the institute

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CHIEF COMMUNICATIONS TECHIE

Introducing the new chief technologist of the U.S. Federal Communications Commission, IEEE Senior Member Jon Peha. **P. 14**

IEEE
Celebrating 125 Years
of Engineering the Future

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TECHNOLOGY

Video and computer games aren't just about having fun. IEEE members are developing games that teach valuable skills. **P. 6**

125TH ANNIVERSARY

Former AIEE and IRE members recall the IEEE merger and the projects they were working on at the time. **P. 7**

PRODUCTS & SERVICES

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PART-TIME PASSIONS

A member in Dallas keeps things buzzing, and a senior member in Ryde, Australia, creates funny cartoons. **P. 15**

ONLINE

AVAILABLE 6 MARCH AT WWW.IEEE.ORG/THEINSTITUTE

PUBLIC VISIBILITY An overview of goals IEEE has met in its push to raise its visibility.

RECOGNITIONS Read about three members who were recently honored for their accomplishments.

A Year of Celebration

IEEE: 125 Years of Engineering the Future

Join us as we celebrate 125 years of innovation and ingenuity. Whether you participate in a global or local celebration, contribute to our online message boards, enter one of our worldwide contests or plan your own event—there are lots of ways you can be a part of the celebration. Show the world what IEEE means to you and help make this anniversary unforgettable!

Visit ieee125.org to see what others are doing and learn about these exciting events:

IEEE's Engineering the Future Day

13 May 2009

See how we're recognizing the official 125th anniversary of IEEE.

Celebrate Around the World!

Find a celebration near you!

Learn about the celebrations being held across the globe.

Engineering the Future Media Day

10 March 2009

Join us via webcast when IEEE explores some of the newest world-changing technologies.

IEEE Presidents' Change the World Competition

Beginning March 2009

Vote online for the People's Choice Winner. Students will show how they've changed the world using technology.

Engineering My World Video Contest

May–August 2009

Show us how you've used technology to make your personal spaces more livable, convenient and cool.

Don't miss out on your chance to celebrate with IEEE.

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IEEE

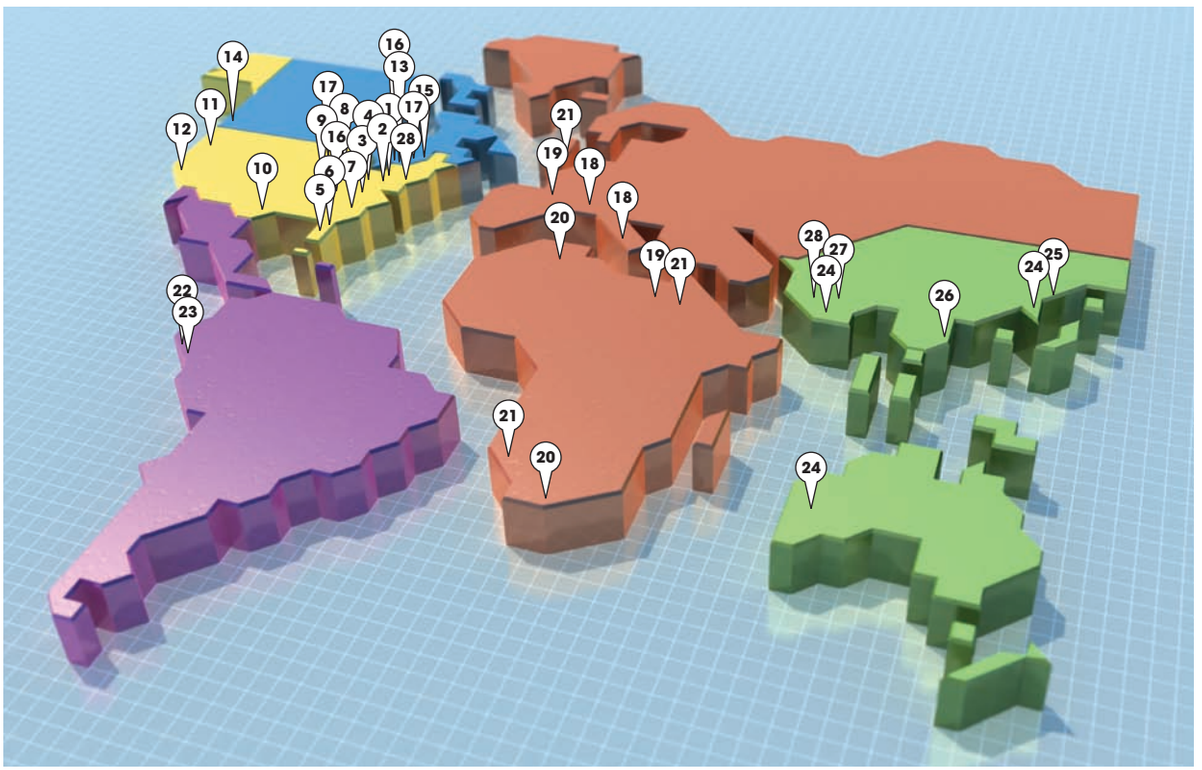
Celebrating 125 Years

of Engineering the Future

NEWS

IEEE AROUND THE WORLD CALENDAR

IEEE AROUND THE WORLD



REGION 1: Northeastern U.S.

1. Schenectady (N.Y.) Section forms Graduates of the Last Decade (GOLD) affinity group.
2. Binghamton (N.Y.) Section establishes chapter of IEEE Communications Society.

REGION 2: Eastern U.S.

3. North Virginia, Washington, D.C., and Baltimore sections form chapters of IEEE Professional Communication Society.
4. Lehigh University Student Branch, Bethlehem, Pa., establishes chapter of IEEE Lasers & Electro-Optics Society.

REGION 3: Southeastern U.S. and Jamaica

5. 50th anniversary, Gainesville and Orlando sections, in Florida.
6. 25th anniversary, Melbourne (Fla.) Section.
7. Eastern North Carolina Section establishes chapter of IEEE Industrial Electronics Society.

REGION 4: Central U.S.

8. 100th anniversary, Madison (Wis.) Section.
9. Saint Ambrose University, Davenport, Iowa, forms student branch.

REGION 5: Southwestern U.S.

10. Houston Section establishes chapter of IEEE Magnetics Society.

REGION 6: Western U.S.

11. 100th anniversary, Oregon Section.
12. Student branch at California State Polytechnic University, in Pomona, establishes chapter of IEEE Power & Energy Society.

REGION 7: Canada

13. Humber Institute of Technology and Advanced Learning, Toronto, forms IEEE student branch.
14. Victoria Section, B.C., Canada, forms GOLD affinity group.
15. Montreal Section establishes chapters of IEEE Industrial Electronics Society and IEEE Technology Management Council.
16. Toronto and Pittsburgh sections become sister sections.
17. Ottawa and Twin Cities (Minnesota) sections become sister sections.

REGION 8: Europe, Middle East, and Africa

18. 50th anniversary, Italy and Benelux sections.
19. Egypt and France sections form Women in Engineering (WIE) affinity groups.
20. Morocco and South Africa sections form GOLD affinity groups.
21. Student branches formed at Mutah University, Al Karak, Jordan; Polytechnic of Namibia, Windhoek; and University of Westminster, London.

REGION 9: Latin America

22. Student branch formed at the Catholic University of Guayaquil, Santiago, Ecuador.
23. Catholic University of Cuenca, Azogues, Ecuador, forms WIE affinity group.

REGION 10: Asia

24. 25th anniversary, Beijing, Hyderabad (India), and Western Australia sections.
25. Seoul (South Korea) Section establishes chapter of IEEE Nanotechnology Council.
26. Vietnam Section forms chapter of IEEE Communications Society.
27. Saint Joseph School of Engineering, Tamil Nadu, India, forms student branch.
28. Bangalore and Princeton/Central (New) Jersey sections become sister sections.

