

# ECE Connection

School of Electrical and Computer Engineering | Spring 2009

## New Facilities to Help Foster Innovation, Creativity in ECE

**D**uring the past decade, the School of Electrical and Computer Engineering has played a key role in Georgia Tech's ascent on to the national and international stages. As you will read in this issue of *ECE Connection*, the School is at the center of many of the Institute's research and educational initiatives and is a leader in Georgia Tech's commercialization activities.

Our teaching, learning, and breakthrough discoveries cannot happen without first-rate facilities and accompanying infrastructure and equipment. For Georgia Tech to remain current with the changing nature of technology and society, faculty, staff, and students must have a flexible environment in which to work, study, and solve today's greatest challenges in engineering and science.

Two facilities projects are particularly vital to the future of ECE—the Marcus Nanotechnology Building and the Blake Ragsdale Van Leer Building Renewal.

### FACTS AT A GLANCE

#### Marcus Nanotechnology Building

- Broke ground August 2006.
- Opened November 2008.
- Located at the previous site of the Electronics Research Building, on the corner of Ferst and Atlantic Drives.
- \$94 million facility, a public/private partnership with the State of Georgia.
- Home to one of the nation's largest cleanroom spaces, with 30,000 square feet.
- 20,000 square feet devoted to traditional semiconductor research and 10,000 square feet dedicated to biological/bio-



*The Blake Ragsdale Van Leer Building Renewal project will consist of a privately funded new building and a renovation of the existing Van Leer Building.*

medical research, believed to be the first facility of its kind.

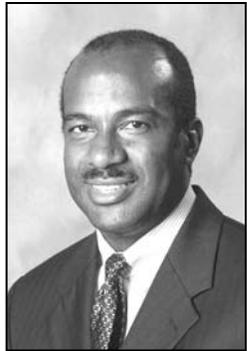
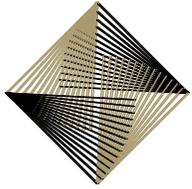
- Building to include faculty offices, conference room, center/director's suite, gallery, research/laboratory office wing, a nano characterization and imaging lab, and eight additional laboratories/bays.
- Focused on new approaches to drug delivery, cancer detection and treatment, DNA damage repair, and the detection and analysis of plaque formation for artery and cardiac disease prevention.

#### Blake Ragsdale Van Leer Building Renewal

- Phase One: \$45 million new building, privately funded.
- Phase Two: \$35 million renovation of existing Van Leer Building, state-funded.
- Registered for LEED certification in July 2008.
- Approximately \$2 million in support pledged to date.

- New building to be adjacent to existing Van Leer Building, facing south to Tech Green and the G. Wayne Clough Undergraduate Learning Commons, currently under construction and due for completion in September 2011.
- Newly renovated Van Leer Building projected to house classroom and lab space.
- New building projected to include research labs, classroom/lecture hall space, study lounge, education gallery, and faculty and student organization offices.

To learn more about these projects, visit <http://www.development.gatech.edu/> or contact Marci Reed, director of ECE development, at 404.894.0274. |



Gary S. May  
Steve W. Chaddick  
School Chair

## Building on our Success

**S**pace: the final frontier." Uttered by William Shatner at the outset of each episode of *Star Trek*, those words call to mind the ultimate challenge of exploration, discovery, and settlement. With a slightly different twist, the phrase has a no less compelling meaning in academia. Indeed, establishing and maintaining sufficient space and state-of-the-art facilities remains one of the greatest ongoing issues in the competitive environment of top institutions.

One could argue that this objective poses particular challenges for ECE at Georgia Tech. With our robust education and research activities in Atlanta, Savannah, Metz, and Shanghai, we have established four operations on three continents – not to mention our numerous dual-degree and study abroad operations worldwide.

On our Atlanta campus alone, 103 ECE faculty members occupy portions of ten different buildings. The most recent of these is the Klaus Advanced Computing Building. The Klaus Building, which opened its doors in December 2006, is a 210,000-square-foot structure that houses more than 30 ECE faculty and staff along with colleagues from the College of Computing. This facility is a stunning reflection of sustainable design and architectural significance.

The next addition to our geographical presence on the Atlanta campus will be the Marcus Nanotechnology Building, which opened its doors in November 2008. Recognizing the growing and revolutionary importance nanotechnology holds, Georgia Tech, already a leader in this area of research, has further enhanced its posture through this impressive new facility. The Marcus Building, a \$94 million structure, will encompass 20,000 square feet of cleanroom space dedicated to nanotechnology focused on traditional semiconductor nanoelectronics adjacent to a 10,000-square-foot facility dedicated to biological and biomedical nanotechnology research—a singularly unique combination.

Although our campus presence continues to be enhanced, there is one rather glaring exception to this series of facilities improvements—the ECE headquarters building. The School of ECE has been headquartered within the Blake Ragsdale Van Leer Building since 1961. The Van Leer Building was dedicated in 1962 and honors the legacy of Colonel Van Leer, Tech's fifth president (1944-56)—the first engineer to head the Institute.

The Van Leer Building is an older structure characterized by its lattice cement façade and 1960s feel (and according to many alumni visitors—its unique odor!). In addition to the nation's best and brightest engineering students, the building is also home to premier faculty. Within the walls of the Van Leer Building, colleagues and peers have spent decades leading innovations in ECE-related disciplines. However, with age comes decay, and the building has suffered a multitude of cosmetic and structural issues related to corrosion and general wear and tear.

In its current state, the Van Leer Building fails to reflect the stature of the ECE program and the reputation of the Institute. To meet the needs of the School, remain competitive with peer institutions, and to provide the quality spaces and state-of-the-art facilities that will keep ECE at the forefront in the field, the Van Leer Building must be improved and expanded.

