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**ECE Facts**

**Number of Faculty/Staff**
- Number of faculty (tenure-track): 118
- Joint appointments: 3
- Adjunct and part-time faculty: 48
- Professors Emeriti: 18
- Research and administrative staff/academic professionals: 188

**Number of Undergraduate Students** (Fall Semester 2003)
- Electrical engineering: 945
- Computer engineering: 749
- Electrical engineering–Georgia Tech Savannah: 22
- Computer engineering–Georgia Tech Savannah: 25
- Total: 1,741

**Number of Graduate Students** (Fall Semester 2003)*
- Doctoral: 621
- Special: 9
- Master of Science/M.S.E.C.E.: 345
- Total: 975

**Number of Degrees Awarded**
- B.S.Cmp.E.: 152
- B.S.Cmp.E.-Georgia Tech Savannah: 5
- B.S.E.E.: 278
- B.S.E.E.-Georgia Tech Savannah: 6
- M.S.: 74
- M.S.E.C.E.: 222
- Ph.D.: 105
- Total: 842

**Grants and Contracts**
- Total funds received on external grants during FY 04: $46,067,597
- Number of proposals submitted to external agencies during FY 04: 325

* Graduate program offers combined electrical and computer engineering degrees

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**Faculty Credo**

**Unity of Purpose**
Our purpose is to provide students at all degree levels with the highest quality preparation for successful professional careers, and through dedicated scholarship, to advance our profession. We will contribute to the expansion and responsible application of knowledge to the benefit of society. Our relentless pursuit of these goals will fulfill our vision of a Georgia Tech preeminent in information and telecommunications systems, energy and automation systems, and in the underlying enabling technologies.

**Diversity of Function**
We recognize and embrace the technical diversity of our profession. We seek to enhance this diversity by active engagement with relevant associated Georgia Tech and external professional activities. We will encourage cultural diversity within the ranks of the profession by being a leader in the education of minority and women electrical engineers and computer engineers, students attracted and taught by a faculty equally rich in role models.

**Professionalism of Method**
We participate in the most noble aspect of a noble profession. We will honor that profession by example, instilling in our students by our own conduct, the highest standards of professional behavior.
The School of Electrical and Computer Engineering (ECE) remains among the largest producers of electrical engineering and computer engineering graduates in the United States and continues to develop programs of exploratory research in both new and existing technologies. Our commitment to supporting and recognizing our outstanding faculty, staff, and students and their accomplishments; creating innovative research programs; and providing state-of-the-art educational programs to our students is reflected in the following awards listing and research, educational, and professional summaries for 2003-04.

Faculty Honors and Awards

Global and National Awards

Russell D. Dupuis and two colleagues from the University of Illinois at Urbana-Champaign—M. George Craford and Nick Holonyak, Jr.—were awarded the 2002 National Medal of Technology by U.S. President George W. Bush at a White House ceremony. Dr. Dupuis and his two colleagues were selected “for contributions to the development and commercialization of light-emitting diode technology, with applications to digital displays, consumer electronics, automotive lighting, traffic signals, and general illumination.” The medals are the nation’s highest honor for work in science and technology and are bestowed to leading innovators in the U.S.

Fred Juang was elected to the National Academy of Engineering (NAE) for his contributions to speech coding and speech recognition. This most recent election of Dr. Juang brings ECE’s total of NAE members to six; Georgia Tech now has 25 active NAE members.

Ajeet Rohatgi received the 2003 Paul Rappaport Renewable Energy and Efficiency Award from the U.S. Department of Energy’s National Renewable Energy Laboratory (NREL) for his achievements in photovoltaics research and education.

National Science Foundation CAREER and Army Young Investigator Awards

David V. Anderson received a National Science Foundation (NSF) CAREER Award “for ultra-low power programmable analog signal processing systems.”

Farrokh Azizi received a NSF CAREER Award “for advanced temperature compensation techniques for integrated bulk-mode micro and nano mechanical resonators.”

Robert J. Butera, Jr. received a NSF CAREER Award “for functional replacement of neural tissue in a model organism—research and education in neuroscience.”

W. Alan Doolittle received a NSF CAREER Award “for new device opportunities enabled by polar dielectric and semiconductor heterostructures.”

