

ECE Connection

School of Electrical and Computer Engineering | Summer 2011

"Gary exemplifies the type of leadership qualities we hope to instill in each of our students."

— Rafael L. Bras
Georgia Tech Provost

Gary 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 (CoE) on July 1. He succeeds Don Giddens, who stepped down as the CoE dean and retired from the Institute at the end of June.

"Gary exemplifies the type of leadership qualities we hope to instill in each of our students," Georgia Tech Provost Rafael L. Bras said. "As a faculty member, administrator, and representative of Georgia Tech, his impact on his profession and on this institution has been profound."

As dean, Dr. May assumes responsibility 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. "I am grateful for the opportunity to lead a premier institution like the College of Engineering," he said. "It is truly an honor and a privilege to be entrusted with one of the world's most respected brands, and I am looking forward to working with faculty across the College to advance the quality of our education and research programs."

A native of St. Louis, Mo., Dr. May earned his BEE at Georgia Tech in 1985 while working as a student in the Cooperative Education Program at McDonnell-Douglas. After earning his master's and PhD degrees from the University of California at Berkeley in 1987 and 1991, he returned to Tech as an assistant professor and a member of the microelectronics/microsystems technical interest group in ECE. Throughout his career, Dr. May's primary research interest has been in computer-aided manufacturing of integrated circuits.

Dr. May is the founder and director of the Summer Undergraduate Research in Engineering/Science (SURE) program, which is designed to attract talented minority students into graduate school. Since its inception in 1992, about 73 percent of SURE participants have continued on to graduate school in engineering and science, with 50 percent of those deciding to attend Tech. He also founded and co-directs the Facilitating Academic Careers in Engineering and Science (FACES) program, which encourages minorities to pursue engineering and science careers in academia. Since its establishment in 1998, more than 300 minority students have earned doctorates in science, technology, engineering, and math, thanks in part to the FACES program.

In 2000, Dr. May achieved full professor status and served as ECE associate chair for faculty development from 2001-02. In

2002, he was tapped by then-President Wayne Clough to serve as his executive assistant, which introduced him to administrative responsibilities at an institutional level. In 2005, Dr. May was appointed as the Steve W. Chaddick School Chair of ECE. He shared his aspirations for the future of the College during a public presentation in April. "My vision is to create an environment where anyone with the aptitude and inclination to study engineering will

want to come to Georgia Tech," he said. In partnership with colleagues in the other colleges, he added, "we will build a community of scholars to address the issues and challenges of the world through technology."

"Gary's record of scholarship, his collaborative nature, and his tireless mentorship to students are admirable," President Bud Peterson said. "We are very excited about the future of engineering education and research at Georgia Tech under Gary's leadership."

"We conducted an international search to identify the best possible candidates to lead our largest academic unit," Dr. Bras said. "That the final choice for this most important and desirable position is one of our own, as a graduate, professor, and academic leader, speaks to the excellence of Georgia Tech." |



2011

Father of the Year Award, given by the Father's Day Council of Atlanta and the American Diabetes Association

2010

Outstanding Alumni Award in Electrical Engineering, University of California at Berkeley

2008

American Association for the Advancement of Science Fellow

2006

American Association for the Advancement of Science Mentor Award

NSBE Golden Torch Award: Janice A. Lumpkin Educator of the Year

2005

Selected as Steve W. Chaddick School Chair

IEEE Fellow

2004

ASEE Minorities in Engineering Award

Georgia Tech Outstanding Undergraduate Research Mentor Award

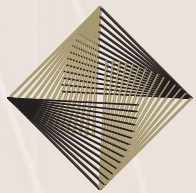
2003

Wickenden Award for Outstanding Paper, *Journal of Engineering Education*

2002

Giant of Science Award from Quality Education for Minorities Network





(continued from page 1)

2001

Promoted to ECE Associate Chair for Faculty Development

Motorola Foundation Professorship (2001-05)

2000

Selected by the National Academy of Engineering to participate in Frontiers of Engineering Conference as one of "the nation's top 100 engineers between the ages of 30-45"

Promoted to full Professor

1999

Georgia Tech Outstanding Service Award

1998

Founder and Co-director, FACES

1993

National Science Foundation National Young Investigator (1993-98)

Outstanding Young Alumnus, Georgia Institute of Technology

1992

Founder and Director, GT-SUPREEM program (now known as the SURE program)

1991

Started as an Assistant Professor in ECE (graduated with MS and PhD from UC-Berkeley)

1985

Received BEE from Georgia Tech

1981

Arrived at Georgia Tech as a freshman

"Thanks for the Memories"

I write this, my last Chair's Column in the *ECE Connection*, with mixed emotions. I arrived at Georgia Tech as a naïve freshman EE student in the fall of 1981. Thirty years later, I have completed my tenure as the leader of what I believe is the greatest School of Electrical and Computer Engineering in the country.