Thus, we have embarked upon an ambitious, two-phase plan to renew the ECE presence. The first phase will construct a new building adjacent to the existing Van Leer Building, facing south to Georgia Tech Green. This signature facility will consist of approximately 200,000 square feet of laboratories, lecture halls, and faculty offices at an estimated cost of \$45 million, funded through private philanthropy. The second phase will necessarily follow the completion of construction of the new facility, and is planned as a wholesale renovation of the existing Van Leer facility at an estimated cost of \$35 million, primarily funded from

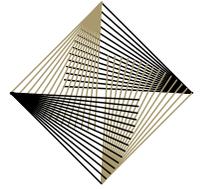
## ECE Hits Top **5**

**F**or the first time ever, electrical engineering placed fifth, advancing to its highest placement ever in the *U.S. News & World Report* 2009 undergraduate engineering rankings. Computer engineering remains strong, maintaining its sixth place position from last year.

"We are pleased to be recognized among the nation's top EE and CmpE programs," said Gary S. May, Steve W. Chaddick School Chair. "Our success in ECE can be attributed to continually recruiting and retaining the finest faculty and students that are supported by a great group of staff. We can all be very proud of our accomplishments and the high esteem in which our peers hold us."

The College of Engineering moved up a notch to fourth, and Georgia Tech retained its seventh place standing among public universities. Five additional engineering programs at Tech placed in the top 5 among specialty areas. Industrial engineering ranked first, biomedical engineering ranked third, mechanical engineering ranked fourth, and civil engineering ranked fifth.

state resources. With updated and much-needed classroom, laboratory, office, and meeting space, the Van Leer "restore and renew" project will reap benefits for our School for the next several decades as we continue our quest to build the most outstanding ECE program in the world. I hope that you will join us on this journey. |



## John Peatman Retires after 44 Years of Dedicated Service

ECE Professor John B. Peatman retired on November 30 after 44 years of dedicated service to ECE and Georgia Tech. He will continue to work part-time, teaching ECE 4175 Embedded Microcontroller Design during spring semester 2009.

A professor at Georgia Tech since 1964, Dr. Peatman received the Georgia Tech Outstanding Teacher Award and was chosen three times by the ECE senior class for the Richard M. Bass/Eta Kappa Nu Outstanding Teacher Award. Acknowledged by his students and colleagues as a tremendous role model for all educators, he received the 2006 IEEE Undergraduate Teaching Award, the industry's premier recognition for undergraduate teaching achievement. He is the author of six definitive textbooks in digital systems design.

Throughout his career, Dr. Peatman enhanced his teaching and project advisement by spending summers on industry assignments and was committed to preparing students for their post-college lives. His electrical engineering senior seminar featured business profes-



*John Peatman (r) gets a visit from former student and advisory board chair Jim Carreker.*

sionals who spoke about challenges that students would face after graduation. Though the seminar ended with semester conversion in 2000, Dr. Peatman continued inviting speakers—often former students—to his classes.

“John has always been able to talk and easily relate to both current and past students. Because of this, generations of alumni remain engaged with or

return to Tech with substantial support of the Institute, the College of Engineering, and ECE,” said Gary S. May, Steve W. Chaddick School Chair of ECE. “We are grateful not only for his many technical and educational contributions, but more importantly, for his friendship and immense good will.” |

## James R. Carreker Distinguished Lecture

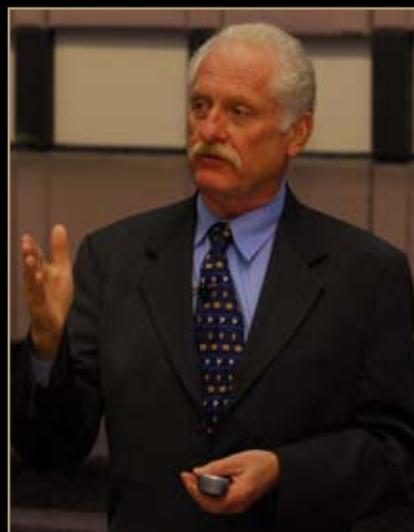
### National Instruments CEO Delivers 8<sup>th</sup> Annual Carreker Lecture

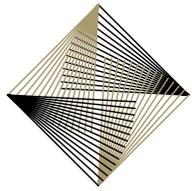
James Truchard—co-founder, president, and CEO of National Instruments—delivered the eighth annual James R. Carreker Distinguished Lecture on October 30 at the Van Leer Auditorium.

Titled “Founding and Growing into a Billion Dollar Technology-Driven Company,” Dr. Truchard discussed both the history and the technology behind National Instruments. NI continues to be a technology-driven company, developing over 200 new products per year and serving over 25,000 companies in test, control, and embedded design applications. He co-founded the company in 1976 while working at the University of Texas at Austin. Since that time, the company has grown to more than 4,600 employees with offices in more than 40 countries.

Before the lecture, Dr. Truchard and members of the NI executive team also spent time with faculty who work in the embedded systems and robotics areas and viewed a demonstration by Robojackets, a group of Georgia Tech students, faculty, and alumni interested in robotics research and education. He also visited with members of the Georgia Tech community at a post-lecture reception.

To watch the video of Dr. Truchard’s talk, visit the ECE web site at [www.ece.gatech.edu/media/](http://www.ece.gatech.edu/media/) and click on the video archive section.