Ioannis (John) Papapolymerou received an Army Research Office Young Investigator Award “for development of micromachined traveling-wave tube backward wave oscillators operating above 100 GHz.”

Professional Society Honors

Ian F. Akyildiz received the Association for Computing Machinery (ACM) SIGMOBILE 2003 Outstanding Contributions Award “for pioneering contributions in the area of mobility and resource management for wireless communication networks” at the ACM MobiCom 2003 Conference. SIGMOBILE, a special interest group of the ACM, focuses on mobility of systems, users, data, and computing.

Russell D. Dupuis was elected as a Fellow of the American Physical Society “for development of MOVCD deposition of semiconductors and room-temperature quantum-well lasers” and as a Fellow of the American Association for the Advancement of Science. Dr. Dupuis also received the 2004 Minerals, Metals, and Materials Society (TMS) John Bardeen Award—the highest honor that TMS awards to the researcher with an established research and publications track record in electronics materials—and the 2004 Distinguished Alumnus Award from the College of Engineering at the University of Illinois at Urbana-Champaign.

Ramesh Jain was selected as a Fellow of the ACM “for contributions to computer vision and multimedia information systems.”

Gary S. May received the 2004 American Society for Engineering Education (ASEE) Minorities in Engineering Award. This honor is given to engineering educators who motivate minority and/or women students to enter and continue in either an undergraduate or graduate engineering education path at the college or university level.

IEEE Awards

Four ECE faculty members were named as IEEE fellows, effective January 1, 2004. ECE now has a total of 31 IEEE fellows on its faculty.

• Miroslav M. Begovic, “for leadership in developing analysis tools and protection techniques for electric power transmission systems and renewable generation.”

• Kevin F. Brennan, “for contributions to the modeling of impact ionization in heterostructures and multiquantum well structures.”

• Krishna V. Palem, “for contributions to embedded computing.”

• Paul G. Steffes, “for contributions to the understanding of planetary atmospheres.”

Larry Coffeen received the 2003 Outstanding Engineer Award from the Atlanta chapter of the IEEE Power Engineering Society.

Joy Laskar was named Distinguished Microwave Lecturer by the IEEE Microwave Theory and Techniques Society for the term 2004-06. Dr. Laskar received this honor for his talk, “Recent Advances in High-Performance Communication Modules and Circuits.”

James H. McClellan was named co-recipient of the 2004 IEEE Jack S. Kilby Signal Processing Medal, together with his Ph.D. thesis advisor, Tom Parks, “for fundamental contributions to digital filter design and interpolation, especially the Parks-McClellan algorithm.”

James H. McClellan and Ronald W. Schafer, with their colleague Mark A. Yoder of Rose-Hulman Institute of Technology, were co-recipients of the 2003 McGraw-Hill/Israel Millman Award for authoring the textbook, DSP First.
A.P. Sakis Malliopoulos was named the recipient of the IEEE Richard Harold Kaufmann Award “for contributions to power system grounding design and testing procedures.”

William E. Sayle was named the recipient of the IEEE Educational Activities Board Meritorious Achievement Award in Accreditation Activities “for contributions to enhancing the quality of engineering accreditation and dedicated service to ABET/IEEE accreditation bodies.”

Rao R. Tummala received the 2003 IEEE Educational Activities Board Major Educational Innovation Award for outstanding educational innovation in a field of interest to IEEE. Dr. Tummala received his award “for reforming microsystems, packaging education by unparalleled, systematic, and innovative approaches to courses, curricula, tracks, books, degrees, and conferences while mentoring and catalyzing other centers of excellence around the world.”

Georgia Tech Awards

Four ECE faculty members and one administrative staff member were recognized for their outstanding achievements at the Georgia Tech Faculty/Staff Honors luncheon on April 7, 2004. Eight ECE faculty and staff members were also recognized for their years of service at Georgia Tech.

