I am very pleased to share with you the many accomplishments of the faculty, staff, and students in the School of Electrical and Computer Engineering at Georgia Tech. Our people and our programs are a great testament and showcase to all areas of import to our profession with contributions in teaching, research, and service.

Our faculty members earned national and international acclaim during 2010-11 in a number of different ways. ECE Professor John Cressler was honored for his commitment to his students and teaching excellence with the 2011 IEEE Leon K. Kirchmayer Graduate Teaching Award. Six Georgia Tech faculty members, three from ECE, were elected to the rank of IEEE Fellow, while two faculty members were elected as SPIE Fellows. Two junior faculty members won National Science Foundation CAREER awards, and a number of faculty received technical honors for their research in a diverse range of fields.

Our students were recognized with much-deserved accolades. Allie Del Giorno was one of two Georgia Tech students to earn a Goldwater Scholarship, while two of our graduate students—Chris Coen and Jordan Greenlee—won graduate fellowships from the Department of Defense and NASA, respectively, and two ECE students received NSF Graduate Research Fellowships. For the sixth year in a row, Eta Kappa Nu won a national Outstanding Chapter Award.

We granted 669 degrees and had nearly 2,400 students enrolled in our academic programs, all of which remained in the top 10 of their respective rankings in *U.S. News & World Report*. Two teams with ECE undergraduate students—Velociryder and Waste to Watts—were finalists in the 2011 InVenture Prize Competition, and the Vertically Integrated Projects Program continued to thrive, adding new project teams and hosting its first innovation contest during the spring 2011 semester. Five ECE graduate students also earned awards at the second annual Georgia Tech Research and Innovation Conference.

Faculty acquired just over $56.8 million in research awards during FY 11, and ECE-founded companies developed out of the Advanced Technology Development Center kept flourishing, with ATDC graduate CardioMEMS continuing its success in attracting venture capital and investments. Suniva, another ATDC graduate, was named the fastest growing company in the 2011 *Atlanta Business Chronicle* Pacesetter Awards and ranked second in the list of “Top 10 Venture-Backed, Clean Technology Companies” by the *Wall Street Journal*.

I began my service as interim chair on July 1, 2011, the same date that former ECE School Chair Gary May started his tenure as dean of the College of Engineering. While this next year will be one of transition as the search for a new school chair proceeds, the School remains steadfast to its commitment as a key player and leader in the future success of the Institute. I invite our corporate and government partners, alumni, and friends to join us in our ongoing mission to make Georgia Tech the best technological university in the world.

Douglas B. Williams
*Interim Chair and Professor*
The School of Electrical and Computer Engineering at the Georgia Institute of Technology is located in the heart of Atlanta, one of the most diverse high-tech markets in the United States. As the largest producer of electrical engineers and computer engineers in the nation, ECE leads the Institute in many different aspects of research, education, and commercialization, including key areas of focus such as energy, microsystems and nanotechnology, bioengineering, and information technology.

The following statistics detail the size and scope of the School’s operations and represent the Atlanta campus, Georgia Tech-Savannah, Georgia Tech-Lorraine, the Georgia Tech Shanghai Initiative, and the ATLANTIS M.S. dual degree program with Politecnico di Torino in Italy and the Technical University of Munich in Germany.

**Facts at a Glance**

### Students
(Fall Semester 2010)
- Undergraduate Students: 1,207
- Electrical engineering: 811
- Computer engineering: 396
- Graduate Students: 1,170
- Doctoral*: 637
- Special: 13
- Master’s*: 520

* Totals include enrollments in interdisciplinary degree programs in bioengineering and robotics.

### Degrees Awarded
(Summer 2010 through Spring 2011)
- B.S.Cmp.E.: 73
- B.S.Cmp.E.-Georgia Tech-Savannah: 2
- B.S.E.E.: 185
- B.S.E.E.-Georgia Tech-Savannah: 15
- M.S./M.S.E.C.E.: 311
- M.S./M.S.E.C.E.-Georgia Tech-Savannah: 7
- Ph.D.: 75
- Ph.D.-Georgia Tech-Savannah: 1

### Faculty/Staff
- Number of faculty (tenure-track): 113
- Joint appointments: 5
- Professors Emeriti: 26
- Funded professorships: 31
- Georgia Research Alliance Eminent Scholars: 8
- National Academy of Engineering members: 5
- IEEE Fellows: 40
- Presidential Early Career Award in Science and Engineering recipients: 6
- Academic professionals: 3
- Research faculty: 68
- Administrative staff: 80

### Submitted Proposals

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<th>Source</th>
<th>State Fiscal Year 2011 Budget and Expenditures</th>
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* Includes Tuition, Initial FY11 Allocation $19,076,300
** Includes Georgia Tech Foundation and Agency funds

### Eta Kappa Nu Wins Outstanding Chapter Award

For the sixth year in a row, the Beta Mu Chapter of Eta Kappa Nu was named a recipient of the Outstanding Chapter Award. A mark of great distinction, this award recognizes a chapter’s service to their fellow students, school, university, and the surrounding community during 2009-10.

HKN is one of the largest honor societies in the country, with nearly 200 university chapters, a variety of committees, many active member volunteers, and thousands of student members. The number of chapters receiving the Outstanding Chapter Award six years in a row is seven, including the Beta Mu chapter of Georgia Tech. (Read more about HKN on page 13)

### Research Funded

These totals represent the activity of ECE faculty on the Atlanta campus, Georgia Tech-Savannah, and Georgia Tech-Lorraine, as well as in the Nanotechnology Research Center, the Georgia Electronic Design Center, National Electrical Energy Testing, Research, and Applications Center, and the Georgia Tech Broadband Institute. Georgia Tech Foundation grants and gifts designated for research are also counted in the research funded total that is provided.

Our research activities fall into the broad areas of bioengineering, computer systems and software, digital signal processing, electrical energy, electromagnetics, electronic design and applications, microelectronics/microsystems, optics and photonics, systems and controls, telecommunications, and VLSI systems and design.
New Biosensing Technology Could Facilitate Personalized Medicine

The multi-welled microplate, long a standard tool in biomedical research and diagnostic laboratories, could become a thing of the past, thanks to new electronic biosensing technology developed by a team of microelectronics engineers and biomedical scientists at Georgia Tech. The team is led by ECE Associate Professor Muhammed Bakir and John McDonald, a professor in the School of Biology and chief research scientist at the Ovarian Cancer Institute.

The researchers hope to replace these microplates with modern microelectronics technology, including disposable arrays containing thousands of electronic sensors connected to powerful signal processing circuitry. If successful, this new electronic biosensing platform could help realize the dream of personalized medicine by making possible real-time disease diagnosis—potentially in a physician’s office—and by helping select individualized therapeutic approaches.

New Transistor for Plastic Electronics Exhibits the Best of Both Worlds

A new method of combining top-gate organic field-effect transistors with a bilayer gate insulator has been developed by ECE Professor Bernard Kippelen and his team from the Center for Organic Photonics and Electronics. This allows a transistor to perform in a stable fashion while exhibiting good current performance. In addition, the transistor can be mass produced in a regular atmosphere and can be created using lower temperatures, making it compatible with the plastic devices that it will power.

ECE Teams Advance to InVenture Prize Finals

Two teams with ECE students were among the seven finalists selected to compete for the 2011 InVenture Prize. Georgia Tech. Students presented their inventions during a live Georgia Public Broadcasting program televised from the Robert Ferst Center for the Arts on March 9.

ECE had students on two of the finalist teams—Velociryder and Waste to Watts. Velociryder built a motorized, self-balancing skateboard that features two wheels instead of four. The team was made up of Aaron Fan and Xo Wang (shown at right), both double majors in EE and computer science, and Jamison Go, an EE and mechanical engineering double major. Waste to Watts had sustainability in mind when they created a low-cost, modular backup power supply by reusing discarded electronic parts. This system will provide much-needed power in third world countries. The team was made up of James Molini, a biomedical engineering student, and Patrick Caputo, an EE and physics double major.

The eventual winner of the 2011 InVenture Prize was the Slide Capo, designed by Industrial Design student Daniel Chaney. Slide Capo is a new twist on a guitar capo that can create unique sounds. As the winner of this year’s competition, Mr. Chaney took home $15,000 in prize money and a free U.S. patent filing by Georgia Tech’s Office of Technology Licensing.

The InVenture Prize is an innovation competition for Georgia Tech undergraduate students who work independently or in teams to create inventions that are presented to and then judged by a panel of experts. The judges for the 2011 event were Sara Blakely, founder and owner of SPANX; Deborah Kilpatrick, senior vice president at CardioDx, a privately held genomic medicine company; Greg Foster, founder and CEO of BrightWhistle and entrepreneur-in-residence with Chrysalis Ventures; and David Phelps, president and CEO of CreoSalus, a peptide science company.

Above: Postdoctoral fellow Kenneth Scarberry uses bioconjugate techniques to bind ligands to silicon nanowires, while graduate research assistant Ramasamy Ravindran observes. On lower cover: ECE associate professor Muhammed Bakir (l) holds a prototype electronic microplate while John McDonald (School of Biology) holds an example of the conventional microplate. (center) The new microplate is shown in front of the technology it aims to replace.

Research Summary

ECE faculty and its associated research centers acquired a total of $52,896,845 in FY 11 (excludes Georgia Tech Foundation grants and gifts), representing:

**Intellectual Products**

- 30/84 Patents/records of invention
- 5 Advanced Technology Development Center start-up companies
- 7 ATDC graduate companies

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The researchers hope to replace these microplates with modern microelectronics technology, including disposable arrays containing thousands of electronic sensors connected to powerful signal processing circuitry. If successful, this new electronic biosensing platform could help realize the dream of personalized medicine by making possible real-time disease diagnosis—potentially in a physician’s office—and by helping select individualized therapeutic approaches.
LEADERSHIP

May Named Dean of the College of Engineering

Following a national search, Gary S. May, alumnus, professor, and the Steve W. Chaddick School Chair for the School of Electrical and Computer Engineering, became the dean of Georgia Tech’s College of Engineering on July 1. He succeeded Don Giddens, who stepped down as the CoE dean and retired from the Institute at the end of June.

As dean, Dr. May is responsible for directing the nation’s largest engineering program, one that enrolls nearly 60 percent of the student body and is home to about half of its tenured and tenure-track faculty.

Dr. May is the founder and director of the Summer Undergraduate Research in Engineering/Science program, which is designed to attract talented minority students into graduate school. He also founded and co-directs the Facilitating Academic Careers in Engineering and Science program, which encourages minorities to pursue engineering and science careers in academia. He has been on the ECE faculty since 1991, where he is a member of the microelectronics/microsystems technical interest group.

Williams Tapped as ECE Interim Chair

Douglas B. Williams became the interim chair for the School of ECE, effective July 1, and will hold this position until a new, permanent school chair is named. The search for a new school chair began in August 2011.

Dr. Williams joined Georgia Tech in 1989 as an assistant professor in ECE, and for the past eight years, he has served as the School’s associate chair for undergraduate affairs. While associate chair, Dr. Williams represented ECE in many capacities, both on campus and to external audiences. In the past year, he served on Georgia Tech’s Executive Board, chaired the International Plan Committee, and been Georgia Tech’s advocate to the University System of Georgia’s Faculty Council.

A long-time member of the Center for Signal and Image Processing, Dr. Williams is active within the IEEE Signal Processing Society. Within that Society, he has been a member-at-large on the Board of Governors, an area editor for the IEEE Signal Processing Magazine, and a member of the technical committees for Signal Processing Theory & Methods and Signal Processing Education. Dr. Williams also represents IEEE as an ABET program evaluator for electrical engineering and computer engineering.

Michaels Named Interim Associate Chair for ECE Undergraduate Affairs

Jennifer E. Michaels was named interim associate chair for ECE undergraduate affairs, effective July 1.

Dr. Michaels joined Georgia Tech in 2002 as an associate professor in the School of ECE. Prior to that, she worked in industry, first at a government laboratory, then co-founding a startup company, and finally serving as manager of systems development at Parametrics, Inc. in Waltham, Mass. For the past four years, Dr. Michaels has served as the chair of the ECE Undergraduate Committee, which is in the process of implementing curriculum revisions approved by the ECE faculty last year. She was a member of the Institute Student Honor Committee from 2002-09 and served as alternate chair from 2004-09.

As co-director of the Quantitative Ultrasonic Evaluation, Sensing, and Testing Laboratory within ECE, Dr. Michaels is active in the international nondestructive evaluation and structural health monitoring communities. She is affiliated with the systems and controls and digital signal processing technical interest groups within the School. She is a senior member of IEEE, and is an associate editor of the IEEE Transactions on Instrumentation and Measurement.

Georgia Tech-Savannah Task Force

Georgia Tech President G. P. “Bud” Peterson accepted the task force recommendations regarding future directions for the Georgia Tech-Savannah campus. The report, “Defining a Path Forward for Georgia Tech-Savannah,” provided a comprehensive review of the coastal campus and the Georgia Tech Regional Engineering Program.

Highlights from the task force report include recommendations to continue having a strong presence in Southeast Georgia by creating a new academic and operational model for the campus while phasing out current degree programs in four different majors, including electrical engineering and computer engineering.

