errata. What's more, users can sign up for e-mail that alerts them when revisions and new standards are added to the IEEE Xplore library.

Visit <http://ieeexplore.ieee.org/xpl/standards.jsp>.



IEEE JOB SITE

<http://www.ieee.org/jobs>

More job seekers and more jobs than ever are on the site, as well as a growing list of international job openings.

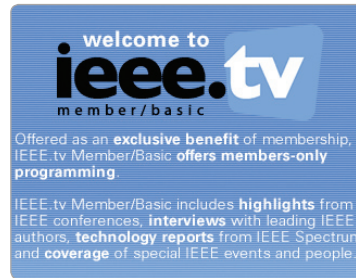
Job postings by employers grew by 14.3 percent in 2006 over the previous year, jumping to 11 467 jobs from 10 036. At the same time, the number of members using the site increased 14.7 percent to 47 086.

Employers listing job openings include ATI Canada, DoCoMo Communications Labs, Draper Labs, Google, INRIA, Phillips, and Siemens.

"Google has just renewed its unlimited posting deal for a third year and will be adding many non-U.S. opportunities soon," says Michael J. Buryk, business development manager of recruitment advertising for IEEE Media, the department in New York City that oversees the site. "Boeing has a major push on for new hires and signed its first unlimited posting contract with the Job Site in January," he says.

Unlimited postings means a company can list as many job openings as it wants instead of paying for a specific number.

Plans are under way to redesign the site this year to provide a new look and feel, along with more content geared to job seekers and the companies advertising job openings.



IEEE.TV

<http://www.ieee.org/ieeetv>

Two new IEEE.tv features examine the technologies behind wind power and careers in biomedical engineering.

IEEE.tv is the IEEE's Internet-based video service that covers advanced technology and other topics. The program lineup includes summaries of information presented at IEEE conferences, overviews of books put out by Wiley-IEEE Press, discussions of employment trends, and descriptions of new products and services introduced by the institute. Most videos are available exclusively to IEEE members holding an IEEE Web account, but several may be viewed by the general public as well.

"Wind Power—The Technology" provides an overview of the topic, as well as its history, in a series of interviews of experts conducted at the 2006 IEEE Wind Power Symposium held in Washington, D.C. The program highlights activities in China, Europe, and the United States.

"The Emerging Field of Biomedical Engineering" focuses on career possibilities. It features interviews with engineers working for both large and small employers discussing the nature of their work.



MYIEEE

<http://www.ieee.org/myieee>

The myIEEE online membership portal recently updated its career-development features.

The new Professional Desktop now lets members search the IEEE Job Site and the IEEE-USA Consultants Database directly from the portal rather than by navigating to different Web sites. In addition, new myIEEE modules link to IEEE's Mentoring Connection site, where members can register to mentor a young engineer or seek a mentor for themselves, and to IEEE-USA's Career Navigator site, where they can seek career advice.

Through myIEEE, members can also view details of their IEEE membership, including a list of the societies they belong to and the publications they subscribe to. They can also use the portal to contact local IEEE sections, find upcoming conferences, and read articles from *IEEE Spectrum* and *The Institute*.

The portal includes the Knowledge Desktop, which consolidates information about IEEE's research databases and subscription-related benefits.

Another section of the portal, the Community Desktop, links to information about local and worldwide networking opportunities, information on becoming an IEEE senior member, and a list of upcoming conferences.



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CAREERS



The IEEE Mentoring Connection

Where to go for answers **BY CATHY DOWNER**

Engineers with little on-the-job experience are faced with a stark choice: sink or swim. Experience, by definition, takes years to develop. But not if you have a mentor—perhaps a knowledgeable older professional, a hotshot designer, or a dapper young academic to whom you can turn to for advice. This is where the IEEE Mentoring Connection comes in. The program connects young professionals and recent grads with IEEE members willing to devote time to guide them in their professional development.

How helpful can a mentor be? You judge by some of the questions and answers that have passed between mentors and protégés in the program:

Q: I am due for my first performance review. How should I approach it?