## Sibert, Hans Join ECE Advisory Board

### 2009 ECE Advisory Board

**C. Dean Alford**  
Allied Utility Network  
Conyers, Ga.

**Antonio R. Alvarez**  
Leadis Technology, Inc.  
Sunnyvale, Calif.

**Mike Bartlett**  
Texas Instruments, Inc.  
(Retired)  
Richardson, Tex.

**Mike Buckler**  
TekMark Global Solutions  
Cary, N.C.

**Steve W. Chaddick**  
Ridgewood Advisors, LLC  
Atlanta, Ga.

**Mel Coker**  
AT&T  
Atlanta, Ga.

**Michael A. Coleman**  
Orlando, Fla.

**H. Allen Ecker**  
Scientific-Atlanta, Inc.  
Lawrenceville, Ga.

**Mat Hans**  
Motorola Inc.  
Hoffman Estates, Ill.

**Holmes J. Hawkins, III**  
King & Spalding  
Atlanta, Ga.

**Kelvin C. Hawkins, Sr.**  
IBM Corporation  
Research Triangle Park, N.C.

**Sherra Kerns**  
Olin College  
Needham, Mass.

**Fred Kitson**  
Motorola Inc.  
Schaumburg, Ill.

**Scott Madigan**  
SureBill  
Duluth, Ga.

**Theresa Maldonado**  
Texas A&M University  
College Station, Tex.

**Michael R. McQuade**  
DuPont Company  
Wilmington, Del.

**Jock Ochiltree**  
Saint Augustine, Fla.

**Joe Parks**  
Intel Corporation  
Beaverton, Ore.

**Randall E. Poliner**  
Antares Capital Corporation  
Melbourne, Fla.

**Thomas J. Quigley**  
Franklin, N.C.

**Leslie Sibert**  
Georgia Power  
Atlanta, Ga.

**Ron Slaymaker**  
Texas Instruments Inc.  
Dallas, Tex.

**Alek Szlam**  
Szlam Enterprises Inc.  
Alpharetta, Ga.

Composed of mostly alumni representatives from industry, the ECE Advisory Board provides ongoing external perspectives on the School's programs and formally meets twice per year. The ECE Advisory Board added two new members for 2008-09.

Leslie Sibert (BEE '85) is the vice president for transmission for Georgia Power, a subsidiary of the Southern Company. In this position, she is responsible for the company's transmission system, including its planning, maintenance, operations, and new construction.

Ms. Sibert started with Georgia Power as a co-op student in 1982. She has since held various positions



at both Georgia Power and Southern Company in retail/wholesale marketing, distribution, customer service, and labor relations. During her tenure at Georgia Power, she has been personally involved with numerous civic organizations and with many activities at Georgia Tech.

A graduate of the Harvard Professional Management Development Program in 2001, Ms. Sibert was inducted into the Georgia Tech Academy of Distinguished Engineering Alumni in 2005. In 2007, she received the Alumna Woman of Distinction Award at the Georgia Tech Women's Leadership Conference and was named one of the "Top 25 Power Women to Watch" by *Atlanta Woman Magazine*.



Mat Hans (PhD '98) leads a new commercialization team in Motorola's Corporate Research Center. The role of this team includes identifying customer R&D projects linked to the Center's research initiatives, and managing the execution of these R&D projects with customers and external partners.

Before this business development and customer-facing role, Dr. Hans spent ten years as a researcher at Motorola and Hewlett-Packard Laboratories. During this time, his research focus spanned entertainment, mobile gaming, social media, multimedia communications, pervasive platforms for personalization, and context aware computing. While at Hewlett-Packard, he was the HP resident researcher and program manager at Georgia Tech in Atlanta from 2000-04.

Dr. Hans has published a number of papers and holds several U.S. patents. A 1993 M.S. graduate from Supélec (Paris, France), he is currently a Fellow of the Technical Staff at Motorola, and an AES and Senior IEEE member. |

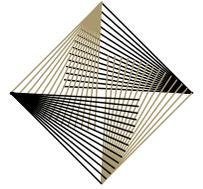
## May Travels across Country Promoting ECE



Gary May, Steve W. Chaddick School Chair of ECE, and his wife, LeShelle R. May (MS OR '89), a member of the Georgia Tech Alumni Association's executive committee, right, received a VIP tour of a Los Angeles academy for kindergartners through sixth-graders developed by Jada Pinkett Smith and Will Smith. The Smiths contacted the Mays for ideas for their state-of-the-art elementary school through Guy Primus (BIE '92, MSIE '95), the head of interactive media for Will Smith's production company, Overbrook Entertainment. Will Smith was so impressed with what he heard about Georgia Tech that he made a contribution to the Institute.



Dr. May visited with Boston area alumni in September at a Meet the Chair event hosted by Choate Hall & Stewart, LLP and coordinated by John Lanza (BEE '87, MSEE '88), an attorney with the firm. Dr. May updated the firm's employees and area alumni on the latest activities taking place in ECE. He also joined a group of alumni for the Georgia Tech-Boston College football game, the first Atlantic Coast Conference match-up for the Yellow Jackets, from which the Jackets emerged victorious, 19-16. |



## 2008 College of Engineering Alumni Award Winners

The 2008 College of Engineering (CoE) Alumni Awards Ceremony was held on November 7 at the W Hotel in Midtown Atlanta. At this event, CoE Dean Don Giddens inducted new members into the Engineering Hall of Fame, the Academy of Distinguished Engineering Alumni, and the Council of Outstanding Young Engineering Alumni. CoE Advisory Board member and ECE alumnus Steve Chaddick (BSEE '74, MSEE '82) participated in the awards presentation.

Seven ECE alumni were inducted into the Academy of Distinguished Engineering Alumni, which recognizes alumni for contributions to their profession and to the Institute, and for their active involvement in engineering, management, and the community.

### **Anthony Alvarez**

BSEE '78, MSEE '79

*President and CEO, Leadis Sunnyvale, Calif.*

### **Todd Cutler**

BSEE '79

*Senior Director, EEs of EDA Division, Agilent Technologies Alpharetta, Ga.*

### **Sheldon Fox**

BSEE '81, MSEE '82

*President, National Programs, Government Communications Systems, Harris Corporation Melbourne, Fla.*

### **Arlen J. (Jay) Kirchoff, Jr.**

BSEE '79, MSEE '80

*Senior Director, Product Marketing, Broadcom Corporation Duluth, Ga.*

### **John Lanza**

BSEE '87, MSEE '88

*Partner, Chair of Intellectual Property Group, Choate Hall & Stewart LLP Boston, Mass.*

### **Michael D. Rosen**

BSEE '80

*Chief Engineer, Corporate Research and Development, Bose Corporation Framingham, Mass.*

### **Eugene Sapp**

BSEE '59

*President, CEO, and Co-Chairman (Retired), SCI Systems, Inc. Huntsville, Ala.*



*The 2008 ECE inductees into the Academy of Distinguished Engineering Alumni included (l-r) Gene Sapp, Todd Cutler, Mike Rosen, and Sheldon Fox. Not pictured are John Lanza, Antonio Alvarez, and Arlen J. (Jay) Kirchoff, Jr.*

## ECE Fundraising Update – Randy Poliner

Today's economic climate has many people paraphrasing Dickens—trying to find a “best of times” among “worst of times” scenarios.