Iain F. Akyildiz Outstanding Research Author Award
Lynda D. Buescher Outstanding Staff Performance Award
Joel R. Jackson Class of 1934 Outstanding Innovative Use of Education Technology Award
Gary S. May Outstanding Undergraduate Research Mentor Award
George J. Vachtsevanos Class of 1934 Outstanding Interdisciplinary Activities Award

Ten-Year Service Award
Debra A. Balkcom Sharon D. Lawrence
Sherrie Cooper Madhavan Swaminathan
Robert R. House David S. Webb

Twenty-Five-Year Service Award
Kathy B. Cheek Charlotte Doughty

Staff Honors and Awards

These staff members earned professional development certificates through the Georgia Tech Office of Organizational Development in areas such as supervisory and management skills.

Management Development Certificate
Kayron C. Gildtrap Debra B. Kelley

Supervisory Development Certificate
Doria Moore Suzette E. Willingham
Jacqueline L. Nemeth

Office Professional Certificate
Cordia A. Farrar Leslie L. Hudson

Departmental Certification in Sponsored Programs
Lajuana F. Guillory Janet M. Myrick
Leslie L. Hudson Mary W. Rander
Judith Lorler Carla W. Zachery

Student Awards and Honors

In addition to the ECE student award recipients, nine ECE students were also recognized at the Georgia Tech Student Honors Day on April 13, 2004 for awards given outside of ECE.

Eric Clopper received the Tau Beta Pi Senior Engineering Cup for demonstrating academic excellence, leadership, and service to the engineering field and to Georgia Tech activities.

Adam Eisenman and Tianyu Tom Wang received the Henry Ford II Scholar Award for having among the best academic records in the College of Engineering at the end of the third year of undergraduate study.

R. Reeve Ingle and Anil Rohatgi each received a Georgia Tech Faculty Women’s Club Scholarship. This scholarship is given to students who are in good academic standing and whose parents are employees of Georgia Tech.

Deborah Johnson received the Center for the Enhancement of Teaching and Learning Frank Beige Nontraditional Student Award. This award is given to a nontraditional-aged junior or senior.

Don Andrew Pottinger received the Dorothy Cowser Yancy Award, given to an African-American freshman with the most outstanding academic record based on GPA, level of curriculum difficulty, and participation in activities related to the student’s program of study.

Aleksandar Pregelj received the Sigma Xi M.S. Thesis Award.

Karthikeyan Sundaresan received the Sigma Xi K. M. S. Thesis Award. His advisor is Raghupathy Sivakumar.

Research, Educational, and Professional Milestones

NEW RECORD IN GRANTS AND CONTRACTS ACQUISITION For the third year in a row, the School of ECE broke records in both research grants and contracts and research proposal activity. In FY 2004, ECE faculty acquired $46,067,597 in research grants and contracts, which represented 9.9 percent of the research funding in the College of Engineering, 24.2 percent of the research funding in units receiving resident instruction funding, 19.9 percent of Georgia Tech awards excluding the Georgia Tech Research Institute (GTRI), and 12.2 percent of all Georgia Tech sponsored awards, including those of GTRI. During FY 2004, ECE faculty members submitted 328 proposals, totaling $134,941,178, to various governmental and industrial sources.

U.S. NEWS AND WORLD REPORT RANKINGS Georgia Tech’s College of Engineering was ranked fifth in the 2005 graduate engineering school rankings compiled by U.S. News and World Report. In rating specific, graduate engineering disciplines, Georgia Tech’s electrical engineering program ranked seventh in the nation.
which will be funded by a $36 million contribution. That gift will create the
Technology Research Center, to be located on the Georgia Tech campus,
planned creation of one of the nation's most advanced facilities for
technology and engineering. Frost serves as GT Savannah director.

In fall 2004, GT Savannah plans to introduce the Senior Engineering Program,
which will offer seniors majoring in mechanical engineering, electrical
engineering, and computer engineering an international, multicultural
dimension to their undergraduate experience. Participating students will
spend the fall semester at GTL, where their course of study will
include the capstone senior design project and graduate level courses in
their respective disciplines. This program is a precursor to a new Un-
dergraduate International Program, slated to begin at GT, in fall 2006.
This upcoming program will offer junior-level students from electrical
engineering, computer engineering, industrial and systems engineer-
ing, and mechanical engineering a year-long course of study that will
include a minimum of two years of college-level French, at least two
courses which are taught in French, and a course in international stud-
ies if the program is approved, an international designation would ap-
ppear on graduation diplomas, similar to the co-op or regional engineer-
ing designations that currently appear on degrees of graduates who
participated in those programs.

