

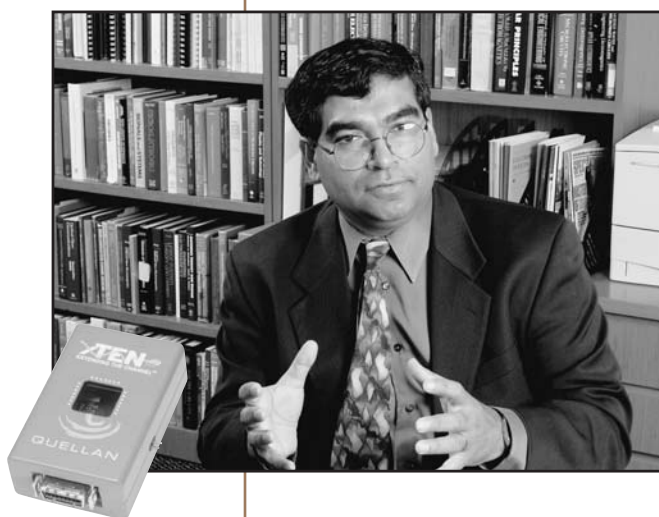
ECE Connection

School of Electrical and Computer Engineering | Summer 2006

ECE Faculty Companies Impacting Everyday Lives

ECE faculty leadership in commercialization activities continues to thrive, as seen by the development of high speed interconnect integrated circuits (ICs) by Quellan, Inc. and the launch of the EndoSure sensor by CardioMEMS, Inc. into the health care market.

Within the last year, both companies have graduated from the Advanced Technology Development Center (ATDC), recognized in BusinessWeek Magazine's SmallBiz issue as one of the nation's top four high-tech start-up company incubators.



Founded in 2001, **Quellan** graduated from ATDC at its entrepreneurs showcase on April 27, 2006. Joy Laskar, director of the Georgia Electronic Design Center and the Joseph M. Pettit Professor in Electronics, founded this leading edge telecommunications company which designs and develops ICs for high-speed communications equipment.

Quellan originated with the creation of alternate modulation techniques for high-speed communication channels developed under a project led by Dr. Laskar and funded by the Defense Advanced Research Projects Agency ULTRA Electronics Program. Serving the enterprise, broadcast, computing, and wireless markets, Quellan designs and markets specialized analog ICs that dramatically improve the signal integrity of system interconnects. These devices, when embedded in line cards, connectors, cabling, or hand held devices, seamlessly improve existing infrastructure speed or platform density by up to 400 percent—all without the need to reinstall new system architectures.

Quellan's IC solutions increase bandwidth, lower costs, and reduce time to market by using the signal processing and high frequency analog, digital, and mixed signal expertise of its employees. Dr. Laskar expects the company's workforce to triple by the end of 2007.

The fabless mixed-signal IC area is the fastest growing and most profitable segment of the semiconductor industry, Dr. Laskar said. Quellan is very well tied to areas of strength for Georgia Tech and ECE.

Quellan's investors include Menlo Ventures, Cordova Intellimedia Ventures, Samsung Ventures, National Semiconductor, and the Yamacraw Capital Seed Fund. The company has also garnered such prestigious honors as Analog Zone Product of the Year (2004) and Georgia Technology Top Ten Company Innovation Award (2005).

Winning approval from the Food and Drug Administration (FDA), **CardioMEMS** has launched its EndoSure sensor, making testing safer and more convenient for abdominal aortic aneurysm patients. Based on technology developed by Mark G. Allen, ECE Regents Professor and Joseph M. Pettit Professor in Microelectronics, EndoSure is the first implantable pressure sensor that combines wireless and microelectromechanical systems (MEMS) to receive FDA clearance.

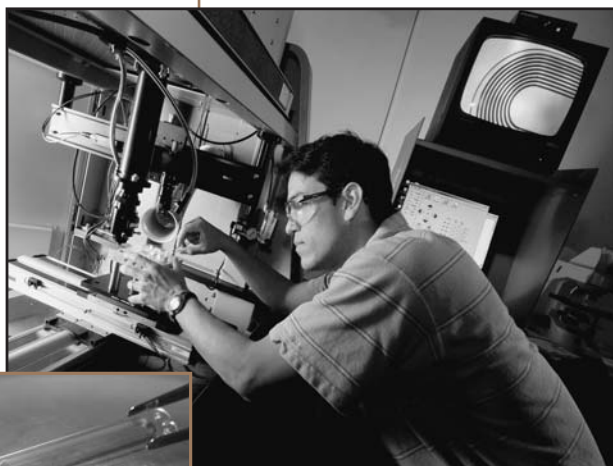
About the size of a paper clip, EndoSure is implanted with the stent graft during endovascular repair. During check-ups, doctors merely wave an antenna in front of the patient's chest, and low-power, radio frequency waves activate the EndoSure system, relaying blood pressure measurements to an external receiver and monitor.

Developing an implantable sensor for humans has been very exciting, said Dr.

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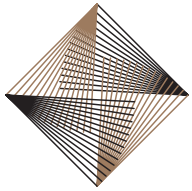
(top) Joy Laskar is the director of the Georgia Electronic Design Center and the founder and CTO of Quellan. One of the company's products is the X-TEN IC (inset image), which extends cable signals by compensating for impairments that can affect signal quality.

CardioMEMS was founded by ECE's Mark Allen and Jay Yadav of the Cleveland Clinic Foundation. Pictured is Michael Fonseca using a laser to separate pressure sensors. The EndoSure sensor (inset image) measures blood pressure in abdominal aortic aneurysm patients.



**Georgia
Tech**





Innovate ECE

In its 2004 report *Innovate America*, the Council on Competitiveness defined innovation as the intersection of invention and insight, leading to the creation of social and economic value. Defined in that context of economic development, it is clear that leadership in innovation has always been a part of the mission of Georgia Tech. As research is the life blood of innovation, the School of ECE historically has played a key role in that mission. That tradition continues today, and the outlook for ongoing participation by our faculty, staff, and student body in research commercialization is bright.

Today, the School finds itself at a unique juncture of opportunity shaped by the vibrant commercialization ecosystem that has evolved on the Georgia Tech campus. Where there were once barriers to innovation, various mechanisms to enable success now exist. Through the Office of Technology Licensing (OTL), Tech actively encourages entrepreneurship and the involvement of its faculty inventors in start-up companies. OTL reviews invention disclosures from members of the Georgia Tech community, and evaluates those disclosures for their novelty, viability, and commercial potential. When possible, they are licensed to industry or, if appropriate, a start-up company. When a start-up company is appropriate, Tech's

VentureLab takes venture-fundable opportunities and matches on-campus inventions to off-campus money and management talent. Some companies are also able to raise institutional capital by admission to the Advanced Technology Development Center (ATDC). ATDC is a nationally recognized science and technology incubator that helps Georgia Tech entrepreneurs launch and build successful companies. ATDC provides strategic business advice and connects its member companies to the people and resources they need to succeed.

A number of ECE faculty members have already taken advantage of these tools. In addition to CardioMEMS and Quellan, already featured in this newsletter, a representative, but not exhaustive list includes:

Asankya Networks (Raghupathy Sivakumar, Co-Founder and Chief Technical Officer): Provides parallel networking technology to maximize the performance of any multi-site network for all traffic types, including VoIP, IP Video, and IPTV.

EGT (Nikil Jayant, Chief Science Officer): Manufactures digital video signal processing equipment for television distribution over cable, satellite, and IP networks.

GTronix (Paul Hasler, Co-Founder, Chief Science Officer, and Board Member): Produces ultra-low power, high-speed signal processing integrated circuits that offer

orders of magnitude power savings for mobile device applications for the analog signal market.

Jacket Micro Devices (Madhavan Swaminathan, Chief Science Officer): Provides highly integrated radio frequency modules that dramatically reduce the size and improve the performance of wireless devices.

Lancope (John Copeland, Founder): Develops network behavior analysis and response solutions that defeat zero-day worms, internal network misuse, and other anomalies that compromise network integrity.

Nexidia (formerly known as FastTalk, Mark Clements, Co-Founder and Board Member): Provides scalable audio mining and speech analytics software.

These contributions are outstanding examples of faculty-led innovation that in several instances also involve our alumni in either leadership or advisory roles. These are exciting times, and the School is poised to make even greater strides in international academic leadership. Research commercialization and innovation can be important factors in this ongoing ascent. It is an honor for ECE to contribute to Georgia Tech's mission of economic development in this powerful way. |

Start-Ups | continued from page 1

Allen. It's opened a whole new application area for me to think about where MEMS technology can go.

CardioMEMS employees, many who are Georgia Tech alumni or current students, continue to extend the technology's capabilities. Another CardioMEMS device—a sensor measuring intracardiac pressure in congestive heart failure patients—is in the clinical trial stage and has been successfully implanted in a patient's pulmonary artery in Santiago, Chile. Other products include devices that help hypertension patients monitor their condition and a sensor that measures blood pressure in thoracic aorta aneurysm patients.