In the School of Electrical and Computer Engineering at Georgia Tech, the best of times is represented in our first ever ranking at #5 by *U.S. News & World Report* for our undergraduate EE program. We also closed another record year with research dollars close to \$63 million. And Dr. May reports from the Georgia Tech Presidential Search Committee that final candidates may be named early in 2009.

But...the State of Georgia budget cuts have cost the School several staff positions, and have caused ECE to limit summer course offerings to students. And with the economic downturn, despite being at 78 percent of our campaign goal, fundraising efforts have become more challenging than ever. Closing the final gap and raising additional funds to build a new ECE headquarters will prove difficult.

Which is why the ECE Campaign Steering Committee remains hard at work, hosting campaign events this year in Atlanta, Dallas, Houston, and Boston. A November event was held in New York with the College of Management at 30 Rockefeller Center on the set of Saturday Night Live. A full house of ECE and CoM alumni was treated to an engaging update on how Georgia Tech is bridging the gap between engineering and management.

During tough times like these, we all take stock of our charitable priorities. For those of you who are able to keep your alma mater at the top of the list, thank you. Whatever your situation, please stay in touch and feel free to contact me, Dr. May, or Marci Reed with your thoughts and suggestions on how to keep the good times rolling. |

### **ECE Campaign Steering Committee**

**Randy Poliner**, Chair (BEE '77)  
Partner, Antares Capital Corporation  
rpoliner@antarescapital.com  
321.777.4884

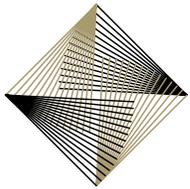
**Robert Dixon** (MSEE '77)  
*Chief Technology Officer*  
PepsiCo

**Raouf Halim** (MSEE '85)  
*CEO*  
Mindspeed Technologies

**John Lanza** (BEE '87, MSEE '88)  
*Chair, Intellectual Property Group*  
Choate Hall & Stewart, LLP

**Jésus Léon** (EE '74)  
*Chief Development Officer* (retired)  
CIENA Corporation

**Slim Souissi** (MSEE '92, PhDEE '94)  
*Chief Technology Officer*  
Novatel Wireless



## Lanza Finds Commercialization Endowment Fund

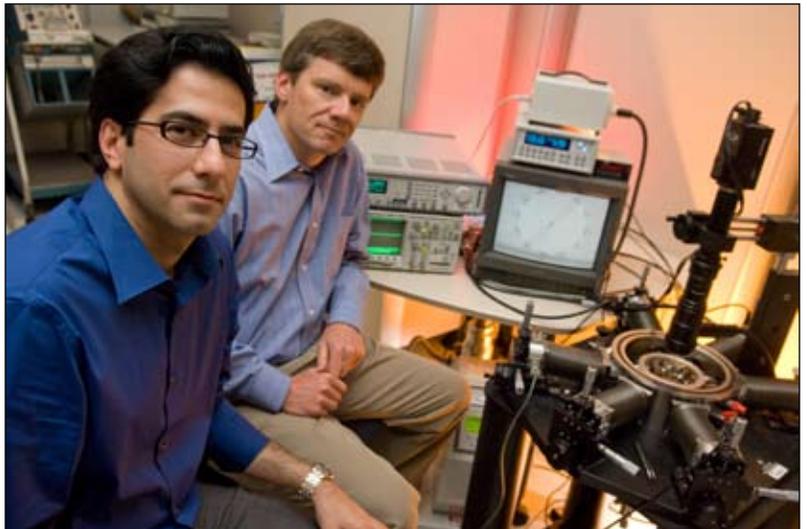
**E**CE has long been the Georgia Tech campus leader in research activity. Last fiscal year the department set a seventh consecutive record with \$62,679,201 in research grants, contracts, and gifts. That number reflects another record, as 35.7 percent of the funding came from industrial sources.

It's no surprise, then, that ECE excels in translational research – where projects lead to innovation and commercialization. Last fiscal year ECE faculty filed 17 patents and 94 records of invention. Our faculty outnumbers other departments in this area, with a growing number of projects currently being ushered through Georgia Tech's VentureLab and Georgia's Advanced Technology Development Center (ATDC).

Our recently adopted strategic plan states that: "ECE will aggressively transfer knowledge into products and processes that will benefit the State of Georgia, the nation, and the world." One key component to reaching this goal is the Institute's Fast Track Patent Program (FTP<sup>2</sup>). ECE has been asked to participate in the pilot phase of FTP<sup>2</sup>, a process for Schools to designate certain intellectual property as critical to their units. The School will be allowed a certain number of non-provisional filings based upon its previous fiscal year's invention disclosure rate.

Of course, there will be costs associated with patent expenditures for FTP<sup>2</sup>, so we are extremely grateful to alumnus John Lanza, BEE '87, MSEE '88, for establishing the ECE Commercialization Endowment Fund. The fund will be administered at the School Chair's discretion in order to help offset costs associated with FTP<sup>2</sup>, or other costs associated with faculty commercialization efforts. Mr. Lanza, an IP attorney, is chair of the Intellectual Property Group for Choate Hall & Stewart LLP in Boston.