As most readers know by now, I am now the dean of the College of Engineering at Georgia Tech. As I prepare for this next challenge, I think it is worthwhile to reflect on what we have accomplished in the School of ECE over the past six years. Since 2005, the School of ECE has:

- Completed a five-year Strategic Plan.
- Completed the first comprehensive curriculum revision in more than a decade.
- Hired 21 new faculty members on three campuses (including three endowed chairs, five women, and four members of underrepresented groups); six junior faculty hires have won NSF CAREER awards, and two junior faculty members have won PECASE awards, the nation's highest honor for engineers and scientists who are just starting their careers.
- Achieved 88% success in faculty tenure and promotion cases.
- Received more than \$349M in new research awards.
- Fostered an environment conducive to research commercialization, leading to more than a dozen faculty-initiated start-up companies.
- Received \$129.6 million in philanthropy against a \$90 million capital campaign goal (including a \$40 million in-kind gift in electronic design automation software from Agilent Technologies).
- Initiated campaign for the renewal of the Van Leer ECE headquarters facility (\$3.2 million raised to date against a \$15 million goal).
- Opened and occupied two new facilities (Klaus Advanced Computing Building and Marcus Nanotechnology Building).
- Opened the Coleman Family Undergraduate Professional Communications Studio.
- Coordinated successful ABET accreditation and University System of Georgia Academic Program Review visits (2009).
- Created an ECE Career Fair (2010); added PhD component (2011).
- Increased female enrollment in the School from 10.6% to 12.1%.
- Increased underrepresented minority enrollment in the School from 14.9% to 15.5%.
- Participated in the establishment of an interdisciplinary Ph.D. program in robotics.
- Established mechanism for undergraduate participation in Undergraduate Research and International Plan degree options.
- Established international joint and/or dual graduate degree programs in China (Shanghai), Italy, Korea, and Singapore.

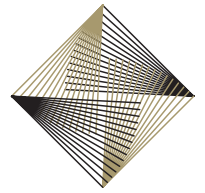


Obviously, I cannot take all the credit for this suc-

cess. We have the greatest team of faculty, staff, alumni, and students with which I have ever been associated. The School is deeply indebted to you all, as am I. I would like to thank you for your confidence and support during these last six years that I have served as School Chair. Leading ECE has been the highlight of my professional career thus far, and as a Georgia Tech EE alumnus, serving in this position has been in many ways a dream come true.

On May 6, a second dream and aspiration came true, when I was officially announced as the next dean of the College of Engineering. As I assume my new role, I look forward to the opportunities and challenges that we will all take on together with our sister units within the College and with other colleges and units across campus. The School of ECE will continue to play a critical role in helping Georgia Tech define the technological research university of the 21st century. |





Doug Williams Tapped as ECE Interim Chair

Douglas B. Williams became the interim chair for the School of ECE, effective July 1. Dr. Williams succeeds Gary S. May, who is now the dean of the College of Engineering, and will hold this position until a new, permanent school chair is named.

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 has had many opportunities to represent ECE, 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.

The search for a permanent ECE school chair will begin in August, and the composition of the search committee will be announced later this summer.

"I'd personally like to thank Doug for agreeing to take on this important responsibility, and I am very confident that he will lead the School very effectively until a permanent school chair can be identified," Dr. May said. "Please join me in lending your support to him as he assumes the interim school chair role and throughout his tenure in this position." |



Jenny Michaels Named Interim Associate Chair for ECE Undergraduate Affairs



Jennifer E. Michaels has been 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 Panametrics, 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*. Her current research interests include signal processing, wave propagation, pattern recognition, detection and estimation, data fusion, and automated measurement systems, primarily related to non-medical ultrasonic applications.

Dr. Michaels is replacing Douglas B. Williams, who is now the interim chair for the School. "I'd personally like to thank Jenny for agreeing to take on this important responsibility. She has been a tremendous asset to the School and the Institute in her

leadership and teamwork in academic matters, most especially with the ECE Undergraduate Committee and the ECE undergraduate curriculum review process," Dr. Williams said. |

John Cressler Honored with IEEE Graduate Teaching Award



John D. Cressler, Ken Byers Professor in ECE, was presented with the 2011 IEEE Leon K. Kirchmayer Graduate Teaching Award at the IEEE International Solid-State Circuits Conference, held in San Francisco, Calif. on February 21.

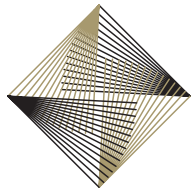
The award, sponsored by the Leon K. Kirchmayer Memorial Fund, recognizes Dr. Cressler for inspirational teaching and student mentoring in the field of advanced microelectronic devices and circuits.

Known for his approachability and patience, Dr.

Cressler includes unique design experiences within his graduate courses, so that students gain exposure to real-world challenges, learn to communicate with diverse audiences, and work together in a team environment to solve complex problems. He also instills his passion for social awareness within his students, examining both the positive and negative aspects of the global micro- and nanoelectronics revolution.