Send your region or section news to institute@ieee.org.

Ray Wins Race For President-Elect

IEEE Senior Member Pedro Ray is the 2009 President-Elect, having received 21 929 votes in the annual IEEE election in the fall. The runner-up, Fellow Moshe Kam, garnered 19 420.

Ray begins his term as IEEE President on 1 January 2010, succeeding 2009 President John Vig. Ray is president of Ray Engineers, one of the largest engineering design firms in Puerto Rico. He also owns several companies that develop commercial and residential real estate.

He was vice president of IEEE Regional Activities (now Member and Geographic Activities) in 2006 and 2007. He also ran in the 2007 election for 2008 President-Elect, coming in second.

RAY

You can read all the election results on p. 17.

IEEE Medal Of Honor Goes To DRAM Developer

IEEE Life Fellow Robert H. Dennard is the recipient of the 2009 IEEE Medal of Honor for his "invention of the single-transistor Dynamic Random Access Memory and for developing scaling principles for integrated circuits."

Dennard joined the IBM Research Division, in Armonk, N.Y., in 1958, where he worked on circuits for logic and memory applications. In 1967 he invented one-transistor dynamic random access memory. DRAM has become the standard for RAMs, and it is used in most computers today.

DENNARD

In 1972, Dennard and his colleagues formulated a scaling method, and they observed that reducing the dimensions of metal-oxide field effect transistors (MOSFETs) and their interconnecting wires led to denser, less expensive, and faster ICs. The holder of 52 U.S. patents, Dennard continues to conduct research for IBM's silicon technology department.

Dennard, an IBM Fellow, is to receive the IEEE Medal of Honor, sponsored by the IEEE Foundation, on 25 June at the IEEE Honors Ceremony in Los Angeles. The award consists of a gold medal, a bronze replica, and a cash honorarium.

ON THE COVER, CLOCKWISE FROM LEFT: SUSANA RAAB; JOHN LELAND; IEEE HISTORY CENTER; GEOSTOCK/GETTY IMAGES; MATTHEW NAGER
THIS PAGE, CLOCKWISE FROM TOP: BRYAN CHRISTIE DESIGN; CHARLES F. TREPPEDA; BILL CRAMER/WONDERFUL MACHINE


DE MARCA


KAM


LILLIE

Three to Vie for 2010 IEEE President-Elect

The IEEE Board of Directors has nominated Jose R. "Roberto" Boisson de Marca, Moshe Kam, and Joseph V. Lillie as candidates for 2010 IEEE President-Elect. Chosen at the board's November meeting, the three will face off in the next annual election. The winner serves as 2011 IEEE President, succeeding 2010 President Pedro Ray.

De Marca, an IEEE Fellow, has been a faculty member since 1978 at Catholic University, in Rio de Janeiro, where he held several leadership positions, including associate academic vice president. He is also the founding president of the Brazilian Telecommunications Society. He served as 2008 vice president of IEEE Technical Activities.

Kam, an IEEE Fellow, is head of the electrical and computer engineering department at Drexel University, in Philadelphia. He has taught and conducted research in detection, estimation, robotics, and control at Drexel since 1986, the year he joined the school. He founded Drexel's Data Fusion Laboratory, and he was IEEE's vice president of Educational Activities from 2005 to 2007. Kam was the runner-up in the election for 2009 IEEE President-Elect.

Lillie, a senior member, has 35 years of experience in telecommunications engineering and management. He worked in various positions for BellSouth Telecommunications, in San Antonio, from 1973 to 2002, including design engineer and planning manager. Leaving BellSouth in 2002, he went to Northstar Communications Group in Birmingham, Ala., for three years before returning in 2005 to BellSouth, where he now works on Hurricane Katrina restoration in the New Orleans area. He has held various IEEE positions, including 2008 vice president of Member and Geographic Activities and 2008 director of the IEEE Foundation board of directors.

Five Named to Board of Directors

The IEEE Assembly in November elected five officers to the IEEE Board of Directors. The new members, who began serving one-year terms on 1 January, are Joseph V. Lillie, vice president, Member and Geographic Activities; Teofilo Ramos, vice president, Educational Activities; Jon G. Rokne, vice president, Publications Services and Products; Barry L. Shoop, secretary; and Peter W. Staecker, treasurer.

The five individuals join 27 colleagues on the Board elected earlier by IEEE's voting members.

Clarification

IEEE does not offer group health insurance ["Why You Should Stay With IEEE," December 2008, p. 19]. For information about the products and services IEEE does offer at negotiated group rates, visit the Financial Advantage Program Web site at http://www.ieee.org/fap.

FROM LEFT: IEEE; KELLY & MASSA PHOTOGRAPHY; GRANT OAKES

CALENDAR

March

SUNDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	3 ◀1847: Birth date of **Alexander Graham Bell**, telephone inventor.	4 1962: First **nuclear power** plant in Antarctica begins operating at McMurdo Sound.	5	6 ◀6–8 March: **Region 3** meeting in Atlanta.	7 1926: First **radio-telephone call** across the Atlantic Ocean is made, between London and New York.
8	10 1891: **Almon B. Strowger** receives a patent for an electromechanical switch to automate a telephone exchange.	11	12 12–14 March: **Region 9** meeting in Cuernavaca, Mexico.	13	14
15 1892: **Jesse W. Reno** is granted a patent for an early type of escalator. ▼	17 ◀1849: Birth date of **Charles Francis Brush**, developer of an early arc-light system.	18	19	20 ◀1900: **Nikola Tesla** receives patent for the wireless transmission of electric energy.	21 20 & 21 March: **Region 6** meeting in Los Angeles. ▼
22	23	25 ◀1954: Radio Corp. of America announces it will begin producing **color television sets**.	26	27	28
29	30	31			

April

		1 ◀1972: Intel introduces the **8008**, the first 8-bit microprocessor, used in early personal computers and calculators.	2 1814: Birth date of **Erastus B. Bigelow**, developer of the power loom.	3	4
5	6	8	9	10	11 ◀1900: The U.S. Navy acquires its first **submarine**, which was propelled by electricity when submerged.
12	13	15	16	17	18 18 & 19 April: **Region 2** meeting in Youngstown, Ohio.
19	20	22 ▲1834: Birth date of **Raimond Louis Gaston Planté**, inventor of the rechargeable battery.	23	24 24–27 April: **Region 8** meeting in London. ▶	25
26 1961: Robert Noyce receives a patent for the **integrated circuit**.	27 ▲IEEE's **125th anniversary** celebration in Munich.	28	29	30 IEEE's **125th anniversary** celebration in Austin, Texas.	