"The technology coming out of Georgia Tech and ECE is groundbreaking. The Fund helps with the first step in the school's efforts to commercialize that innovative technology and provides spin-



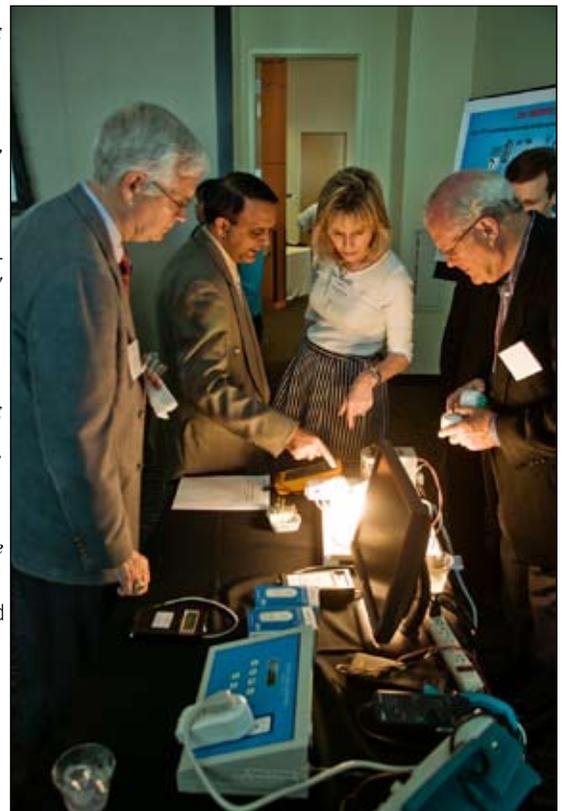
*(above) Qualtré, an ATDC company co-founded by ECE Associate Professor Farrokh Ayazi, is an example of ECE innovation at work. Qualtré is commercializing the next generation of motion sensors, further broadening their applicability in consumer electronics devices such as cellular handsets, personal navigation devices, and gaming controllers. The company is led by Dr. Ayazi (l) as its CTO and President and CEO Michael Slawson.*

*(right) Innovolt, an ATDC company co-founded by ECE Professor Deepak Divan, launched an advanced surge suppression technology in April 2008. He and his colleagues demonstrate the product, yet another example of ECE innovation at work.*

out companies with a solid foundation as they seek additional funding from outside investors."

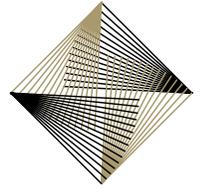
Mr. Lanza said.

"During our strategic planning exercise it became apparent that a fund like the one John has established could help accomplish great things for the School," said Gary May, Steve W. Chadwick School Chair. "We are grateful not only to John for his gift, but for the time he generously volunteers as a member of our Campaign Steering Committee,



and as our eyes and ears in the Boston area."

If you would like information on how to contribute to the ECE Commercialization Endowment Fund, or any of the School's fundraising priorities, contact Marci Reed at [marci.reed@ece.gatech.edu](mailto:marci.reed@ece.gatech.edu) or 404.894.0274. |



## Eight Companies Team Up with Georgia Tech to Form 100G Consortium

Eight companies have joined forces with Georgia Tech to establish the Georgia Tech 100G Optical Networking Consortium, which is believed to be the first academic-industrial consortium of its kind in the world. To date, more than \$2.2 million in support has been designated for this facility by the Consortium's founding research members—ADVA Optical Networking, Ciena, OFS, StrataLight, and Verizon—and by supporting members Avianex, IBM, and Picometrix.

The consortium and facility allow academic and industry personnel to perform multidisciplinary research in all aspects of 100-gigabit-per-second transmission, supported by the diverse and complementary strengths of the industrial partners and faculty members. Research topics range from fundamental studies of 100G optical transmission to assessment of optical and electronic technolo-

gies that will be used in such high-speed optical networks. The consortium is led by ECE Professor Stephen E. Ralph.

Co-director of the effort is Gee-Kung Chang, Byers Eminent Scholar Chair in Optical Networking. Byers Professor John D. Cressler will work on high-speed electronics challenges, and ECE Professor John Barry will focus on critical signal processing issues.

Construction on the Consortium's 100G testbed started in July 2008 and was made possible with additional support from the Georgia Tech Office of the Senior Vice Provost for Research and Innovation and the Georgia Research Alliance. The first testbed link, which



*ECE Professor Stephen E. Ralph and his research group; Cheng Lin, Andrew Stark, Patrick Decker, Ben Clarke, and Yu-Ting Hsueh.*

will allow testing of new modulation concepts within a point-to-point link engineered for 10Gb/s systems, became fully functional in November 2008. Two additional milestones, which will include the creation of a long-haul DWDM mesh network environment exceeding 1,000 kilometers, will be met by July 2009, when the facility will be fully functional.

For more details, visit [www.ece.gatech.edu/media/news/](http://www.ece.gatech.edu/media/news/).

## Research in the News

Visit [www.ece.gatech.edu/media/news](http://www.ece.gatech.edu/media/news) to learn more about these research projects. Stories are courtesy of the Georgia Tech Research News and Publications Office and the Georgia Tech Communications and Marketing Office.

### SnoMotes Go Where Scientists Fear to Tread

Data about volatile ice sheets—the huge masses of glacier ice in Antarctica and Greenland—have until now been drawn largely from satellites and ground-based weather stations. Now researchers at ECE, led by Associate Professor Ayanna Howard, are working to create SnoMotes, autonomous robots that work as a team, to collect detailed data in the icy environments without risking scientists' safety. This data could give scientists a better understanding of the dynamics that affect the stability of ice sheets.



### Tongue-Controlled System Assists Disabled Individuals

A new assistive technology developed by engineers at Georgia Tech could help individuals with severe disabilities lead more independent lives.

Developed by ECE Assistant Professor Maysam Ghovanloo and his group, this novel system allows individuals with dis-



abilities to operate a computer, control a powered wheelchair, and interact with their environments simply by moving their tongues. The tongue-operated assistive technology, called the Tongue Drive system, and Dr. Ghovanloo were recognized by past U.S. President George W. Bush at the annual Iftaar dinner last September, an annual event held at the White House honoring distinguished Muslim Americans during Ramadan.