A: Prepare an outline of your projects or a list of your job responsibilities that you handled during the year, and their results—including good and bad. Be prepared to explain how the projects progressed. If you were the project leader, have budget numbers and, if possible, final figures to validate expenses and back up the decisions you made.

Q: I have so many priorities on my desk that I don't know which to tackle first. How do I manage this?

A: Don't think you have to do everything by yourself. Ask your supervisor for help. Make a list of your responsibilities and priorities, and ask for help in deciding which are most important, based upon your supervisor's and your group's goals.

Q: As a team leader, I get criticized on how I handle the team when meetings don't produce actions toward reaching our goals. How do I handle this? Am I running the meetings poorly?

A: Learn from the negative feedback. Focus on the comments, and use them to help you achieve your

goals. Try to understand why you were criticized. For the next meeting, prepare a detailed agenda—and stick to it.

Q: My senior manager told me that our company is going to be reorganized and that my department will be affected. How do I help my group prepare for this kind of change?

A: Set up a meeting with your group to discuss the changes as soon as you receive them. See to it that your people learn the news from you, not from their co-workers or through the grapevine.

Q: When is the right time to consider going to graduate school? Should I go after I've been working for a couple of years?

A: First, work on a career plan and set goals for one, two, and five years out. Based on that, consider what you need to accomplish and whether graduate school can help you get there. ■

Participation in the IEEE Mentoring Connection is open to all higher-grade members. For more information, visit <http://www.ieee.org/mentoring>.

www.ieee.org/theinstitute



FEATURED CONFERENCE

66th IEEE Vehicular Technology Conference

Baltimore 30 September to 3 October

Concentrates on developments in wireless and vehicular technologies. The conference is organized into 10 tracks covering land mobile radio; mobile networks; multiple antennas and space-time processing; propagation and modeling; transmission technologies; transportation systems; vehicular electronics; wireless access; wireless applications; and wireless device architectures.

Along with the conference, the IEEE International Symposium on Wireless Vehicular Communications takes place in Baltimore from 30 September to 1 October. It covers wireless vehicle-to-vehicle, vehicle-to-infrastructure, and vehicle-to-person communications.

SPONSOR: IEEE Vehicular Technology Society
VISIT: <http://www.ieeevtc.org>



International Conference On Nanotechnology

Hong Kong 2-5 August

IEEE Nano 2007, the flagship conference of the IEEE Nanotechnology Council, includes keynote speeches, workshops, and presentations on nanomedicine, nanotechnology research, and advances in the semiconductor industry, nanotubes, and nano-optics.

SPONSORS: IEEE Nanotechnology Council, IEEE Electron Devices Society, Centre for Micro and Nano Systems, Chinese University of Hong Kong, and Global Emerging Technology Institute
VISIT: <http://www.ieee-nano.org>



European Conference on Circuit Theory and Design

Seville, Spain 26-30 August

Presents many aspects of circuits and systems, including theory, design, and applications. Topics include advancements in linear and nonlinear circuits; systems and signal-processing techniques; and analog, digital, and mixed-signal integrated circuits, as well as new architectural and circuit designs and bioinspired and neuro-fuzzy systems.

SPONSORS: IEEE Circuits and Systems Society, European Circuit Society, and the University of Seville
VISIT: <http://ecctd07.imse.cnm.es>



18th IEEE International Symposium on Personal, Indoor, and Mobile Radio Communications

Athens 3-7 September

The symposium includes technical papers, tutorials, panel sessions, keynote speeches, and exhibits covering the latest in personal, indoor, and mobile radio communications. PIMRC 2007 focuses on personalized, converged, and context-aware communication technologies that offer services regardless of time and end users' locations.

SPONSORS: IEEE Communications Society and the National Technical University of Athens
VISIT: <http://www.pimrc2007.org>



International Broadcasting Convention

Amsterdam 6-11 September

Tutorials, technical papers, discussion panels, and other sessions cover a broad range of issues. Said to be the world's leading event for multimedia content creation, management, and delivery, IBC 2007 will have more than 800 exhibits on the latest technology and business ideas in broadcasting and new media, including digital cinema, mobile and Internet Protocol TV, and big-screen displays. Other topics include bandwidth availability and recent improvements in compression technologies.