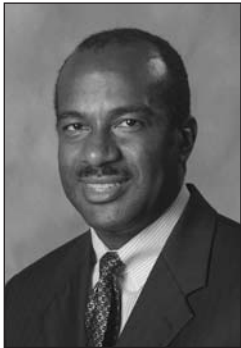
CardioMEMS investors include Medtronic, Boston Millennia Partners, Foundation Medical Partners, Arboretum Ventures, Guidant Corporation, and Johnson & Johnson Development Cor-

poration. A 2005 graduate from the ATDC, the company was tapped as one of the Georgia Biomedical Partnership's Deal of the Year winners for 2006.

A Strong History and a Promising Future

ECE's commercialization roots stretch back to the establishment of Scientific-Atlanta in the 1950s and Atlanta Signal Processors, Inc. (now a division of Polycom) in the early 1980s. In total, ECE faculty members have founded 10 start-up companies with the support of VentureLab and/or ATDC, and seven are ATDC graduates. Eight start-up opportunities involving ECE faculty are now being evaluated by VentureLab, a resource for Georgia Tech faculty, researchers, and graduate students who

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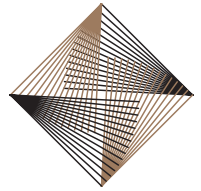


Gary S. May
Steve W. Chaddick
School Chair



Georgia Tech ECE graduate programs remained in the elite top 10 of the 2007 *U.S. News & World Report* annual rankings of universities and academic programs, with both electrical engineering and computer engineering placing seventh. As a whole, the College of Engineering ranked fourth.

Our success is the direct outgrowth of recruiting and retaining the finest faculty and students possible and investing in the infrastructure that allows them to thrive, said Gary May. While rankings are not the sole measure of success, we're competing against some of the finest universities in the world and excelling. I'm very proud of our faculty, graduate students and staff.



Deepak Divan Continues Power Electronics Commercialization Focus at Georgia Tech

When Deepak Divan joined ECE in 2004, his goal was to create a strong research and educational program in the application of power electronics technologies. Also determined to continue his success in entrepreneurial activities, Dr. Divan co-founded **Innovolt, Inc.**, a Georgia Tech VentureLab company, in 2005. His partner and co-founder of Innovolt is Uday Karra, a serial entrepreneur and Georgia Tech alumnus.

Innovolt has received a technology license from the Georgia Tech Research Corporation and is beginning to test and market the next generation of surge protection technology. The Innovolt device, called a current-inrush voltage surge suppressor (CVSS), is designed to protect electronic equipment from both current and voltage surges. Traditionally, surge protectors have addressed only voltage surges, said Dr. Divan, who invented Innovolt's core technology and serves as the company's chairman and chief technology officer (CTO).

Further research revealed that the culprit was not voltage surges but current-inrush surges electrical current spikes that follow a power disturbance called a voltage sag. Such sags usually show up as a momentary flickering of lights. Then, as electrical flow recovers, current surges can cause damage to equipment.

We have found that for every voltage surge that the equipment faces, there are probably 100 current surges, Dr. Divan said. And it can be a huge jump. On different kinds of typical equipment, we have measured current-inrush surges of 60 times the normal current rating.

Innovolt's answer is the CVSS, based on Dr. Divan's patent-pending inventions in the field. These protection devices combine current-inrush suppression with the traditional transient voltage surge suppression found in existing surge suppressors.

We see this as a next generation device, not as a completely different type of technology, he said. The users will not have to wonder if they need voltage or current protection—they will have both.

First-round funding for product development is from various sources. VentureLab has received \$50,000 from the Georgia Research Alliance to assist in commercializing the current-inrush technology under license to Innovolt. Innovolt has assembled an experienced management team, and is now raising a first round of funding from venture capitalists. Innovolt released the commercial CVSS product into the market in June 2006.

Innovolt executives envision a line of equipment protection devices that will help protect anything containing electronics, from televisions and computers to industrial equipment. The company's business model calls for both manufacturing and licensing its technology, depending on business opportunities.

Before arriving at Tech, Dr. Divan started Soft Switching Technologies in 1995, while he was a professor in the Department of ECE at the University of Wisconsin at Madison, and led it for eight years. From 2003-04, he served as chair-



man and CTO of the company, which manufactures and sells power line conditioning products for many Fortune 500 manufacturers.

At Tech, he is the founder and director of the Intelligent Power Infrastructure Consortium (IPIC), a university-industry-utility consortium that supports teaching and research in advanced power technologies. IPIC also fosters and accelerates the development and adoption of early-stage, pre-competitive high-risk and high-impact technologies in power applications.

Having experienced the technology world from concept to market creation, Dr. Divan is committed to bridging the gap between academic innovation and technology that is successful in the market. Georgia Tech is very supportive of both areas, the basic research process and the coupling of that technology to meet market needs, he said. |

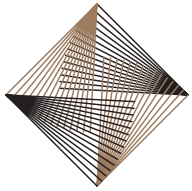
Deepak Divan holds an electrical-surge protector that he invented. The Innovolt current-inrush surge protector, shown here, will be marketed as a means to protect delicate electronic equipment from a wide variety of damaging electrical surges.

Start-Ups | continued from page 2

want to form start-up companies to commercialize their technology innovations.

At the spring meeting of the ECE Advisory Board, Stephen Fleming, Georgia Tech's chief commercialization officer, stated about a third of all Tech's invention disclosures with start-up potential are made by ECE faculty. Some invention disclosures

are licensed to industry, while others may become start-ups through VentureLab, ATDC, or independent of Tech. The professors in ECE excel in this arena, he said. ECE's emphasis and encouragement of commercialization activities is a great model for others to follow. |



Marcus Foundation Makes \$15M Commitment to Nanotechnology Research Center Building

The Marcus Foundation has announced a \$15 million commitment for Georgia Tech's Nanotechnology Research Center Building, a facility specifically designed to support interdisciplinary nanoscience and nanotechnology research.

The new building will have 30,000 square feet of cleanroom research space,

The commitment was triggered by the state of Georgia's recent allocation of \$38 million for the facility, which completes the state's total project commitment of \$45 million.

Bernard Marcus, the civic leader and philanthropist whose vision and investment made the Georgia Aquarium a reality, is the founder and chairman of the board for the Marcus Foundation.

We are delighted to make this commitment for Georgia Tech's Nanotechnology Research Center Building, said Mr. Marcus. Nanotechnology holds such amazing promise for truly revolutionizing many facets of our lives, specifically in medicine, while having the added benefit of economic development. The discoveries that will be possible as a result will prove the wisdom of the investment. I am pleased to partner with the state and Georgia Tech in making this research facility a reality.

In spite of setbacks, Bernie Marcus realized his dream late in life as a businessman in creating The Home Depot and leading it to a level of success undreamed of, said Georgia Tech President Wayne Clough. In retirement, he once again is demonstrating his passion for life through

his good works and philanthropy. He inspired our graduates at our May commencement with his insights, an address given in the shadow of the remarkable Georgia Aquarium, built because of his support and vision.

This complex man, however, also is committed to helping conquer the diseases that plague mankind. Dr. Clough continued, We are proud to announce the grant of \$15 million from the Marcus Foundation towards Georgia Tech's Nanotechnology Research Center Building. This generous commitment will be used to build this unique facility that will open the doors for studies that focus on using breakthroughs from nanotechnology to fight cancer and other diseases.

Coupled with a \$5 million commitment from the Woodruff Foundation last year, the Marcus Foundation's \$15 million commitment pushes the total of private funds for the project past the \$20 million mark, the minimum amount required to begin construction. The total private funds goal is \$35 million. James D. Meindl, the 2006 recipient of the IEEE Medal of Honor, has been named the founding director of this new facility. |



Georgia Tech President Wayne Clough and Bernie Marcus enjoy a conversation before Tech's spring commencement.

one of the nation's largest and an essential element of nanotechnology research. It will offer access to researchers from universities and industries in the region, helping to create new nanotechnology industries and attract industries that will benefit from nanoengineering.

Marci Reed Named New ECE Development Director

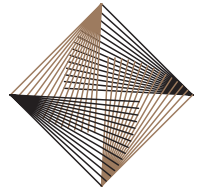
Marci Reed joined the ECE staff as director of development at the beginning of April. Ms. Reed comes to Georgia Tech from Southface Energy Institute, where for almost six years she served as director of development and communications.

At Southface, she was responsible for operational and program directed fundraising, as well as a recent capital campaign to expand the Southface campus in Midtown Atlanta. Previous experience in commercial real estate and as executive director of the Atlanta Chapter of the American Institute of Architects sparked her interest in the built environment and related technologies.

A graduate of Georgia State University with a degree in English, Ms. Reed is currently enrolled in the Andrew Young School of Policy Studies, pursuing her master's of public administration. A native of Atlanta, she is married to Robert Reed, a conservation community planner and designer who graduated from Georgia Tech in 1989.