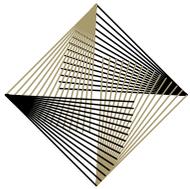
### The Engineering of a Musical Instrument



ECE Professor William D. Hunt has teamed up with Mechanical Engineering Professors Ken Cunefare and Paul Neitzel and ECE undergraduate Stephen Welch to investigate the acoustic modes of vibration of certain instruments, including guitar, piano, and upright bass.

They are investigating the physical acoustics of these wooden, string instruments with the ultimate goal of developing engineering constructs that will allow manufacturers to improve both the sound quality produced by the instrument as well as the playability. Dr. Hunt and his research team are part of the new Georgia Tech Center for Music Technology.

*(l) Ayanna Howard; Maysam Ghovanloo and Xueliang Huo; Paul Neitzel, Ken Cunefare, William Hunt, and Stephen Welch.*



*Since arriving in Washington, D.C. last August, Robert Butera has met with a number of top government officials, including former Secretary of State Condoleezza Rice.*

## Butera Named 2008-09 Jefferson Science Fellow

**E**CE Associate Professor Robert J. Butera, Jr. was chosen last summer by the U.S. State Department as one of seven Jefferson Science Fellows for 2008-09. Dr. Butera is the first Georgia Tech professor selected for this program, and he will be based in Washington, D.C. through August 2009.

Built on the premise that science, technology, and engineering programs are integral to the foundations of modern society, the fellowship fosters partnerships between tenured scientists and engineers from U.S. academic institutions and offices within the State Department and USAID. Dr. Butera's expertise is in the fields of neuroengineering, physiological modeling, and real-time instrumentation.

While on this fellowship, Dr. Butera will work within the Office of Chemical and Biological Weapons Threat Reduction in the Bureau of International Security and Nonproliferation. His work is on biosecurity policy, with a specific focus on dual-use issues in biological research. Dual-use refers to technologies that have both peaceful and military applications.

"One [project] involves collaborating with foreign counterparts to develop educational tools and professional awareness strategies related to defining, recognizing, and solving dual-use issues that may arise in the course of biological research," said Dr. Butera, who is a Fellow of the American Institute of Medical and Biological Engineering and associate editor of the *Journal of Theoretical Biology*. "A second project involves working with other federal agencies to formulate oversight mechanisms related to DNA synthesis that promote security while not impeding academic research or commercial development."



Jefferson Fellows attended American Association for the Advancement of Science workshops that introduced them to the interaction of various government offices from a science and policy perspective. Another topic was bridging the gap between the thinking and decision-making priorities of scientists and engineers and policy-makers and how to bridge that gap.

With his past experience as graduate program director for the Georgia Tech Interdisciplinary Bioengineering Graduate Program, Dr. Butera had to deal with export control rules impacting student visas. He has also interacted with the Institute's Office of Research Compliance as a bioengineering researcher. "My experience this year is directly relevant to all of these areas," he said. "While I am officially representing the State Department in my position for the next year, I hope that my time can both provide input to these processes from an academic perspective and improve our campus-wide research ethics program. I also hope to serve as a resource to the relevant offices when I return to Tech and contribute to the ongoing activities of the Sam Nunn Security Program and the Center for International Strategy, Technology, and Policy." |

## Faculty News

**Tom Habetler** received an Outstanding Achievement Award from the European Power Electronics and Motion Control Council (EPE-PEMC) with the citation, "for contributions to electric machine condition monitoring and control, as well as promotion and advocacy of power electronics and motion control technology to the technical community." The biennial award was presented at the PEMC Conference, held in Poznan, Poland last September.

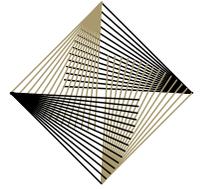
**Ron Harley** is the 2009 recipient of the IEEE Richard Harold Kaufmann Award for his contributions to monitoring, control, and optimization of electrical processes including electrical machines and power networks. This award honors outstanding contributions in industrial systems engineering and may be presented to the person(s) who has made exceptional contributions to electrical engineering in the industrial environment through the design or application of systems technology.

**Ayanna Howard** will receive the Dr. Janice A. Lumpkin Educator of the Year Award at the National Society of Black Engineers Golden Torch Awards Program, to be held in Las Vegas on March 28. Dr. Howard was also named the 2008 recipient of the Georgia Tech Faculty Woman of Distinction Award. She received this honor at the Georgia Tech Women's Leadership Conference, held last November.

**Nikil Jayant** received an Indian Institute of Science Distinguished Alumnus Award last December at the 100th anniversary celebration of the Indian Institute of Science at Bangalore. Dr. Jayant was cited for his four decades of research and leadership and gave a guest talk entitled "Signal Compression: 1958-2008+."

**Gary S. May** was elected a 2008 Fellow of the American Association for the Advancement of Science "for distinguished contributions to electrical and computer engineering, particularly for innovative approaches to education and workforce diversity."

*continued on page 9*



## New Faculty



**Bo Hong**, *Assistant Professor*  
BSEE '97, Tsinghua University (China)  
MSEE '00, Tsinghua University  
PhDCmpE '05, University of Southern  
California  
Area: Computer engineering

Dr. Hong joined the ECE faculty at the Georgia Tech Savannah campus in September. Before coming to Tech, he was an assistant professor with the ECE Department at Drexel University for three years.

Dr. Hong's current research focus is on processor synchronization in multicore and multi-processor systems, including both hardware architectural design/modeling and the development of efficient multi-threaded algorithms. He has extensive research experience on parallel computer architecture and algorithms, modeling and simulation of adaptive applications in non-dedicated computing systems, algorithm design and scheduling techniques for heterogeneous systems, energy aware data gathering/processing in networked sensor systems, and memory hierarchy performance analysis and optimization.