SPONSOR: IEEE Broadcast Technology Society
VISIT: <http://www.ibt.org>



European Microwave Conference

Munich 9-12 October

Part of European Microwave Week 2007—the biggest event in Europe dedicated to microwave electronics—the conference includes more than 300 papers and 60 oral and poster sessions on recent advances in the microwave field. Among the presentations will be ones on the modeling and design of high-data-rate photonics, passive components, and emerging technologies such as micro-electromechanical systems, system-in-package, and system-on-chip. Materials, integrated circuits, systems, and applications will be addressed with respect to theory, simulation, design, and measurement.

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VISIT: <http://www.eumweek.com>



Frontiers in Education

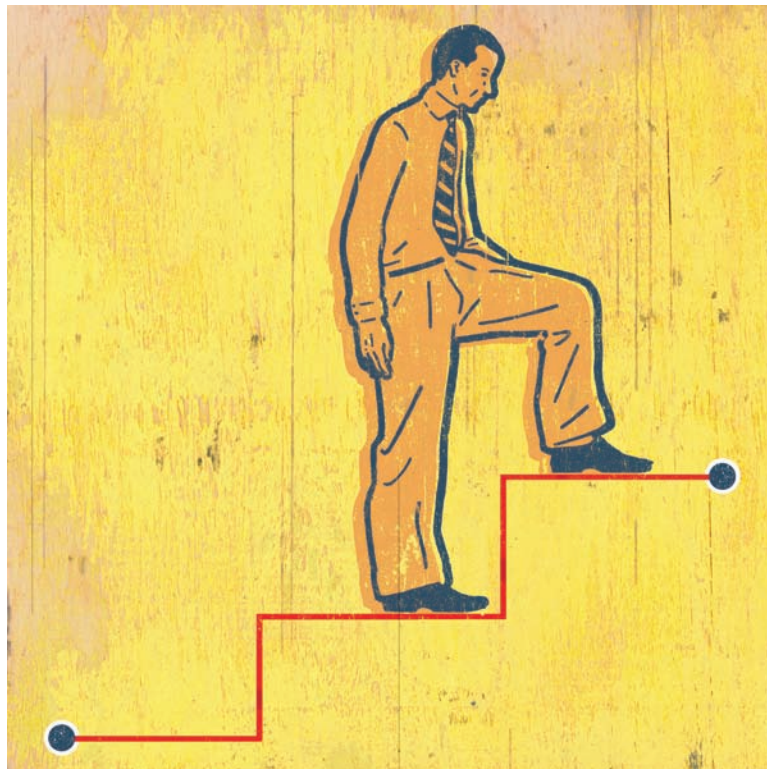
Milwaukee 10-13 October

Focuses on developments in computer science, engineering, and technology education, with an emphasis this year on globalization and engineering education. Topics include Web-based software and applying technology in the classroom.

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VISIT: <http://fie.engrng.pitt.edu/fie2007>
—compiled by Ilene Kleinbaum

Step Up to Senior Member

BY NANCY SALIM



Last year the IEEE had the most elevations to senior member grade in its history. More than 2600 members were elevated, a 15 percent increase over 2005. Region 8 (Europe, Middle East, Africa) led the way, with 535 senior member upgrades, while Region 10 (Asia and Pacific) boasted 405 new senior members. Region 6 (Western United States) and Region 2 (Eastern United States) had 389 and 242 senior member upgrades, respectively. The number of IEEE senior members as of press time totals more than 28 100.

To qualify, a member must have a total of 10 years of professional experience (educational degree plus work experience) and have shown significant work performance for at least five years, such as holding the position of supervisor or having published papers or books. The member also must supply three references from any combination of current IEEE Fellows and senior or honorary members.

RECOGNITION AWAITS Why become a senior member? First and foremost, you're recognized for

your technical and professional achievements. And you're eligible to hold IEEE senior volunteer positions. You'll also receive an engraved plaque and a US \$25 voucher applicable toward a new IEEE society membership.