Georgia Tech Savannah (GT Savannah) offers undergraduate degrees in civil engineering, computer engineer-
ing, electrical engineering, and mechanical engineering, as well as
master's degrees in ECE, civil and environmental engineering, and me-
chanical engineering. In fall 2002, GT Savannah relocated its hub facility to
Savannah's new Technology and Engineering Campus, Created by
the Savannah Economic Development Authority, TEC is an innovative
integrated environment designed to house private industry, community development offices, business incubators, and
other functions of a university campus environment. Currently, GT
Savannah occupies three buildings within TEC: the Engineering Labora-
tory and Analysis Building, the Program Administration and Resource
Building, and the Economic Development and Research Building.

Enrollments in the computer engineering and electrical engineer-
ing degree programs were 25 and 22, respectively, amongst the
program's three participating institutions in southeast Georgia–Georgia
Southern University, Armstrong Atlantic State University, and Savannah
State University. Six electrical engineering seniors the highest total of
graduates of the GT Savannah degree programs and five computer
engineering seniors graduated during 2003–04. Douglas B. Williams
serves as the GT Savannah liaison for the Atlanta campus, and J. David
Frost serves as GT Savannah director.

Arbutus Center for Distributed Engineering Education

The learning and education arena is undergoing an exciting
transformation. Until recently, a traditional learning environment con-
sisted of board-based lectures or group discussions in the classroom,
complemented by a textbook and oral or written homework. While
televised, Internet, and videotaped lectures expand the reach of the
classroom teacher, they are relatively primitive and ineffective exten-
sions of the traditional approach. This ineffective use of technology
represents the consequence of technology merely elaborating a par-
ticular teaching paradigm. It is the premise of the Arbutus Center that
effective learning environments are built by fusing innovation and
information technology and learning science in such ways that each adds
to and enhances the other.

The support of various foundations, Georgia Tech alumni, and oth-
er funding organizations has made it possible for Arbutus Center per-
sonnel to build and instrument learning laboratories that allow the
development and testing of innovative learning technologies that
leverage wireless infrastructures, mobility, and context-aware architec-
tures. These resources have also provided opportunities for under-
graduate internships, making it possible to provide extraordinary re-
search opportunities for gifted undergraduate students. The Center's
work has resulted in international publications, new learning technol-
ogies, and has helped to seed growing, interdisciplinary initiatives to
explore the frontiers of enhanced learning environments. Arbutus
Center personnel continue the development of content authoring
technologies like InFusion and are beta testing the newest version of
eClass. The early development of eClass began in 1997 (as Classroom
2000) and has captured over 3,000 lectures in over 100 courses. The
Arbutus Center began supporting the development of eClass 2.0 in
2002 and began beta-tests in the summer of 2004. A new learning
tool, CNT (Concept Navigation Tool), allows students to construct con-
cept maps and uses those maps as an access interface to relevant
digital content available in the repository.
CENTER FOR BOARD ASSEMBLY RESEARCH: Founded eight years ago, the Center for Board Assembly Research (CBAR) is engaged in research that will enable the manufacture of next generation electronic products. CBAR’s mission is to develop new technology for system-level board assembly to support ongoing product development trends such as reduced size and cost and enhanced performance. Primary areas of research include assembly materials development, process technology development, production and manufacturing systems, automated optical inspection, mapping standards and factory information systems. CBAR maintains close ties with professional organizations such as the National Electronics Manufacturing Initiative (NEMI), Integrated Printed Circuits (IPC), the Surface Mount Technology Association (SMTA), and the National Institute of Standards and Technology. Students participating in CBAR activities have the opportunity to learn about the latest in manufacturing equipment and software and to obtain technological skills that directly benefit industry. Industry partners have the opportunity to recruit students and to enroll in instructional courses on topics such as flip chip processing and evaluation and equipment interfacing. David G. Taylor is the director of CBAR, and he also serves as associate director of the Manufacturing Research Center.