The proposed organization, designed to be viable and self-sustaining, includes a portfolio of programs ranging from co-curricular undergraduate activities to instruction for the military and executive and other non-credit education programs to professional master’s degrees. In addition, the recommendations included the option of developing regional research opportunities. (http://savannah.gatech.edu/the-path-forward)

STRUCTURE

New Research Institutes

To leverage existing research expertise and resources in support of strategic initiatives at Georgia Tech, Executive Vice President for Research Stephen Cross announced the formation of the Institute for Electronics and Nanotechnology and the Institute for People and Technology. Both of these Institutes will have significant involvement from ECE.

Led by Executive Director and ECE Regents’ Professor Mark G. Allen, IEN consolidates 11 electronics and nanotechnology research centers and related programs into an organization designed to enhance support for rapidly growing programs spanning biomedicine, materials, electronics, and nanotechnology.

IPaT is headed by Executive Director Elizabeth Mynatt, a professor in the School of Computer Science. Made up of 10 research centers and organizations, the Institute is a catalyst for transformational research in areas such as health care, education, and consumer media by integrating advances in human-centered computing, architectural and digital design, policy, and system science and engineering.
2011 Roger P. Webb Awards

On April 27, the School of ECE held its tenth annual Roger P. Webb Awards Program. Georgia Power Vice President Leslie Sibert (BEE ’85) and Kimberly-Clark Vice President Bob Stargel (BEE ’83) hosted the event, which honors the students, staff, and faculty who have shown exceptional dedication to their professions and studies. Support for this annual event is provided through an endowment established by the ECE Advisory Board.

STUDENT AWARDS
Outstanding ECE Sophomore Award
Adam Kitain
ECE Junior Scholar Award
Sean Austen McGee
ECE Undergraduate Research Award
Brett Ireland
Most Outstanding ECE Senior Co-op Award
Andrew Perez
Outstanding Service to Georgia’s Community Award
Jenny Liu
ECE Faculty Award
Sean Austen McGee
Outstanding Electrical Engineering Senior Award
Michael Lu
Outstanding Computer Engineering Senior Award
Jaydeep Srimani
ECE Senior Scholar Award
Kenneth Adams, Joshua Durham, Bradley Keller
Colonel Oscar P. Cleaver Awards
Sen Yang, Mahbub Alam
ECE Graduate Teaching Assistant Excellence Award
Mohammad Omer
ECE Graduate Research Assistant Excellence Award
Erman Ayday, Xueliang Huo

STAFF AWARDS
Hats Off Performance Award
Harry Beck, Catherine Gholson
Research Spotlight Award
Jae-Hyun Ryoo
Academic Spotlight Award
David Webb

FACULTY AWARDS
Outstanding Junior Faculty Member Award
Shyh-Chiang Shen, Fumin Zhang
ECE Outreach Award
Elliot Moore
Richard M. Bass and W. Marshall Leach/
Eta Kappa Nu Outstanding Teacher Awards
Alan Doolittle, James McClelland
ECE Distinguished Mentor Award
Oliver Brand
Distinguished Faculty Achievement Award
Mark Clements

Georgia Tech Awards
Georgia Tech Faculty/Staff Honors Luncheon, April 15
Georgia Tech Outstanding Doctoral Thesis Advisor Award: Paul Hasler
Georgia Tech Student Honors Day, April 21
Henry Ford II Scholar Award:
Stephen Bracca, Ackshaey Singh
Georgia Tech Sigma Xi Awards Banquet, April 14
Sigma Xi Best Undergraduate Student Thesis Award: Ashish Katariya
Eta Kappa Nu/ECE Spring Picnic, April 22
Outstanding ECE Graduate Teaching Assistants:
Mauricio Pardo Gonzalez
Mojtaba Hudjat-Shamami
Nak-Seung Hyun
Moazzam Khan
Michael Oakley
Jason Okerman
Spyridon Pavlidis
Po-Yen Wu


(Below-Left) Staff award winners pictured with ECE School Chair Gary May (counterclockwise from bottom left): Catherine Gholson, Harry Beck, and David Webb.

(Below-Right) Faculty award winners pictured with ECE School Chair Gary May. Bottom row (l-r): Elliot Moore, Shyh-Chiang Shen, Jim McClelland. Top row (l-r): Mark Clements, Oliver Brand, Alan Doolittle, and Fumin Zhang.

Graduate award winners: Bottom row (l-r): Mojtaba Hudjat-Shamami, Moazzam Khan, Mohammad Omer. Top row (l-r): Xueliang Huo, Erman Ayday, and Jason Okerman.
A member of the faculty since 2000, Dr. Adibi was recognized “for achievements in integrated nanophotonics and volume holography.” He leads the Photonics Research Group within the School and also heads up a research center funded by the Defense Advanced Research Projects Agency at $4.3 million as one of DARPA’s Centers in Integrated Photonics Engineering Research. The goal of the Center is to develop a new sensor that can detect multiple biological and chemical threats on a compact integrated platform faster, less expensively, and more sensitively that current state-of-the-art sensors. Dr. Gaylord, a Regents’ Professor and Julius Brown Chair Professor, was recognized “for achievements in diffractive and polarization optics.” As the leader of the Optics Laboratory, Dr. Gaylord has formulated rigorous coupled-wave analysis, an electromagnetic approach for analyzing wave propagation in periodic structures. Designs based on RCWA formalism have been used to create diffractive elements, photonic crystals, and even head-up displays.

**Meliopoulos Honored with the 2010 International George Montefiore Award**

A.P. Sakis Meliopoulos was honored with the 2010 International George Montefiore Award in September 2011. Dr. Meliopoulos holds the Georgia Power Distinguished Professorship in ECE.

The George Montefiore Award is given every five years, and in 2010, the award recognizes fundamental contributions to smart grids or smart electricity networks. The award will be presented at the Montefiore Award Workshop.
Two ECE Faculty Members Earn NSF CAREER Awards

ECE Assistant Professors Pamela Bhatti and Saibal Mukhopdhyay were selected for NSF CAREER Awards within the last fiscal year, bringing the total number of ECE faculty with current NSF CAREER Awards to nine. Since the 1980s, 37 ECE faculty members have received funding from this esteemed program.

Pamela Bhatti: “An Ultra-Low-Power MEMS-Based Implantable Biosystem for Restoring Vestibular Function—Platform for an Integrated Human-Centered Hybrid Biosystem.” The objective of Dr. Bhatti’s research is to develop an ultra-low-power implantable biomedical microsystem capable of activating vestibular nerve fibers in the inner ear that convey head rotation cues to the central nervous system. Such a device would assist persons suffering from bilateral vestibular dysfunction who experience postural imbalance, dizziness, and nausea.

Saibal Mukhopadhyay: “3D Heterogeneous Integration for Power Reduction in Embedded Systems: Application to Wireless Image Sensing and Transport.” Dr. Mukhopadhyay’s research explores principles to minimize power dissipation of embedded systems for real-time imaging, high-volume multimedia processing, and wireless communication in time-varying noisy channel under Quality-of-Service constraints. The principles are applied to design a low-power 3D wireless image sensor node for a high-quality image/video communication network.

ECE Research Team’s Paper Tapped for IEEE “Top Picks” Issue

A paper written by ECE Associate Professor Hsien-Hsin Sean Lee and his research team is the first ever from Georgia Tech to be chosen for IEEE Micro magazine’s “Top Picks” issue. Published annually, this issue selects the most significant papers from computer architecture conferences based on novelty and long-term impact.

Being chosen for this honor is considered the equivalent to receiving a Best Paper Award. In 2011, IEEE Micro chose 11 papers to highlight. Dr. Lee co-wrote the paper entitled “Security Refresh: Protecting Phase-Change Memory against Malicious Wear Out” with his current Ph.D. student Nak Hee Seong (shown on left with Dr. Lee) and his former Ph.D. student Dong Hyuk Woo. This work addressed the technological limitation of an emerging memory technology known as Phase Change Memory. Security refresh can effectively extend PCM’s lifetime to approach its theoretical limit, enabling its practical use as an integral part of the system memory for future computing systems.

Roca Earns IEEE MTT-S Scholarship

Rolando Roca received an IEEE Microwave Theory and Techniques Society Undergraduate/Pregraduate Scholarship at the 2011 International Microwave Symposium, held June 5-10 in Baltimore, Md.

An electrical engineering major, Mr. Roca received this award for outstanding work on his project “Smart Passive Wireless Gas Sensor Using Functionalized Carbon Nanotubes with Inkjet Printing Technology.” This project is the first real world demonstration of inkjet-printed low-cost wireless sensors on paper and plastics utilizing nanotechnology-based structures, namely carbon nanotubes. His work could potentially set the foundation for the first quality-of-life ubiquitous sensor networks that truly bridge nanotechnology, RF, and “green electronics.”

Mr. Roca is an ECE Opportunity Research Scholar program participant, and he is advised by Emmanouil M. (Manos) Tentzeris and ECE Ph.D. student Hoseon Lee.

Rao Tummala will receive the 2011 IEEE Components, Packaging, and Manufacturing Technology Award “for pioneering and innovative contributions to package integration research, cross-disciplinary education, and globalization of electronic packaging.” He is the director of the 3D Systems Packaging Research Center and is the Joseph M. Pettit Chair in Electronics Packaging and Georgia Research Alliance Eminent Scholar.

This award recognizes lifelong contributions to industry, academia, and professional societies in components, packaging, and manufacturing technologies. Dr. Tummala received this honor at the IEEE 61st Electronic Components and Technology Conference, held May 31-June 3, 2011 in Lake Buena Vista, Fla.

Tummala Receives IEEE CPMT Award
Greenlee Wins 2011 National Defense Science and Engineering Graduate Fellowship

Jordan Greenlee won a 2011 National Defense Science and Engineering Graduate Fellowship. Mr. Greenlee is a Ph.D. student in ECE and works in the Advanced Semiconductor Technology Facility.

Advised by W. Alan Doolittle, Mr. Greenlee’s research interests include the fabrication, characterization, and numerical modeling of lithium-based memristors. A memristor is a resistor whose resistance depends on previous input to the device and emulates the synapses in the brain. The development of lithium-based memristors could ultimately usher in a new era of devices that compute similarly to the brain.

Del Giorno Wins Goldwater Scholarship

Allison Del Giorno was one of two Georgia Tech students who won a 2011 Goldwater Scholarship. A sophomore majoring in electrical engineering, with a minor in biomedical engineering, Ms. Del Giorno is studying electrical engineering approaches to the nervous system, specifically investigating the spatio-temporal electrical properties of neurons that control respiration. Once finished with her undergraduate studies, she plans to pursue a doctorate in computational neuroscience to conduct neuroscience research focused on fundamental discoveries for clinical applications.

Two ECE Students Win NSF Graduate Research Fellowships

Jessica Falcone and Sean Sanders were among 33 Georgia Tech students to receive NSF Graduate Research Fellowships in 2011. Ms. Falcone is an M.S.E.C.E. student who has worked on improving technologies for cochlear implants with ECE Assistant Professor Pamela Bhatti, while Mr. Sanders is a senior computer engineering major who has worked on network security and computer architecture projects with ECE Professor Henry Owen.

VIP Program Holds Inaugural Innovation Contest

The Vertically Integrated Projects Program held its first ever VIP Innovation Contest on April 27 at various locations on the Georgia Tech campus. Led by ECE Professor Edward J. Coyle, the VIP Program consists of teams of sophomores through seniors who work with graduate students and faculty on multidisciplinary research and development projects.

The contest consisted of four parallel tracks—service projects and three technical areas: embedded systems, wireless systems, and database systems. Each track had first and second place winners, with a grand prize winner selected from the four track winners. The prize-winning teams and their advisors were:

**Service Track**
- **First Place:** The Medical Devices for Diabetes Team, advised by Mechanical Engineering Regents’ Professor David N. Ku. This team also won the overall grand prize.
- **Second Place:** The Intelligent Tutoring-Android Team, advised by ECE Professor James H. McLellan.

**Embedded Systems Track**
- **First Place:** The Collaborative Workforce Team, advised by Dr. Coyle and ECE Senior Research Engineer Randal Abler.
- **Second Place:** The eStadium SuiteTV Team, advised by Drs. Abler and Coyle.

**Wireless Systems Track**
- **First Place:** The eStadium Wireless Team, advised by Drs. Coyle and Able.
- **Second Place:** The eStadium Web-Apps Team, advised by Drs. Able and Coyle.

**Database Systems Track**
- **First Place:** The eStadium Web-Apps Team, advised by Drs. Able and Coyle.
- **Second Place:** The eCampus Team, advised by College of Computing Research Scientist Russell Clark.

To learn more about these projects and the VIP Program, visit the VIP web site at [http://vip.gatech.edu/](http://vip.gatech.edu/).
Students are ECE’s most important products. Almost 2,400 students were enrolled in our graduate and undergraduate programs during FY 11, making the School’s programs the largest in the U.S. In the last academic year, 669 degrees were awarded to students at the main campus in Atlanta, Georgia Tech-Savannah, Georgia Tech-Lorraine, Georgia Tech-Shanghai Initiative, and to students enrolled in the online master’s/video program.