It's also important for IEEE sections and societies to increase their number of senior members. Those that nominate at least five members who are elevated receive \$10 per member. The section also winds up with more active members, for it has been observed that senior members volunteer more than other IEEE member grades. And senior members have a high renewal rate—about 98 percent—and they are more likely to join an IEEE society.

How do regions get more senior members? Not by sitting idly by. For example, Rune Persson, membership and chapter development officer for the Sweden Section, takes a hands-on approach, searching for members who could meet the requirements for elevation. He uses the IEEE SAMIEEE membership database to identify individuals in his

section who have been members for 10 or more years but are not senior members. (The database is available to all IEEE section and chapter chairs.) Next, Persson sends those members a senior member application via e-mail, with a cover note informing them they are eligible for the upgrade and inviting them to apply.

The section also offers the applicant help with finding references. It arranges face-to-face meetings, at which possible references interview the applicant about his or her qualifications. The references can then make their judgments and write their recommendations on the application, which is forwarded to the IEEE Admission and Advancement group. The section chair follows up on the status of the application with the group, which meets eight times a year to decide which members to elevate.

PERSONAL NOTES Another section that gets involved in promoting senior membership is the Bombay Section in Region 10, which had the second highest number of senior member upgrades last year. The section secretary, Senior Member Anthony Lobo, makes sure that e-mail notifications are sent to each member eligible to apply for senior membership.

IEEE Life Fellow James A. Rooks, membership chair for Region 6's Oregon Section, regards a few words promoting senior membership as a vital feature of each chapter meeting. He always includes a mention of senior membership in his opening remarks.

The Oregon Section holds what it calls a Senior Member Rodeo at least one day a year. Section members help senior member candidates complete their applications at the rodeo, and potential references are there to interview each candidate on the spot. Rooks credits the Buenaventura and Oregon sections in his region with being especially successful in nominating senior members using the event. ■

FOR MORE INFORMATION, visit <http://www.ieee.org/web/membership/senior-members/guide.html>.

IEEE Quick Guide

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PROFILE

IVAN DIAZ:

Making the Magic Happen at Disney

Meet the man behind the scenes, ensuring rides are safe and reliable

BY ANNA BOGDANOWICZ

Growing up in Florida, IEEE Member Ivan Diaz was no stranger to the Walt Disney World Resort. His family took vacations once or twice a year to the Disney parks in Orlando, and he was determined to become a part of the magic by working there himself. “I always knew I wanted to work at Disney, but I just didn’t know what I could do there,” he says.

His answer came from a documentary he watched as a teenager about the engineers who redesigned the Twilight Zone Tower of Terror attraction at Disney-MGM Studios, in Orlando. The ride is a runaway elevator that zips up and down 13 floors a few hair-raising times. Fascinated with the engineers’ work, Diaz decided he wanted to join their ranks.

Now, at 29, he has been with Disney for seven years, making rides more reliable and efficient both inside and outside the United States, and improving the parks’ transportation systems. Because of his work, Diaz was chosen by the U.S. National Engineers Week Foundation as one of its 15 New Faces of Engineering for 2007. The distinction recognizes young engineers whose work has an impact on society.

“I’m very honored by the recognition and humbled to be a part of this class of engineers,” says Diaz, who is quick to give credit to his co-workers. “I was part of a great team—Disney has a phenomenal talent pool.”

Diaz’s career at Disney began during his junior year at Florida State University, in Tallahassee. He got an internship at Disney-MGM Studios to help maintain and upgrade the ride control systems.

Graduating with a bachelor’s

degree in electrical engineering in 2000, Diaz landed a job as a service manager in the Disney technical services group overseeing security system maintenance. Two years later he was promoted to an engineering position, designing upgrades to the control systems of older rides at the resort’s six parks: Blizzard Beach, Disney’s Animal Kingdom, Disney-MGM Studios, Epcot, the Magic Kingdom, and Typhoon Lagoon. Some of the rides, including It’s a Small World, had been around for nearly 30 years. He even got to work on the very ride that inspired him as a teenager to study engineering.