Dr. Cressler is a leading expert in silicon-germanium heterojunction bipolar transistor technology, which is opening the door for low-cost but high-performance electronics and systems needed to support ever-increasing global communications needs. He maintains close ties to both industry and government sponsors, so that his students' research has timely impact on the ever-changing communications marketplace.

He is a previous recipient of the Georgia Tech Outstanding Faculty Leadership for the Development of Graduate Research Assistants Award (2007) and the Georgia Tech Class of 1940 W. Howard Ector Outstanding Teacher Award (2010). |



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 (CSIP) as one of its primary academic partners for digital signal processing (DSP) research in its TI Leadership University (TILU) 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 ECE Professor James H. McClellan, the current CSIP Director, who administers a research program that involves seven projects each centered around a PhD thesis topic. The original award in 1999 went to ECE Regents' Professor Emeritus and previous CSIP Director Ronald W. Schafer.

At present, the research projects are Cognitive Radio Networks (Sami Almal-fouh, supervised by Prof. Gordon Stuber), Performance of Power-Loaded OFDM Systems (Marie Shinotsuka, Profs. Tong Zhou and Xiaoli Ma), Sparse Wavelet Transforms for Video Coding (Osman Sezer, Prof. Yucel Altunbasak), Automatic Image Annotation (Ilseo Kim, Prof. Chin Lee), Blind Source Separation and Speech Enhancement (Devangi Parikh, Prof. David Anderson), Audio-Video Based

Recognition of Handwritten Mathematical Content (Smita Vemulapalli, Prof. Monty Hayes), and Parameterized Adaptable Filter Structures (Eric Luo, Prof. McClellan).

"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," said Dr. McClellan.

During the lifetime of the TILU program, 12 professors and 29 thesis students have done 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, telecom, and analog electronics within ECE are presently employed by TI Research, as well as

many more Georgia Tech ECE graduates from all levels throughout TI.

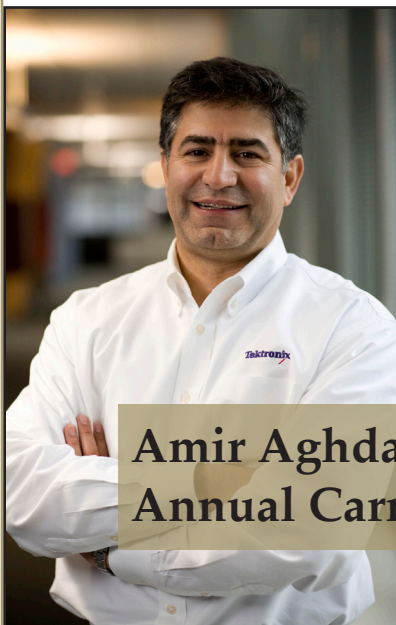
The selection of Georgia Tech for this prestigious honor continues a long-standing relationship between the Institute and the global, Dallas-based company, one of the first and largest semiconductor makers and the global market leader in digital signal processors. The award is also a tribute to Georgia Tech's internationally recognized DSP research and education program and its faculty. In addition to Georgia Tech, Rice University 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 have also been named as TI Leadership Universities for 2011. |

Communications Studio, UCP Celebrate Milestones

ECE alumni gathered last fall to celebrate the 10th anniversary of the Undergraduate Professional Communication Program (UPCP) and the five-year anniversary of the Coleman Family Professional Communication Studio.

The Coleman family's inaugural endowment for the UCP was recognized at a reception. Guest speakers included alumni who shared their success stories.

Established in 2005, the Studio was made possible by a generous gift from Michael Coleman (BSEE '82), his wife, Jennifer and his mother, Harriett. Michael's late father, Jeff Coleman, was also a Georgia Tech graduate (BSEE '56) who founded Coleman Research Corporation in 1980, a start-up aerospace company. |



Amir Aghdaei Delivers Annual Carreker 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.

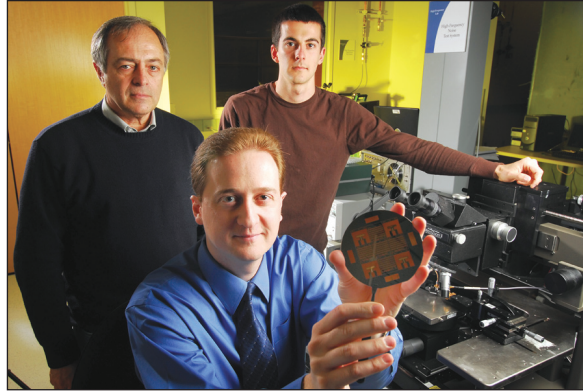
To view Mr. Aghdaei's talk, visit www.ece.gatech.edu/media/archive/carreker2011.

Georgia Electronic Design Center, Nanowave Technologies Form Research Partnership

The Georgia Electronic Design Center (GEDC) has formed a research partnership with Toronto-based Nanowave Technologies, Inc. The company specializes in micro-wave, millimeter-wave, electro-optic components and subsystem design, and manufacturing for high reliability aerospace and terrestrial applications.