Undergraduate electrical engineering and computer engineering majors may participate in three different academic initiatives at Georgia Tech—the International Plan, Cooperative Education Plan, and Research Option. Students who successfully complete these programs receive special degree designations on their diplomas or transcripts. In 2010-11, ECE had two graduates of the international plan, one graduate who completed the research option, and 55 co-op graduates.

### Average Entering Freshman Electrical Engineering Student
- High school GPA - 3.89
- SAT verbal score - 637
- SAT math score - 716

### Average Entering Freshman Computer Engineering Student
- High school GPA - 3.89
- SAT verbal score - 639
- SAT math score - 699

### Average Entering ECE Graduate Student
- Undergraduate GPA - 3.69
- GRE analytical writing score - 4.00
- GRE quantitative score - 774
- GRE verbal score - 565

### Enrollment Fall 2010

<table>
<thead>
<tr>
<th>Degree Program</th>
<th>Total</th>
<th>Asian</th>
<th>Black</th>
<th>Hispanic</th>
<th>White</th>
<th>Multi-Racial</th>
<th>American Indian or Alaskan Native</th>
<th>Not Reported</th>
<th>Female</th>
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### Degrees Awarded Summer 2010-Spring 2011

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<th>Degree Program</th>
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### Grand Total
- 2,377

*With home department in ECE.
Seventy-six students graduated with their doctoral degrees in 2010-11 and have moved on to work at the world’s top companies and universities and with start-up companies originating from research at Georgia Tech.

Students are grouped by semesters of graduation; advisors, dissertation titles, and employment status are also listed.

**SUMMER 2010**

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<tr>
<th>Name</th>
<th>Advisor</th>
<th>Dissertation Title</th>
<th>Employment Status</th>
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<tbody>
<tr>
<td>Hyun Woo Choi Chatterjee</td>
<td></td>
<td>Jitter Measurement of High-Speed Digital Signals using Low-Cost Signal Acquisition Hardware and Associated Algorithms</td>
<td>Senior engineer, Samsung Corporation, Atlanta, Ga.</td>
</tr>
<tr>
<td>Kemal Safak Demirci Brand</td>
<td></td>
<td>Chemical Microsystems Based on Integration of Resonant Microsensor and CMOS ASIC</td>
<td>Technical staff member, Texas Instruments, Dallas, Tex.</td>
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<tr>
<td>Chi-Ti Hsieh Citrin</td>
<td></td>
<td>Carrier Transport in Optical-Emitting and Photodetecting Devices Based on Carbon Nanotube Field Effect Transistors</td>
<td>Postdoctoral research fellow, Academia Sinica, Taipei, Taiwan</td>
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<tr>
<td>Aravind Kailas Ingram</td>
<td></td>
<td>Towards Perpetual Wireless Networks: Opportunistic Large Arrays with Transmission Thresholds and Energy Harvesting</td>
<td>Assistant professor, Department of Electrical and Computer Engineering, University of North Carolina at Charlotte, Charlotte, N.C.</td>
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<tr>
<td>Taimoor Saleem Khawaja Vachtsevanos</td>
<td></td>
<td>A Bayesian Ls-SVM Based Framework for Fault Diagnosis and Failure Prognosis</td>
<td>Research engineer, Pratt &amp; Whitney, East Hartford, Conn.</td>
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<tr>
<td>Jungbae Kim Kippelen</td>
<td></td>
<td>Organic-Inorganic Hybrid Thin Film Transistors and Electronic Circuits</td>
<td>Postdoctoral fellow, School of ECE, Georgia Tech, Atlanta, Ga.</td>
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<tr>
<td>Myoungwan Lee Copeland</td>
<td></td>
<td>Quality of Service DiffServ Architecture in Hybrid Mesh/Relay Networks</td>
<td>Senior engineer, Samsung DMC R&amp;D Center, Suwon, Republic of Korea</td>
</tr>
<tr>
<td>Yuan Li Papapolymerou</td>
<td></td>
<td>Development of Micromachined Millimeter Wave Modules for Wireless Communication Systems</td>
<td>Engineer, Mindspeed Technologies, Irvine, Calif.</td>
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<tr>
<td>Johnathan Lucas McKay Ting</td>
<td></td>
<td>Neuromechanical Constraints and Optimality for Balance</td>
<td>Postdoctoral fellow, Emory University, Atlanta, Ga.</td>
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<tr>
<td>Saeed Mohammadi Adibi</td>
<td></td>
<td>Phononic Band Gap Micro/Nano-mechanical Structures for Wireless Communication and Sensing Applications</td>
<td>Postdoctoral fellow, School of ECE, Georgia Tech, Atlanta, Ga.</td>
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<tr>
<td>Tae Joong Song Kim</td>
<td></td>
<td>A Fully Integrated SRAM-based CMOS Arbitrary Waveform Generator for Analog Signal Processing</td>
<td>Senior research engineer, Samsung Electronics, Suwon, South Korea</td>
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<tr>
<td>Erich Peter Stuntebeck Abowd</td>
<td></td>
<td>An Analysis of the Domestic Power Line Infrastructure to Support Indoor Real Time Localization</td>
<td>Head of Research, AirWatch, Atlanta, Ga.</td>
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<tr>
<td>Erick Omar Torres Rincón-Mora</td>
<td></td>
<td>An Electrostatic CMOS/BI/CMOS Li ION Vibration-Based Harvester-Charger IC</td>
<td>IC design engineer, Texas Instruments, Dallas, Tex.</td>
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<td>Juan Felix Torres Moore</td>
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<td>Estimation of Glottal Source Features from the Spectral Envelope of the Acoustic Speech Signal</td>
<td>Faculty member, Polytechnic University of Puerto Rico, San Juan, P.R.</td>
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<td>David Alexander Yeh Laskar</td>
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<td>Multi-Gigabyte Low-Power Wireless CMOS Demodulator</td>
<td>Engineer, Hittite Microwave Corporation, Boston, Mass.</td>
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<td>Tahir Zaidi Ferguson</td>
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<td>Ferromagnetic and Multiferroic Thin Films Aimed Towards Optoelectronic and Spintronic Applications</td>
<td>Associate professor, National University of Sciences and Technology, Rawalpindi, Pakistan</td>
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<td>Pinjia Zhang Habetler</td>
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<td>Active Thermal Protection for Induction Motors Fed by Motor Control Devices</td>
<td>Senior research engineer, GE Global Research, Schenectady, N.Y.</td>
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<tr>
<td>Manzar Abbas Vachtsevanos</td>
<td>Employed with a university in Pakistan.</td>
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<td>Francesco Barale Mukhopadhyay</td>
<td>Design engineer, Silicon Laboratories, Austin, Tex.</td>
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<td>Pierrick Antoine Burgain Feron</td>
<td>Trader, Capital One, Washington, D.C.</td>
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<tr>
<td>Jeong Won Cha Tentzeris</td>
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<td>Peng Cheng Cressler</td>
<td>Advisory engineer, IBM, Burlington, Vt.</td>
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<tr>
<td>Jaehyouk Choi Tentzeris</td>
<td>Not known.</td>
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<tr>
<td>Isaac Perry Clements Bellamkonda</td>
<td>Senior research engineer, Plexon, Inc. Dallas, Tex.</td>
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<tr>
<td>Yao Duan Harley</td>
<td>Electromagnetic design engineer, Vestas, Marlborough, Mass.</td>
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<td>Vincent Alexander Emanuele Zhou</td>
<td>Computer scientist, Centers for Disease Control, Atlanta, Ga.</td>
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<tr>
<td>Musad Al Haque Egerstedt</td>
<td>CFO, Greenhill Resource, Singapore</td>
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<tr>
<td>Michael Benjamin Healy Lim</td>
<td>Postdoctoral researcher, IBM Research, Yorktown Heights, N.Y.</td>
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<td>Yong Huang Dupuis</td>
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<td>Joonhoi Hur Laskar</td>
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<td>Vivek Kaul Yezzi</td>
<td>Software algorithm design engineer, Pay Pal, Inc., San Jose, Calif.</td>
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<td>Sang Min Lee Laskar</td>
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<td>Jun Ma Li</td>
<td>Engineer, Marvell, Santa Clara, Calif.</td>
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<td>Waqas Majeed Keilholz</td>
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<td>Nisarga Niranjan Naik M. Allen</td>
<td>Postdoctoral research fellow, Harvard Medical School, Beth Israel Deaconess Medical Center, Boston, Mass.</td>
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<td>Vishwanath Natarajan Chatterjee</td>
<td>Test R&amp;D engineer, Intel Corporation, Chandler, Ariz.</td>
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<td>Daniel Thomas Owens Kippelen</td>
<td>Electrical engineer, Army Evaluation Center, Aberdeen Proving Ground, Md.</td>
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<td>Zehra Parlak Degertekin</td>
<td>Postdoctoral associate, Duke University, Durham, N.C.</td>
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<td>Jeremy Thomas Reed C.-H. Lee</td>
<td>Research engineer, Sensors and Electromagnetic Applications Laboratory, Georgia Tech Research Institute, Smyrna, Ga.</td>
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<td>Romyell Singh Sandhu Tannenbaum</td>
<td>Postgraduate studies, University of Alabama, Tuscaloosa, Ala.</td>
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<td>Tushar Thrivikraman Cressler</td>
<td>RF microwave engineer, NASA Jet Propulsion Laboratory, Pasadena, Calif.</td>
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<tr>
<td>Fengtao Wang Adibi</td>
<td>Research engineer, School of Electrical and Computer Engineering, Georgia Tech, Atlanta, Ga.</td>
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<tr>
<td>Dong Hyuk Woo H.-S. Lee</td>
<td>Research scientist, Intel Labs, Santa Clara, Calif.</td>
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<td>Sang Hyun Woo Laskar</td>
<td>Low Noise RF CMOS Receiver Integrated Circuits</td>
<td>Senior engineer, Qualcomm, San Diego, Calif.</td>
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<td>Abhiruchi Agarwal</td>
<td>Nanocarrier Mediated Therapies for the Gliomas of the Brain</td>
<td>Bioinformatic analyst, Novaratis Institute of Biomedical Research, Boston, Mass.</td>
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<tr>
<td>Murtaza Askari Adibi</td>
<td>High Efficiency Devices Based on Slow Light in Photonic Crystals</td>
<td>Research technician, Georgia Tech, School of Electrical and Computer Engineering, Atlanta, Ga.</td>
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<td>Michael Ryan Bales D.S. Wills</td>
<td>Illumination Compensation in Video Surveillance Analysis</td>
<td>Temporary professional advisor, Sensors and Electromagnetic Applications Laboratory, Georgia Tech Research Institute, Smyrna, Ga.</td>
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<td>Huseyin Dinc P. Allen</td>
<td>A High-Speed Two-Step Analog-to-Digital with an Open Loop Residue Amplifier</td>
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<td>Marcus Franklin Dutton Keezer</td>
<td>Flexible Architectures and Methods for Graphics Processing</td>
<td>Manager of Electrical Engineering, L-3 Communications, Alpharetta, Ga.</td>
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<td>Supaporn Erjomanee Ji</td>
<td>Study of Network-Service Disruption Using Heterogeneous Data and Statistical Learning</td>
<td>Lecturer, Kasetsart University, Ladaow Chatuchak, Thailand</td>
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<td>Guillermo Gallego Bonet Yezzi</td>
<td>Variational Image Processing Algorithms for the Stereoscopic Space-Time Reconstruction of Water Waves</td>
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<td>Brian Joseph Gestner Anderson</td>
<td>Lattice Reduction for MIMO Detection: From Theoretical Analysis to Hardware Realization</td>
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<td>Jonghoek Kim F. Zhang</td>
<td>Simultaneous Cooperative Exploration and Networking</td>
<td>Senior researcher, Korean Agency for Defense Development, Jinhae, South Korea</td>
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<td>Demijan Klinic McLaughlin</td>
<td>On Applications of Puncturing in Error-Correction Coding</td>
<td>Videoconferencing Engineer, Apple, Inc., Cupertino, Calif.</td>
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<td>Elizabeth Anna Whitaker Lynch</td>
<td>Hardware Acceleration for Conservative Parallel Discrete Event Simulation on Multi-Core Systems</td>
<td>Computer engineer, U.S. Navy, California, Md.</td>
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<td>James Gregory Malcolm Rathi</td>
<td>Filtered Tractography</td>
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<td>Apurva Mohan Blough</td>
<td>Design and Implementation of an Attribute Based Authorization Management System</td>
<td>Research scientist, Honeywell Research Labs, Golden Valley, Minn.</td>
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<tr>
<td>William John Potscavage Kippelen</td>
<td>Physics and Engineering of Organic Solar Cells</td>
<td>Postdoctoral fellow, Chihaya Adachi Group, OPERA, Kyushu University, Fukuoka City, Japan</td>
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<tr>
<td>Amin Hassan Rida Tentzeris</td>
<td>Integrated RF Modules and Passives on Low-Cost Flexible Materials for Applications up to the MM-Wave Frequency Range</td>
<td>Systems engineer, Northrop-Grumman, Atlanta, Ga.</td>
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<tr>
<td>Nithya Sankaran Tummala</td>
<td>Electromagnetic Coupling in Multilayer Thin-Film Organic Packages with Chip-Last Embedded Actives</td>
<td>Package technical lead, NVIDIA Corporation, Santa Clara, Calif.</td>
<td></td>
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<tr>
<td>Negar Tavassolian Papapolymerou</td>
<td>Dielectric Charging in Capacitive RF MEMS Switches with Silicon Nitride and Silicon Dioxide</td>
<td>Postdoctoral fellow, School of ECE, Georgia Tech, Atlanta, Ga.</td>
<td></td>
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<tr>
<td>Yasser A. Zaghoul Adibi</td>
<td>Polarization Based Digital Optical Representation, Gates, and Processor</td>
<td>Not employed</td>
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Student Groups and Organizations

ECE student organizations work closely with the School’s faculty and administration on many different issues ranging from everyday student concerns to K-12 outreach to service to society as a whole. While these groups hosted many of their own professional development and social activities, they also united for several school-wide events, including Donut Fridays, cookouts, and a holiday party for the entire ECE community.