YO HO HO In 2004, Diaz became a team leader of the ride enhancements group—which led him to his biggest project: an upgrade of one of Disney’s most famous rides. The Pirates of the Caribbean ride at Disney World opened in 1973. The ride, which inspired the recent blockbuster movie series of the same name, takes visitors on a boat through scenes of marauding and singing pirates. To accommodate new details from the movies, the attraction was in need of an overhaul.

So in 2005, Diaz’s group began working with Disney Imagineering, the creative arm of ride engineering, to reengineer the ride and make it run smoothly with the added scenes.

Then Disney figured that with such experience under his belt, it was time for Diaz to share his knowledge. Assignment: Hong Kong.

It’s not every day that Disney builds a new resort, and Diaz was there for the grand opening of Hong Kong Disneyland on 12 September 2005. But his work began well before that. For the park to open, Disney



Diaz at the Magic Kingdom in Orlando, Fla., near one of the many rides he has worked on.

needed to teach the resort’s engineers how to maintain the attractions and repair any breakdowns. So Diaz flew out to Hong Kong five months before the opening, as part of a task force to get the engineers up to speed.

The park’s debut was something Diaz says he’ll never forget. “It was surreal that I was there for the opening ceremony,” he says, “and it was very humbling to know that our work helped.”

ALL THAT MOVES Nowadays, Diaz is involved with more than just rides. Since January, he has been the team leader of the Disney World Transportation and Textile Services Sustaining Engineering group, which works on guest transportation as well as an automated laundry system. With millions of visitors annually shuttling between the hotels and parks, making sure transportation is efficient, fast, and

reliable is critical, Diaz says. He has worked on everything from overseeing daily maintenance to upgrading the monorail system.

In February, Diaz and his group received a patent for an automated maintenance verification system. It can track practically everything that moves at the park—rides, monorails, ferries, and buses. It is already being used at the Disneyland Resort in Anaheim, Calif.

The laundry system that Diaz’s group supports is one of those behind-the-scenes things that are essential to maintaining the image of a polished, magical world, he notes. Using a number of conveyor belts, it washes the costumes of the resort’s more than 50 000 employees.

Even after seven years at Disney, Diaz still appears to be enchanted. “What does it feel like to work at my dream job? It’s just amazing,” he says. ■

Harold Flescher

Speed Demon

When he's driving 240 kilometers per hour around winding turns in national auto racing competitions, Hal Flescher says he feels one thing: total peace.

"When you're going that fast, you feel calmer than you'd think," he ex-

plains. The 66-year-old IEEE Fellow has been in more than 400 races since he began competing in 1961.

In 1960, Flescher and his friends attended a race on Long Island, New York. "We all said, 'We can do that,'" he recalls. "I was the only one who did. I picked up racing rather quickly."

Flescher joined the Sports Car Club of America, took required driving classes at two SCCA schools, and began competing. The SCCA is a national motor-sports organization that holds more than 2000 amateur and professional races each year, including autocross events (low- to medium-speed races with one car on the track at a time) and road rallies (timed events with speed limits and checkpoints). SCCA members compete in regional and national races for sponsorships, trophies, and other prizes.

By day Flescher was a nuclear physicist and engineering manager for Raytheon Co., in Waltham, Mass., but by night he prepared his race car for weekend competitions. He sometimes worked extra hours during the week to make sure he had his weekends free to race. "I never let my work get in the way of my fun," he says.

Today, Flescher has more than 100 wins under his belt, including a 1995 SCCA National Championship. He has placed second in National Championship races five times since then.

Although he's had some pretty bad accidents in his nearly 50 years of racing—he once broke his sternum in a head-on crash into a wall—he says he doesn't plan on slowing down anytime soon, either on or off the track. He also sails, flies airplanes, skis, and owns a river barge in France. But his main passion will always be racing, he says.

"What I love about racing is that you get into a rhythm when going around the track, and it's like dancing at high speeds," he explains. "I'm going to keep racing for as long as my skills hold up...and then I'll pick up another sport."