**Azad Naeemi**, *Assistant Professor*  
BSEE '94, Sharif University (Iran)  
MSECE '01, Georgia Tech  
PhDECE '03, Georgia Tech  
Area: Microelectronics/Microsystems  
and Packaging

Before pursuing graduate studies at Georgia Tech, Dr. Naeemi was a design engineer with Partban and Afratab Companies in Tehran, Iran. After completing his Ph.D., he worked as a research engineer in Tech's Microelectronics Research Center (MiRC) until joining the ECE faculty in September. He is still affiliated with MiRC and also

works with the Nanotechnology Research Center.

Dr. Naeemi explores nanotechnology solutions to the challenges facing giga- and terascale systems. A member of the International Technology Roadmap for Semiconductors technical working group on Interconnects, he has published more than 45 papers in refereed journals and international conferences. He received the IEEE Electron Devices Society Paul Rappaport Award for the best paper that appeared in the *IEEE Transactions on Electron Devices* during 2007.



**Christopher Rozell**, *Assistant Professor*  
BSE in Computer Engineering '00,  
University of Michigan  
BFA in Performing Arts Technology  
(Music Technology) '00, University of  
Michigan  
MS in ECE '02, Rice University  
PhD in ECE '07, Rice University  
Area: Bioengineering and digital signal  
processing

Dr. Rozell joined ECE after spending a year as a postdoctoral research fellow at the Redwood Center for Theoretical Neuroscience at the University of California at Berkeley. He is affiliated with the Laboratory for Neuroengineering and the Center for Signal and Image Processing at Georgia Tech.

His research interests focus on the intersection of computational neuroscience and DSP. One branch of this work aims to understand how neural systems organize and process sensory information, drawing on modern signal processing ideas to develop improved data analysis tools and theoretical models. The other branch of this work uses recent insight into neural information processing to develop new and efficient approaches to difficult signal processing tasks. |

### NEWS | continued from page 8

**Gabriel Rincón-Mora** has been named a 2009-10 Distinguished Lecturer for the IEEE Circuits and Systems Society. He is one of 11 distinguished lecturers appointed by IEEE-CASS for this upcoming year and will deliver lectures on power management integrated circuits.

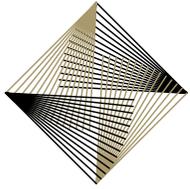
**Ajeet Rohatgi** was honored at the Georgia Sierra Club Community Awards at the group's 25th Anniversary Gala, held at Atlanta's Park Tavern last summer. He was praised for his work in moving both Georgia and the U.S. into a clean energy economy through his solar energy research at Georgia Tech.

**Justin Romberg** received an Office of Naval Research Young Investigator Award for his project, "Compressive Sampling for Next-Generation Data Acquisition." Dr. Romberg is interested in

how randomness can help in data acquisition, potentially reducing cost and computational complexity of high-resolution sensing systems. This work will influence the design of next-generation analog-to-digital converters, radar imaging platforms, and MRI systems.

**Allen Tannenbaum** was elected to the 2009 class of IEEE Fellows "for his contributions to robust control and computer vision."

**Wayne Wolf** received an honorary doctorate from the Department of Electrical and Computer Engineering at the University of Patras in Greece. This honor recognized his distinguished educational, research, and professional service contributions. |



## Alumni News

**Robert S. Duggan, Jr.** (BEE '51, MSEE '56) received the 2008 Distinguished Service Award at the triennial IEEE Sections Congress 2008 in Quebec City, Quebec, Canada on September 22. His citation read "for a lifetime of outstanding leadership, support, positive thinking, and a powerful influence that encouraged others to follow him in the spirit of his service promoting the IEEE geographic activities and the engineering profession."

**Randy Cabell** (BEE '54) and his wife Mary Kay, the first female faculty member hired at Georgia Tech, live in a log home on the Shenandoah River in Boyce, Va. Randy said that he has been enjoying life since retiring from IBM in 1988 after a 28-year career. In retirement, he has continued pursuing two of his favorite avocations—computers and music. He is converting 50 years of music to MP-3 that was recorded by The Fowler Street Five, a band that he and his five Beta Theta Pi fraternity brothers formed while students at Tech.

**Colonel (Retired) Herchell A. (Allen) Boyd** (BAE '76, MSEE '88) has been named vice president for tactical communications at ITT Communications Systems, in Fort Wayne, Ind. He previously served as senior director for transformational communications programs at Rockwell Collins, Cedar Rapids, Iowa.

**Ioannis Makarezos** (BEE '79) is a purchasing manager with Avin International SA in Marousi, Greece.

**Donald "Jerry" Bellott** (MSEE '80) currently works as an EE consultant for CSS Engineering in Bridgewater, N.J. CSS Engineering provides design services and publishes technology application notes for engineers involved in designing and testing cellular and other wireless products, digital switches, networking equipment, and multi-core DSP products.

**Edward R. (Randy) Collins** (PhD '89) has been named associate dean for undergraduate and international studies in the College of Engineering and Science at Clemson University. Prior to that, he was a professor in the Holcombe Department of ECE at Clemson. In his new posi-

## Pedro Ray Named 2009 IEEE President-Elect

**P**edro Ray (BEE '82, MSEE '83) has been selected as 2009 IEEE president-elect and will begin serving as IEEE president on January 1, 2010. He will succeed 2009 IEEE President John Vig, who is a consultant with System Planning Corporation.

Mr. Ray is president of Ray Engineers, a professional services corporation with over 90 employees. The company is located in Old San Juan, Puerto Rico. He is also owner and president of various corporations dedicated to the development of commercial and residential real estate projects.

He was Chief Examiner in charge of revision to the Puerto Rico Electricity Pricing Structure (2000) and was named Puerto Rico's Electrical Engineer of the Year 2000. Prior to becoming IEEE president-elect, Mr. Ray had served the organization in many capacities, most recently at the board level since 1999 and as a board member for six years. He also served as treasurer for IEEE in 2003 and 2004. |



tion, Randy oversees all undergraduate academic programs in engineering and sciences, plus undergraduate recruiting, retention, minority programs, transfer and articulation agreements, accreditation, international programs, and study abroad coordination. He joined the Clemson faculty after graduating from Georgia Tech in 1989.