Eta Kappa Nu

Eta Kappa Nu is the honor society for electrical and computer engineers. Led by Aakash Degwekar, Sean McGee, and Viki Sherman during 2010-11, HKN hosted both academic and community service-oriented activities. The group held its regular Bridge to Business meetings and hosted information sessions about applying to graduate school in engineering and M.B.A. programs, applying for fellowships, and learning about the Ph.D. preliminary exam.

For the sixth year in a row, the Beta Mu chapter of Eta Kappa Nu was named as a recipient of the Outstanding Chapter Award. A significant mark of distinction, this award recognizes a chapter’s service to their fellow students, their department, their university, and the surrounding community during 2009-10 (see related article, page 2).

HKN also continued with its highly successful “chip project,” where members packaged and sold lab supplies at discounted prices, saving students over $25,000, while putting earnings into the chip project scholarship fund. The scholarship recipient for 2010-11 was Ackshaey Singh, who was awarded $1,000, credited to his tuition. Mr. Singh plans to graduate in fall 2012 and then pursue a master’s degree in ECE.

The group hosted the annual ECE Spring Picnic, where the 2011 Richard M. Bass/Eta Kappa Nu Outstanding Teacher Award and the 2011 W. Marshall Leach, Jr./Eta Kappa Nu Outstanding Teacher Award were presented to ECE Associate Professor W. Alan Doolittle and ECE Professor James H. McClellan. HKN volunteers tutored high school students who attend GIVE Center West in Gwinnett County, participated in Tech Beautification and Team Buzz community service events, and volunteered at the MedShare Center, where they assembled boxes of medical equipment that was then donated to low-income countries.

Below: HKN members have a “chip party” to package lab supplies to be sold to students at discounted prices.

Women in Electrical and Computer Engineering

Women in Electrical and Computer Engineering aims to increase awareness of opportunities for women in ECE and to help women reach their full potential as engineers and leaders. Jenny Liu served as the organization’s president during 2010-11.

In the last year, WECE hosted K-12 outreach activities and also took part in similar activities sponsored by other organizations at Georgia Tech. They hosted lab tours for Norcross, Berkmar, and B.E.S.T. Academy High School students and co-sponsored the State of Georgia FIRST LEGO League Tournament (see related story on page 15). They also participated in the Women in Engineering Career Conference for high school girls and Kids @ Kollege, an annual event for metro area elementary school-aged children. The group gave time to the community by working on service projects through Team Buzz and with MedShare International.

WECE also organized academic development workshops specific to the School, such as the ECE Survival Guide and programs focused on co-op and research opportunities, as well as on the class registration process and study and work abroad options. WECE also hosted networking and information sessions with ConocoPhillips, Alcatel-Lucent, Epic Systems, T-Mobile, Harris Corporation, and Cisco, and they organized professional development workshops focused on the job interview process and stress management.

WECE also made time for fun and socializing. The group held its annual Halloween party, movie and bowling night, a luncheon for transfer students, and pool party—which attract a wide cross-section of faculty, staff, and undergraduate and graduate students—along with a barbecue for freshmen and a luncheon for transfer students.
Georgia Tech Excels in Final Year of EcoCAR Challenge

A Georgia Tech team of students and faculty representing ECE, mechanical engineering, and chemical and biomolecular engineering placed seventh out of the 16 competing universities in the third and final year of the EcoCAR Challenge. Georgia Tech also placed fourth in lifecycle greenhouse gas emission reductions, fifth in lifecycle petroleum use reduction, and won the Best Vehicle Appearance award.

Sixteen universities across North America took part in this competition and were challenged to design, re-engineer, and then test a sports utility vehicle in order to minimize fuel consumption and greenhouse gas emissions while maintaining vehicle performance and consumer appeal. The competition was held June 5-16, 2011 at General Motors’ Milford, Mich., proving grounds and at locations throughout Washington, D.C.

The Georgia Tech team entered a hybrid electric vehicle with a power-split architecture featuring a biofuel powered 1.6L engine, GM’s 2-Mode hybrid transmission, and a lithium-ion battery pack provided by A123 Systems. Georgia Tech placed first out of the six universities that chose to use this prototype power split architecture.

Students were given carte blanche to design and build their unique advanced propulsion solutions in order to meet the array of vehicle performance targets set by the competition. Teams explored a wide variety of technologies and strategies that helped their vehicles achieve these goals, such as hybrid electric, plug-in electric, range-extended electric and fuel cell electric architectures, along with a combination of gasoline, ethanol, biodiesel, electricity, and hydrogen fuels and energy carriers. They were also directed to follow the real-world approach modeled after GM’s global vehicle development process, providing students with hands-on engineering experience.

The Georgia Tech team included over 60 students with team leaders Carlos A. Cubero-Ponce and Ryan Melsert, both of ECE, and faculty advisors including Tom Fuller (Chemical and Biomolecular Engineering), Michael Leamy (Mechanical Engineering), and David Taylor (ECE).

IEEE Student Branch

IEEE is the world’s leading professional association for the advancement of technology. Chaired by Rob Rhinehart in 2010-11, the Georgia Tech branch of IEEE provides students with ways to enhance their technical skills and professional development, as well as to build a sense of community among its members and all ECE students. The group has over 800 members, making it the largest student branch in the nation. Multiple Outstanding Student Branch of the Year and Exemplary Student Branch awards have also been awarded to this organization.

Throughout the year, IEEE connected students with faculty and industry professionals by coordinating faculty seminars and corporate presentations. The group held its annual Student-Professional Awareness Conference on March 8, and attended the Region 3 IEEE SoutheastCon in Nashville, Tenn.

Left: 2010-11 IEEE Officers.
Five ECE graduate students earned awards at the Georgia Tech Research and Innovation Conference, held at the Georgia Tech Student Center on February 8. Over 400 graduate students were involved with research presentations at this event. This display of excellence in a diverse range of applications showcases the high quality of the breadth and depth of work done in ECE.

**Greg Drayer:** GTRIC 2011 Fellowship Award, “Design and Simulation of a Reconfigurable Aquatic Habitat for Experiments in Life Support Control.” (Ph.D. advisor: Ayanna Howard)

**Jayant Ratti:** GTRIC 2011 Best Designed Poster Award, “Morphing Micro Aerial Robot with Quad Hybrid Energy-Efficient Mechatronics.” (Ph.D. advisor: George Vachtsevanos)

ECE faculty members are internationally recognized leaders in 11 areas of research and education—bioengineering, computer systems and software, digital signal processing, electrical energy, electromagnetics, electronic design and applications, microsystems, optics and photonics, systems and controls, telecommunications, and VLSI systems and digital design—and the School is either home to or a key player in more than 20 research centers and consortia. Effective July 1, 2010, the computer engineering technical interest group split into two different groups—computer systems and software and VLSI systems and digital design.

One hundred thirteen faculty members were employed during 2010-11, with 84 percent holding tenure and all holding doctorates. In the last year, ECE added one new faculty member to its ranks, and seven faculty members were promoted and/or tenured. Statistics detailing academic rank and diversity are provided, in addition to a list of faculty members employed during the last fiscal year.

**ACADEMIC FACULTY**

**REGENTS’ PROFESSORS**

**Mark G. Allen**
Executive Director, Institute for Electronics and Nanotechnology; Co-Director, Center for MEMS and Microsystems Technologies; Joseph M. Pettit Professor in Microelectronics; Acting Director, Georgia Electronic Design Center
Ph.D., Massachusetts Institute of Technology
Microelectronics/microsystems; bioengineering
2011 IEEE Fellow “for contributions to micro and nanofabrication technologies for microelectromechanical systems.”

**Thomas K. Gaylord**
Julius Brown Chair Professor
Ph.D., Rice University
Optics and photonics; electromagnetics; microelectronics/microsystems
2011 SPIE Fellow “for achievements in diffractive and polarization optics.”

**Ronald G. Harley**
Duke Power Company Distinguished Professor
Ph.D., London University
Electrical energy

**Ajeet Rohatgi**
Georgia Power Distinguished Professor; Director of the University Center of Excellence for Photovoltaics Research and Education
Ph.D., Lehigh University
Electrical energy; microelectronics/microsystems

**Glenn S. Smith**
John Pippin Chair in Electromagnetics
Ph.D., Harvard University
Electromagnetics

**PROFESSORS**

**Ali Adibi**
Director, Advanced Processing-tools for Electromagnetic/Acoustic Xtals
Ph.D., California Institute of Technology
Optics and photonics; electromagnetics; microelectronics/microsystems
2011 SPIE Fellow “for achievements in integrated nanophotonics and volume holography.”

**Ian F. Akyildiz**
Byers Professor in Telecommunications
Ph.D., University of Erlangen
Telecommunications
2011 W. Wallace McDowell Award, given by the IEEE Computer Society “for pioneering contributions to wireless sensor network architectures and communication protocols.”

**Yucel Altunbasak**
Ph.D., University of Rochester
Digital signal processing

**Farrokh Ayazi**
Co-Director, Center for MEMS and Microsystems Technologies; Director, Georgia Tech Analog Consortium
Ph.D., University of Michigan at Ann Arbor
Electronic design and applications; microelectronics/microsystems

**John R. Barry**
Ph.D., University of California at Berkeley
Telecommunications

**Miroslav M. Begovic**
Ph.D., Virginia Polytechnic Institute and State University
Electrical energy

**Douglas M. Blough**
Co-Director, Center for Experimental Research in Computer Systems
Ph.D., The Johns Hopkins University
Computer systems and software

**Oliver Brand**
Co-Director, Center for MEMS and Microsystems Technologies
Ph.D., ETH-Zurich
Bioengineering; microelectronics/microsystems
2011 ECE Distinguished Mentor Award

**John A. Buck**
Ph.D., University of California at Berkeley
Electromagnetics; optics and photonics

**Robert J. Butera, Jr.**
Faculty Director, Georgia Tech Office of Graduate Studies
Ph.D., Rice University
Bioengineering; computer systems and software
Gee-Kung Chang
Byers Endowed Professor in Optical Networking and GRA Eminent Scholar
Ph.D., University of California at Riverside
Optics and photonics; telecommunications

Abhijit Chatterjee
Ph.D., University of Illinois at Urbana-Champaign
VLSI systems and digital design; computer systems and software

David S. Citrin
Ph.D., University of Illinois at Urbana-Champaign
Optics and photonics

Mark A. Clements
Joseph M. Pettit Professor in Digital Signal Processing; Director, Interactive Media Technology Center
Sc.D., Massachusetts Institute of Technology
Bioengineering; digital signal processing
2011 ECE Distinguished Faculty Achievement Award

Edward J. Coyle
Arbutus Chair for the Integration of Research and Education; GRA Eminent Scholar; and Director, Arbutus Center for the Integration of Research and Education
Ph.D., University of Delaware
Digital signal processing

John D. Cressler
Byers Professor
Ph.D., Columbia University
Electronic design and applications; microelectronics/microsystems
2011 IEEE Leon K. Kirchmayer Graduate Teaching Award

Deepak Divan
Director, Intelligent Power Infrastructure Consortium
Ph.D., University of Calgary
Electrical energy

Russell D. Dupuis
Steve W. Chaddick Endowed Chair in Electro-Optics; GRA Eminent Scholar; and Director, Center for Compound Semiconductors
Ph.D., University of Illinois at Urbana-Champaign
Microelectronics/microsystems; optics and photonics

Magnus Egerstedt
Ph.D., Royal Institute of Technology, Stockholm, Sweden
Systems and controls; computer systems and software

Faramarz Fekri
Ph.D., Georgia Institute of Technology
Digital signal processing; telecommunications

Bonnie Heck Ferri
Associate Chair for ECE Graduate Affairs; Director, Teaching Enhancement via Small-Scale Affordable Labs Center
Ph.D., Georgia Institute of Technology
Systems and controls; computer systems and software

A. Bruno Frazier
Co-Director, Center for MEMS and Microsystems Technologies
Ph.D., Georgia Institute of Technology
Bioengineering; microelectronics/microsystems