Plans call for establishing a Nanowave R&D center at GEDC that would support collaborative research into high-power, light-weight radar technology. "Nanowave's growth strategy requires access to the leading-edge design, analysis, and test expertise available at Georgia Tech," said Justin Miller, CEO of Nanowave. "We believe that the Center's expertise in analog and mixed-signal electronics will support development of significant new products for us."

John Papapolymerou, ECE professor and GEDC associate director, will participate in this work, along with his research team. "Georgia Tech's expertise in high-frequency electronics and lightweight radars and sensors will assist Nanowave in a unique way in the development of next generation highly-integrated, low-cost radars for both commercial and defense applications," said Dr. Papapolymerou. "Georgia Tech will also benefit from Nanowave's strong position in the radar/sensor marketplace, as well as from their knowledge and expertise in T/R module technology."



ECE Professor John Papapolymerou (center) is working with Nanowave Technologies to establish an R&D facility at GEDC.

He added that "there is great synergy and opportunity here that can make Atlanta and Georgia the worldwide center of future radar and sensor products."

In addition, Nanowave has announced its intention to locate a manufacturing facility in the Atlanta metro area due to its proximity to GEDC and Georgia Tech. |

Prucka, Schlesinger Join ECE Advisory Board

The School of ECE is pleased to welcome Sheryl S. (Sheri) Prucka and T.E. (Ed) Schlesinger as the newest members of its advisory board.

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 (CMU). 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 ECE Advisory Board

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Antonio R. Alvarez
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Cisco (Retired)
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Joe Parks
Intel Corporation
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Randall E. Poliner
Antares Capital Corporation
Melbourne, Fla.

Sheryl S. Prucka
Prucka Engineering
(Sold to General Electric
Medical Systems)
Park City, Utah

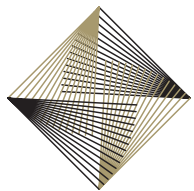
Thomas J. Quigley
Quigley Family Foundation
Franklin, N.C.

T.E. (Ed) Schlesinger
Carnegie Mellon University
Pittsburgh, Pa.

Leslie R. Sibert
Georgia Power Company
Atlanta, Ga.

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

Aleksander Szlam
Szlam Enterprises, Inc.
Alpharetta, Ga.



Alumni News

Webster Elected to U.S. House of Representatives

Congressman Daniel Webster (R-Winter Garden and BEE '71) was elected to represent Florida's 8th district in the U.S. House of Representatives last November and is a member of both the Rules Committee and the Transportation and Infrastructure Committee. Prior to being elected to the U.S. House of Representatives, Congressman Webster was a state senator in the Florida House for almost 30 years, where he served as the Speaker of the Florida House and majority leader in the Senate. He also chaired the Senate Judiciary Committee and was a Ranking Member of the Transportation Committee.

Robinson Moves up at Vanderbilt University

William H. Robinson (PhD '03) reached a significant milestone in his academic career when he was promoted to associate professor with tenure in the Department of Electrical Engineering and Computer Science at Vanderbilt University. He holds the distinction of being the first African-American to earn promotion and win tenure in the history of the Vanderbilt University School of Engineering. To date, Dr. Robinson has received the NSF CAREER Award and has been named to the Defense Advanced Research Projects Agency Computer Science Study Panel.

Abdallah Appointed Interim Provost at University of New Mexico

UNM's new "iProvost"—a term some are using to tag UNM's interim provost position—is ECE Professor and Department Chair **Chaouki Abdallah** (MS '82, PhD '88). His one-year assignment began July 1, 2011. In making the decision, UNM President David Schmidly said that "Professor Abdallah will bring exciting new perspectives and energy to the provost's position as well as expertise gained during his long tenure of work at UNM. He earned strong recommendations from every constituency on campus—faculty, students, and staff. I look forward to our working together on the university's goals during the coming year."

Dr. Abdallah is currently professor and chair of the nationally ranked, research-active Electrical & Computer Engineering Department in UNM's School of Engineering. He succeeds Provost Suzanne Ortega, who has accepted the position of senior vice president for academic affairs at the University of North Carolina.



ECE Graduates Honored at 2011 College of Engineering Alumni Awards



The 2011 College of Engineering (CoE) 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.

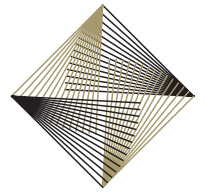


COUNCIL OF YOUNG ENGINEERING ALUMNI This award recognizes alumni who have distinguished themselves through professional practice and/or service to the Institute, profession, or society at-large. They are on the "fast track" and have made rapid advancement within their organizations and have been recognized 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.