May

				1	2
3 3–6 May: **Region 7** meeting in St. John's, Nfld., Canada. ▶	4	5 1861: Birth date of **Peter Cooper Hewitt**, inventor of the mercury-vapor lamp.	6	8	9
10	11 IEEE's **125th anniversary** celebration in Boston.	12	13 IEEE marks the AIEE's formation with **IEEE Engineering the Future Day**.	15	16 ▶1960: Theodore H. Maiman demonstrates the **first functioning laser** at Hughes Research Laboratories, in Culver City, Calif.
17	18 1845: France's first **electromagnetic telegraph line** goes into service, between Paris and Rouen.	19	20 ◀1851: Birth date of **Emile Berliner**, developer of the phonograph record.	21 ▲1873: Birth date of **Hans Berger**, the first person to record human electroencephalograms.	23 ◀1922: Birth date of **Esther Conwell**, the first woman to receive the IEEE Edison Medal, in 1997.
24 31	25	26	27	28	30

Historical events provided by the IEEE History Center

IEEE events indicated in RED

MARCH: ALEX NIKADA/ISTOCKPHOTO; BITTER/ISTOCKPHOTO; IEEE; HARALD SUND/GETTY IMAGES; JEREMY EDWARDS/ISTOCKPHOTO; LIBRARY OF CONGRESS/GETTY IMAGES; LEE PETET/ISTOCKPHOTO; APRIL: MICHAEL BEHRENDT/ISTOCKPHOTO; INTEL; OBJECTS FOR ALL/ISTOCKPHOTO; U.S. NAVY; JASON WARREN/ISTOCKPHOTO; MAY: KAREN MASSIER/ISTOCKPHOTO; C SQUARED STUDIOS/GETTY IMAGES; CARY WOLINSKY/GETTY IMAGES; IEEE; HRL LABORATORIES

Play to Learn

BY MICHAEL J. RIEZENMAN

COMPUTERS—especially in combination with communications technology—giveth, and they taketh away. They take jobs away from high-wage countries by making them easier to export, but they also make it possible to create new jobs in their place—an activity in which computer games might prove valuable.

David Williamson Shaffer, a professor of learning science at the University of Wisconsin–Madison, offers no surprises when he says that to remain competitive, high-wage countries need to produce products and services that can't be readily copied by low-cost competitors. To produce such goods and services requires innovative thinking, which can be taught Shaffer says—and here he may raise an eyebrow or two—through computer games.

Many computer professionals agree that computer games are important to education—which is why the IEEE Computer Society organized the first International Workshop on Digital Game and Intelligent Toy Enhanced Learning (DIGITEL) in March 2007 in Jhongli City, Taiwan. Shaffer was the program cochair and was also on the review committee for DIGITEL 2008, held in November in Banff, Alta., Canada.

The conference focused on edutainment, which encompasses all forms of software designed to educate as well as provide fun.

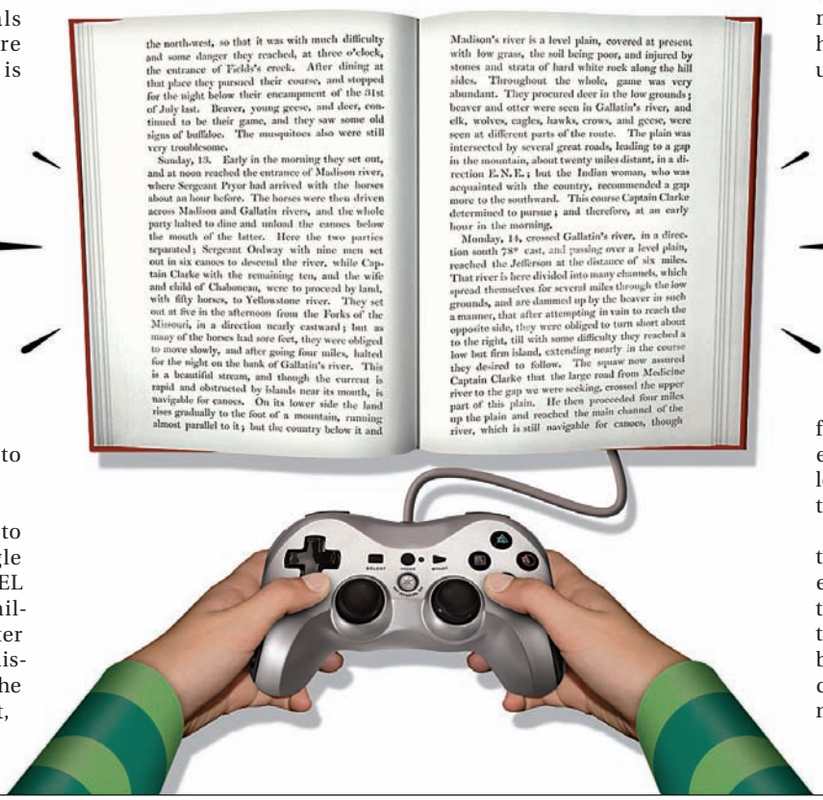
GAMING TO LEARN According to Kinshuk, who goes by this single name and who organized DIGITEL 2008, there's no question that children learn from playing computer games. For example, they learn history from Age of Empire, he says. The game's history might be incorrect, but they learn it anyhow. So why not make games that teach useful things, like accurate history?

The use of video games in an online history class was covered in a paper presented at the conference by Vance S. Martin of the University of Illinois at Urbana-Champaign. Martin's work integrated a modified version of the game *Civilization III* into the curriculum of an introductory college history class. He found several advantages of combining the game with conventional teaching methods. For one thing, students were better able to understand the causes leading up to events instead of simply learning that the events happened.

Shaffer also advocates the use of games in teaching. He says the advent of computers has created a culture in which we need to learn to work in partnership with tools that do some of the thinking for us. And we can do that, he says, with properly designed computer games. As he sees it, players, especially in multiuser games, use certain knowledge, skills, and values, and they must share ways of making decisions and justifying actions—in what he calls an epistemic frame. From an educational point of view, such a frame recreates a valued social practice; in this case that social practice is the methodology with which certain professionals are trained to be innovative. An epistemic game could simulate a training period similar to the internships during which engineers or physicians really learn their professions.

Such games are not yet commercially available, so researchers in the field are creating their own. Kelly Beckett and IEEE Graduate Student Member Elizabeth Sowatzke, researchers at the University of Wisconsin–Madison, have developed what might be thought of as an epistemic version of *SimCity*, called *Urban Science*. Players begin with an assignment from the mayor of Madison to redesign a pedestrian mall. They get a budget and receive letters from concerned citizens about crime, waste, traffic, affordable housing, and other issues. Like real urban planners, they visit the mall to do a site assessment. While they are there, they hear from various concerned citizens and community groups.

If a player runs into a problem in *Urban Science*, there are no cheat codes to help out. Instead, the player can turn to a mentor—a real-life researcher in Madison reachable through an instant-messaging program—for assistance. That is pretty much what a real neophyte urban planner would do under similar circumstances.



ROBOTEACHER DIGITEL 2008 covered more than computer games. Robots received a lot of attention, especially from a group of Taiwanese researchers. One project reported by IEEE Senior Member Mu-Chun Su and his colleagues at Taiwan's National Central University dealt with how robots are being used as learning companions to help parents educate their children. The robots in the project combined a Web camera with an attention-monitoring algorithm to determine how engaged a child is in a particular learning activity—whether the child is paying attention or is showing signs of fatigue. The robots also detected when the learning environment needed better illumination.

Other presentations described the use of robots as aids to teaching English. In one of them, students talked to a robot and told it to do various things—to dance, for example. If a student made a mistake, the robot would fall down. That engendered so much excitement that the students rapidly learned all the English words needed to control the robot properly.

Technology clearly has a lot to contribute to education. But everyone in the field warns that computer games and other technological innovations should be regarded as adjuncts to more conventional teaching, not replacements for it. A day when machines displace teachers is still in the realm of science fiction. ■

JOHN UELAND

Remembering The Early Days

BY WILLIE D. JONES

NO ONE IS left, of course, to reminisce about the days when IEEE's predecessor society, the American Institute of Electrical Engineers, was formed 125 years ago in 1884. But quite a few members recall when IEEE was formed in January 1963, by the merger of the AIEE with the Institute of Radio Engineers (IRE).

In anticipation of the anniversary, we e-mailed members a few months back, asking them to tell us about a parent or grandparent who had belonged to the AIEE. Parents and grandparents proved to be the wrong targets, for we received dozens of responses from former AIEE and IRE members, like C.B. Young, who told us, "Believe it or not, some of us are still around." All the better for the rest of us that they're available to provide perspectives on the changes that have taken place in the engineering profession. Here are three of their stories.