CENTER FOR EXPERIMENTAL RESEARCH IN COMPUTER SYSTEMS: The Georgia Tech Center for Experimental Research in Computer Systems (CERCS) brings together researchers from ECE and Georgia Tech’s College of Computing (CoC) who share a common focus on the design and evaluation of computer and software systems through experimental methods. CERCS research focuses on complex systems, including their hardware, communications and system-level software, and applications. By emphasizing the experimental method, the Center promotes the creation of knowledge through the design, implementation, and measurement of potentially large-scale prototype systems. One of the largest experimental systems centers in the U.S., CERCS is led by Karran Sivasan of CoC and co-directors Douglas M. Blaauw and Sudhakar Varanacchil of ECE and Caban Pu from CoC at NSF Industry University Cooperative Research Center, the Center’s industrial partners during FY 2004 were Bering, Dell, Delta Technologies (a subsidiary of Delta Air Lines), Hewlett-Packard, IBM, Intel, Raytheon and Microsoft. Other companies with whom CERCS faculty interact include DoCoMo, TIBCO, Siemens, Sony, Sun Microsystems, and Xilinx, just to name a few. Basic membership permits industrial partners to support a CERCS student, interact with CERCS faculty and staff, and benefit from the general CERCS outreach program. Membership, defined via contractual relationships, provides specific rights to research output.

CENTER FOR MEMS AND MICROSYSTEMS TECHNOLOGIES: The Center for MEMs and Microsystems Technologies (CMMT) at Georgia Tech creates and disseminates intellectual properties and produces highly qualified graduates trained in microsystems and microelectromechanical systems technology as known as MEMS for employment in academia, industry, and governmental agencies. Under the leadership of its four co-directors: Mark G. Allen, Farrokh Ayazi, Oliver Brand, and A. Bruno Frazier, CMMT offers educational opportunities to undergraduates, graduate students, and postgraduates through a series of summer courses, short courses, and practical research-related training activities. CMMT research is quite broad, encompassing the areas of biomedical MEMS, RF MEMS, sensors, MEMS, micromagnetics, fabrication technology development and characterization, integrated MEMS, and actuators. In the past year, the CMMT faculty members have produced 5 Ph.D. and 4 M.S. graduates, one edited book, 61 refereed journal and conference publications, and six patents/records of invention. Thirty-four Ph.D. students, six master’s students, three postdoctoral fellows, two research scientists/engineers, 12 undergraduate students, and three administrative staff members supported these faculty members’ activities during FY 2004. Currently, the Center is seeking industrial members and is offering opportunities for collaboration via prototyping, design, consulting services, research programs, short courses, and general MEMS processing services.

CENTER FOR ORGANIC PHOTONICS AND ELECTRONICS: The Georgia Tech Center for Organic Photonics and Electronics (COPE) is a research and educational center focused on the development of organic-based devices and circuits that have the potential to be manufactured at reduced cost on light weight flexible substrates using non-traditional and environmentally friendly printing processes. These advances will serve the information-technology, energy, and defense sectors. COPE was established in 2003 with Seth Marder (School of Chemistry and Biochemistry) serving as director and Bernard Kippelen (ECE) and Joe Perry (School of Chemistry and Biochemistry) serving as associate directors. The Center received initial funding from Georgia Tech and is funded via research contracts from industry and federally funded research grants and has raised over $12 million. COPE’s mission is to foster interdisciplinary research and education in the emerging areas of organic photonics and electronics. The Center supports over 10 faculty and more than 50 students and postdoctoral fellows from various schools and colleges across the Georgia Tech campus. The Center has four research and three administrative staff and provides specially equipped laboratories for the processing and testing of organic nanostructured materials and devices, the majority of which are housed in the School of ECE. COPE is working closely with the Advanced Technology Development Center (ATDC) to spin off new startup companies and is assisting small local companies with technology needs.