Thomas G. Habetler
Ph.D., University of Wisconsin at Madison
Electrical energy

James O. Hambien
Ph.D., Georgia Institute of Technology
Computer systems and software

Joseph L.A. Hughes
Senior Associate Chair
Ph.D., Stanford University
VLSI systems and digital design; microelectronics/microsystems; telecommunications; computer systems and software

William D. Hunt
Ph.D., University of Illinois at Urbana-Champaign
Bioengineering; microelectronics/microsystems; electromagnetics

Mary Ann Ingram
ADVANCE Professor of Engineering
Ph.D., Georgia Institute of Technology
Telecommunications

Nikil S. Jayant
Executive Director, Georgia Centers for Advanced Telecommunications Technology; Director, Georgia Tech Broadband Institute; John Pippin Chair in Wireless Systems; and GRA Eminent Scholar
Ph.D., Indian Institute of Science, Bangalore
Telecommunications

Biing-Hwang (Fred) Juang
Motorola Foundation Chair Professor and GRA Eminent Scholar
Ph.D., University of California at Santa Barbara
Digital signal processing; telecommunications

David C. Keezer
Ph.D., Carnegie-Mellon University
VLSI systems and digital design; microelectronics/microsystems

Bernard Kippelen
Director, Center for Organic Photonics and Electronics; Associate Director, Materials and Devices for the Information Technology Research Center
Ph.D., Université Louis Pasteur
Microelectronics/microsystems; optics and photonics

W. Marshall Leach, Jr. (died November 20, 2010)
Ph.D., Georgia Institute of Technology
Electromagnetics; electronic design and applications; microsystems

Chin-Hui Lee
Ph.D., University of Washington
Digital signal processing

Ye (Geoffrey) Li
Ph.D., Auburn University
Telecommunications

Vijay K. Madisetti
Ph.D., University of California at Berkeley
Digital signal processing

Gary S. May (appointed as Dean of the Georgia Tech College of Engineering, effective July 1, 2011)
Steve W. Chaddick School Chair
Ph.D., University of California at Berkeley
Microelectronics/microsystems; systems and controls
2011 Father of the Year Award, given by the Father’s Day Council of Atlanta and the American Diabetes Association.

James H. McClellan
John and Marlu McCarty Chair of Electrical Engineering; Director, Center for Signal and Image Processing
Ph.D., Rice University
Digital signal processing
2011 W. Marshall Leach/Eta Kappa Nu Outstanding Teacher Award

Steven W. McLaughlin
Vice Provost for International Initiatives; Byers Professor
Ph.D., University of Michigan at Ann Arbor
Telecommunications

Gary S. May (appointed as Dean of the Georgia Tech College of Engineering, effective July 1, 2011)
Steve W. Chaddick School Chair
Ph.D., University of California at Berkeley
Microelectronics/microsystems; systems and controls
2011 Father of the Year Award, given by the Father’s Day Council of Atlanta and the American Diabetes Association.

James H. McClellan
John and Marlu McCarty Chair of Electrical Engineering; Director, Center for Signal and Image Processing
Ph.D., Rice University
Digital signal processing
2011 W. Marshall Leach/Eta Kappa Nu Outstanding Teacher Award

Joseph M. Pettit Chair in Microelectronics; Director, Microelectronics Research Center; and Founding Director, Nanotechnology Research Center
Ph.D., Carnegie-Mellon University
Microelectronics/microsystems

A.P. Sakis Meliopoulos
Georgia Power Distinguished Professor
Ph.D., Georgia Institute of Technology
Electrical energy; systems and controls
2010 International George Montefiore Award “for fundamental contributions to smart grids or smart electricity networks.”

Henry L. Owen
Ph.D., Georgia Institute of Technology
Computer systems and software; telecommunications

Ioannis (John) Papapolymerou
Associate Director, Georgia Electronic Design Center
Ph.D., University of Michigan at Ann Arbor
Electromagnetics; electronic design and applications
2011 IEEE Fellow “for contributions to flexible, microwave, and wireless components and systems.”

Andrew F. Peterson
Associate Chair for ECE Faculty Development
Ph.D., University of Illinois at Urbana-Champaign
Electromagnetics

Stephen E. Ralph
Director, Georgia Electronic Design Center
Ph.D., Cornell University
Electromagnetics; microelectronics/microsystems; optics and photonics

Waymond R. Scott, Jr.
Ph.D., Georgia Institute of Technology
Electromagnetics

Jeff S. Shamma
Julian T. Hightower Chair in Systems and Controls
Ph.D., Massachusetts Institute of Technology
Systems and controls

Raghuopathy Sivakumar
Ph.D., University of Illinois at Urbana-Champaign
Telecommunications; computer systems and software

Paul G. Steffes
Associate Chair for ECE Research
Ph.D., Stanford University
Electromagnetics; telecommunications

Gordon L. Stüber
Joseph M. Pettit Professor in Communications
Ph.D., University of Waterloo
Telecommunications

Madhavan Swaminathan
Joseph M. Pettit Professor in Electronics; Director, Interconnect and Packaging Center
Ph.D., Syracuse University
Electromagnetics

Allen Tannenbaum (resigned July 1, 2011)
Julian Hightower Professor
Ph.D., Harvard University
Bioengineering; systems and controls

Emmanouil M. Tentzeris
Ph.D., University of Michigan at Ann Arbor
Electromagnetics; electronic design and applications
IEEE Electronic Components and Technology Conference Best of Session Award for his paper, “Inkjet-Printed System-on-Paper/Polymer ‘Green’ RFID and Wireless Sensors.”

David G. Taylor
Ph.D., University of Illinois at Urbana-Champaign
Systems and controls

Rao R. Tummala
Director, Microsystems Packaging Research Center; Joseph M. Pettit Chair in Electronics Packaging; GRA Eminent Scholar
Ph.D., University of Illinois at Urbana-Champaign
Microelectronics/microsystems
2011 IEEE Components, Packaging, and Manufacturing Technology Award “for pioneering and innovative contributions to package integration research, cross-disciplinary education, and globalization of electronic packaging;” 2011 Techn Visionary Award, given by the India Semiconductor Association.

Erik I. Verriest
Ph.D., Stanford University
Systems and controls; bioengineering

Yorai Y. Wardi
Ph.D., University of California at Berkeley
Systems and controls; telecommunications

Douglas B. Williams (appointed Interim Chair for the School of Electrical and Computer Engineering, effective July 1, 2011)
Associate Chair for ECE Undergraduate Affairs; Co-Director, Teaching Enhancement via Small-Scale Affordable Labs Center
Ph.D., Rice University
Digital signal processing

D. Scott Wills
Sc.D., Massachusetts Institute of Technology
Computer systems and software; VLSI systems and digital design

Marilyn C. Wolf
Rheta “Ray” S. Farmer, Jr. Distinguished Chair in Embedded Computing Systems and GRA Eminent Scholar
Ph.D., Stanford University
VLSI systems and digital design; digital signal processing

Sudhakar Yalamanchili
Co-Director, Center for Experimental Research in Computer Systems
Ph.D., University of Texas at Austin
Computer systems and software; VLSI systems and digital design

Anthony J. Yezzi, Jr.
Ph.D., University of Minnesota
Bioengineering; systems and controls

G. Tong Zhou
Director, Georgia Tech Shanghai Initiative
Ph.D., University of Virginia
Bioengineering; digital signal processing

ASSOCIATE PROFESSORS

David V. Anderson
Ph.D., Georgia Institute of Technology
Computer systems and software; digital signal processing; electronic design and applications

Muhammad Bakir
Associate Director, Interconnect and Packaging Center
Ph.D., Georgia Institute of Technology
Microelectronics/microsystems

2011 IEEE Components, Packaging, and Manufacturing Technology Society Outstanding Young Engineer Award.

Jeffrey A. Davis
Ph.D., Georgia Institute of Technology
VLSI systems and digital design; microelectronics/microsystems

W. Alan Doolittle
Ph.D., Georgia Institute of Technology
Microelectronics/microsystems
2011 Richard M. Bass/Eta Kappa Nu Outstanding Teacher Award

Gregory D. Durgin
Ph.D., Virginia Polytechnic Institute and State University
Electromagnetics

Santiago Grijalva
Ph.D., University of Illinois at Urbana-Champaign
Electrical energy; computer systems and software

Paul E. Hasler
Ph.D., California Institute of Technology
Electronic design and applications; telecommunications
2011 Georgia Tech Outstanding Doctoral Thesis Advisor Award.

Ayanna Howard
Ph.D., University of Southern California
Systems and controls

Chuan-yi Ji
Ph.D., California Institute of Technology
Telecommunications

J. Stevenson Kenney
Ph.D., Georgia Institute of Technology
Electronic design and applications; telecommunications; electromagnetics

Arthur Koblasz
Ph.D., California Institute of Technology
Bioengineering

Kevin T. Kornegay
Motorola Foundation Professor
Ph.D., University of California at Berkeley
Electronic design and applications; microelectronics/microsystems

Aaron D. Lanterman
Ph.D., Washington University in St. Louis
Digital signal processing; computer systems and software

Hsien-Hsin Sean Lee
Ph.D., University of Michigan at Ann Arbor
Computer systems and software
Sung Kyu Lim  
Ph.D., University of California at Los Angeles  
VLSI systems and digital design

Xiaoli Ma  
Ph.D., University of Minnesota  
Digital signal processing

Jennifer E. Michaels (appointed Interim Associate Chair for ECE Undergraduate Affairs, effective July 1, 2011)  
Co-Director, Teaching Enhancement via Small-Scale Affordable Labs Center  
Ph.D., Cornell University  
Digital signal processing; systems and controls

Linda S. Milor  
Ph.D., University of California at Berkeley  
Electronic design and applications

Vincent J. Mooney, III  
Ph.D., Stanford University  
VLSI systems and digital design

George F. Riley  
Ph.D., Georgia Institute of Technology  
Computer systems and software

Gabriel Rincón-Mora  
Ph.D., Georgia Institute of Technology  
Electrical energy; electronic design and applications  
2011 IEEE Fellow “for contributions to energy and power integrated circuit design.”

David E. Schimmel  
Ph.D., Cornell University  
VLSI systems and digital design; computer systems and software

Linda M. Wills  
Ph.D., Massachusetts Institute of Technology  
Computer systems and software; VLSI systems and digital design

ASSISTANT PROFESSORS

Pamela T. Bhatti  
Ph.D., University of Michigan at Ann Arbor  
Bioengineering; microelectronics/microsystems  
NSF CAREER Award for her project, “An Ultra-Low-Power MEMS-Based Implantable Biosystem for Restoring Vestibular Function—Platform for an Integrated Human-Centered Hybrid Biosystem;”  
2011 Atlanta Clinical & Translational Science Institute KL2 Mentored Clinical and Translational Research Scholar.

Maysam Ghovanloo  
ON Semiconductor Junior Professor  
Ph.D., University of Michigan at Ann Arbor  
Bioengineering; electronic design and applications  
“Leo” People’s Choice Award, given at the 2010 da Vinci Awards, for his team’s development of the Tongue Drive System.

Saibal Mukhopadhyay  
Ph.D., Purdue University  
VLSI systems and digital design; microelectronics/microsystems; electronic design and applications  
NSF CAREER Award for his project, “3D Heterogeneous Integration for Power Reduction in Embedded Systems: Application to Wireless Image Sensing and Transport.”  
2010 IBM Faculty Award for his project, “Tactual and Power Analysis and On-line Management in 3D Systems.”

Azad Naemi  
Ph.D., Georgia Institute of Technology  
Microelectronics/microsystems

Justin K. Romberg  
Ph.D., Rice University  
Digital signal processing

Christopher J. Rozell  
Ph.D., Rice University  
Bioengineering; digital signal processing  

Shyh-Chiang Shen  
Ph.D., University of Illinois at Urbana-Champaign  
Microelectronics/microsystems  
2011 ECE Outstanding Junior Faculty Member Award

Patricio Vela  
Goizueta Foundation Junior Faculty Rotating Professorship  
Ph.D., California Institute of Technology  
Systems and controls

PROFESSOR OF THE PRACTICE

Thomas E. Michaels  
Ph.D., Washington State University  
Electromagnetics; systems and controls

GEORGIA TECH SAVANNAH FACULTY

PROFESSOR

Monson H. Hayes, III (retired February 28, 2011)  
Associate Chair for ECE Programs at Georgia Tech-Savannah  
Sc.D., Massachusetts Institute of Technology  
Digital signal processing

ASSOCIATE PROFESSORS

Ghassan Al-Regib  
Ph.D., Georgia Institute of Technology  
Digital signal processing; telecommunications

Christopher F. Barnes  
Ph.D., Brigham Young University  
Digital signal processing

Benjamin D.B. Klein  
Ph.D., University of Illinois at Urbana-Champaign  
Optics and photonics; microelectronics/microsystems

Elliot Moore, III  
Ph.D., Georgia Institute of Technology  
Digital signal processing  
2011 ECE Outreach Award

P. Douglas Yoder  
Ph.D., University of Illinois at Urbana-Champaign  
Microelectronics/microsystems

ASSISTANT PROFESSORS

Bo Hong  
Ph.D., University of Southern California  
Computer systems and software

Jongman Kim  
Ph.D., Pennsylvania State University  
Computer systems and software

Hongwei Wu  
Ph.D., University of Southern California  
Bioengineering; digital signal processing

Fumin Zhang  
Ph.D., University of Maryland at College Park  
Systems and controls  
2011 ECE Outstanding Junior Faculty Member Award; 2011 Martin Klein MATE Award, given at the 10th MATE International Remotely Operated Vehicle Competition.