C.B. YOUNG, LIFE SENIOR MEMBER, 82

At the time of the merger, Young worked for Western Union on a team putting in a transcontinental microwave system with relay towers every 30 to 60 kilometers, depending on geography. Microwave relay was needed because Western Union still offered telegram service, plus leased voice and data facilities, and the line dramatically increased the company's transmission capacity. Young recalls that practically every bit of electronics still had vacuum tubes, though there were a few transistors in auxiliary communications equipment used by maintenance people. He can't recall how much data was typically sent over the link, but he says it transferred data on 600 two-way channels, each with a transmission speed of 2400 baud. Western Union's first microwave link, installed in 1947, had only 16 channels. Some of those microwave systems were still operating in the late 1980s, Young says.

He recalls how he dealt with the transition to the computer age. "As far back as 1948, I had been developing microwave components such as waveguides and magnetrons," he says. When computers began to replace electromechanical telecommunications equipment, he suddenly found himself responsible for a group developing a computer-controlled message-switching system—"and I didn't know one end of a computer from the other," he says.

How did he learn about the new technology so as to avoid being seen as a dinosaur? His wife had just started graduate school at Rutgers University on a fellowship from the Ford Foundation, which was encouraging women to go into math. "I got her to sign up for a couple of computer courses, and I helped her with her homework and went with her at night to the computer lab," Young says. "That's how I learned the basics of computers and programming."

To learn what was going on at Western Union, he would go to the company's development lab on Friday nights. "I got to know the guys running the lab, and they'd let me play with the hardware," he says. "That's how I got hands-on experience." Eventually, he did earn his own computer credentials, graduating from Stevens Institute of Technology, in Hoboken, N.J., in 1980 with a master's degree in computer science.

ROBERT N. BEATIE, MEMBER, 75

In 1963 Beatie was working for Develco, a small aerospace outfit, doing satellite instrumentation research for the U.S. Navy. "We were researching radio propagation, looking to improve two-way communication links between satellites and the ground and one-way links from satellites to submarines," he recalls. Because some of those projects are still classified, Beatie won't go into

Joint meeting of the AIEE and IRE on 18 September 1915, at the Panama-Pacific Exposition, San Francisco.

details. But he notes that there was no two-way link between satellites and submarines because it's hard to transmit from under the water. In that cold-war era, there was a danger that breaking the surface with something even as small as an antenna could give away the position of a nuclear sub. The sub could receive low-frequency signals "in the 10- to 20-kilocycle range" while still a few meters underwater, Beatie says. (Asked whether he meant kilo*hertz*, he pointed out that *cycles per second* wasn't replaced in common usage by the SI unit *hertz* until the 1970s.)

Beatie notes that he and his colleagues were all surprised by "the ever increasing rate of change in terms of going from vacuum tubes to transistors to integrated circuits and then to microprocessors, and the fast development of software, which is more prominent today than the hardware." Beatie went to work for Hewlett-Packard as a lab technician and recalls that at HP the chief engineer once told him, "Bob, those 7- and 9-pin miniature tubes will never replace octal tubes."

But not everything has changed, Beatie notes. The engineering profession "is still what it always was—a disciplined approach to solving problems," he says. But the development of products and services has become more of a team effort, he adds.

RICHARD M. SMITH, MEMBER, 68

When IEEE was formed, Smith was in the U.S. Army on active duty in Korea. "I was working with missile systems using peanut-type vacuum tubes—which means triodes and pentodes—more from an operational standpoint than as a developer," he says. He didn't start developing electronics for the military until 10 or 12 years later. "I remember building a stereo receiver in 1963 using large piece-part transistors, capacitors, inductors, and so forth," he says. It wasn't at all related to his job, but it was a good way to pass the time: "I was 22 years old, and it was just something to do in Korea. We didn't have television; the only thing we had was the Armed Forces Network Radio."

He says he was constantly in learning mode: "Back then, engineers had to know more about how everything worked, rather than, 'Oh, yeah. Let's just plug in this board; it will do everything we need to do.'"

He recalls participating in what was called the Cadet Engineering Program: "The power company took its young engineering graduates—mechanical and electrical—and put us out in the plant. Over a few months, we spent time dealing with every aspect of the company. That provided a solid basis for doing the job you would eventually work into."

Asked how engineering has changed since the 1960s, Smith noted that many of today's computer engineers "just use a plug-and-play approach to designing something." He acknowledges that the change is part of the normal progression of a technical field. But he cautions, "You still need to have some people who probably can't hook up a device and make it work but can tell you in great detail how one aspect of the device is designed and how it works—if only so the skill is not lost." ■

IEEE HISTORY CENTER

OPINIONS

MARKETPLACE OF IDEAS

FRANK WHITNEY/GETTY IMAGES

THIS MONTH'S QUESTION

Engineering the Future

Responding to December's question, IEEE members chose dozens of engineering breakthroughs they regarded as No. 1—including the transistor, electric power, and the Internet—since IEEE's birth 125 years ago. Now let's look to the future. Experts and science-fiction writers have suggested that the next century could see technology for controlling the weather, unlimited renewable energy, a space elevator, and the oft-predicted flying car and teleportation of human beings.

WHAT DO YOU SEE AS THE TOP ENGINEERING BREAKTHROUGH DURING THE NEXT 125 YEARS?

MAIL: *The Institute,* IEEE Operations Center, 445 Hoes Lane, Piscataway, NJ 08854-4141 USA
FAX: +1 732 562 1746 **E-MAIL:** institute@ieee.org

RESPOND TO THIS QUESTION by e-mail 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 June issue of *The Institute* and may be edited for brevity. Suggestions for questions are welcome.

RESPONSES TO DECEMBER'S QUESTION

Greatest Engineering Breakthroughs

IEEE, which traces its origins to the founding of the American Institute of Electrical Engineers in 1884, celebrates its 125th anniversary this year. The organization has seen many important engineering breakthroughs over the years, including the development of electric power, radio, television, computers, earth satellites, space probes, health-care devices, and the Internet.

What do you believe is the most important engineering breakthrough of the past 125 years? Why?

The Vacuum Tube

As the first device to allow dynamic control of electric current, the vacuum tube was a seminal invention, even though it was displaced by semiconductors.

ROBERT WILLIAMSON
Arlington, Texas

The Transistor

It led the way by making it possible to shrink the size of electronics that once used vacuum tubes. This miniaturization allowed for the development of ICs and active LCDs, which are enabling technologies in innumerable applications.

AL KAPLAN
Boston

The transistor changed everything, leading to the practical implementation of the computer. It also enabled the development of sophisticated control systems, communication devices, and consumer electronics. Without it, very little of what we use at the start of the 21st century would be affordable or even possible.

BILL MCDONALD
Huntsville, Ala.

Alternating Current

Nikola Tesla's invention and practical application of ac power was—and is—a profoundly important contribution. It has greatly benefited mankind and led to the development of innumerable other inventions, such as the fractional horsepower electric motor.

EDMUND KLEIN
Fallbrook, Calif.

The Internet

My vote is for the Internet. It impacts everyone, even people in rural villages in India. With the mobile phone, people are able to reach only those they know, but with the Internet, they can reach across the globe to anyone in a very personal way.

GANESH DEVARAJ
Bangalore, India

With the development of the Internet and its open standards, you can now search the Web and get almost instantaneous results on nearly any subject. There is no longer an excuse for anyone to remain ignorant.

D.P. BANNON
Westbrook, Conn.

Telecommunications

The field of telecommunications—which includes radio, television, and the telephone—is my pick because of its real-time nature. In my tiny village in Nigeria, I watch activities taking place in the United States at the same time U.S. citizens do.