Ms. Reed will soon hire an associate director to assist with fundraising for ECE. Nancy Sandlin, who previously held this position, has been promoted and is now the director of development for Tech's H. Milton Stewart School of Industrial and Systems Engineering. |





James D. Meindl Feted at IEEE Medal of Honor Symposium

James D. Meindl and his extraordinary, 49-year career were celebrated on April 17 at the IEEE Medal of Honor Symposium, held on the Georgia Tech campus. This event recognized his being named as the 2006 recipient of the Institute's most prestigious award.

After joining Stanford University in 1967, Dr. Meindl maintained his interest in low power microelectronics that first began while working with the U.S. Army Electronics Laboratories. He and his graduate students began applying the technology to new biomedical instruments, in-

lauded by all speakers as a leading advocate of interdisciplinary research and academic-corporate partnerships, Dr. Meindl's career-long interests have been in the physical and practical limits that govern integration of multi-billion transistor chips and interconnects. In the 1970s



Dr. Meindl received the IEEE Medal of Honor at the annual IEEE Awards ceremony on June 24 in Minneapolis, Minn. for his pioneering contributions to microelectronics, including low power, biomedical, physical limits, and on-chip interconnect networks.

Nineteen of his past Ph.D. graduates joined the Georgia Tech community in marking this momentous achievement, as four distinguished guests—three who received their doctorates under Dr. Meindl's supervision—reflected on his technical accomplishments, academic and interdisciplinary research leadership, and graduate student guidance. These speakers included Rafael Reif, provost of the Massachusetts Institute of Technology and the Maseeh Professor of Emerging Technology; James Plummer, the Frederick Terman Dean of Engineering at Stanford University and the John M. Fluke Professor of Electrical Engineering; Levy Gerzberg, co-founder, president, CEO, and director of Zoran Corporation; and Chuck Geschke, co-founder and chairman of the board of Adobe Systems, Inc.

cluding miniature wireless radio telemetry systems, non-invasive ultrasonic imaging and blood flow measurement systems, and a portable reading aid for the blind. Jim inspired a number of students who founded companies and created a rich area for biomedical ideas that have made

Dr. Meindl is a giant in the field of microelectronics who has been a leader in the semiconductor field for over 40 years. His pioneering research in the area of gigascale silicon technology integration and his leadership in developing low-power integrated circuits and sensors are only two of his invaluable contributions to the field of microelectronics.

—IEEE President Michael Lightner

a huge impact on people's lives, said Dr. Plummer, who earned his Ph.D. in 1971 with Dr. Meindl's guidance. In the area of low power electronics, he was ahead of his time, putting more complexity on chips and shrinking the size of devices.

and 1980s, Jim saw the benefits of bringing disparate disciplines together and having them live and work together in ways that make collaboration easier, Dr. Plummer said. He has also broadened the intersections of university/industry partnerships. When real value exists in these relationships, they enrich teaching and research, whether through affiliate programs or start up companies, and provide great opportunities for our students.

All speakers concurred with Dr. Geschke, who said Dr. Meindl's legacy lies in his 10 current Ph.D. students, and his 75-plus Ph.D. graduates. It has been said that the true stature of a teacher is measured by the accomplishments of the students he or she produces. If that is the case, then Jim qualifies as a giant, Dr. Geschke said, paraphrasing a past tribute from the Semiconductor Research Corporation. He is determined to pass on to his students his ability to see industry needs far into the future, just like he has during his career. |

(l-r) **Rafael Reif**, provost, Massachusetts Institute of Technology, Maseeh Professor of Emerging Technology;

Levy Gerzberg, co-founder, president, CEO, and director of Zoran Corporation;

James Plummer, Frederick Terman Dean of Engineering at Stanford University, John M. Fluke Professor of Electrical Engineering;

James D. Meindl, Joseph M. Pettit Chair in Microelectronics;

Gary May, Steve W. Chaddock School Chair; and

Chuck Geschke, co-founder and chairman of the board of Adobe Systems, Inc., spend a few minutes on the front lawn of the Van Leer Building just prior to the start of the IEEE Medal of Honor Symposium.

2006 School of ECE Award Winners

On April 25, 2006, ECE celebrated the end of the academic year by holding the Roger P. Webb Awards Program in the School of Electrical and Computer Engineering. Steve W. Chaddick (BSEE '74, MSEE '82) and C. Meade Sutterfield (BEE '72), both members of the ECE Advisory Board, hosted the event, which honors the students, staff, and faculty who have shown exceptional dedication to their professions and studies, ECE, Georgia Tech, and the community as a whole.

STUDENT AWARDS

Outstanding ECE Sophomore

Award.....**Christos Theodoridis**
Eta Kappa Nu, the honor society for ECE, recognized the sophomore electrical or computer engineering student with the highest scholastic average by presenting a plaque and a check for \$250 from Milliken.

ECE Junior Scholar Award

Award.....**Eric Fontaine**
This award was presented to the student who has junior standing and has the highest GPA in ECE. The recipient was awarded a \$250 check from Milliken and a plaque.

ECE Undergraduate Research

Award.....**Sunny Jolly**
This award recognized an undergraduate student who has demonstrated an unusually strong aptitude for research. The recipient was awarded a \$250 check from Milliken and a plaque.

Most Outstanding ECE Senior Co-op

Award.....**Steven Finn**
This award was presented to the ECE co-op student who is considered of the highest caliber by their co-op employer. The recipient was awarded a \$250 check and a plaque.

Outstanding Service to Georgia's

Community Award.....**Jiayue Simon Chen**
Investing time in community activities can have significant rewards for Georgia Tech in the future, and recognizing students who participate in and organize such activities helps to motivate other students to do the same. The recipient was awarded a \$250 check and a plaque.

ECE Faculty Award

Award.....**Angelique Yeung**
This award was given to the electrical or computer engineering student who, in the opinion of the ECE faculty, has done the most to improve the educational environment within ECE or Georgia Tech and has contributed significantly to both student welfare and student-faculty interactions. The recipient was awarded a \$250 check and a plaque.

Outstanding Electrical Engineering

Senior Award.....**Tianyu Tom Wang**
Eta Kappa Nu, the honor society for ECE, recognized the senior electrical engineering student who has a very high scholastic average and who plays an active role in extracurricular activities. The award consisted of a plaque, engraving the name of the individual on a plaque in the Van Leer (ECE) Building, and awarding a check for \$750 from Framatome ANP.

Outstanding Computer Engineering

Senior Award.....**Anthony Hylick**
Eta Kappa Nu, the honor society for ECE, recognized the senior computer engineering student who has a very high scholastic average and who plays an active role in extracurricular activities. The award consisted of a plaque, engraving the name of the individual on a plaque in the Van Leer (ECE) Building, and awarding a check for \$750 from Framatome ANP.

ECE Senior Scholar Award

Award.....**Eric Glass, Barrett Kimball, Patryk Prus**
This award consisted of a plaque and a cash reward that is given to the electrical or computer engineering senior(s) with the highest academic average.

Colonel Oscar P. Cleaver Awards

Award.....**Brian Gestner, Farasat Munir**
These awards were made to the outstanding graduate student(s) in ECE, as determined by scores made on the doctoral preliminary examinations during 2005-06. Each recipient received a cash award and a plaque.



2006 ECE Undergraduate Student Award recipients (l-r) Reeve Ingle, Jiayue Simon Chen, Barrett Kimball, Steven Finn, Patryk Prus, Chris Theodoridis, Eric Glass, Sunny Jolly, and Eric Fontaine are pictured with Gary S. May (center).



2006 ECE Graduate Student Award recipients (l-r) Farasat Munir, Robert Baxley, Angelique Yeung, Babak Momeni, Brian Gestner, and Anna Stelzenmuller are pictured with Gary S. May (center).



2006 ECE Staff Award recipients (l-r) Larry Coffeen, Angela Hughes, LaJauna F. Guillory, and Thomas R. Collins are pictured with Gary S. May (center).



2006 ECE Faculty Award recipients (l-r): Hsien-Hsin Sean Lee, Aaron Lanterman, Bonnie Heck Ferri, John A. Buck, Glenn S. Smith, and Krishna V. Palem are pictured with Gary S. May (center).

ECE Graduate Teaching Assistant

Excellence Award

Award.....**Anna Stelzenmuller**
Teaching undergraduates is one of ECE's most important missions. Teaching assistants are necessary to ensure that every student has the opportunity for personal attention during their course of study. The recipient was awarded a \$500 check and a plaque.

ECE Graduate Research Assistant

Excellence Award

Award.....**Bing Dang, Babak Momeni, Siavash Pourkamali**
Research is the cornerstone to ECE's success. Nurturing bright and hardworking graduate research assistants (GRAs) are among the most important factors in ensuring that ECE remains a leader in the research community. These awards were given to the GRAs who have demonstrated particular excellence in performing their duties. The recipients were each awarded a \$500 check and a plaque.