—Anna Bogdanowicz



PASSION
Driving race cars

PROFESSION
Nuclear physicist, retired

HOMETOWN
Palm Beach Gardens, Fla.

WORK IN PROGRESS To become a winner, Flescher substantially modified his current car—a 1962 Austin-Healey Sprite. That's where his tech background came in handy.

"The essence of winning is to have a car as perfect as it can be—it's like a scientific experiment that you're always working on. It's just never perfect," he says. "Modifying a car involves many aspects of scientific work, such as design, development, manufacturing, and vendor management."

Don Pierre

Teller of Tales

After writing technical articles for much of his career, Don Pierre has taken his writing in a different direction. The 70-year-old Life Fellow published his first historical adventure novel in August, *Yesteryears Western Trek*.

The self-published book depicts the coming of age of a young man named Joey on his journey across the western United States during the 1860s. Parts of the story are written as a diary of Joey's wagon-train adventures on the historic Bozeman Trail, which ran from Wyoming to Montana.

"I've always been interested in writing a novel. I'm quite an avid reader—especially when it comes to Westerns," says Pierre, who has a collection of more than 200.

INSPIRATION After retiring in 2000, Pierre joined a creative writing group for seniors and attended its weekly meetings. For years he'd been reading books on how to become a fiction writer, but the group gave him the moti-

vation and support he needed. His first non-technical book was an autobiography.

In 2001, he came across a two-volume set of historical books that inspired him to take his love of Westerns to the next level. *Journeys to the Land of Gold* [2000, Montana Historical Society] featured excerpts from 33 journals written by people who traveled the Bozeman Trail in the 1860s.

Fascinated by their real-life adventures, Pierre began brainstorming ideas for a novel. He used a lot of what he learned from the journals in his novel, which includes aspects of the Gold Rush, the Civil War, and the telegraph replacing the Pony Express.

It wasn't long before he had the plot figured out. It took him a month to outline what each chapter would cover, and then he spent two years writing. He had trouble finding a suitable publisher, so he published the book himself.

Now that his first novel is on the shelves (it sells for US \$10), he doesn't plan on stopping. "I've got a few ideas in mind for more," he says.

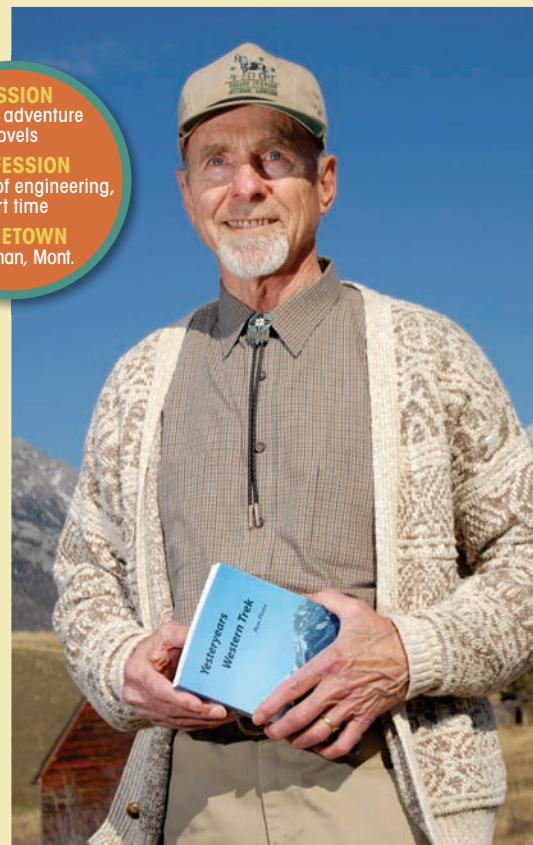
To buy a copy of *Yesteryears Western Trek*, e-mail Pierre: pierre_don@ieee.org.

—A.B.

PASSION
Writing adventure novels

PROFESSION
Professor of engineering, part time

HOMETOWN
Bozeman, Mont.