Ying Zhang  
Ph.D., University of California at Berkeley  
Digital signal processing; systems and controls; microelectronics/microsystems

GEORGIA TECH LORRAINE FACULTY

PROFESSOR

Abdallah Ougazzaden  
Director, International Research Unit on Telecommunications and Innovative Materials Research  
Ph.D., University of Paris VII  
Microelectronics/microsystems; optics and photonics

ASSISTANT PROFESSORS

Matthieu Bloch  
Ph.D., Georgia Institute of Technology  
Telecommunications  

Paul L. Voss  
Demetrius T. Paris Professor  
Ph.D., Northwestern University  
Optics and photonics
In Memoriam: W. Marshall Leach, Jr.

Georgia Tech and ECE lost a very dear friend and colleague when Professor W. Marshall Leach, Jr. died on November 20, 2010 after suffering from a heart attack. He was 70 years old.

Dr. Leach first arrived at Georgia Tech in 1968 when he enrolled as a Ph.D. student in the School of Electrical Engineering, after serving for three years in the Air Force. After graduation, he joined the School’s faculty in 1972, beginning a 38-year-long career as a beloved and respected teacher of electromagnetics, microsystems, and electronic design and applications.

A four-time recipient of the Richard M. Bass/Eta Kappa Nu Outstanding Teacher Award—an honor determined by a majority vote of the ECE senior class, Dr. Leach was chosen for this award in 1975, 1982, 2002, and 2007. No other faculty member has matched or surpassed that feat.

Dr. Leach’s popularity as a teacher, his open door policy with students, and his years as faculty advisor for IEEE, WREK-FM, and the Institute Radio Communication Board have left indelible impressions on thousands of students. Alumni and audiophiles from around the world have shared stories about his classes, his influence and friendship, and his web pages for construction plans for “Leach amplifiers and loudspeakers,” that are still being used 20 to 30 years after they were built.

Through his untiring efforts both inside and outside of the classroom, Dr. Leach has influenced several generations of Georgia Tech electrical engineers and computer engineers, in addition to untold others from around the world. His legacy will live on through his work, his students, and everyone that he touched.
During 2010-11, both active and retired ECE faculty members offered 31 professional education courses and two conferences through the Georgia Tech Professional Education Office. Below is a listing of dates, titles, and ECE-based instructors. Two ECE-sponsored conferences and seven online courses are included in this list.

### 2010

<table>
<thead>
<tr>
<th>Date</th>
<th>Instructor(s)</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 14-17, 2010</td>
<td>Christopher F. Barnes</td>
<td>Synthetic Aperture Radar Image Formation Processing</td>
</tr>
<tr>
<td>June 14-18, 2010</td>
<td>Edward B. Joy</td>
<td>Near-Field Antenna Measurement Techniques</td>
</tr>
<tr>
<td>August 2-September 17, 2010</td>
<td>Ghassan AlRegib</td>
<td>Image Processing Using TI DM6437 (Online)</td>
</tr>
<tr>
<td>August 17-November 15, 2010</td>
<td>W. Russell Callen, Jr.</td>
<td>Electrical Engineering: Preparation for the PE Exam, Power Option</td>
</tr>
<tr>
<td>August 18-November 13, 2010</td>
<td>W. Russell Callen, Jr.</td>
<td>Fundamentals of Engineering (Online)</td>
</tr>
<tr>
<td>September 1-October 20, 2010</td>
<td>W. Russell Callen, Jr.</td>
<td>Fundamentals of Engineering</td>
</tr>
<tr>
<td>September 20-24, 2010</td>
<td>Edward B. Joy</td>
<td>Antenna Engineering</td>
</tr>
<tr>
<td>September 22-24, 2010</td>
<td>A.P. Sakis Meliopoulos</td>
<td>Power Distribution System Grounding and Transients</td>
</tr>
<tr>
<td>October 4-8, 2010</td>
<td>Mark A. Richards</td>
<td>Fundamentals of Radar Signal Processing</td>
</tr>
<tr>
<td>October 4-November 19, 2010</td>
<td>Ghassan AlRegib</td>
<td>Video Processing Using TI DM6437 (Online)</td>
</tr>
<tr>
<td>October 11, 2010-January 25, 2011</td>
<td>Douglas B. Williams</td>
<td>DSP for Practicing Engineers Using the TI C6713 DSP Starter Kit (Online)</td>
</tr>
<tr>
<td>October 25-29, 2010</td>
<td>Mark A. Richards</td>
<td>Fundamentals of Synthetic Aperture Radar</td>
</tr>
<tr>
<td>November 8-10, 2010</td>
<td>Mark A. Richards</td>
<td>Signal Processing Refresher</td>
</tr>
<tr>
<td>November 15-19, 2010</td>
<td>Edward B. Joy</td>
<td>Far-Field, Anechoic Chamber, Compact, and Near-Field Antenna Measurement Techniques</td>
</tr>
<tr>
<td>November 17-19, 2010</td>
<td>A.P. Sakis Meliopoulos</td>
<td>Modern Energy Management Systems</td>
</tr>
</tbody>
</table>

### 2011

<table>
<thead>
<tr>
<th>Date</th>
<th>Instructor(s)</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 21-April 30, 2011</td>
<td>W. Russell Callen, Jr.</td>
<td>Electrical Engineering: Preparation for the PE Exam, Power Option (Online)</td>
</tr>
<tr>
<td>January 21-April 30, 2011</td>
<td>W. Russell Callen, Jr.</td>
<td>Fundamentals of Engineering (Online)</td>
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<tr>
<td>February 5-March 19, 2011</td>
<td>W. Russell Callen, Jr.</td>
<td>Electrical Engineering: Preparation for the PE Exam, Power Option</td>
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<td>February 7-11, 2011</td>
<td>Mark A. Richards</td>
<td>Fundamentals of Radar Signal Processing</td>
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<tr>
<td>March 7-May 28, 2011</td>
<td>Douglas B. Williams</td>
<td>DSP for Practicing Engineers Using the TI C6713 DSP Starter Kit (Online)</td>
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<td>April 4-7, 2011</td>
<td>Mark A. Richards</td>
<td>Fundamentals of Radar Signal Processing</td>
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<td>April 18-20, 2011</td>
<td>Mark A. Richards</td>
<td>Signal Processing Refresher</td>
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<td>May 2-6, 2011</td>
<td>Edward B. Joy</td>
<td>Antenna Engineering</td>
</tr>
<tr>
<td>May 9-11, 2011</td>
<td>A.P. Sakis Meliopoulos</td>
<td>2011 Fault and Disturbance Analysis Conference</td>
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<td>May 11-13, 2011</td>
<td>A.P. Sakis Meliopoulos</td>
<td>2011 Annual Protective Relaying Conference</td>
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<tr>
<td>May 23-25, 2011</td>
<td>A.P. Sakis Meliopoulos</td>
<td>Grounding, EMI, and Power Quality</td>
</tr>
<tr>
<td>June 13-17, 2011</td>
<td>Edward B. Joy</td>
<td>Near-Field Antenna Measurement Techniques</td>
</tr>
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</table>
ECE has a long and successful history of start-up company activity through the Advanced Technology Development Center, a nationally recognized science and technology incubator that helps Georgia entrepreneurs launch and build successful businesses. Seven ATDC “graduate companies” have originated out of ECE, while five are currently members of the incubator. Most of these companies are headquartered in Georgia, thus contributing to the state’s economic growth in areas like bioengineering, energy, and digital media.

ATDC ECE Graduate Companies
ASPI Digital (acquired by Polycom, 2001)
Co-Founders: Thomas P. Barnwell, Russell M. Mersereau, and Ronald W. Schaler
CardioMEMS
Co-Founder and CTO: Mark G. Allen
EGT
CSO: Nikil Jayant
Innovolt*
Chair, CTO, and Co-Founder: Deepak Divan
Lancope
Founder: John A. Copeland
Nexidia
Co-Founder and Board Member: Mark A. Clements
Suniva*
Founder and CTO: Ajeet Rohatgi

ATDC ECE Start-Up Companies
Asankya Networks*
Co-Founder and CTO: Raghupathy Sivakumar
Axion Biosystems*
Board of Directors: Mark G. Allen
GTronix*
Co-Founder, CSO, and Board Member: Paul E. Hauser
Qualtré*
Co-Founder and CTO: Farrokh Ayazi
VQLink*
Co-Founder and Interim CEO: Nikil Jayant
* Companies are also graduates of VentureLab, an initiative of ATDC.

CardioMEMS Leads the Way in Biomedical Innovations, Venture Capital Financing
CardioMEMS, Inc., an Atlanta-based medical technology company that has developed and is commercializing proprietary wireless sensing and communication technology for the human body, announced that its first quarter venture financing ranked first in Georgia by dollar amount raised in 2010. The Georgia Top 25 Venture Capital Deals listing was compiled by PricewaterhouseCoopers, LLP and published recently in the Atlanta Business Chronicle.

The $37.9 million venture capital transaction, with lead investor Arcapita Ventures and eight co-investors provided CardioMEMS with additional funding to complete its CHAMPION clinical trial. The 550-patient trial, conducted in 64 prominent U.S. heart centers, evaluated the safety and effectiveness of the CardioMEMS heart failure pressure measurement system. The positive results of the CHAMPION trial were published in the February 2011 issue of The Lancet, one of the world’s leading medical journals.

In addition, CardioMEMS was named a top 10 Innovative Technology Company by the Technology Association of Georgia. The company also earned a Georgia Bio Deal of the Year Award for the $60 million equity investment that it secured from St. Jude Medical in September 2010, shortly after the successful completion of the CHAMPION trial. CardioMEMS was co-founded by ECE Regents’ Professor Mark G. Allen, who also serves as the company’s CTO.

Axion Biosystems’ Multi-electrode Arrays Have a Myriad of Uses
Axion Biosystems has developed the next generation of microelectrode array technology that can simultaneously stimulate and record responses from living cells. This capability has applications in the research, clinical, and drug discovery markets. Based on technology developed at Georgia Tech, Axion has received more than $6 million in funding from the Georgia Research Alliance, VentureLab, the federal government, and private investors. While the company’s initial focus is on pharmaceutical drug screening, ongoing development will result in devices in the medical diagnostic and medical device arenas.

In June 2011, Axion announced a Cooperative Research and Development Agreement with the National Health and Environmental Effects Research Laboratory of the Environmental Protection Agency’s Office of Research and Development. This agreement was established to evaluate the neurotoxic effects of chemicals using Axion’s microelectrode array system. Between 30-50 chemicals will be evaluated, including pesticides and other compounds known to be neurotoxic, as well as some non-toxic compounds, and compounds for which less information regarding their neurotoxicity is available. The results will help to establish the capabilities of MEA systems for neurotoxicity screening. Mark G. Allen serves on the company’s board of directors.

Suniva Shines Brightly in Local Economy
Suniva, a U.S. manufacturer of high-efficiency monocrystalline silicon solar cells and modules, that was founded by ECE Regents’ Professor Ajeet Rohatgi, was named as the fastest growing company at the 2011 Atlanta Business Chronicle Pacesetter Awards. To qualify for the Pacesetter Awards, companies must be privately owned, based in the metro Atlanta area, have experienced a two-year growth in sales of more than 50 percent, and have garnered revenue between $1 million and $300 million in 2010. Between 2009 and 2010 alone, Suniva’s revenue increased 400 percent.

Earlier this year, The Wall Street Journal ranked Suniva second in its list of the “Top 10 Venture-Backed, Clean Technology Companies” for the second consecutive year. During the past year, the company has also been named “Exporter of the Year” by the Export-Import Bank of the United States, “Commercial Technology of the Year” by Platts Global Energy, and an “American Success Story” by U.S. Department of Energy Secretary Steven Chu in a White House blog post. With its expanding, diverse, and skilled workforce, Suniva is producing world-class technology and generating record-setting screen printed solar cell efficiencies both in the lab and in manufacturing.
The 2010-11 advisory board members and their affiliations are listed below.

C. Dean Alford  
Alford Utility Network  
Conyers, Ga.

Antonio R. Alvarez  
Leadis Technology, Inc.  
San Jose, Calif.

Michael B. Bartlett  
Texas Instruments, Inc. (Retired)  
Richardson, Tex.

Michael Buckler  
TekMark Global Solutions  
Cary, N.C.

Steve W. Chaddick  
Chair, ECE Advisory Board  
Ridgewood Advisors, LLC  
Atlanta, Ga.

Mel Coker  
AT&T  
Atlanta, Ga.