STAFF AWARDS

Hats Off Performance

Award

Award.....**LaJauna Guillory, Angela Hughes**
These awards, each consisting of a \$1,000 check and a plaque, recognized the classified staff members who have demonstrated exceptional job performance and/or service to ECE above and beyond the call of duty.

Research Spotlight Award

Award.....**Larry Coffeen**
This award was presented to a researcher who has made a significant contribution to research efforts in ECE. The awardee received a \$1,000 check and a plaque.

Academic Spotlight Award

Award.....**Thomas Collins**
This award was presented to the researcher, classified employee, or general faculty member who has made a significant contribution to the ECE teaching or academic program. The awardee received a \$1,000 check and a plaque.

FACULTY AWARDS

Outstanding Junior Faculty

Member Award

Award.....**Faramarz Fekri, Hsien-Hsin Sean Lee**
These awards, each consisting of a \$1,000 check and a plaque, recognized the most outstanding assistant professors during 2005-06.

ECE Outreach Award

Award.....**Bonnie H. Ferri**
This award was presented to a faculty member for leadership and/or significant participation in outreach activities to interest and involve K-12 students in engineering, to increase participation of women and underrepresented minorities in engineering, and/or to recruit students to the School of ECE. This award consisted of a \$1,000 check and a plaque.

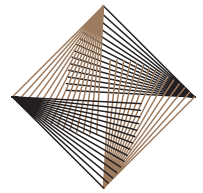
ECE Mentor Award

Award.....**Krishna V. Palem**
This award was presented to a faculty member whose mentoring of junior faculty—in connection with teaching or research activities over an extended period of time—was judged to be outstanding. This award consisted of a \$1,000 check and a plaque.

Distinguished Faculty Achievement

Award

Award.....**Glenn S. Smith**
This award, consisting of a \$5,000 check and a plaque, was presented to the senior faculty member who has made significant contributions throughout his/her career.



Hughes Named ASEE Fellow

Joseph L.A. Hughes has been named a Fellow of the American Society for Engineering Education (ASEE) for contributions to engineering education through program development, assessment, and accreditation activities. Dr. Hughes was inducted into the class of 2006 ASEE Fellows at the Annual Awards Banquet on June 21, the culmination of the ASEE Annual Conference and Exposition, held in Chicago, Ill.

Dr. Hughes is a professor and associate chair for ECE academic operations. He joins five past and present Georgia Tech faculty members who have been named to the rank of ASEE Fellow—William M. Sangster (1991), Gerald J. Thuesen (1991), William E. Sayle (2003), Ward O. Winer (2004), and Jack R. Lohmann (2005). |



Eta Kappa Nu ECE Spring Picnic Awards

The annual ECE Spring Picnic was held on April 21 at the President's house. Hosted by Eta Kappa Nu, this event recognizes faculty and students for outstanding teaching, mentoring, and scholarship. The picnic also provides a chance for faculty, staff, students, and their families to socialize in an informal setting. Additional photos and information can be found in Student Activities on page 14.

Richard M. Bass/Eta Kappa Nu Outstanding Teacher Awards

John A. Buck (top right), **Aaron D. Lanterman**

These awards, each consisting of a \$2,500 check and a plaque, were presented to the most outstanding classroom instructors—one junior faculty member and one senior faculty member—as determined by the ECE senior class. They are pictured here with HKN's David Lindberg.



(l) Adam Hertling of Hope worldwide-Georgia, Earecia Vickers, Donta Render, and David Lindberg recognize Donta's outstanding school achievements. Donta, age 10, is a student at Tull Waters Elementary School in Atlanta.



Graduate Teaching Assistant Awards

Charles Camp, Drew Cravey, Zesheng Chen, Joy Mazumdar, Muhammad Haris, Mohammed Sinnokrot, and Quocthanh Thuy

Award checks and certificates were presented to the most outstanding classroom instructors.

Faculty, Staff, and Student Honors

Sigma Xi Banquet, April 4, 2006

Sigma Xi Best Dissertation Award

Abubakr Muhammad – "Graphs, Simplicial Complexes and Beyond: Topological Tools for Multi-agent Coordination." Advisor: Magnus Egerstedt

Sigma Xi Best M.S. Thesis Award

Robert Baxley – "Analyzing Selected Mapping for Peak-to-Average Power Reduction in OFDM." Advisor: G. Tong Zhou

Georgia Tech Faculty/Staff Honors Luncheon, April 12, 2006

Education Partnership Award

Jeffrey A. Davis, Thomas R. Collins, Satya Bhan, Jiayue Simon Chen, James Holland, Eric Liu, Michael Rivera, and Jeff Rosen (Wheeler High School, Marietta, Ga.)

Class of 1940 W. Howard Ector

Outstanding Teacher Award

W. Alan Doolittle, Jr.

Class of 1940 W. Roane Beard

Outstanding Teacher Award

James O. Hamblen

Class of 1934 Outstanding Interdisciplinary Activities Award

Stephen P. DeWeerth

Outstanding Undergraduate Research Mentor Award

Ashraf Saad

Ten-Year Service Awards

Swapan Bhattacharya	Edgar Jones
Bob Boozer	Frank Lambert
Lynda Buescher	Angelo Lawton
Dale Callaway	Thomas McKoon
Thomas Champion, III	Steve McLaughlin
Larry Coffeen	Gail Palmer
Alan Doolittle	Thomas Parker
Barry Fairley	Shashi Patel
Candy Floyd	Boyd Pettitt
LaJauna Guillory	Carl Rust
Rick Hartlein	Paul Springer
David Harwell	Dean Williams
Ray Hill	Carla Zachery

Twenty-Five Year Service Awards

Monson H. Hayes, III
Hans B. Püttgen

Georgia Tech Student Honors Day, April 19, 2006

Henry Ford II Scholar Award

Louis Michael Howe, Navraj Singh, Christos Theodoridis

Georgia Tech Faculty Women's Club Scholarship

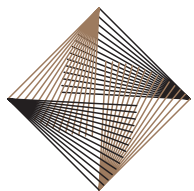
R. Reeve Ingle, John Holmes

James G. and Mary G. Wohlford Scholarship

Chetesh Devchand, Kevin Sinha, Elliot Wood

Auxiliary Services Single Parent Scholarship

Brandi Nicole Chubb



Georgia Tech Forms Research Unit with France's CNRS

Georgia Tech and France's Centre National de la Recherche Scientifique (CNRS) have partnered to create a joint international research unit (unit mixte internationale UMI) to focus on telecommunications and innovative materials research.

The UMI, the first of its kind in France, will be based at Georgia Tech Lorraine (GTL), the Institute's European campus located in Metz, France. Two large and select French engineering schools, ENSAM and SUPELEC, and two universities, Franche Comté University and Paul Verlaine University, are associate members.

UMI research will also focus on innovative materials related to optics, electron-

ics, and mechanical engineering, with an emphasis on nanotechnology and intelligent materials. The research will target industrial applications for aeronautics, automobiles, biomedical engineering, and energy.

Abdallah Ougazzaden, an ECE professor based at GTL, will direct the UMI. I look forward to leading the combination of the research strengths of Georgia Tech with other superior French universities and engineering schools to make significant advances in secure networks and materials research and to extend this international partnership with other partners and other research areas," he said. |



Abdallah Ougazzaden is the director of the new Georgia Tech and CNRS joint international research unit focused on telecommunications and materials.

(top) Gee-Kung Chang poses with equipment used to demonstrate a hybrid wired/wireless network.

Krishna V. Palem and graduate students Pinar Korkmaz and Lakshmi Chakrapani test probabilistic CMOS test chips.

New System Delivers Simultaneous Wired and Wireless Service

ECE researchers have developed a new hybrid system that could allow dual wired/wireless transmission of the same content such as high-definition television, data, and voice up to 100 times faster than current networks. The new architecture would reduce the cost of

providing dramatically improved service to conference centers, airports, hotels, shopping malls — and ultimately to homes and small offices.

Gee-Kung Chang, who holds the Byers Endowed Chair in Optical Networks in the School of ECE and is a Georgia Research Alliance Eminent Scholar, led this project and presented his team's findings on March 10 at the OFC/ NFOEC Optical Conference in Anaheim, Calif.

The optical-wireless access network envisioned by Dr. Chang

and his colleagues would connect to existing optical fiber networks that already serve much of the nation. But before entering a building, signals on the optical fiber would be optically up-converted in the central office from their normal infrared wavelengths to the millimeter-wave spectrum. Using a technique developed at Georgia Tech, wireless and baseband signals carried by multiple wavelengths would be converted onto the millimeter-wave carrier simultaneously.

Because the capacity of optical fiber is so high, this optical-wireless network could use wavelength division multiplexing to carry as many as 32 different channels, each providing 2.5 gigabit-per-second service. That would allow users within buildings to subscribe to services from many different providers, each with their own content.