CHIKA MADU
Abuja, Nigeria

There Are Just Too Many

I can't pick just one. Information theory was a breakthrough that made recording and communication of information a new discipline. FORTRAN, a high-level computer language, made programming possible. The airplane was also a pivotal invention, and the transistor and the operational amplifier helped advance technology immensely.

DEMETRIOS SERAKOS
Dahlgren, Va.

LETTERS

Waste of Time

About 30 years ago, I was Professional Activities chair for IEEE Region 5, when there was no time wasted in our publications on stories that were appropriate for *People* magazine. The Geek Chic cover and article ["Bringing Geek Chic Into Style," December, p. 18] were disgusting and a total waste of time. How about encouraging young people into engineering with good salaries and real long-term benefits? Please forget the superficial baloney, especially on the front cover of *The Institute.*

THOMAS R. CUTHBERT
Greenwood, Ark.

Why Students Drop Out

In regard to the rate at which graduating students do not renew membership ["Why You Should Stay With IEEE," December, p. 19], I came up with a reason: *IEEE Spectrum* used to contain more articles and more in-depth technical content. Then this changed, and to get the same amount of content you have to subscribe to more society publications. And, of course, dues increased. Now if members want to read in-depth technical information, they are charged an excessive amount, so I am not surprised about the dropout rate.

EZIO PACCHIARDO
Vimercate, Italy

It's true that the print edition of IEEE Spectrum *used to publish more features. In the 1980s and 1990s we had at least twice as much print advertising as we have now. We could afford to publish about seven features per issue instead of the four or five we print now. However, nowadays,* IEEE Spectrum *also maintains a Web site with a great deal of exclusive content. With a staff not significantly larger than what it was 20 years ago, we are publishing much more original material, including news items, podcasts, video, and blogs. In the print publication, the proportion of technical features hasn't changed. If readers sense less technical content in our issues, it's because the number of features has declined, due to advertising factors beyond our control.*

—GLENN ZORPETTE,
executive editor, *IEEE Spectrum*

What's in a Name?

IN THE ELEVATOR at a conference, a fellow passenger noticed the letters IEEE on my name tag and asked, "What's I-E-E-E?"

It got me thinking about how to respond. Instinctively, most of us would answer, "IEEE is the Institute of Electrical and Electronics Engineers."

But does that accurately describe IEEE today? And does it mean anything to someone who has never heard of IEEE before? I don't think so. A look at IEEE's many fields of interest and our members' college degrees proves that.

For example, a 2004 survey of IEEE Computer Society members found that only 45 percent held degrees in electrical or electronics engineering.

In some of our societies the dissonance between our name and members' interests affects membership. When I learned that a general chair of my principal conference, the IEEE International Frequency Control Symposium, was not himself an IEEE member, I asked him for the reason. He replied, "Why would I want to join a bunch of engineers?"

In our technical communities, many volunteers are not EEs; they are computer scientists, materials scientists, physicists, biomedical engineers, and more. They might be members of the Association for Computing Machinery, the American Physical Society, or other organizations, but because they are not EEs, they don't necessarily feel at home in IEEE.

The diversity of technical interests is even seen in the backgrounds of our awards recipients, including IEEE's highest award, the IEEE Medal of Honor, which is given for an "exceptional contribution or an extraordinary career in the IEEE fields of interest." Of the 21 recipients since 1988, only 11 have EE degrees. Last year's recipient, Intel cofounder Gordon Moore, is a chemist.

Our ability to engage a broad array of members in a diverse set of communities is one of our strengths. Unfortunately, we sometimes lose members to other professional organizations when those people do not feel at home in the Institute of Electrical and Electronics Engineers.

This is not a new phenomenon. A study of young technical professionals 10 years ago showed that the spelled-out name reinforces a limited, dated definition of IEEE. This may be one of the reasons that most of the millions of engineers, scientists, and IT and other technology professionals around the world who work in IEEE's fields of interest are not IEEE members. So, how do we answer "What's I-E-E-E?" A variety of responses has been proposed. But given our diverse fields of interest, summarizing who we are and what we do is a challenge. Here's one possibility:

"IEEE is the world's largest technical professional organization advancing technology for the benefit of humanity. We offer publications, conferences, and technology standards that allow people to work together on projects and solve some of today's most serious problems."

I'm not proposing that we change our name or who we are, but rather that we think more carefully about how we position IEEE in the minds of current and prospective members as well as in industry, government, and educational institutions.

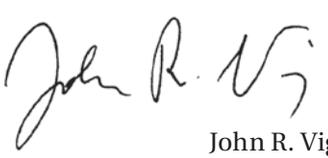
To help with that positioning, we began a multiyear effort in 2008 to improve the public visibility of IEEE with messages aimed at implanting and reinforcing the perception that IEEE is a global association focused on advancing technology for the benefit of humanity, and that IEEE is about a great deal more than just electrical and electronics engineering. There is something that all of us can do to promote IEEE: use the letters *IEEE*, or "I triple E" for short.

As far back as 1997, the IEEE Board of Directors passed a resolution requiring that in all cases, except where legally required, the letters *IEEE* be used in written and oral communications. This is echoed in the "IEEE Identity Standards," which can be found on our website.

Many other organizations now use only the initial letters of their original name, including BMW, Qantas, Varig, GE, IBM, 3M, JVC, BP, and AT&T. They did so because their business changed and their original name no longer accurately described their activities and evolving directions. For example, Qantas now serves more than just Queensland and the Northern Territories, and AT&T discontinued its telegraph service in 1991. The organizations found great value in their acronym, which had—for any number of reasons—moved into popular usage. Similarly, research shows that "IEEE" has wide recognition in technical circles. Our public visibility efforts will further expand that recognition.

In this 125th anniversary year of IEEE, I ask that you help spread the word that IEEE today is a great deal more than what our full name indicates. And if you have a suggestion about how we can summarize in a few words what IEEE is all about, please send it to Vig.column@ieee.org.

I'm not proposing that we change our name or who we are, but rather that we think more carefully about how we position IEEE.



John R. Vig
IEEE President and CEO

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Editorial Offices
IEEE Operations Center
445 Hoes Lane, Piscataway, NJ
08854-4141 USA
Telephone: +1 732 562 6825
Fax: +1 732 562 1746
E-mail: institute@ieee.org
Web: http://www.ieee.org/theinstitute

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BILL CRAMER/WONDERFUL MACHINE

New Insurance Programs Offered to Canadians

BY JOHN R. PLATT

FOR THE FIRST TIME, IEEE is offering homeowners- and auto-insurance coverage to members in Region 7. A Canadian insurer, the Personal Insurance Co. of Mississauga, Ont., administers the coverage, which became available in January as part of the IEEE Financial Advantage Program (FAP).

Canadian members have a persistent IEEE volunteer to thank for the coverage: John Grefford, Region 7's representative on the IEEE Individual Benefits and Services Committee (IB&SC), which is responsible for, among other things, formulating and recommending insurance programs for members. "I made it my own personal mandate to find the very best program—which I think I did," Grefford says. "As an engineer, I'm very partial to numbers, and I found great savings by shopping around." He says it took about nine months to find the right company.

Grefford had more than just premiums to consider. The company he recommended had to offer insurance in all 10 of Canada's provinces and its three territories, as well as provide customer service in both English and French. Finding a company that would do all that was a challenge, according to Lynn Koblin, manager of member benefits for the IEEE FAP, which currently offers life insurance and a credit card program in Canada.

After finding the Personal and verifying that its rates were competitive, Grefford convinced the insurer that IEEE would be a good fit for its business. The company offers group rates to more than 560 organizations, and it wanted to make sure that an IEEE plan would not overlap or take away from any of its existing relationships.