Boe Pilots Second Space Shuttle Mission

Air Force Col. Eric Boe (MSEE '97) was among six astronauts on the space shuttle crew for Discovery's STS-133 mission to the International Space Station, which launched on February 24 from NASA Kennedy Space Center and landed back at the same location on March 9. Col. Boe served as pilot for STS-133, which was the 35th shuttle mission to the station and the final flight of Discovery during which the crew delivered a new module and an external stowage platform to the International Space Station, as well as equipment and supplies. While the crew was at the station, two spacewalks were performed for maintenance work and installation of new components, including helping to integrate the Permanent Multipurpose Module Leonardo. Among the 6,000 pounds of Leonardo cargo was Robonaut 2, a human upper torso-like robot that could be a precursor of devices to help during spacewalks.

This was Col. Boe's second time flying a shuttle mission. In November 2008, he was the pilot for Endeavour's STS-126 mission, where he was joined by fellow Georgia Tech alumni Shane Kimbrough (MSOR '98) and Sandra Magnus (PhD CerE '96). Col. Boe is based at Johnson Space Center in Houston, Tex.



Upcoming Campaign
Georgia Tech
Rollout Events

We would love to
visit with you!

OCT
13

Birmingham,
Alabama
(luncheon)

NOV
1

Knoxville, Tennessee
(evening reception)

NOV
2

Chattanooga,
Tennessee
(breakfast)
and
Huntsville, Alabama
(luncheon)

GTRI Researcher's Daughter Pulls Double Duty as Georgia Tech Legacy



(l-r) Jim, Kelsey, and Kate Maloney

Most parents would be proud of a child's attending their college alma mater. But for Georgia Tech Research Institute Engineer **Jim Maloney**, his daughter will establish a unique and distinguished double legacy when she attends Georgia Tech in the fall.

A 2011 graduate of Wheeler High School in Marietta, Ga., Kelsey Maloney will enroll as a President's Scholarship recipient, Georgia Tech's most prestigious scholarship. It is awarded annually to about 110 high school seniors who have demonstrated superb skills in leadership and academics. Jim, a principal research engineer with GTRI's Signature Technology Laboratory, was a President's Scholar when he entered Tech as a freshman.

According to Randy McDow, director of the President's Scholarship Program, this marks the first time a child of a President's Scholar will attend Tech under the same scholarship. He added that at least 11 of Kelsey's fellow President's Scholars are also Georgia Tech legacies, but she is first to be a President's Scholar legacy.

In addition, Kelsey has signed a national letter of intent to swim for the Yellow Jackets. Jim and his wife, **Kate**, both received their bachelor's and doctoral degrees from Georgia Tech in electrical engineering. Both Jim and Kate completed their doctorates in 1992, with Jim completing his under the direction of ECE Regents' Professor Glenn S. Smith. The focus of Jim's Ph.D. dissertation was on the analysis and synthesis of transient antennas using the Finite-Difference Time-Domain Method, while Kate completed her Ph.D. dissertation with ECE Professor Mark Clements, with a focus on the analysis, synthesis, and recognition of stressed speech.

Hernandez Plays Key Role in Xbox 360 Development

Andres Hernandez (BSECE '07, MSECE '08) is a hardware development engineer with the Xbox 360 motherboard team at Microsoft. Mr. Hernandez's work encompasses design, test, cost reduction, and integration of the Xbox 360 motherboard. He was part of the design team for the new Xbox360, which shipped with Kinect, and additionally works in development of audio technologies and internal Microsoft tools for thermal and mechanical testing for the Xbox360.

Tommy Klemis Hopes for Third "Resurrection" with Junior's

When Junior's Grill closed its doors in late April, owner **Tommy Klemis** (CIs '71) was hopeful that it wouldn't be for the last time. April 21 was the "break-even" day in terms of the restaurant's expenses and revenue, so his intention was to quietly close and make a formal announcement to the campus community. As the news spread, Junior's was swamped with customers. To learn more about the efforts to remember and hopefully reopen this beloved Tech tradition, see the Junior's Facebook page at www.facebook.com/JuniorsGrill. |



Junior's Grill owner Tommy Klemis with his aunt and long-time Junior's employee Anne Pamfilis.

To learn more about these upcoming events, contact ECE Development Director Martina Emmerson Hubbarth at 404.894.0274 or martina@ece.gatech.edu.

2011 Roger P. Webb Awards

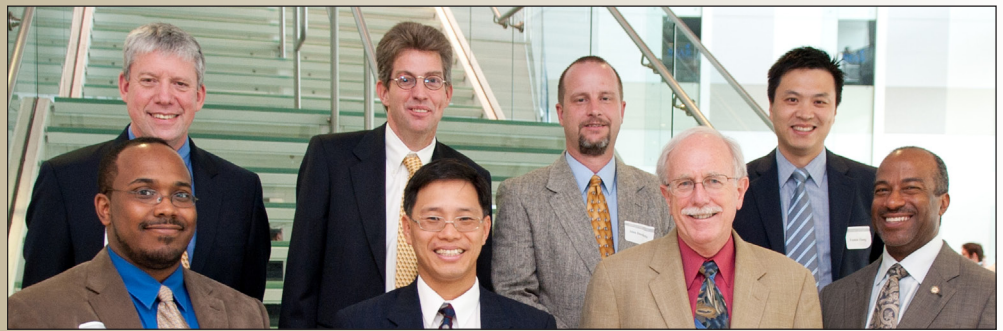
On April 27, the School of ECE held its tenth annual Roger P. Webb Awards Program. Georgia Power Vice President Leslie Sibert (BEE '85) and Kimberly-Clark Vice President Bob Stargel (BEE '83) hosted the event, which honors the students, staff, and faculty who have shown exceptional dedication to their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