Probabilistic CMOS Dramatically Reduces Energy Consumption

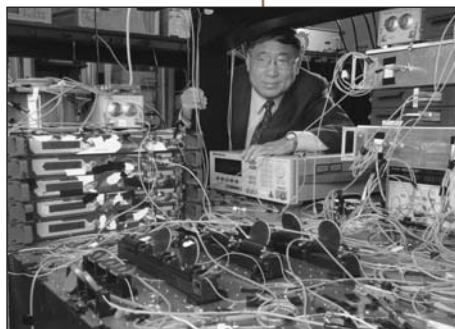
ECE Professor Krishna V. Palem and his collaborators in the Center for Research in Embedded Systems and Technology have announced energy savings by a factor of more than 500 in simulations with their ultra energy efficient, embedded architecture based on Probabilis-

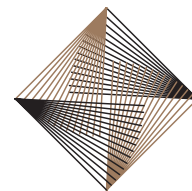
tic CMOS (PCMOS).

The PCMOS devices take advantage of noise, currently fabricated at the 0.25 micron level and use probability to extract great energy savings. The findings were presented at the Design, Automation, and Test in Europe (DATE) Conference, the leading peer-reviewed European electronic systems design meeting, on March 9 in Munich, Germany.

As traditional CMOS semiconductor technology approaches the nanoscale, coping with noise and energy savings are increasingly important. PCMOS harnesses the inherent instability of noise and uses it as a resource to achieve energy efficient architectures. In the architectures, noise induces distortion in the application. However, given the human ability to average this routinely such as in voice when using cell phones, or in images when they are streamed to hand-held devices, the user does not often notice the distortion as significant and is willing to pay the price for significant energy savings. A demonstration showing this effect in the context of video decompression used in modern DVD images can be viewed at www.crest.gatech.edu/palembitscurrent/date2006.pdf. |

More details about these stories—and many others—may be found at www.gatech.edu/media. Photos and stories were provided by Georgia Tech Research News and Publications and Institute Communications and Public Affairs.





Faculty News

Ayanna Howard has been named to the 2006 class of Young Global Leaders. Established in 2004 by Klaus Schwab, executive chairman of the World Economic Forum, the Forum of Young Global Leaders is a group of business, government, and academic leaders who are 40 years old or younger and who will work on the 2020 Initiative, a comprehensive endeavor to understand current and future trends, risks, and opportunities both at global and regional levels, to formulate a positive vision for the world in 2020.

Additionally, Dr. Howard and two research collaborators, Peter Stone and Brian Scassellati, gave a presentation on advances in Robot Learning for Space and Field Robotics at the National Academy of Science (NAS) Annual Meeting, held April 24-25 in Washington, D.C. Each year, one session from the Academy's U.S. Frontiers of Science Symposia, organized by and for young scientists, is chosen for presentation at the NAS annual meeting. Dr. Howard's work was singled out for this particular honor.

William D. Hunt has been named as a Distinguished Lecturer for the IEEE Sensors Council, which consists of 23 IEEE member societies. The fields of interest of the Council and its activities include the theory, design, fabrication, manufacturing, reliability, and applications of devices for sensing and transducing physical, chemical, and biological phenomena.

Hsien-Hsin Sean Lee was awarded a U.S. Department of Energy Early CAREER Award for his research, Toward Highly Secure and Autonomic Computing Systems: A Hierarchical Approach. Dr. Lee's research will investigate and address the information security and reliability issues on emerging multi-core processor systems. The first objective of this project is to construct a secure computing system for digital rights protection and software confidentiality. A second desired result of this research will be to provide

continued on page 10

New Faculty

Kevin T. Kornegay

*Motorola Foundation Professor/
Associate Professor*

BEE 85, Pratt Institute; MSEECS 90, University of California at Berkeley; PhDECS 92, University of California at Berkeley
Areas: *Electronic design and applications; microsystems*

Prior to joining ECE at Georgia Tech, Dr. Kornegay was on the ECE faculty at Cornell University from 1998-2005. At Tech, he is involved with the Georgia Electronic Design Center, where his research interests are in mixed-signal integrated circuit (IC) design, RFIC design, millimeter-wave IC design, and broadband data communications systems.

In the early part of his career, Dr. Kornegay was employed in industrial research positions at AT&T Bell Laboratories and at IBM Thomas J. Watson Research Center. From 1994-97, he held faculty positions in the School of ECE at Purdue University and in the EECS Department at MIT.

Dr. Kornegay currently serves on the technical program committees for several major electronics conferences. He is the recipient of a number of major awards, including the 2004 Cornell University Provost Award for Distinguished Scholarship and the 2005 Janice A. Lumpkin Educator of the Year Award from the National Society of Black Engineers.

Xiaoli Ma

Assistant Professor

BS-Automatic Control 98, Tsinghua University (China); MSEE 00, University of Virginia; PhDEE 03, University of Minnesota
Area: *Digital signal processing*

Before joining Georgia Tech in January 2006, Dr. Ma was an assistant professor in the Department of ECE at Auburn University. Now a member of the Center for Signal and Image Processing in Tech's School of ECE, she conducts research in the areas of signal processing for communications and networks, signal estimation algorithms, coding theory, wireless communication theory, and sensor and

ad hoc networks.

Dr. Ma was a guest editor for a special issue on Reliable Communications over Rapidly Time-Varying Channels, *EURASIP Journal on Applied Signal Processing* (2005), and has served on several technical program committees for conferences. She received an Outstanding Reviewer of the Year Award from the IEEE Control System Society in 1999 and holds five U.S. patents in the areas of space-time coding and orthogonal frequency-division multiplexing. She has also co-authored one book, *Space-Time Coding for Broadband Wireless Communications*.

Paul L. Voss

Assistant Professor

BA-Humanities/French Literature 94, Brigham Young University; BSEE 98, Florida State University; MSEE 00, Northwestern University; PhDECE 03, Northwestern University

Area: *Optics and photonics*

Dr. Voss is the second ECE faculty member to be based full-time at Georgia Tech Lorraine, the Institute's campus in Europe. He comes to Georgia Tech after having spent two years as a postdoctoral fellow at Northwestern University. His research at Georgia Tech involves the development of novel and improved devices and systems for optical communications and for quantum communications.

In his short career, Dr. Voss has authored or co-authored more than 50 publications and conference presentations and holds one patent. His research focuses on the experimental and theoretical study of optical amplifiers that use nonlinear mixing to provide gain; these devices are also known as fiber parametric amplifiers. He has identified theoretically and verified experimentally the fundamental limits on the performance of these devices for optical communications and quantum key distribution.

While a graduate student, Dr. Voss received a NASA Graduate Student Researcher Fellowship and the Optical Society of America New Focus Award. |



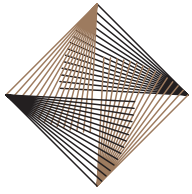
Kevin Kornegay



Xiaoli Ma



Paul Voss



FIRST Lego League Enjoys Another Eventful Year

Organizers Honored with Education Partnership Award

Forty-two teams, representing elementary and middle school students aged 9-14, gathered at the Georgia Tech Campus Recreation Center on January 14, 2006 to compete in the State of Georgia FIRST LEGO League (FLL) Challenge.

Following the theme of Ocean Odyssey, students used the LEGO Mindstorms Robotics Invention System to build robots that took action to ensure the health, diversity, and productivity of the world's oceans for present and future generations. Among the missions that the teams attempted included deploying a submarine, identifying species of fish, cleaning up a cargo shipping accident, and finding and recovering archaeological artifacts.

In the end, Robotik, a two-member team from Dunwoody, Ga., claimed first prize. Coached by Muriel Knope, the team members included Eric Fancher, age 11, and Jonathan Knope, age 12. The competition was supported by the School of ECE/Student-Faculty Committee and grants from Shell, LSI Logic, and the Netherlands American Trust.



(l-r) Robotik team members Eric Fancher, age 11, and Jonathan Knope, age 12, accept the FIRST LEGO League first prize trophy from Thomas R. Collins, one of the faculty organizers of this event.

The Education Partnership Award, given by the Georgia Tech Center for the Enhancement of Teaching and Learning, recognizes substantial and meaningful relationships between Tech faculty and students and the K-12 community. Thomas R. Collins and Jeffrey A. Davis were the faculty recipients honored for organizing the FIRST Lego League tournament and training volunteers and judges; Simon Chen, Eric Liu, Satya Bhan, Michael

Rivera, and James Holland were the ECE students honored for assisting with logistics, refereeing the tournament, and serving as research judges; and Jeff Rosen, of Wheeler High School, was honored for his support of Cobb County teams.

FIRST LEGO League is and will continue to be a very important part of ECE's K-12 outreach activities, according to Gary S. May, Steve W. Chaddick School Chair of ECE. Everyone associated with ECE's FLL efforts has done an outstanding job in working with these elementary and middle school age students and their

parents and teachers, Dr. May said. It is our hope to see many of these students at Georgia Tech one day, pursuing engineering and science degrees. |

Faculty News | continued from page 9

high availability network services with instruction-tolerance and self-healing capability.