RATES The Personal's IEEE auto rates are on average 15 percent below the rates offered for individual, nongroup insurance, according to Koblin. There are additional discounts for hybrid vehicles. In Ontario, the company's largest market, the Personal offers a 5 percent discount for using snow tires, which are safer on winter roads.

For homeowners, there are discounts for nonsmokers and for subscribers of monitored alarm services. "I think the plans for IEEE Canada members are some of the best in the country," Grefford says. "The savings experienced through IEEE benefits programs are a great way to offset dues and other expenses. They're a good reason for joining IEEE and then remaining a member for life."

TOOL KIT One thing that made Grefford's search for the right program easier was the FAP's Toolkit for Developing Non-Technical Benefits in Regions 7–10, online at http://www.ieee.org/md.

Developed by the IB&SC, the kit describes a seven-step process to help a section develop a new member benefit. It provides tips for garnering local section support for a proposed benefit and guidelines for developing agreements with a service provider, obtaining legal and tax review from IEEE, securing approval of the benefit through the governance process, negotiating contracts and, finally, launching the benefit.

Grefford advises volunteers searching for programs for their sections to rely on their own experience to help determine what benefits would be valuable. "I compared the programs with my own needs, and I also thought of my colleagues' needs," he says.

"We hope the Canadian insurance program will be a model that can help members in other sections identify local programs and attract interested business partners," Koblin notes.

Canadian members can get a quote from the Personal by calling +1 888 476 8737 or visiting http://www.thepersonal.com/ieee. ■

IEEE Quick Guide

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CONTACT POINTS

IEEE Operations Center
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Tel: +1 732 981 0060

IEEE Corporate Office (New York)
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IEEE–USA (Washington, D.C.)
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Tel: +1 800 438 4333
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E-mail: fap-benefits@ieee.org

Ombudsman
Tel: +1 800 678 4333
E-mail: ombudsman@ieee.org

Section and Chapter Information
Tel: +1 732 562 5511
Fax: +1 732 463 9359
E-mail: sec-chap-support@ieee.org

Student Activities Information
Tel: +1 732 562 5527
Fax: +1 732 463 3657
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GEOSTOCK/GETTY IMAGES

International Solid-State Sensors, Actuators, and Microsystems Conference

Denver, 21–25 June

Also known as the Transducers Conference, this meeting features four days of presentations highlighting the latest work in mechanical, optical, chemical, and biological devices and systems using micro- and nanotechnology.

Topics include fabrication and packaging, materials and their characterization, advanced bioMEMS, microfluidics, nanofabrication, nanomaterials, wireless sensors and sensor networks, and interface circuits for MEMS and sensors.

In addition to the presentations, a number of short courses and tutorials are offered.

SPONSOR: IEEE Electron Devices Society
VISIT: http://www.transducers09.org

IEEE International Memory Workshop

Monterey, Calif.
10–14 May

The IEEE Nonvolatile Semiconductor Memory Workshop and the IEEE International Conference on Memory Technology and Design have merged to become the IEEE International Memory Workshop. This conference covers all aspects of nonvolatile and volatile memory microelectronics.

Topics include device physics, silicon processing, product testing, programmable logic, memory cell design, and circuits.
SPONSOR: IEEE Electron Devices Society
VISIT: http://www.ewh.ieee.org/soc/eds/imw

IEEE International Symposium On Broadband Multimedia Systems And Broadcasting

Bilbao, Spain
13–15 May

Covers advances in the rapidly converging areas of multimedia broadcasting, telecommunications, and networking.

The symposium focuses on multimedia systems and services, transmission and networking, multimedia processing, multimedia quality, and multimedia devices. Topics include mobile television, datacasting, portable devices, and signal-processing technologies.
SPONSORS: IEEE Broadcast Technology Society, the University of Basque Country
VISIT: http://ieee-bmsb2009.org

International Conference On Recent Advances In Space Technologies

Istanbul
11–13 June

This year's theme for the biennial conference is "Space for the Developing World." Topics include the benefits of space technology for developing countries; space technologies for security, meteorology, and earth observation; nanosatellites; spacecraft design; GPS developments, space communication techniques, and microgravity science.

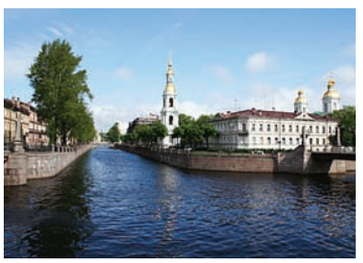
SPONSORS: American Institute of Aeronautics and Astronautics, European Association of Remote Sensing Laboratories, IEEE Aerospace and Electronic Systems Society, IEEE Geoscience and Remote Sensing Society, and the Scientific and Technical Research Council of Turkey
VISIT: http://www.rast.org.tr

IEEE Multi-Conference On Systems and Control

St. Petersburg, Russia
8–10 July

Addresses the newest and most challenging control applications and recent advances in intelligent control, including innovative control algorithms and computational intelligence methods that enable systems to achieve high performance under uncertain conditions.

Topics include aerospace systems, chemical processes, fault diagnosis, robotics, and hybrid systems.

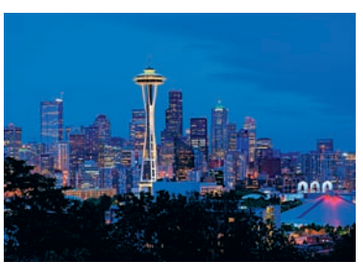


SPONSORS: IEEE Control Systems Society
VISIT: http://conf.physcon.ru/msc09

IEEE International Computer Software And Applications Conference

Seattle
20–24 July

COMPSAC is a major international forum for researchers, practitioners, managers, and policy makers interested in computer software and applications. Members of academia, industry, and government discuss the state of the art and the future of software technologies and practices. Included are several keynote addresses, industrial case studies, and panel discussions.



The wide range of topics encompasses the development of middleware and other software for distributed platforms, services computing, cloud computing, social and collaborative networks, data center applications and design, communications applications, and embedded systems.
SPONSOR: IEEE Computer Society
VISIT: http://www.compsac.org

CLOCKWISE FROM TOP LEFT: BEN KLAUS/ISTOCKPHOTO; GRAHAM HEYWOOD/ISTOCKPHOTO; LEO STANNERS/ISTOCKPHOTO; BILL GROVE/ISTOCKPHOTO; STEVEN ALLAN/ISTOCKPHOTO; MICHAEL BRAKE/ISTOCKPHOTO

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Jon M. Peha

Mr. Peha Goes To Washington

Bridging the gap between engineering and public policy

BY SUSAN KARLIN

SUSANA RAAB

FIVE MONTHS into his U.S. government job, IEEE Senior Member Jon M. Peha has already become a federal man of mystery. "I can't tell you what I'm working on," he says, laughing.

In October, Peha was named chief technologist of the U.S. Federal Communications Commission, in Washington, D.C. He serves as a senior advisor on communications technology and policy to the FCC chairman and commissioners.

He may not be allowed to specify the details of his work, but one thing's for sure: There's been plenty of it. That's thanks to the switch in the United States from analog to digital TV signals. The changeover—scheduled for last month but at press time expected to be delayed until June—would improve broadcast quality and free up spectrum that was allocated to television for commercial wireless services, public safety communications, and other uses.

For two decades, Peha has tracked social and policy issues emerging from the evolution of computers and telecommunications networks from such vantage points as a start-up chief technology officer, government worker, and academic. He has authored numerous papers on communications systems to be used for homeland security and public safety, spectrum management, and making the Internet available to everyone in the United States and developing nations. Peha is also a professor in the departments of engineering and public policy and electrical and computer engineering at Carnegie Mellon University, in Pittsburgh. And he served as associate director of its Center for Wireless and Broadband Networking.