**Joseph Kendrick** (BEE '90) works with Fogg & Powers, LLC in Minneapolis, Minn.

**Larry Embleton** (MSEE '92) works with L-3 ES in Dartmouth, Nova Scotia, Canada.

**Michelle Rogers** (BEE '93) became an assistant professor this past September in the School of Information, Science, and Technology at Drexel University in Philadelphia, Pa., where she teaches and conducts research in human-computer interaction and healthcare informatics.

**Ethan Curbow** (BSEE '03) is a management officer with the U.S. Department of State. He has served at the American Consulate in Frankfurt, Germany, and in the last four years, he has visited over 40 countries.

**Adam Bever** (BSEE '04) and Emily Taylor (INTA '05) were married March 29, 2008 in Savannah, Ga. Adam was recently promoted to principal systems engineer and is technical lead of a project focused on

self-noise monitoring for submarines at GDAIS. Emily is a project assistant at the RAND Corporation. They live in Fairfax, Va.

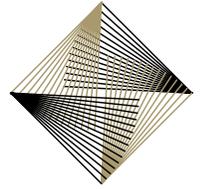
**Chau Nguyen** (BSCmpE '04) is an economic services coordinator II with MEAG Power in Atlanta.

**Michael Kang** (BSCmpE '05) is now attending the School of Dental Medicine at the University of Pennsylvania.

**Ronald Setia** (PhD '06) is a business developer with Mega Medika Multianugerah in Jakarta, Indonesia.

**Deborah Johnson** (BSEE '07) was recognized in the summer 2008 issue of *ES Northrop Grumman National Magazine* for resurrecting the Harpoon Program on three different platforms. The Harpoon Program was certified by the Navy, with Boeing's approval. She credits the prototype labs and classes that she took in ECE for helping her "get up to speed" on the newest technologies like embedded components and ball grid array technologies.

**Dustin Dyer** (MSEE '07) was featured on the cover of the October 2008 issue of *RecruitU Magazine*. He is a mission assurance engineer with NASA Kennedy Space Center in Cape Canaveral, Fla., where he works to ensure that space shuttle launches proceed safely. |



## Alumni Spotlights

### Eric Boe Pilots the Endeavour during 16-Day Space Mission

**A**ir Force Col. Eric Boe (MSEE '97) was among the seven astronauts—and three Georgia Tech alumni—on the space shuttle crew for Endeavour's STS-126 mission. The shuttle lifted off from NASA's Kennedy Space Center on November 14 and arrived at the International Space Station (ISS) two days later, where the crew started on their "extreme home improvement" assignments.

Col. Boe, the pilot for the 16-day mission, was joined by his fellow Tech alumni, Shane Kimbrough (MSOR '98) and Sandra Magnus (PhD CerE '96). Lt. Col. Kimbrough participated in two space walks, while Dr. Magnus remained with the ISS after the departure of the STS-126 mission crew in late November. She will return to Earth on Discovery's STS-119 mission, targeted for February 2009.

Space shuttle Endeavour's STS-126 flight featured important repair work and prepared the ISS to house six crew members for long-duration missions. Four spacewalks primarily focused on servicing the station's two Solar Alpha Rotary Joints, which allow its solar arrays to track the sun. Endeavour carried about 32,000 pounds of supplies and equipment necessary to double the crew size from three to six members in spring 2009. The new station cargo includes additional sleeping quarters, a second toilet, and a resistance exercise device.

During the STS-126 mission, Col. Boe was responsible for orbiter systems operations and shuttle robotic arm operations, and he aided Endeavour Commander Christopher Ferguson in the rendezvous and docking with the ISS. Endeavour and its crew landed at Edwards Air Force Base in California on November 30, completing a 16-day journey of more than 6.6 million miles.

After being selected as a pilot by NASA in 2000, Col. Boe reported to the Johnson Space Center in Houston, Tex., where he is still based today. After completing two years of training and evaluation, he was assigned technical duties in the Astronaut Office Advanced Vehicles Branch, Station Operations Branch, and Space Shuttle Branch. From 2005-06, he served as NASA director of operations at the Gagarin Cosmonaut Training Center, Star City, Russia. In the Exploration Branch, he worked on the new Crew Launch Vehicle and Crew Exploration Vehicle.

Col. Boe grew up in Atlanta and attended Henderson High School in DeKalb County. He also holds a bachelor's degree in astronautical engineering from the U.S. Air Force Academy. |



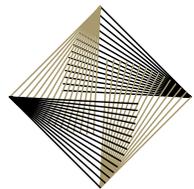
### Maldonado Named to Top Research Posts at Texas A&M

**T**heresa A. Maldonado (BEE '81, MSEE '82, PhD (EE) '90) was named executive associate vice president for research at Texas A&M University and will also serve as the institution's new interim vice president for research. Her new duties were effective on October 1.

Dr. Maldonado previously served as the associate dean for research within Texas A&M's Dwight Look College of Engineering and deputy director of the Texas Engineering Experiment Station. She is also professor in the Department of ECE.

Prior to joining Texas A&M in 2003, Dr. Maldonado served as associate vice president for research at The University of Texas at Arlington, where she was a faculty member and administrator. She previously served as an Engineering Research Centers program director in the Engineering Directorate at the National Science Foundation, where she was recognized with program management excellence and distinguished service awards. A member of the Georgia Tech ECE Advisory Board, Dr. Maldonado was inducted into the Inaugural Council of Outstanding Young Engineering Alumni at the Georgia Tech College of Engineering in 1995. |

**To submit your information and news, visit [www.ece.gatech.edu/alumni](http://www.ece.gatech.edu/alumni)**



1. About how much of *ECE Connection* do you read?
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 50 percent                 100 percent
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 fair                         poor
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4. Please rate the overall design/layout:
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 low                         very low
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- Alumni news*
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 low                         very low
- Research news*
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 low                         very low
- Academic news*
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 low                         very low
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 low                         very low
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 41-50                     51-60                 61 or older
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**Jackie Nemeth**  
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