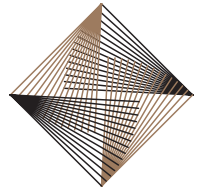
Sung Kyu Lim received a National Science Foundation CAREER Award for his research entitled Physical Design Automation for Fast and Reliable 3D Circuits. The goal of Dr. Lim's research is to develop the first automatic physical layout tool for 3D integrated circuits under performance, power, size, and reliability objectives.

Gary S. May received the Janice Lumpkin Educator of the Year Award from the

National Society of Black Engineers (NSBE) at the Golden Torch Awards Program, held during NSBE's annual convention on March 30. Dr. May was honored for his work in semiconductors, integrated circuits, and intelligent electronic systems and for his commitment to minority engineering education.

Krishna V. Palem has been named a Fellow of the Association for Computing Machinery (ACM) for his contributions to compiler optimization and embedded computing. ACM formally recognized the new Fellows at its annual awards banquet on May 20 in San Francisco, Calif.

William E. Sayle received the 2006 ASEE ECE Distinguished Educator Award from the ECE Division of the American Society for Engineering Education (ASEE) for sustained contributions to electrical and computer engineering education through leadership in accreditation activities, development of global engineering education programs, and service to ASEE. Dr. Sayle also received the 2006 Women in Engineering Leadership Award for his sustained and outstanding leadership and service to the Women in Engineering Program and the Georgia Tech community. |



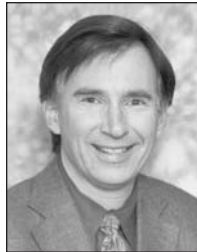
Steffes, Ferri Take New Leadership Roles in ECE

Steffes to Spearhead ECE Research Activities

Paul G. Steffes has been named associate chair for research in ECE, effective July 1. He served as associate chair of ECE graduate affairs since May 2004 and will be succeeded by Bonnie Heck Ferri. In this new position, Dr. Steffes will be responsible for the School's research contract development, intellectual property negotiations, research center administration, and export controls regulations. He will also have a key role in raising awareness and integrating junior faculty members into ECE research activities and coordinating ECE response to and participation in College- and Institute-level research initiatives.

A professor specializing in electromagnetics and telecommunications, Dr. Steffes has been on the ECE faculty since 1982 and has been involved with numerous NASA missions, including Pioneer-Venus, Magellan, the Advanced Communications Technology Satellite (ACTS), Cassini, and the High Resolution Microwave Survey (HRMS). Most recently, he was named a member of the science team for the NASA-Juno mission scheduled for launch to Jupiter in 2011. He is an IEEE Fellow and a Lifetime National Associate of the National Academies.

Dr. Steffes received his S.B. and S.M. degrees in electrical engineering from the Massachusetts Institute of Technology in 1977 and his Ph.D. degree in electrical engineering from Stanford University in 1982. |



Ferri to Lead ECE Graduate Affairs

Bonnie Heck Ferri succeeded Dr. Steffes as associate chair for ECE graduate affairs, effective July 1.

To ensure a smooth transition, Dr. Ferri started working with the graduate affairs staff in early 2006 and takes the helm of a graduate program totaling almost 1,000 students. She will be responsible for graduate curricula and student recruitment, admissions, and advising not only at the main Georgia Tech campus, but also Georgia Tech Lorraine, Georgia Tech Savannah, the new dual M.S. degree program with Shanghai Jiao Tong University, and with the distance learning program.

Specializing in systems and controls and computer engineering, Dr. Ferri has worked in several areas of control applications, including control of power converters, food processing, sensor networks, and mechanical structures, as well as engineering education. She is actively involved in the IEEE Control Systems Society and has been elected twice to its Board of Governors.

After receiving her Ph.D. from Georgia Tech in 1988, Dr. Ferri was hired as ECE's first female, tenure-track faculty member. She earned her B.S.E.E. from the University of Notre Dame in 1981 and a M.S. degree in aerospace and mechanical engineering from Princeton University in 1984. She also worked as an engineer for Honeywell, Inc. from 1983 to 1985. |



Congratulations!

At the recommendation of Georgia Tech President G. Wayne Clough, six ECE faculty received promotion and/or tenure effective July 1, 2006. Eighty percent of the ECE faculty now has tenure.

Promotion to Professor

John R. Barry
Douglas B. Williams

Promotion to Associate Professor and Tenure

W. Alan Doolittle, Jr.
Magnus Egerstedt
Faramarz Fekri

Tenure

Chuanyi Ji

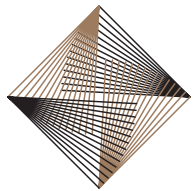
McLaughlin Appointed GTL Deputy Director

Steven W. McLaughlin, Ken Byers Professor in the School of ECE, was named deputy director of Georgia Tech Lorraine (GTL) on January 15, 2006. In this position, he leads GTL operations and planning on Georgia Tech's Atlanta campus.

Dr. McLaughlin is actively involved in all GTL activities, including student and faculty recruitment, teaching, student advising, financial aid, and economic development. As the former director of research at GTL from 2003-06, he worked with the entire GTL team to establish a new research center funded in partnership with the French national research agency, Centre National de la Recherche Scientifique, now headed by ECE Professor Abdallah Ougazzaden.

Dr. McLaughlin's research interests are in communications and information theory. His research group has ongoing projects in wireless communications, optical and magnetic recording, quantum key distribution, and data security. He has published more than 200 papers in refereed journals and conferences and holds 26 U.S. patents. A Fellow of the IEEE, he also served as the president of the IEEE Information Theory Society in 2005. |





Barnwell, P ttgen Leave Lasting Contributions to Georgia Tech

ECE Professors Hans B. P ttgen and Thomas P. Barnwell, III have retired after long and distinguished careers at Georgia Tech. Both men have played key roles in the growth of many educational, research, and global outreach programs.

Professors Barnwell and P ttgen have had extraordinary careers. Georgia Tech and ECE might have been very different places today, if it were not for their influences. said Gary S. May, Steve W. Chaddick School Chair of ECE. Their leadership in important initiatives like distance learning, industrial partnerships, commercialization, and international education will continue to have a profound effect on the Institute and ECE for many years to come.

Hans B. P ttgen

Retired March 31, 2006



Associate Chair, ECE External Affairs; Director, National Electric Energy Testing Research and Applications Center; President, Georgia Tech Lorraine; Georgia Power Distinguished Professor

After a 24-year career at Georgia Tech, Hans B. P ttgen retired on March 31 and is now the director of a new energy center at the Swiss Federal Institute of Technology in Lausanne, Switzerland.

Dr. P ttgen came to Georgia Tech in 1981 as an associate professor. During his tenure with ECE, he was a member of the electric power technical interest group and served as its chair for over a decade. As associate chair for ECE External Affairs, he created and implemented a strategy that enabled the School to exceed its 1995-2000 Capital Campaign goals by over 40 percent.

While at Tech, Dr. P ttgen led groundbreaking, new initiatives for ECE and the Institute as a whole, including the National Electric Energy Testing Research and Applications Center (NEETRAC) and Georgia Tech Lorraine (GTL). In 1996, Dr. P ttgen helped to establish NEETRAC, a membership-focused organization involved in electric power delivery R&D, and then served as its director and management board chair. The 28 member companies of NEETRAC deliver over 50 percent of all electric energy sold to industrial, commercial, and residential customers in the U.S.

In 1990, Dr. P ttgen guided the launch of GTL, the Institute's platform campus into Europe, serving first as directeur and then as president. Over 70 Tech faculty members have been assigned to GTL, and 240 graduate students from ECE, mechanical engineering, and computer science are regularly enrolled and

seek degrees not only from Georgia Tech, but also from partner European institutions under double degree program arrangements. GTL also hosts a popular undergraduate summer program and will incorporate the Institute's new international plan requirements starting in fall 2006.

Thomas P. Barnwell, III

Retired June 1, 2006



Director, Arbutus Center for Distributed Engineering Education; Arbutus Chair in Distributed Engineering Education; Georgia Research Alliance Eminent Scholar

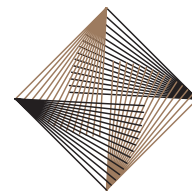
Thomas P. Barnwell, III retired on June 1, after almost 35 years in ECE, but will return on a part-time basis in fall 2006.

When he came to ECE in 1971, Dr. Barnwell was the School's first digital signal processing (DSP) faculty member, followed by several others who formed the founding core of the Center for Signal and Image Processing. He is also credited with creating and managing the DSP Laboratory, which eventually morphed into what is now the ECE Computer Support Group.

Among the first Georgia Tech and ECE faculty members involved in start-up company activity, Dr. Barnwell co-founded Atlanta Signal Processors, Inc. (ASPI) in 1981 with ECE Professors Ronald W. Schafer and Russell M. Mersereau. ASPI, which produced hardware and software tools for DSP algorithm development and multimedia on high-speed microprocessors, graduated from the Advanced Technology Development Center in 1990 and was acquired by Polycom, Inc. in 2001.