(Left) Undergraduate award winners pictured with ECE School Chair Gary May. Bottom row (l-r): Sean McGee, Kenneth Adams, Jenny Liu, Allie Del Giorno, Andrew Perez, Joshua Durham. Top row (l-r): Bradley Keller, Adam Kitain, Jaydeep Srimani, Michael Lu, and Ackshaey Singh.

(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 McClellan. Top row (l-r) Mark Clements, Oliver Brand, Alan Doolittle, and Fumin Zhang.



STUDENT AWARDS

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



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.

STAFF AWARDS

<i>Hats Off Performance Award</i>	Harry Beck, Catherine Gholson
<i>Research Spotlight Award</i>	Jae-Hyun Ryou
<i>Academic Spotlight Award</i>	David Webb

FACULTY AWARDS

<i>Outstanding Junior Faculty Member Award</i>	Shyh-Chiang Shen, Fumin Zhang
<i>ECE Outreach Award</i>	Elliot Moore
<i>Richard M. Bass and W. Marshall Leach/ Eta Kappa Nu Outstanding Teacher Awards</i>	Alan Doolittle, James McClellan
<i>ECE Distinguished Mentor Award</i>	Oliver Brand
<i>Distinguished Faculty Achievement Award</i>	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	Michael Oakley
Mojtaba Hudjat-Shamani	Jason Okerman
Nak-Seung Hyun	Spyridon Pavlidis
Moazzam Khan	Po-Yen Wu

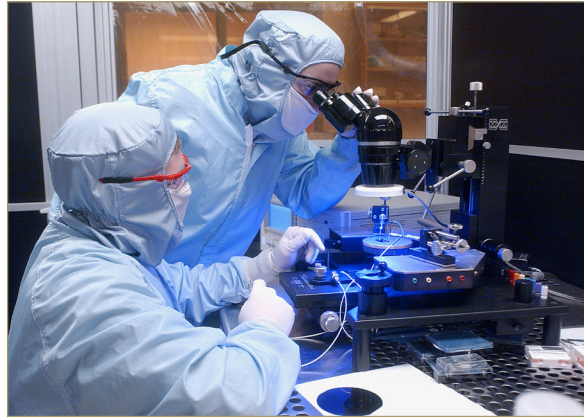
Research in the News

Visit www.ece.gatech.edu/media/news to learn more about these projects. These stories originated from Georgia Tech Communications and Marketing and the Georgia Tech Research News and Publications Office.

New Research Institute Leverages Current Electronics and Nanotechnology Strengths

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 (IEN). The new interdisciplinary research institute 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.

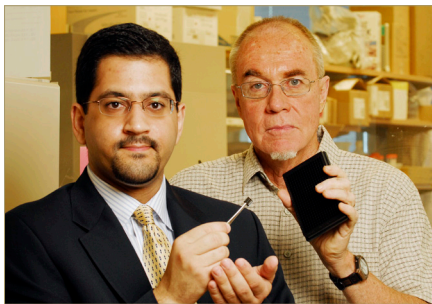
The IEN is led by Executive Director and ECE Regents' Professor Mark G. Allen. Under his leadership, the new center will focus on integrating existing center personnel and equipment into the Marcus Nanotechnology Building and other nearby spaces.



Researchers conduct work in one of the advanced clean room facilities located on the Georgia Tech campus.

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 Muhannad Bakir and John McDonald, a professor in the School of Biology and chief research scientist at the Ovarian Cancer Institute.