CENTER FOR RESEARCH ON EMBEDDED SYSTEMS AND TECHNOLOGY: During the last year, the Center for Research on Embedded Systems and Technology (CREST) has grown to include ECE faculty David V. Anderson, Magnus Egerstedt, Sung-Myung Lim, Vincent Mooney (associate director, Internal Relations), Krishna Palem (associate director, External Relations), Sudhakar Varanacchil (associate director, External Relations), centered around the collaborative efforts of these faculty and their students, CREST aims to deliver impact that is internationally visible along the education and research dimensions, with commercial impact to Georgia as a concomitant theme. The unique depth and breadth of the faculty participants has allowed CREST to embark upon the twin themes of use-inspired research, with a five-year plan to maturity, and an independent science inspired research agenda, spanning a 10-year plan. In the use-inspired context, CREST faculty members are pursuing design space exploration and optimization for embedded platforms, with the goal of reducing time-to-market and non-recurring engineering costs by a factor of 50. Target application domains include digital signal processing (DSP) and robotics. As recognition, CREST is pleased to acknowledge an invitation to be a U.S. partner (one of four) by ART-IST, the European Network of Excellence in Embedded Systems. The science inspired research theme focuses on the thermodynamics of computing and probabilistic hardware, with the Georgia Tech Microelectronics Research Center being a strategic partner in the context of the National Nanotechnology Infrastructure Network. Educational and conference publications, and six patents/records of invention. Thirty-four Ph.D. students, six master’s students, three postdoctoral fellows, two research scientists/engineers, 12 undergraduate students, and three administrative staff members supported these faculty members’ activities during FY 2004. Currently, the Center is seeking industrial members and is offering opportunities for collaboration via prototyping, design, consulting services, research programs, short courses, and general MEMS processing services.
accomplishments includes a novel joint venture with Georgia Tech's Global Learning Center for sharing CREST's Hewlett-Packard-sponsored courseware with universities worldwide in a commercial context, and a first course has been delivered to the Nanyang Technological University of Singapore. During the last year, Intel has joined CREST's industrial partner pool.

CENTER FOR SIGNAL AND IMAGE PROCESSING: The Center of Signal and Image Processing (CSP) is at the forefront of research and education in this important field. The laboratory boasts an outstanding, internationally known faculty, a large doctoral education program, excellent laboratory and computer facilities for research and education, and a wide-ranging selection of courses at both the graduate and undergraduate level. The research in CSP covers all areas of signal processing, including speech recognition, speech compression, image and video processing, non-linear systems, statistical signal processing, radar and sonar imaging, acoustic localization, distributed microsensor networks, secure communication, DSP algorithms, hardware architectures, and DSP software. CSP researchers not only present over 100 papers each year at conferences, but they are also very active in organizing international meetings. During 2003, CSP professors hosted an NSF Symposium on Next Generation Automatic Speech Recognition.

Georgina in the News: A new Georgia Tech graduate degree program is designated as a Leadership University by Texas Instruments; in addition, the Center maintains a strong joint research program with Hewlett-Packard Labs. CSP researchers receive support from many funding sources, including the NSF, the Defense Advanced Research Projects Agency, the U.S. Army Research Office, the Ballistic Missile Defense Organization, the Air Force Office of Scientific Research, the Georgia Research Alliance (GRA), NASA, the John and Mary Franklin Foundation, Intel, Microsoft Corp., IBM Corp., and AFOSR Laboratories.

COMMSUNICATIONS SYSTEMS CENTER: The Communications Systems Center (CSC) has an active research program in the area of Internet Protocol networks, digital two-way CATV networks, and wireless network systems. CSC personnel are also working on developing new technologies for providing security on these networks. The laboratory has a 4.5-meter C-band and K-band satellite antenna and digital receiver connected to a digital CATV testbed system, donated by Scientific-Atlanta, Inc. The past construction was made possible by funds from the GSA and help from Turner Broadcasting. Much of the Center's research involves network simulators, including standards like OpNet and NS2 or locally designed special-purpose simulators. During the past year, CSC personnel worked on a Scientific-Atlanta-sponsored project for studying applications and communications issues at several layers on a digital two-way broadband CATV system, including research on traffic analysis and improved transmission protocols. The Center also participated in a U.S. Navy project to improve the effectiveness of network security exercises. Ph.D. thesis research was conducted on peer-to-peer ad-hoc wireless networks and on future wide-area mixed-mode networks. Research was also done on Internet traffic analysis and visualization and on the detection of rogue nodes on wireless networks.