Dr. Barnwell's long term collaboration with a previous Ph.D. student, Alan McCree, led to improved technology for digital transmission and storage of speech signals and was made the new military standard in digital speech compression by the U.S. Department of Defense Digital Voice Processors Consortium in 1996; NATO made this technology its standard in 2002.

In 2002, Dr. Barnwell was named the director of the Arbutus Center for Distributed Engineering Education, which creates, tests, and distributes new technologies for education applications, as well as content development and education delivery tools to other educational institutions. Through the use of these innovative applications, Georgia Tech now delivers classes to students around the globe and has made the classroom available 24 hours a day, seven days a week. |



Eta Kappa Nu Scholarships Awarded to ECE Juniors

In spring 2004, the Beta Mu chapter of Eta Kappa Nu (HKN) began an initiative to sustain its scholarship fund while helping ECE students save money on lab supplies. Within one year, a successful execution of the chip project has resulted in reinstating the HKN scholarship and awarding it to ECE juniors, Niranjana Ganesh Kumar and Shardul Bhatia, for their outstanding academic and extracurricular achievements. They each received \$500 tuition waivers and certificates.

This scholarship is exclusively for electrical or computer engineering juniors and is awarded based on financial need, academic record, campus and community involvement, and future aspirations in the field of electrical or computer engineering. Mr. Kumar, an EE major, has been on the Faculty Honors and the Dean's List for the past four consecutive semesters. In addition, he has been involved with the Georgia Tech Student Foundation Investment Committee, India Club at Georgia Tech, *The Technique*, and the LAP program as a tutor for physics, chemistry, and mathematics. Mr. Kumar

also conducts digital signal processing research with James H. McClellan, the John and Marilu McCarty Chair of Electrical Engineering. Mr. Bhatia is a CmpE student who spent last fall as a co-op at NewEnergy Associates, where he worked as a software developer. His extracurricular activities include serving as a film and prose editor for *ecesis*, a contributing writer for *The Technique*, and corresponding secretary for HKN, and he is a member of India Club and IEEE. Both students have 4.0 GPAs and plan to pursue master's degrees in ECE.

HKN has established a scholarship fund within the Georgia Tech Foundation, enabling companies, institutions, alumni, and friends to make tax-deductible donations. In 2004, HKN began packaging and selling lab supplies to students at discounted prices, saving students over \$16,500 to date, while putting earnings into the fund. For further information on contributing to the ECE Eta Kappa Nu Scholarship, please contact the HKN faculty advisor, Tom Gaylord at tom.gaylord@ece.gatech.edu or 404.894.2931. |



(l-r) Thomas K. Gaylord; Thomas Hanley, HKN Laboratory Supplies Coordinator; Niranjana Ganesh Kumar; Shardul Bhatia; and Gary S. May, Steve W. Chaddick School Chair of ECE at the Fall 2005 Eta Kappa Nu Initiation Banquet.

Women in Engineering

Corporate-Sponsored Scholarships

Sixteen female students received corporate-sponsored scholarships for their academic excellence at the March 30, 2006 Women in Engineering Excellence Awards Banquet.

Divita Bhandari	Texas Instruments
Ariel Corinne Brown	Texas Instruments
Andrea Paige Carpenter	Boeing
Allison Burr Chislett	Northrop Grumman
Diana Del Carmen Fuertes	Cisco
Rikai Huang	Texas Instruments
Jin Joo Lee	Cisco
Shane Colleen Mooney	IBM
Mary Nguyen	Alcoa
Amanda Louise Richards	Boeing
Sujata Sen	Hewlett-Packard
Amy Abraham Vaduthalakuzhy	Cisco
Erin Elizabeth Walters	IBM
Sugandh Windlass	John Deere
Ana Maria Yepes	Hewlett-Packard
Rebika Getachew Yitna	John Deere

Texas Instruments Fellowship

Farhana Zaman was selected for a Texas Instruments Graduate Woman's Fellowship for Leadership in Microelectronics. Advised by James D. Meindl, Ms. Zaman received this honor based on her high grade point average, faculty endorsements, and her leadership and innovative research in nanogap fabrication. |

Intel Names Fellowship Recipients

Ripal Nathuji and Deepak Sekar have been named among the Intel fellowship recipients for 2006.

These fellowships provide full support for up to two years and are awarded to Ph.D. candidates interested in semiconductor technology and manufacturing, systems technology and design, software technology and design, and information technology.

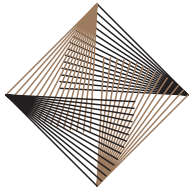
Mr. Nathuji is conducting research in active power management for multi-core chips, and is advised by Sudhakar Yalamanchili, Joseph M. Pettit Professor in ECE, and Karsten Schwan, a professor in the College of Computing. Mr. Sekar is advised by James D. Meindl, ECE's Joseph M. Pettit Chair in Microelectronics and director of the Microelectronics Research Center, and is looking for ways to improve interconnects in future integrated circuit chips.

The Intel Foundation Ph.D. Fellowship Program is administered with the Intel Higher Education Program, which focuses on advancing innovation in key areas of technology, as well as developing a pipeline of world-class technical talent for Intel's future workforce and the global knowledge-based economy. To achieve this goal, Intel collaborates with top universities worldwide to expand university curricula, engage in focused research, and encourage student participation in research throughout their education.

Georgia Tech HKN Named Outstanding Chapter

The Beta Mu chapter of Eta Kappa Nu (HKN), the honor society for ECE students, received an Outstanding Chapter Award for 2004-05, one of nine such awards given to HKN chapters in the U.S.

Outstanding juniors, seniors, and graduate students are eligible for election to HKN, which sponsors community service projects throughout the year and hosts many professional development activities for ECE students. HKN also hosts the annual ECE Spring Picnic and gives awards throughout the year for both students and professors.



Tech Students Get the 411 at ECE Fair



The award-winning IEEE robot is readied for a demonstration.



(l-r) ECE faculty members John Papapolymerou and Arthur Koblasz work the grill with ECE students Satya Bhan and Mehak Dinesh.



Bill Overton, an ECE graduate student, performs original music at the ecesis launch party.

Almost 300 students attended the April 11 ECE Fair consisting of information on ECE's 10 technical interest areas, research demonstrations, and presentations about Georgia Tech Lorraine, Georgia Tech Savannah, and Georgia Tech Shanghai.

Also represented were ECE student organizations, Eta Kappa Nu, Women in Electrical and Computer Engineering, the ECE Student-Faculty Committee, *ecesis*—the School's webzine, and IEEE.

The ECE Fair gives undergraduate ECE students a chance to learn even more about the School's areas of specialization and encourages them to pursue graduate studies in the field, said Eric Liu, one of the student organizers. At the same time, it is also a good showcase for undecided engineering majors to see the diversity of areas that you can study in ECE and to learn more about our student organizations.

A highly interactive event—which included giveaways of DVDs, iPods, and Sony PlayStation® Portables, the ECE Fair also provided students with a chance to socialize with faculty and other students outside of labs and classes.

After the ECE Fair activities concluded, *ecesis* held its annual launch party. The event featured musical performances, poetry readings, and art presentations. To see the complete 2006 issue of *ecesis* visit www.ece.gatech.edu/ecesis.

Eta Kappa Nu Spring Picnic Offers Something for Everyone



Render, a 10-year-old fourth grader from Tull Waters Elementary School who is mentored by HKN students through Hope worldwide-Georgia. HKN volunteers work with students from this southeast Atlanta school each Saturday morning, tutoring them on schoolwork and reviewing material for statewide exams.



Galdos and guitarist Kevin DeMarco—and Mike Powell, a mechanical engineering undergraduate on drums; Steve Ryan, a biomedical engineering undergraduate on lead vocals; and Jabulani Barber, a Ph.D. student in chemical engineering on saxophone.

I thought the picnic was a huge success



Over 300 students, faculty, and staff attended the annual Eta Kappa Nu (HKN) Spring Picnic, held on April 21 at the Glade behind the Georgia Tech President's Home. Milliken and Altus Network Solutions were the industrial sponsors for the event.

HKN President David Lindberg took time to recognize the accomplishments of Donta



Throughout the event, students challenged faculty and graduate teaching assistants to a marathon game of volleyball, while others socialized, enjoyed door prize giveaways, and listened to music provided by Inner City Orchestra, a band comprised of two electrical engineering undergraduates and HKN members—bassist Mike



with plenty of food, a student-faculty volleyball game, and our ECE awards that were handed out, said Mr. Lindberg. This event wouldn't have been possible without the tremendous help from our picnic chairs, our HKN officers, and the support from Milliken and Altus Networks.

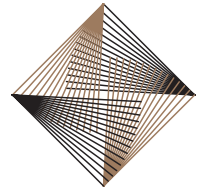
IMS Competition Draws Intense Student Interest

The IMS Research Competition kick-off event, held during the recent Georgia Electronic Design Center (GEDC) Spring Review, attracted more than 400 students on April 25. This industry-sponsored contest offers \$100,000 in awards to Georgia Tech student teams that develop new and creative applications using Internet Protocol Multimedia Subsystems (IMS) wireless services architecture.