If you have an interesting hobby you'd like to share—such as marathon running, building model trains or planes, or playing in a band or orchestra—e-mail the editors: institute@ieee.org.

RECOGNITIONS



FELLOW FRANCES E. ALLEN

was named the recipient of the US \$100 000 Turing Award for her work at IBM in techniques for optimizing the performance of compilers, the programs that translate one computer language into another. It's the first time in the award's 40-year

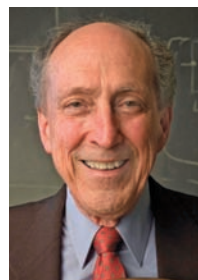
history that a woman has garnered the prize.

The Association for Computing Machinery presents the award, which recognizes individuals who contribute developments of major technical importance to the computing community.

Allen was a scientist at IBM's T.J. Watson Research Center, in Hawthorne, N.Y., until she retired in 2002. She spent 45 years with IBM. She worked on developing a system similar to Fortran—one of the first high-level programming languages—to operate multiple types of computers just as efficiently as previous hand-coded approaches. Allen also wrote intelligence analysis software for the National Security Agency, and she helped design software for IBM's Blue Gene supercomputer. She continues to be active in programs that encourage girls

and women to study computer technology.

She received her bachelor's degree in education in 1954 from Albany State Teacher's College (now the State University of New York at Albany). She earned a master's degree in mathematics in 1957 from the University of Michigan, Ann Arbor.



LIFE FELLOW ROBERT H. DENNARD

has received the Benjamin Franklin Medal in electrical engineering for the invention of one of the most significant advances in computer technology: DRAM (dynamic random access memory) computer memory circuits.

The medal, given by the Franklin Institute of Philadelphia, recognizes individuals whose innovation has benefited humanity, advanced science, launched new fields of inquiry, and deepened our understanding of the universe.

Dennard is at IBM's T.J. Watson Research Center, refining RAM and specialized field effect transistors.

He earned his bachelor's degree in 1954 and master's degree in 1956, both in electrical engineering from Southern Methodist University,

Dallas. He was awarded his doctorate in electrical engineering in 1958 from Carnegie Technical Institute (now Carnegie Mellon University), Pittsburgh.



MEMBER PAUL R. GOLDBERG

received an Award of Commendation from the Academy of Motion Picture Arts and Sciences in its Scientific and Technical Awards category. He and 11 others were honored for their contributions to the development of the environmentally

responsible conversion from silver-based to cyan-dye analog sound tracks.

Goldberg is vice president of systems solutions and audio products for Zoran Corp., a supplier of integrated circuits and software for digital audio and video applications, in Sunnyvale, Calif. He holds 16 patents in film sound, optical data storage, video image printing, medical ultrasonic imaging, and medical diagnostics.

He earned a bachelor's degree in electrical engineering from the University of Minnesota in Minneapolis. ■

IN MEMORIAM

WILLIAM McMURRAY

Power Electronics Pioneer

MEMBER GRADE: Fellow

AGE: 77

DIED: 25 December 2006



McMurray was one of the founding fathers of power electronics.

He joined General Electric Co., in Schenectady, N.Y., in 1950, and was responsible

for the conception and development of solid-state power-conversion circuits. Working with the silicon-controlled rectifier, which controls current flow, he invented the McMurray-Bedford inverter and the McMurray inverter, the most sophisticated inverters of their time.

McMurray held 23 patents, published 35 papers, and authored several books on power electronics. He retired from GE in 1988 but continued to consult on power electronics and magnetics.

He earned his bachelor's degree in engineering in 1950 from the Battersea Polytechnic Institute (now the University of Surrey), in London, and his master's degree in 1956 from Union College,

Schenectady. He received an honorary doctor of laws degree in 1986 from Concordia University, Montreal. In 1984, he was awarded the IEEE Lamme Medal for his work in the development of forced commutation thyristor circuitry and its application to alternating-current adjustable-speed drives.