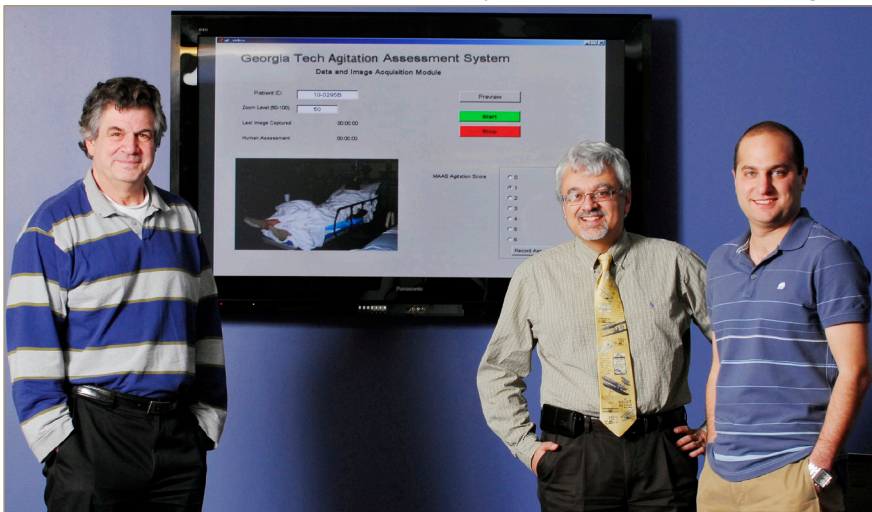


The researchers hope to replace these microplates with modern microelectronics technology, including disposable arrays containing thousands of electronic sensors connected to powerful signal processing circuitry. If successful, this new electronic biosensing platform could help realize the dream of personalized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

ECE Associate Professor Muhannad Bakir (l) holds a prototype electronic microplate, while Professor John McDonald, from the School of Biology, holds an example of the conventional microplate.

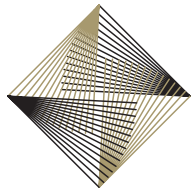
Researchers Work Toward Automating Sedation in Intensive Care Units

Researchers at Georgia Tech and the Northeast Georgia Medical Center are one step closer to their goal of automating the management of sedation in hospital intensive care units (ICUs). They have developed control algorithms that use clinical data to accurately determine a patient's level of sedation and can notify medical staff if the level has changed.



This new system is the result of professionals from three organizations: Allen Tannenbaum, the Julian Hightower Professor in ECE and the Wallace H. Coulter Department of Biomedical Engineering; Behnood Gholami, a postdoctoral fellow in ECE; Wasim Haddad, a professor in the School of Aerospace Engineering; and James Bailey, the chief medical informatics officer at the Northeast Georgia Medical Center in Gainesville, Ga. |

Algorithms developed by Georgia Tech researchers Allen Tannenbaum, Wassim Haddad and Behnood Gholami (l-r) to automate sedation in the ICU returned the same results as the assessment by hospital staff 92 percent of the time.



Faculty News



Stephen E. Ralph was named director of the Georgia Tech Electronic Design Center and **John Papapolymerou** as the Center's associate director. GEDC has 15 active faculty and over 100 graduate and undergraduate students.



Ali Adibi and **Thomas K. Gaylord** were promoted to the rank of SPIE Fellow, effective January 1. Dr.



Adibi was recognized "for achievements in integrated nanophotonics and volume holography," and Dr. Gaylord was honored "for achievements in diffractive and polarization optics."



Mark G. Allen, **John Papapolymerou**, and **Gabriel Rincón-Mora** were elevated to the rank of IEEE Fellow, effective January 1. Dr. Allen was recognized "for contributions to micro and nanofabrication technologies for microelectromechanical systems;" Dr. Papapolymerou was honored "for contributions to flexible, microwave, and wireless components and systems;" and Dr. Rincón-Mora was recognized "for contributions to energy- and power-integrated circuit design."

Georgia Tech's Ellen Zegura and Mary Jean Harrold (CoC), and Jay Lee (ChBE) also became 2011 IEEE Fellows.



Ian F. Akyildiz received the 2011 W. Wallace McDowell Award, which is given by the IEEE Computer Society, at the organization's board of governors meeting on May 25 in Albuquerque, N.M. Dr. Akyildiz

was honored "for pioneering contributions to wireless sensor network architectures and communication protocols."



Pamela Bhatti received an 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." 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.

Saibal Mukhopadhyay

received an NSF CAREER Award for his project, "3D Heterogeneous Integration for Power Reduction in Embedded Systems: Application to Wireless Image Sensing and Transport." This work explores principles to minimize power dissipation of embedded systems for real-time imaging, high-volume multimedia processing, and wireless communication. Dr. Mukhopadhyay also won an IBM Faculty Award for the second year in a row. He received this honor for his work on "Thermal and Power Analysis and On-line Management in 3D Systems," an interdisciplinary effort that spans thermodynamics, signal/image processing, VLSI, and computer architecture to understand and control the thermal field and power in 3D systems.



Hsien-Hsin Sean Lee

and his research team were the first ever from Georgia Tech 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. Dr. Lee's



New Faculty



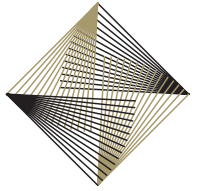
Muhannad Bakir

Associate Professor
BEE '99, Auburn University
MSECE '00, Georgia Tech
PhD ECE '03, Georgia Tech
Area: Microelectronics/
Microsystems

Dr. Bakir joined the ECE faculty in July 2010 after working as a senior research engineer at the Microelectronics Research Center and the Nanotechnology Research Center at Georgia Tech from 2003-10. He is an associate director of the Interconnect and Packaging Center.