A NEW POLICY The change in spectrum policy will lead to "the development of two kinds of devices that have never been allowed to exist before," Peha says. For decades, regulators strictly limited access to spectrum allocated for broadcast television, for fear of interference. But TV technology has evolved, and the FCC opted in November to allow two kinds of devices to operate within the TV spectrum. The first is a low-power mobile device and the second is a high-power fixed device, both of which can operate in the TV band as long as they don't interfere with TV signals. In addition, the fixed device is especially useful in rural areas where more TV spectrum is available. Given its greater range, it might be used to bring broadband Internet services to places where DSL and cable are unavailable.

CROSSROADS Peha had no idea what he wanted to major in at college. He paid his tuition by working part-time as a software programmer for numerous companies, including Microsoft, and as a research assistant at AT&T Bell Laboratories. He had a knack for technology, so he figured, Why not keep at it? He earned a bachelor's degree in electrical engineering and computer science in 1984 at Brown University, in Providence, R.I., and a master's in electrical engineering from Stanford in 1986. He then took an 18-month detour to study history, political science, and literature at Jagiellonian University in Kraków, Poland, and backpack around Europe. He returned to Silicon Valley in 1987 and became a computer scientist at SRI International, in Menlo Park, Calif. While there he joined IEEE and went on to earn a Ph.D. in EE in 1991 from Stanford.

After graduating, Pena became an assistant professor at Carnegie Mellon, working his way to full professor. He later became increasingly involved with IEEE, serving as editor of *IEEE Communications Magazine* and becoming a member of the editorial board of *IEEE Spectrum* and of the IEEE-USA Committee on Communications Policy, a role he had to relinquish to take the FCC position. "I realized that IEEE events and publications were essential to my understanding of what was changing in my field," he says.

In between teaching and doing research, Peha also got involved in government. He worked for the House Committee on Energy and Commerce, handling telecommunications and e-commerce legislation and later working for Ron Wyden, a Democratic senator from Oregon, on similar issues in the Senate. He served at the U.S. Agency for International Development, helping to launch a program to assist developing countries with their information infrastructure. He also was CTO for three high-tech start-ups involved with e-commerce technologies, wireless networks, and video conferencing.

For Peha, engineering and public policy go hand in hand. "Both are about finding useful solutions to challenging and complicated problems and working on things that will make a difference, whether it's changing policy or advancing a new technology," he says. "Each requires what an engineer would call systems-level engineering, considering things that are interacting with each other in complicated ways. I started as a pure engineer but became interdisciplinary, which is an advantage in the realms of policy and technology." ■

Alan Eynon

Buzz Patrol

IEEE MEMBER Alan Eynon is a mild-mannered signal-processing engineer. But his hobby keeps people abuzz at how daring he is.

"When I tell people that I keep bees, they give me incredulous looks—as if I'd told them I tamed lions for a hobby," he says.

Since 2000, Eynon (pronounced EYE-nun), who works for Innovative Signal Analysis in Richardson, Texas, has amassed six beehives. He now serves as president of his local beekeeping club. He keeps the hives outside his Dallas home and with neighbors who are learning how to keep bees.

PASSION Beekeeping
PROFESSION Signal-processing engineer
HOMETOWN Dallas

Beekeepers help their bees strengthen colonies to make honey by assuring they have enough food for the winter, checking for and treating diseases and parasites, and repairing any damage to the hive. The beekeepers also collect and sell honey and beeswax, and pollen as a food supplement. Modest start-up costs can run upward of US $1000 for two hives, the bees, and supplies such as a protective suit and a honey extractor.

Eynon, who had a childhood fascination with ants' organizational skills, became interested in bees in 1998, when he saw them buzzing around his Houston townhouse. After boning up on beekeeping by reading and taking a class, he bought two starter hives. Each 1.4-kilo package contained about 10 000 worker bees and one queen.

"The bees are sent through the mail," he says. "But be prepared for the post office to call at 6 a.m. and tell you to come get your bees. *Now*!" Worker bees spend their days making honey, gathering nectar, and protecting and maintaining the hive, while the queen lays eggs.

The yearly beekeeping cycle varies by location. Eynon's honey crop comes in at the end of June, dries up during the hot Texas summer, and then resumes after the September rains produce another nectar flow. He lets his bees keep the fall honey for food, supplementing them with sugar water to keep them alive through the winter. He's been stung hundreds of times—mostly deliberately, to build up a tolerance to the venom.

Each hive—square wooden boxes with removable honeycomb frames—annually produces 35 kilograms of honey, which he gives away to friends and sells through local shops. His wife makes soaps, candles, and bars of lotion from the honeycomb wax. It takes about five years for a hive to pay for itself. But Eynon's not in it for the money. Perhaps he sees a little of himself in his constantly working bees.

"There's always something going on in a beehive," he says. "Bees are natural engineers, building light, strong honeycombs that maximize storage space for a given amount of wax. I think I've learned all there is to know about bees, but every year they teach me something new."

—Susan Karlin

Christophe Granet

Drawing for Laughs

AS SOON AS Christophe Granet got his weekly allowance as a child growing up in Châteauroux, France, he'd run to the store to pick up the latest *bandes dessinées* (comic books). Over the years his collection grew to more than 600 titles.

"My teenage years were full of half-baked projects to start my own *bande dessinée*, but of course it was way too hard, and I was busy with school," says Granet, an IEEE senior member.

PASSION Cartooning
PROFESSION RF antenna and feed specialist
HOMETOWN Ryde, Australia

But he liked to doodle, and he drew comic strips while pursuing his bachelor's and master's degrees in physics at the University of Limoges and his doctorate in electrical engineering at the University of Orléans, both in France. Once he earned his Ph.D. in 1995, he moved to Australia to work as a research scientist for the Australian Commonwealth Scientific and Research Organization in Marsfield, near Sydney.

After years of keeping his hobby to himself, in 1999 Granet took a night-school cartooning course and drew a series of single-panel cartoons for his final assignment. Each cartoon in the *It's a Jungle Out There!* series depicted family-friendly gags using animals in quirky situations, like a lawn-mowing service using sheep or a female dog yelling at her overweight, lazy husband, "I find it hard to believe you were a dog-show winner when we met!" Granet kept at it and joined the Australian Cartoonists' Association to network with other artists. In 2004 he sent samples to Auspac Media, a cartoon syndicate in Bundall, which put the cartoons on its roster of those available for syndication.

Now *Jungle*, produced under the pen name Hagen, a childhood nickname, is syndicated in five newspapers in Australia, the United States, and Papua New Guinea. Granet also sells books, postcards, prints, T-shirts, and mugs emblazoned with his cartoons on his Web site, http://www.hagencartoons.com, and on other cartoon sites. To date, he has drawn more than 1200 *Jungle* cartoons.

Granet, who now works for BAE Systems in North Ryde, says his engineering training actually helps in cartooning. "I programmed a Fortran 'gag generator' that randomly gives me lists of a subject, place, action, and prop," he says. "The list usually ends up prompting ideas."

But Granet acknowledges, "Drawing cartoons is definitely different from my day job as a scientist, where making the client laugh is not a way to get a promotion."

—S.K.

If you have an interesting hobby you'd like to share, e-mail the editors: institute@ieee.org.

TOP: STEPHEN OXENBURY; BOTTOM: MATTHEW NAGER

2009 ANNUAL ELECTION

Election Countdown

ON 1 MAY, the IEEE Board of Directors will announce the candidates to be placed on the 2009 ballot. The list will include candidates for IEEE President-Elect, selected by the IEEE Board of Directors. Others will be nominees for Delegate-Elect/Director-Elect positions up for election this year who have been submitted by the respective regional and divisional nominating committees. The ballot also will include the nominees for President-Elect and Members-at-Large of the Standards Association Board of Governors; Vice President-Elect, Technical Activities; and IEEE-USA President-Elect and IEEE-USA Member-at-Large. The Board of Directors is also responsible for placing proposed constitutional amendments on the ballot.