H. Allen Ecker  
Cisco Service Provider  
Video Technology Group  
Lawrenceville, Ga.

Mat Hans  
DTS  
Calabasas, Calif.

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

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

Sherra E. Kerns  
Olin College  
Needham, Mass.

W. Wayt King, Jr.  
FSB Legal  
Atlanta, Ga.

Fred Kitson  
Motorola, Inc.  
Schaumburg, Ill.

Michael R. McQuade  
DuPont Company  
Wilmington, Del.

Joseph Parks  
Intel Corporation  
Beaverton, Ore.

Randall E. Poliner  
Antares Capital  
Corporation  
Melbourne, Fla.

Sheryl S. Prucka  
Prucka Engineering, Inc.  
Park City, Utah

T.E. (Ed) Schlesinger  
Department of ECE  
Carnegie-Mellon Univ.  
Pittsburgh, Pa.

Leslie Sibert  
Georgia Power  
Atlanta, Ga.

Ronald S. Slaymaker  
Texas Instruments, Inc.  
Dallas, Tex.

Aleks Szlam  
Szlam Enterprises, Inc.  
Alpharetta, Ga.

The ECE Development Office cultivates and coordinates the School’s development and fundraising efforts with industry, alumni, and other interested individuals and organizations, including the College of Engineering and the Institute’s Central Development Office. This office also manages the School’s Corporate Affiliates Partnership Program and plans twice-yearly ECE Advisory Board meetings, the annual James R. Carreker Distinguished Lecture, and the ECE Career Fair.

Pictured at left are ECE’s newest Advisory Board members, Sheryl (Sheri) S. Prucka and T.E. (Ed) Schlesinger.

ECE Advisory Board Adds Two Members

An outside perspective is essential to maintain the relevancy of the School’s programs to its alumni and corporate constituencies. The ECE Advisory Board, composed of 22 representatives, provides feedback in these areas during its formal, semiannual meetings and throughout the year. During FY 11, the ECE Advisory Board welcomed two new members, Sheryl S. (Sheri) Prucka and T.E. (Ed) Schlesinger.

After completing her education at Georgia Tech, Ms. Prucka (BEE ’82, MSEE ’84) worked at IBM in Boca Raton, Fla. and Schlumberger in Houston, Tex, before starting her business, Prucka Engineering, Inc. with her husband, Matthew. The company built computerized diagnostic equipment for cardiology, and its products included CardioMapp®, a 256-channel open heart mapping system, and CardioLab®, an advanced computerized diagnostic recording device, which is used in electrophysiology and catheterization labs to diagnose and treat arrhythmias and hemodynamic problems using cardiac catheters. The assets of Prucka Engineering, Inc. were sold to General Electric Medical Systems, Inc. in 1999.

Ms. Prucka is the past chair of the external advisory board for the Wallace H. Coulter Department of Biomedical Engineering at Georgia Tech and Emory University and has been a trustee for both the Georgia Tech Alumni Association and the Georgia Tech Foundation. She is also a board member of Computing in Cardiology, an international annual scientific conference.

Dr. Schlesinger is the David Edward Schramm Professor and head of the Department of ECE at Carnegie Mellon University. He is also the director of the DARPA Memory Intensive Self-Configuring Integrated Circuits Center. He previously served as director of the Data Storage Systems Center, associate department head in ECE, and founding co-director of the General Motors Collaborative Research Laboratory at CMU.

After receiving his B.Sc. degree in physics from the University of Toronto in 1980, Dr. Schlesinger earned his M.S. and Ph.D. degrees in applied physics from the California Institute of Technology in 1982 and 1985, respectively. His research interests are in the areas of solid-state electronic and optical devices, nanotechnology, and information storage systems. A Fellow of IEEE and SPIE, Dr. Schlesinger is the president of the ECE Department Heads Association and a member of the International Advisory Panel for the A*STAR Graduate Academy in Singapore.

2011 James R. Carreker Distinguished Lecture

Amir Aghdaei, president of Tektronix, delivered the tenth annual James R. Carreker Distinguished Lecture on April 7 in the Van Leer Building Auditorium.

Mr. Aghdaei spoke on “The Future of Engineering and Why Innovation Matters.” With the year 2011 marking the 65th anniversary of Tektronix, he discussed how the engineer’s job is impacted by the technology trends driving today’s electronics industry. He also shared his view about the importance of technology and innovation to address the acceleration of those trends in the future.

To view the video of Mr. Aghdaei’s talk, visit http://www.ece.gatech.edu/media/archive/carreker2011/index.html
The 2011 College of Engineering Alumni Awards Ceremony was held on March 11 at the Georgia Tech Hotel and Conference Center. 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. Four alumni were honored by the School of ECE.

**ENGINEERING HALL OF FAME** This award recognizes alumni for meritorious engineering and/or managerial contributions during their careers.

H.M. Jack Reynolds, BEE ‘50 | Entrepreneur | Dunlap, Tenn.

**ACADEMY OF DISTINGUISHED ENGINEERING ALUMNI** This award recognizes alumni for significant contributions to the profession or the field, the Institute, or society at large. Recipients are highly placed executives and are actively involved in engineering or management, industry, academia, or government.

Jose C. Barrios, MSEE ‘71 | Deputy Administrator | Panama Canal Authority | Panama City, Panama

Michael K. Moore, BEE ’79 | President | C.H. Guernsey & Company | Oklahoma City, Okla.

**COUNCIL OF OUTSTANDING YOUNG ENGINEERING ALUMNI** This award recognizes alumni who have distinguished themselves through professional practice and/or service to the Institute, profession, or society at-large. They are on the “fast track” and have made rapid advancement within their organizations and have been recognized for early professional achievements by others within their profession, field, or organization. These recipients are considered future leaders in their profession.

Guy Primus, BIE ’92, MSIE ’95 | Chief Operating Officer | Overbrook Entertainment | Beverly Hills, Calif.

Co-nominated by ECE and the H. Milton Stewart School of Industrial and Systems Engineering

Former Georgia Tech College of Engineering Dean Don P. Giddens (l) and COE Advisory Board member Jad Batteh (r) congratulate award winners (top-bottom) H.M. Jack Reynolds, Jose C. Barrios, and Guy Primus.

**Georgia Tech, ECE Receives $1 Million Gift for TI DSP Leadership University Program**

For the fifth consecutive funding period, Texas Instruments has chosen Georgia Tech and its Center for Signal and Image Processing as one of its primary academic partners for digital signal processing research in its TI Leadership University Program. Since 1999, the TILU program has supported research at Georgia Tech in DSP and its applications with three-year unrestricted gifts of $1 million. Since 2005, the awards have been made to James H. McClellan, the current CSIP Director and the John and Mariju McCarty Chair Professor of Electrical Engineering, who administers a research program that involves seven projects each centered around a Ph.D. thesis topic.

At present, the research projects are in the areas of cognitive radio networks, performance of power-loaded OFDM systems, sparse wavelet transforms for video coding, automatic image annotation, blind source separation and speech enhancement, audio-video based recognition of handwritten mathematical content, and parameterized adaptable filter structures.

During the lifetime of the TILU program, 12 professors and 29 thesis students have conducted their research with TILU support, with 17 receiving Ph.D.s. More than half of the Ph.D.s have been employed at TI’s Research Laboratory in Dallas, where they have made notable contributions in areas such as wireless base stations, digital camera products, and biomedical devices. Numerous other Ph.D. students from CSIP, telecommunications, and analog electronics within ECE are presently employed by TI Research, as well as many more Georgia Tech ECE graduates from all degree levels.

The selection of Georgia Tech for this prestigious honor continues a long-standing relationship between the Institute and the global, Dallas-based company, one of the first and largest semiconductor makers and the global market leader in digital signal processors. The award is also a tribute to Georgia Tech’s internationally recognized DSP research and education program and its faculty. In addition to Georgia Tech, Rice and MIT have been TILU recipients since 1999. Tsinghua University (China), Shanghai Jiaotong University (China), the University of Electronic Science and Technology (China), and the Indian Institute of Science were also named as TI Leadership Universities for 2011.

“TI’s support for our research program extends back to the 1980s paralleling the growth of DSP. The TILU program is a beautiful model for industry-academia relations because it affords us the opportunity to explore new research areas with the only constraint being that we demonstrate leadership in producing new ideas. Our students benefit from the interest that TI researchers have in their thesis projects, as well as from learning how researchers work in the commercial sector. Many of these students go on to successful careers at TI and related companies.”

— James H. McClellan
ECE Graduates Honored at 2011 College of Engineering Alumni Awards

Georgia Tech is now in the public phase of a comprehensive fundraising campaign, known as Campaign Georgia Tech, which will last until December 31, 2015. The Institute has surpassed its original fund raising goal of $1 billion, and ECE has also exceeded its goal of $90 million, having raised over $129 million as of the end of FY 11.

New extended campaign goals are pending for the Institute and all units, including the School of ECE. Please direct any inquiries regarding how you can support the School and Georgia Tech to Martina Hubbarth, director of ECE development for alumni relations, at 404.894.0274 or martina.hubbarth@ece.gatech.edu, or to Etta Pittman, director of ECE corporate development at 404.894.6888 or etta.pittman@ece.gatech.edu.

Van Leer Building Renewal Update

Now approaching its 50th year, the Van Leer Building must be improved and expanded in order to meet the needs of the School and to provide the quality spaces and state-of-the-art facilities that will keep ECE at the forefront in engineering and technology. Through private support, our alumni, friends, and corporate partners can play a vital role in the expansion and renovation of the Van Leer Building.

The School is grateful to the following individuals, companies, and organizations for donating $4 million toward the $15 million needed for the Van Leer Renewal Project to commence. To learn how to direct your gift in support of the Van Leer Renewal, contact Martina Hubbarth, ECE director of development for alumni relations.

INDIVIDUALS
Geneva N. Akridge
C. Neal Alexander, Jr.
Deborah D. Ballard
Paul H. Barton
Joan M. Baucom
Jackie Beck
Shem K. Blackley, Jr.
Jean Boiter
Ralph Bostian
Anne K. Brinkley
Scott W. Brown
Charles V. Burleson
Jack C. Causey
Steve W. Chaddick
Brenda S. Clark
Christopher R. Clark
William A. Coley
Patricia L. Copper
James C. Cox
Julian D’Amico, Jr.
Ann W. Davant
Martin L. Davis
James C. Deddens
Robert L. Dixon, Jr.
H. Allen Ecker
Linda D. Edwards
Robert B. Fallin
Harriet J. Flack
Elmer J. Flexer
Forest La Verne Fowler, Jr.
Edgar M. Geddie, Jr.
Barrow W. Godbee, Jr.
James S. Gray
George W. Grier, III
B. Susan Haire
Molly G. Hampton
John A. Hannah
John W. Hardison
Carol M. Harrison
Emilie Hartz
M. Thomas Hatley, Jr.
Jeffrey A. Hawthorne
Julia M. Hite
Mark Hoffman
Jane B. Hollar
Sarah S. Hughes
Margaret N. Humphrey
Henry R. Jackson
Jonathan C. James
Becky R. Jenkins
Wyatt S. Jones, Jr.
Sonya B. Kennedy
Mary L. Kitchen
Ernestine M. Kuhr
James C. Leathers
Diane K. Lemaster
Joel W. Link
Anthony D. Matthews
Mildred B. Mayfield
Jennifer McComas
Janie G. McGregor
Zona B. McQuirt
Maurice D. McIntosh
Bradley B. McQueen
Carolyn Monnerat Mestnik
Jerry L. Mitchell
Steven A. Moon
Lynn B. Nixon
Ryan Norris
Stephen C. O’Neal
Richard J. Osborne
William O. Parker, Jr.
Phyllis A. Penninger
Randall E. Poliner
Harry Holmes Powell, Jr.
Tim Preister
Charles W. Pryor, Jr.
Bobby J. Rhyne
William F. Reinke
Bobby J. Rhine
William T. Robertson, Jr.
Marcelle E. Rogers
Jordan Rosenthal
James E. Rountree
Gene Sapp, Jr.
Carole C. Scofield
Frank W. Seymore
Allan Smith
Anne F. Smith
Anne T. Smith
Dorothy T. Smith
Elizabeth S. Smith
Gary W. Smith
Sandra F. Smith
William B. Stalvey
Lee H. Strange
Terence J. Sullivan
Aleksander Szlam
Nelda C. Thomas
J. F. Timberlake, Jr.
King C. Timmons
Ann O. Todd
Pamela R. Todd
Mrs. Hal B. Tucker
Hal B. Tucker
Warren H. Tucker, Jr.
Michael S. Tuckman
Richard L. Weber
Hubert L. Wilson, Jr.
Ann C. Windham
Bessie J. Windham
Julia T. Windham

COMPANIES
Harris Corporation
Joe Whitwell & Assoc., Inc.
Laser Products, LLC
Travelport GDS-Worldspan
Tucker, Stone & Plymel, P.C.