Student teams participating in the competition can win a \$35,000 grand prize or one of several smaller cash awards. The contest, sponsored by Siemens Communications Inc., Cingular Wireless, Georgia Tech, and the Georgia Research Alliance, is the first event in an expanded partnership between Georgia Tech, Siemens, and Cingular.

This public-private partnership will include development of an IMS laboratory at Georgia Tech, under GEDC and the Office of Information Technology. A public demonstration of the IMS lab, to contain \$5 million of equipment donated by Siemens, is scheduled for October 2006.





Alumni News

Kenneth P. Bullard (BEE '57) served with the U.S. Air Force and was discharged from the reserves as captain in 1966. He worked for Vitro Laboratories on the Polaris Missile System from 1960-62 and earned his M.D. from the Bowman Gray School of Medicine in 1966. Board certified in plastic surgery, he practiced in Charlotte, N.C. since 1973 and retired in November 2005. He has been married to Nancy Redding since 1963, and they have two children: Steven R. Bullard, M.D., and Janine E. Bullard, M.D. Kenneth's hobbies include working on his old Corvette and attending Washington Redskins games.

William (Bill) Drennon (BEE '69) is the director of technology at Central Valley Christian Schools in Visalia, Calif. Mr. Drennon also serves as webmaster of www.cvc.org, in addition to doing computer and network consulting work. His home page is www.drennon.org/bill.

Carlton J. Simmons, Jr. (BEE '75, MSEE '76) is leaving the engineering field after 30 years and will begin teaching high school math and science in the fall. He currently lives in Indiana and will move to the east coast during the summer.

Louis Alderman, PMP (BEE '77) has retired from Hewlett Packard Company with over 28 years of service. He is now an instructional designer and senior project management instructor with Velociteach - Better Project Management in Kennesaw, Ga.

Oscar Rolando Ramirez Vivas (BSEE '79, MSEE '81) is setting up a three-year degree institution, IUTIC-Instituto de Tecnologias de Informaci n y Comunicaciones, in Caracas, Venezuela.

Jerry Sumrell, PE (BEE '81, MSEE '86) has been named manager of engineering for Hartrampf, Inc., an A/E firm located in Atlanta.

Hartrampf provides engineering services for the architectural and construction industry in both the public and private sector. Mr. Sumrell's son, Bennett, is a fourth-year student in civil engineering at Georgia Tech, and his daughter, Tinsley, will begin her studies at Tech in fall 2006.

Jim Worsham (BEE '82, MSEE '89) is a senior member of the technical staff at BellSouth Science and Technology in Atlanta, Ga.

Reginald Hill (MSEE '85) was recently named as one of *Chicago Lawyer* magazine's 10 Taking off after 30, a series of profiles detailing how 10 of the city's attorneys launched their legal careers after successful business careers. While working at Motorola in Schaumburg, Ill., he took law classes at Chicago's John Marshall School of Law and graduated in 1994. Mr. Hill is currently a partner with Jenner and Block, LLP, where he represents many high-tech companies.

Kenneth Norman (BEE '92) has been selected to attend the Air Force Institute of Technology (AFIT), where he will pursue a master of science degree in software engineering. AFIT is located at Wright-Patterson Air Force Base, Dayton, Ohio. He will depart his current duty location, Washington, D.C., in time to begin classes in September 2006.

Navid Yazdani (BEE '93) and his wife, Anne, just returned to Boston after a three-month vacation, which was spent visiting nine countries in Africa, Asia, and Oceania. They both still work as electrical engineers at Raytheon in Marlborough, Mass.

Aditya Bhatnagar (MS '94) has started a new job as director of engineering and standards at the Consumer Electronics Association, located in Arlington, Va. Mr. Bhatnagar was previously a manager of finance at Sprint

Nextel Corporation in Reston. He and his wife, Preeti, live in Fairfax with their two sons, Siddharth (6), and Mrinal (3).

Vivek Maddala (BEE '95) is a film score and concert music composer based in Los Angeles, Calif. He is currently working on his sixth feature film for Warner Bros., producing a 90-minute orchestral score that will be performed by the Oregon Symphony Orchestra. Mr. Maddala's web site is www.maddala.com.

Marc Willingham (BEE '95) and his wife, Stacey, welcomed their first child, Andrew, born in January 2006. Mr. Willingham is a computer services specialist III with the Office of Information Technology at Georgia Tech.

Linda A. Freeman (BEE '96) was awarded the Society of Women Engineers (SWE) 2005 Distinguished New Engineer Award for successfully merging engineering and leadership skills in the technical sales arena and support of SWE student sections.

Kyle Klatka (BEE '96) and his wife, Kirsten, welcomed the birth of their first daughter, Ellery Lyn, on February 14. He is working as a product manager for Teradyne's Wireless Broadband Business Unit in Boston, Mass.

Dave Zielinski (BEE '98) is a lieutenant in the U.S. Navy and is currently serving as the chief engineer on board the USS Harpers Ferry (LSD 49), forward deployed from Sasebo, Japan. He received a master's degree in public and international affairs from Virginia Tech in May 2005.

Andy C. Th (BEE '99) has moved to the Boston area and is now working for Texas Instruments in Waltham, Mass.

Anthony Scott (BSEE '99, MSECE '01), an associate with Booz Allen Hamilton in McLean, Va., recently became a part-time adjunct

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We want to know! Share your news with your ECE classmates and friends. Just complete this form, clip, and mail or visit our web page at www.ece.gatech.edu/alumni and tell us online.

Name _____ Degree/Year _____

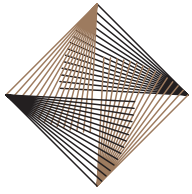
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Mail to Marci Reed at the School of Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, GA 30332-0250



Gisele Bennett adds EOSL Director and executive team member of Georgia Tech/Emory University Health Systems Institute to her many accomplishments. She is a professor in ECE and has taught regularly since graduating in 1995.

Gisele Bennett Named Director of Electro-Optical Systems Laboratory at GTRI

Gisele Bennett (PhDEE '95) has been named director of the new Electro-Optical Systems Laboratory (EOSL) at the Georgia Tech Research Institute (GTRI) in Atlanta. The new lab was created to highlight GTRI's broad expertise and experience in electro-optical systems.

Director of GTRI's Logistics and Maintenance Applied Research Center (LandMARC) and a professor in Tech's School of ECE, Dr. Bennett brings to the job an appreciation for GTRI's existing customers and a vision for developing new research areas where the lab can apply its expertise.

EOSL has core research technologies that have high potential for growth, said Dr. Bennett. We are going to continue to be the research resource for our existing customers in areas such as optical sensing and systems design and for our future customers in such areas as medical imaging and optical communication. We'll continue to grow our work with the Department of Defense (DoD), and we'll have new customers at the National Institutes of Health, the National Science Foundation, and industry.

EOSL conducts research in broad areas involving electro-optical systems, including remote sensing, modeling and analysis, integrated sensing systems, optical device technology, LIDAR system design and measurement, microelectronics, nanotechnology, solid state lighting, performance support systems, sensor

data collection and analysis—and even education.

New research areas, including optical communication and medical imaging, will build on the expertise developed for DoD programs over the years.

A member of the executive team for the Georgia Tech/ Emory University Health Systems Institute, Dr. Bennett is part of a group that is focused on issues central to the delivery of health care services such as information, communication, decision support, health care options, and biomedical technologies. Medical imaging can involve optical systems for looking into the human body where there is a lot of scattering of the signal. Our expertise in atmospheric scattering and modeling can be applied to this kind of imaging, she said.

Dr. Bennett founded LandMARC in 2000 as a multidisciplinary center, which now has more than \$12 million in direct research. The Center focuses on condition based maintenance; RF and optical tagging, tracking and visibility, and performance support technology.

GTRI Director Stephen Cross praised Dr. Bennett's vision for EOSL. The vision she has communicated has created real excitement in that lab, he said. Gisele is well known in the campus community and has been involved in leadership positions both on campus and at the national level. |



Alumni News | continued from page 15

professor at George Mason University. He is teaching in the area of computer security.

Raheem Beyah (MS '99, PhD '03) is an assistant professor in the Department of Computer Science at Georgia State University in Atlanta.

Tyler Hunt (BSEE '04) is working with Harris Corporation in Melbourne, Fla. and is enjoying the Florida sunshine.

Charles Hume (MSEE '05) is an engineer III with General Atomics, located in San Diego, Calif., working with the Advanced Arresting Gear and Electromagnetic Aircraft Launcher for U.S. Navy aircraft carriers to design a high power inverter to help catch landing planes and launch planes off of the aircraft carrier.

Rosa Younessi (BSEE '05) is the founder of an online-based art company, www.yunessi.com and is also working at the Microsystems and Research Group at Intel. She has joined multiple organizations such as Recent College Graduates of Intel, the Society of Women Engineers, and the Intel Involved volunteer group. |



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