Members who are not nominated but want to run for office may do so by submitting a completed petition in a letter to the Board of Directors, to be received at IEEE by 15 April 2009.

For members to be eligible for placement on the ballot, petitions must be accompanied by the necessary number of valid voting members' signatures. Prospective candidates must meet other requirements as well.

Deadlines at a Glance

15 MARCH

- Regional nominating committees submit candidates for the offices of regional Delegate-Elect/Director-Elect, as applicable.
- Divisional nominating committees submit candidates for the office of divisional Delegate-Elect/Director-Elect, as applicable.
- Standards Association submits candidates for the offices of Standards Association Board of Governors, President-Elect, and Members-at-Large.
- Technical Activities submits candidates for the office of Technical Activities Vice President-Elect.
- IEEE-USA submits candidates for the offices of IEEE-USA President-Elect and IEEE-USA Member-at-Large.

15 APRIL

- Deadline for drafts of petitions to be submitted to the Board of Directors.

1 MAY

- Board of Directors submits to the voting membership a list of nominees for IEEE President-Elect; Delegate-Elect/Director-Elect, as applicable; and other positions to be elected by voting members for the coming term.
- Board of Directors announces whether it intends to put forward any constitutional amendments.
- IEEE Corporate Activities must receive initial campaign statements from all nominated annual election candidates.

12 JUNE

- Petitions for constitutional amendments must be received by noon EDT USA/16:00 GMT.
- Petition nominations for candidates to be elected by the membership must be received by noon EDT USA/16:00 GMT.
- Initial statements by principal initiators and opponents of constitutional amendments must be received.
- Corporate Activities must receive initial campaign statements from individuals to be nominated by petition.

29 JUNE

- Corporate Activities mails initial statements by proponents of proposed constitutional amendments to opponents and opponents' initial statements to proponents.

6 JULY

- Deadline for rebuttal statements from initiators and opponents on proposed constitutional amendments.

1 AUGUST

- IEEE annual election ballots are sent to all voting members on record as of 30 June.

1 OCTOBER

- Last day for receipt of ballots from voting members (by noon CDT USA/17:00 GMT).

8 OCTOBER

- Last day for ballots to be tallied by Tellers Committee.

13 OCTOBER

- Last day for announcement of vote tally to IEEE Board of Directors by Tellers Committee.

22 NOVEMBER

- IEEE Board of Directors acts to accept report of Tellers Committee. Annual election results are made official.

UP FOR ELECTION IN 2009

Chosen by all voting members:

- IEEE President-Elect

Chosen by members in Regions 1–6:

- IEEE-USA President-Elect
- IEEE-USA Member-at-Large

Chosen by all voting members who are also members of the IEEE Standards Association:

- IEEE Standards Association President-Elect

Chosen by members of the IEEE Standards Association:

- IEEE Standards Association Board of Governors, Members-at-Large

Chosen by members of the respective technical divisions:

- Technical Activities Vice President-Elect
- Delegate-Elect/Director-Elect, Division II (one-year term)
- Delegate-Elect/Director-Elect, Division IV (one-year term)
- Delegate-Elect/Director-Elect, Division VI (one-year term)
- Delegate-Elect/Director-Elect, Division VIII (one-year term)
- Delegate-Elect/Director-Elect, Division X (one-year term)

Chosen by members of the respective regions:

- Delegate-Elect/Director-Elect, Region 1 (two-year term)
- Delegate-Elect/Director-Elect, Region 3 (two-year term)
- Delegate-Elect/Director-Elect, Region 5 (two-year term)
- Delegate-Elect/Director-Elect, Region 7 (two-year term)
- Delegate-Elect/Director-Elect, Region 9 (two-year term)

FOR MORE INFORMATION on election procedures, contact Carrie Loh, IEEE Corporate Activities, at +1 732 562 3934, e-mail: c.loh@ieee.org.

2008 ELECTION TALLY

And the Winners for 2009 Are…

The IEEE Tellers Committee tally of votes for 2009 offices from valid 2008 election ballots approved by the IEEE Board of Directors is as follows.

IEEE PRESIDENT-ELECT, 2009

Pedro A. Ray	21 929
Moshe Kam	19 420

DIVISION DELEGATE-ELECT/DIRECTOR-ELECT, 2009

Division I

Hiroshi Iwai	1648
Alfred E. Dunlop	1278

Division III

Nim K. Cheung	3078
Stanley L. Moyer	2340

Division V

Michael R. Williams	2730
Rangachar Kasturi	1864
Gerald L. Engel	1707

Division VII

Enrique A. Tejera M.	1656
Mohamed E. El-Hawary	1472
Saifur Rahman	1008

Division IX

Alfred O. Hero, III	2049
Thomas F. Wiener	1510

REGION DELEGATE-ELECT/DIRECTOR-ELECT, 2009–2010

Region 2

Ralph M. Ford	2622
Murty S. Polavarapu	1295

Region 4

James N. Riess	2057
Hamid Vakilzadian	667

Region 6

Edward G. Perkins	3762
S.K. Ramesh	2143

Region 8

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FOR MORE INFORMATION about the IEEE Fellow program or to nominate someone, visit http://www.ieee.org/fellow.

Seeking Nominees For Volunteer Positions

IEEE is looking for individuals with the qualifications, leadership skills, and commitment to volunteer as IEEE officers or to serve on committees of the IEEE Board of Directors. The IEEE Nominations and Appointments Committee seeks nominees for the following:

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DEADLINES The deadline for submitting nominations for standing committee chairs, as well as for a student member of the IEEE Women in Engineering Committee, is 1 March. You have until 1 July to submit nominations for standing committee members, IEEE Assembly-elected officers, and President-Elect.

ELIGIBILITY Each position has eligibility requirements and specific qualifications on which the N&A Committee evaluates candidates. The requirements are available at http://www.ieee.org/web/aboutus/nominations/guidelines.html.

WHO CAN NOMINATE? Anyone may submit a nomination; you need not be an IEEE member. Self-nominations are encouraged. An IEEE organizational unit may submit recommendations, provided that its governing body or the body's designee has endorsed the nominee.

HOW TO NOMINATE Review the eligibility requirements and specific qualifications for the positions, and then complete the form at http://www.ieee.org/web/aboutus/nominations/nomform3d.html.

Self-nominations Include your name, desired position or positions, qualifications, list of accomplishments, and biography. Use the template provided in the nomination form.

Peer nominations Include the nominee's name, recommended positions, and a brief explanation of the qualifications that make him or her an ideal candidate.

Nominations that do not contain the required information will not be considered. A person may be nominated for more than one position. Nominators do not need to contact their nominees prior to submitting the form. The N&A Committee will contact all eligible nominees to ascertain their willingness to serve, and to obtain more information if necessary.

THE PROCESS The N&A Committee is responsible for making recommendations for IEEE officers elected by the IEEE Assembly. The committee also makes recommendations for IEEE President-Elect and chairs and members of standing committees to the IEEE Board of Directors. The Board does the final ratification of appointments. The Board also approves the President-Elect candidates to be included on the IEEE annual election ballot. However, the voting membership of IEEE elects the President-Elect.

—Leah H. Jamieson, chair of the 2009 IEEE Nominations and Appointments Committee

FOR MORE INFORMATION about the positions, including qualifications, job descriptions, and estimates of the time each one requires, visit http://www.ieee.org/web/aboutus/nominations/guidelines.html.

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