His research interests are in the areas of three-dimensional electronic system integration, advanced cooling and power delivery for 3D systems, biosensor technologies and their integration with signal processing circuitry, carbon-based nanoelectronics, nanofabrication technology, and novel interconnect systems. He is the editor of a book entitled *Integrated Interconnect Technologies for 3D Nanoelectronic Systems* and is the author/coauthor of more than 60 journal publications and conference proceedings, five book chapters, and 10 U.S. patents.

paper was entitled "Security Refresh: Protecting Phase-Change Memory against Malicious Wear Out," and it was co-written with his current Ph.D. student Nak Hee Seong and his former Ph.D. student Dong Hyuk Woo. |



In Loving Memory of Marshall Leach

Georgia Tech and ECE lost a very dear friend and colleague when Professor W. Marshall Leach, Jr. died on November 20 after suffering from a heart attack. He was 70 years old. Graveside services were held on November 26 in Abbeville, S.C., and a Georgia Tech memorial service was held on December 16. The Georgia Tech memorial is online at http://streaming1.ece.gatech.edu/misc/Fall10/W_M_Leach_2010.html.

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, noted Gary S. May, Steve W. Chaddick School Chair of ECE. "Being chosen multiple times for this award is a tremendous testament to Marshall's consistency in our instructional program throughout the years," said Dr. May. "But most of all, it epitomizes his passion for his work and his unwavering commitment to our students."

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. When meeting Georgia



Tech and ECE alumni, both Dr. May and ECE Professor Emeritus and former School Chair Roger P. Webb said that many people ask about Dr. Leach and share 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, Marshall has influenced several generations of Georgia Tech electrical engineers and computer engineers, in addition to untold others from around the world," Dr. Webb said. "He is missed very much, but his legacy will live on through his work, his students, and everyone that he touched." |

ECE Retirements

The entire ECE community would like to wish the very best to these faculty and staff members who have recently retired from Georgia Tech. Thank you for serving ECE for so long and so well!

Monson H. (Monty) Hayes, III

Professor and Associate Chair for ECE Programs at Georgia Tech-Savannah
30 years of service

Dr. Hayes was a member of the Center for Signal and Image Processing during his entire career in ECE. An IEEE Fellow, his research interests included DSP algorithms, signal modeling, image and video coding, stereo image processing, face recognition, multimedia signal processing, and DSP education.

Edgar L. Jones

Laboratory Coordinator
14 years of service

Mr. Jones provided students, faculty, and staff with technical assistance for projects ranging from senior design to workshops for high school students.

Gail O. Palmer

Lecturer
13 years of service
Ms. Palmer was the coordinator of the ECE Graduate Professional Communications Program, which included courses, coaching, and on-line mate-

rials designed to assist our graduate students with written and oral communications skills.

Harry T. Sullivan

Research Scientist I
28 years of service
Mr. Sullivan was one of the first PC computer support employees at Georgia Tech when he began working with the ECE Computer Support Group, where he mainly provided network and Windows technical assistance.

VIP Program Holds Inaugural Innovation Contest

The Vertically Integrated Projects Program (VIP) 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

1st The Medical Devices for Diabetes Team advised by Mechanical Engineering Regents' Professor David N. Ku. This team also won the overall grand prize.

2nd The Intelligent Tutoring-Android Team advised by ECE Professor James H. McClellan.

Embedded Systems Track

1st The Collaborative Workforce Team advised by Dr. Coyle and ECE Senior Research Engineer Randal Abler.

2nd The eStadium SuiteTV Team advised by Drs. Abler and Coyle.

Wireless Systems Track

1st The eStadium Wireless Team advised by Drs. Coyle and Abler.

2nd The I-Natural team advised by ECE Associate Professor Ayanna Howard.

Database Systems Track

1st The eStadium Web-Apps team advised by Drs. Abler and Coyle.

2nd 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/>. |

Del Giorno Wins Goldwater Scholarship

Allison Del Giorno, a sophomore majoring in electrical engineering and minoring in biomedical engineering, was one of two Georgia Tech students awarded a 2011 Goldwater Scholarship. Chun Yong, a junior biomedical engineering student, also received this honor.

This spring, the Barry M. Goldwater Scholarship and Excellence in Education Foundation awarded a total of 275 scholarships to undergraduate sophomores and juniors from the United States. The purpose of the foundation is to provide a continuing source of highly qualified scientists, mathematicians, and engineers by awarding scholarships to college students who intend to pursue careers in these fields.

Ms. Del Giorno, a Georgia Tech President's Scholar, has held a National Institutes of Health Intramural Research Training Award at the National Institute of Neurological Disorders and Stroke and another at the National Institute of Bioengineering and Biomedical Imaging. She also received a Northrop Grumman Engineering Scholarship upon entering Georgia Tech. Ms. Del Giorno is studying electrical engineering approaches to the nervous system, specifically investigating the spatiotemporal 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.

"I feel so blessed that I was chosen for the Goldwater Scholarship," said Ms. Del Giorno, a native of Eldersburg, Md. "I have amazing family, friends, and professors who continue to encourage and guide me as I pursue a career in the neuroscience field." |