FOUNDATIONS/ NON-PROFIT ORGANIZATIONS
First United Methodist Church (Lawrenceville, Ga.)
Foundation For The Carolinas
Harris Foundation
Jewish Federation of Greater Atlanta
Memorial United Methodist Church

PROFESSIONAL, RESEARCH, & ACADEMIC ORGANIZATIONS
Institute of Nuclear Power Operations
Nuclear Energy Institute
Grants and Gifts

Corporations, non-profit organizations, and individual donors enthusiastically and generously supported ECE and its research, educational, and service missions by contributing $11,328,940 through the Georgia Tech Foundation. The first table shows the amount of funds designated for specific uses. The second table alphabetically lists the various companies, groups, and individuals that donated funds to ECE in FY 11.

Some corporate donors represented in this table are members of the ECE Corporate Affiliates Partnership program. A multi-level support structure, CAP helps to create relationships conducive to enhanced and accelerated technology and knowledge transfer between academia and industry. To learn more about membership options, visit the Alumni and External Relations section of the ECE web site (www.ece.gatech.edu).

### COMPANIES
- ADVA Optical Networking
- Agilent Technologies, Inc.
- Alpha & Omega Semiconductor, Inc.
- AOC Technologies Inc.
- AREVA NP, Inc.
- Atotech USA, Inc.
- Beena Vision Systems, Inc.
- BP America
- Caterpillar Foundation
- Chevron
- Cisco Foundation
- Cisco Systems, Inc.
- ClassOne Equipment, Inc.
- Cox Communications, Inc.
- Deutsche Telekom R&D Lab USA
- Eaton Corporation
- EMS Technologies, Inc.
- Exxon Mobil Corporation
- FutureWei Technologies, Inc.
- GE Global Research Center
- Georgia Power Company
- Harris Foundation
- IBM Corporation
- Intel Corporation
- Linear Technology Corporation
- Mentor Graphics Corporation
- Microsoft Corporation
- Mitsubishi Electric Information & Technology Center
- Nanowave Technologies, Inc.
- National Instruments
- National Semiconductor Corporation
- NEC Laboratories America, Inc.
- Northrop Grumman
- Operation Technology, Inc.
- Oracle America, Inc.
- OSisoft, Inc.
- PowerVoice Co., LTD
- Qualtre, Inc.
- Richard Kems Truck Parts, Inc.
- Rincon Research Corporation
- Robert Bosch, LLC
- Rockwell Automation
- Southern Company Services, Inc.
- Sprint Nextel Corporation
- Tektronix, Inc.
- Texas Instruments, Inc.
- Textron, Inc.
- Union Pacific Railroad
- ZTE USA, Inc.
- Texas Instruments, Inc.
- Textron, Inc.
- Union Pacific Railroad
- ZTE USA, Inc.
- Teresa Beck
- Sue Ann Bidstrup Allen
- Roger C. Bisher
- Aaron F. Bourgeois
- Christina Bourgeois
- Kevin Brennan (posthumous)
- Thomas E. Brewer
- Suzy Briggs
- Douglas A. Brooks
- Bruce C. Brownlee
- John H. Brownlee
- David B. Burleson
- Robert J. Butera
- Carol Cantrell
- Pierce E. Cantrell, Jr.
- Jonathon Castleberry
- Yusun Chang
- Christopher R. Clark
- Mel Coker
- Harriett C. Coleman
- Michael A. Coleman
- Thomas J. Coleman
- Thomas R. Collins
- Leyla S. Conrad
- Alaric R. Craig
- William B. Crane
- Samir K. Das
- Jayesh Doshi
- R. Thomas Dyal
- Asaf Ebgi
- H. Allen Ecker
- Ian Ferguson
- Brian D. Fransioli
- Daniel A. Giglio
- Gary F. Grimm
- Gareth S. Guvanasen
- Mary Elizabeth Hollingsworth
- Youn Hur
- Kimberly A. Huynh
- Peter L. Huynh
- Ryan K. James
- Hyung Bae Jeon
- Edward W. Kamen
- Hugh F. Kinsel
- Arlen J. Kirchoff, Jr.
- Laura J. Kitazhima
- Kyle L. Klatka
- Jan Kohnik
- Frederick G. Krauss
- John D. Lanza
- Michael Laughter
- Judith Lorier
- Kenneth E. MacKenzie
- William J. Max
- Lea A. McLees
- Ben R. McRee
- Frederica Z. Meindl
- James D. Meindl
- Kevin T. Morgan
- Douglas W. Olsen
- John B. Peatman
- Claude A. Petty, Jr.
- Etta Pittman
- William J. Potscavage Jr.
- Thomas J. Quigley
- Marvin O. Richter
- Robert A. Robinson, Jr.
- Gene Sapp, Jr.
- Joyce C. Sayle
- Harris T. Schneiderman
- Jeong Hee Seo
- Beth L. Shimkat
- Paul G. Steffes
- Ryan C. Stewart
- James A. Stratigos, Jr.
- Christopher Summers
- Aleksander Szlam
- Viet Tran
- Hal B. Tucker
- Ryo R. Tummala
- Kristin Ann Turgeon
- Valerie E. Uyemura
- Judith Vanderboom
- Patrick W. Wathen
- Sabine E. Wathen
- Anita Wathen-Brownlee
- Patricia D. Webb
- Roger P. Webb
- Charles Whitaker
- Mr. and Mrs. Douglas B. Williams
- G. Tong Zhou

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<th>For Endowment</th>
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<tr>
<td>Faculty Support</td>
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<td>Program Enrichment</td>
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<td>Faculty Support</td>
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<tr>
<td>Program Enrichment</td>
<td>$6,576,267</td>
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Total | $11,328,940 |
The Sack Company. In time, the company began to take on larger com-

Inc. in Statesboro, Ga. As the community and the trade area grew, so did

and his business partner purchased H.A. Sack Company,

both Augusta and Savannah. After the death of his brother-

War II and worked in the electrical motor repair industry in

home.

George C. Griffin by a man who was a boarder at Mr. Roesel's childhood

ciation with Georgia Tech began in 1935 when he graduated from Augusta

Junior College and was introduced to Georgia Tech Dean of Students

Mr. Roesel keeps up to date by reading the Institute’s publications and

alma mater. A faithful donor to Georgia Tech Roll Call for the last 74 years,

Mr. Roesel keeps up to date by reading the Institute’s publications and

attends Georgia Tech alumni events held in southeast Georgia. His asso-

with Georgia Tech began in 1935 when he graduated from Augusta

Junior College and was introduced to Georgia Tech Dean of Students

George C. Griffin by a man who was a boarder at Mr. Roesel’s childhood

home.

After graduating from Tech, Mr. Roesel fought in World

War II and worked in the electrical motor repair industry in

both Augusta and Savannah. After the death of his brother-
in-law and fellow Tech alumnus Harry Sack, Mr. Roesel

and his business partner purchased H.A. Sack Company,

Inc. in Statesboro, Ga. As the community and the trade area grew, so did

The Sack Company. In time, the company began to take on larger com-
mmercial, educational, military, and industrial jobs. Mr. Roesel ran the busi-

ness until retiring at 90 years old and then transferred control and owner-

ship to his sons Paul and Philip.

The Georgia Tech tradition has continued in the Roesel family with his

youngest son, Greg (BEE ’81, MSEEE ’82), who is a neuroradiologist, and

his granddaughter Renee (BSChBE ’11), who is now a graduate student at

MIT.

Endowment of Presidential Scholarship
Honors Husband's Memory

In honor of her husband, Mary Hollingsworth has endowed the John R.

Hollingsworth Presidential Scholarship with preference to a student study-
ing in the School of ECE. Mr. Hollingsworth (BEE ’28) initially worked for a

subsidiary of GE as a salesperson and eventually built his own business as a sales representative. John and

Mary lived in Atlanta and were married for almost 60 years until his death in 1999.

Originally from Athens, Ga, Mary graduated from the University of Georgia with a degree in history, studied

library science at Louisiana State University, and worked

in the State of Georgia Library System. While an avid UGA fan, she is a

Tech fan too and strongly believes in supporting engineering education. Just short of her 96th birthday, Mary still lives in Atlanta and stays con-

nected with family, friends, and her church.

The President’s Scholarship is Georgia Tech’s most prestigious merit

scholarship and is offered annually to about 110 outstanding high school

seniors who have demonstrated superb leadership skills, are among the

top few in their class in academic performance, and show promise of

continuing such performance in college and beyond. For more information

visit www.psp.gatech.edu.

ECE Professional Communication Studio Celebrates Milestone

In 2007, ECE School Chair Gary S. May led the development of a five-

year strategic plan for the School. Part of its mission statement reads:

To provide degree and professional education programs that produce graduates who are well prepared to enter and assume leadership roles in the (electrical and computer engineering) profession.

In Fall 2010, ECE faculty, students, and alumni gathered to celebrate

the five-year anniversary of the Coleman Family Professional Communi-
cation Studio, which provides space for over 1,200 undergraduates each

semester to practice oral and written communication skills to be effec-
tive in the business environment.

In honor of the anniversary, the Coleman family generously created an

dowment to support the Coleman Family Professional Communication Studio in perpetuity. “Supporting Georgia Tech’s ECE Professional Com-
munication Studio was an obvious investment for us,” said Michael and

Jennifer Coleman. “Our family has three generations of engineers, and

we appreciate the value of engineers that are able to explain their ideas

with precision and efficiency. The Professional Communication Studio

prepares students with a highly qualified staff in a state of the art, beau-
tiful environment. This was a perfect fit for our philanthropy.”

While ECE prepares for its annual career fair this spring, we are

reminded daily of the impact the Coleman Family has on empowering

our students to be successful throughout the interview process and in

the workforce.

“I am extremely grateful to have the Coleman Family Professional

Communication Studio at my disposal,” said EE senior Matthew Jacob-

son. “Already, having this resource has helped me prepare my resume,
hone my cover letters, and provided guidance for presentations that will

help me in the workforce.”

“I think it is important to support the Georgia Tech Electrical and

Computer Engineering Department,” says Harriett Coleman. “By doing

this, my son, Michael and his wife, Jennifer, decided to help start the

Coleman Family Communication Studio Endowment. It is a great plea-

sure and a feeling of accomplishment to contribute to this worthwhile

program and help the students at Georgia Tech be prepared for their

future. My husband, Jeff Coleman and son, Michael, graduated from

Georgia Tech with an electrical engineering degree. My grandson, Kevin,

attends Georgia Tech and will be graduating this year.”

ECE thanks the Coleman Family for playing an important part in

achieving its mission.
This list defines acronyms and abbreviations found throughout the 2010-11 Annual Report for the School of Electrical and Computer Engineering.

**GEORGIA TECH/ECE**
- ATDC – Advanced Technology Development Center
- CAP – Corporate Affiliates Program
- CoE/COE – College of Engineering
- CSIP – Center for Signal and Image Processing
- ECE – Electrical and Computer Engineering
- GT – Georgia Tech
- GTF – Georgia Tech Foundation
- GTRI – Georgia Tech Research Institute
- GTRIC – Georgia Tech Research and Innovation Conference
- IEN – Institute for Electronics and Nanotechnology
- IPaT – Institute for People and Technology
- UPCP – Undergraduate Professional Communication Program
- VIP – Vertically Integrated Projects (Program)

**GOVERNMENTAL AGENCIES AND UNIVERSITIES**
- CMU – Carnegie Mellon University
- DARPA – Defense Advanced Research Projects Agency
- DoD – Department of Defense
- NASA – National Aeronautics and Space Administration
- NDSEG – National Defense Science and Engineering Graduate (Fellowship)
- NSF – National Science Foundation

**TECHNICAL OR GENERAL ABBREVIATIONS**
- 2D – Two-Dimensional
- 3D – Three-Dimensional
- ASIC – Application Specific Integrated Circuit
- BOLD – Blood Oxygenation Level Dependent
- CEO – Chief Executive Officer
- CFO – Chief Financial Officer
- CHAMPION – CardioMEMS Heart Sensor Allows Monitoring of Pressure to Improve Outcomes in NYHA Class III Patients
- CMOS – Complementary Metal Oxide Semiconductor
- CmpE – Computer Engineering
- CSO – Chief Science Officer
- CTO – Chief Technical Officer
- DLL – Delayed-Lock Loop
- DSP – Digital Signal Processing
- EE – Electrical Engineering
- EMI – Electromagnetic Interference
- FMIR – Functional Magnetic Resonance Imaging
- FPGA – Field Programmable Gate Array
- FY – Fiscal Year
- G – Gigabit
- GaAs – Gallium Arsenide
- GHz - Gigahertz
- GPA – Grade Point Average
- GRE – Graduate Record Exam
- HBT – Heterojunction Bipolar Transistor
- IC – Integrated Circuit
- InP – Indium Phosphide
- MEA – Multi-electrode Array
- MEMS – Microelectromechanical Systems
- MM – Millimeter
- PCM – Phase-Change Memory
- PLL – Phased-Lock Loop
- R&D – Research and Development
- RCWA – Rigorous Coupled-Wave Analysis
- RF – Radio Frequency
- SAEV – Solar-Assisted Electric Vehicle
- SAT – Scholastic Aptitude Test
- SiGe – Silicon Germanium
- SoC – System-on-Chip
- SRAM – Static Random-Access Memory
- SVM – Support Vector Machine