CLEMENTINA SADUWA

Chair of IEEE WIE Nigeria

MEMBER GRADE: Member

AGE: 29

DIED: 23 January



Saduwa was the Region 8 (Africa, Europe, and the Middle East) coordinator for IEEE Women in Engineering, and chair of WIE Nigeria. She also was

chair of the IEEE Student Branch at the University of Nigeria, Nsukka, and was the Nigeria Section's treasurer last year.

Saduwa, nee Vincent-Uvieghara, was killed by armed robbers while driving home from work in Lagos.

She had been a product manager for LM Ericsson Nigeria since 2004. Prior to that, she worked for GS

Telecom Nigeria. As chair of WIE Nigeria, she organized programs that encouraged female engineers to serve as role models and mentors to Nigerian girls.

Saduwa received an honors degree in electronic engineering in 2002 from the University of Nigeria.

To honor her memory, the IEEE Region 8 Clementina Saduwa Award has been established. It seeks "to recognize a woman engineer in Region 8 who, through her engineering and career achievements, has demonstrated noteworthy support for women in the profession and has established a benchmark of engineering excellence." Plans to set up a WIE award and scholarship in Saduwa's name are also under way.

ROBERT ADLER

TV Remote Control Developer

MEMBER GRADE: Fellow

AGE: 93

DIED: 15 February



Adler was known as the father of the TV remote control because of his work with the Zenith Radio Co., an early manufacturer of televi-

sions. He also made other significant contributions to electronics, such as the design of the gated-beam receiving tube. His work with low-noise traveling-wave tubes has been important in military communications.

Adler spent nearly 58 years with Zenith Radio, in Chicago, joining the company in 1941. He became associate director of research in 1951, vice president in 1959, and vice president and director of research in 1963. He retired from Zenith in 1979 but continued as a technical consultant until 1999, when the company merged with LG Electronics Inc., in Seoul, Korea.

Adler was an adjunct professor of electrical engineering at the University of Illinois at Urbana. He was awarded more than 180 patents, published more than 45 papers, and won numerous awards, including the 1970 IEEE Outstanding Achievement Award in Consumer Electronics and the 1980 IEEE Edison Medal.

He received his doctorate in physics in 1937 from the University of Vienna, and he immigrated to the United States shortly thereafter. ■

GIVING

\$1.4 Million to IEEE Foundation

Contributions to the IEEE Foundation, which distributes funds to improve society's understanding of technology, totaled US \$1.4 million last year.

Space constraints prevent listing all donors, but here are the names of those in the Leadership Association, made up of those who gave \$1000 or more. (To learn the reasons why some donors give, see "Giving Back.")

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- IEEE Southeastern Michigan Chapter, Division VIII, of the IEEE

GIVING BACK

Donors to the IEEE Foundation give for many reasons. Here's why three members from the Leadership Association contributed:



HINGORANI

IEEE Life Fellow Narain Hingorani says he donated because "the IEEE has been vital to my education and has recognized my accomplishments."

A modern-day pioneer in power electronics and a former member of the board of the IEEE Foundation, Hingorani is considered to be the father of flexible alternating-current transmission systems and a leader in high-voltage direct-current transmission.



MEINDL

James D. Meindl, 2006 IEEE Medal of Honor recipient, was so impressed by the IEEE Honors Ceremony when he received his award last June that he began supporting the IEEE Foundation, which sponsors the medal. An IEEE Life Fellow, Meindl was recognized for his contributions to micro-electronics. He sees the foundation as an outstanding example of the constructive way in which the IEEE serves its members and society.



SNITZER

IEEE Life Fellow Elias Snitzer finds IEEE publications to be the biggest benefit of membership. He was elected to the (U.S.) National Academy of Engineering in recognition of his invention of the glass laser and the fiber-optics laser. He says he owes his success partly to keeping up with research published by the IEEE. "One gets a preview of the hot new materials being worked on worldwide," he says.

He contributes because the IEEE Foundation "is a world-class organization and deserves support."

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For outstanding contributions to control systems engineering, science, or technology.

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SPONSOR: IBM Almaden Research Center

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For outstanding contributions in industrial systems engineering.

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