GEORGIA CENTERS FOR ADVANCED TELECOMMUNICATIONS TECHNOLOGY: The Georgia Centers for Advanced Telecommunications Technology (GCATT) house a number of Georgia Tech- and ECE-based research centers, multi-university collaborative projects, and an advanced communications business incubator. As a GRI, GCATT also supports advanced telecommunications research centers from the University of Georgia, the Medical College of Georgia, and Georgia State University. Nikil Jayant serves as executive director of GCATT.

During FY 04, GCATT reinforced its “TCP” theme—technology, commercialization, and policy—and continued to receive positive feedback from both industry and government supporters in these areas. The core technology research themes of GCATT continue to be on networking, content processing, and system solutions.

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Young professionals and engineers interested in starting careers in these areas are encouraged to apply for positions in our centers. The Georgia Tech GUARDIAN network, which provides secure communication, DSP algorithms, hardware architectures, and DSP software. CSP researchers not only present over 100 papers each year at conferences, but they are also very active in organizing international meetings. During 2003, CSP professors hosted an NSF Symposium on Next Generation Automatic Speech Recognition.

The Office of Technology Policy and Programs (OTPP) at GCATT presented the first ever State of Technology Conference on Mobile Wireless Technologies for Persons with Disabilities this year, in conjunction with the Wireless RERC. More than 200 attendees and 60 speakers from the public, private, and government sectors attended the conference. Sixteen states and eleven countries were represented, with one-quarter of the attendees self-identified as having a disability. The conference served to chart the field of mobile wireless technologies for people with disabilities and will produce a report on its findings in fall 2004.

Also part of OTP is the Municipal Advanced Telecommunications Infrastructure Project released its white paper “MuniTIP.” The paper examined the role of municipal involvement in advanced information infrastructure development. The results of the report resulted in a schematic process for considering the factors that influence infrastructure development. The process model allowed municipalities, their stakeholders, and policy makers to consider the factors that most influence their decisions in infrastructure development.

GEORGIA ELECTRONIC DESIGN CENTER: Professor Joy Laskar serves as the director of the Georgia Electronic Design Center (GEDC). The GEDC is a multi-disciplinary center at Georgia Tech dedicated to ground breaking mixed signal research with an annual research budget of $10 million per year supported by industry and federal and state agencies. Located in Technology Square Research Building adjacent to Technology Square, GEDC is comprised of approximately 20 faculty and 150 graduate students who work closely with partner companies and agencies to solve pressing next-generation communications challenges. The Center currently has 40 industrial research partners, making it one of the largest industry-supported research programs at Georgia Tech. In addition, GEDC has worked closely with ATDC to help foster several start-up companies in the areas of mixed-signal technology development.

In 2003-04, industry funding totaled almost $3 million, including programs with IBM, Motorola, National Semiconductor, Raytheon, Rockwell, Samsung, Siemens, and Sun Microsystems. In addition, a prototype/test bed program was developed to establish major consortia of excellence for the center in areas including: system-on-chip for millimeter wave silicon technology, system-on-package millimeter wave...
wave liquid crystal polymer technology; integrated silicon technology for 100Gs and higher for wired interconnect; RFD and wireless interoperability for fourth generation wireless systems; and optoelectronics.

GEDC is having significant technical impact, as shown at the most recent IEEE International Microwave Symposium, the largest IEEE RF-Wireless conference. Only 10 percent of all the presentations were from GEDC. In addition, three GEDC papers were entered into the student finalist competition (top 25 out of ~295 submissions); Rajarshi Mukhopadhyay, a Ph.D. candidate in Dr. Laskar’s group, took third place in this student paper competition.

The Interactive Media Technology Center (IMTC) is focused on advancing science, technology, education, and culture through the use of interactive technologies. IMTC also contains a biomedical component referred to as the Georgia Tech Analog Consortium (GTAC).

The Georgia Tech Analog Consortium (GTAC) is a proven, effective way for companies to receive direct and tangible benefits through faculty access, student research, and semi-annual research reviews that are held in the spring and fall. At the same time, the program gives sponsored students real-world experience through ongoing research interactions with faculty and fellow students and via cooperative/internship assignments. ECE has a very active educational program in analog circuits and systems at both the undergraduate and graduate level.

GTAC’s strength and vitality rests in the dynamic relationships that it fosters between students, faculty, and the corporate world, providing stronger relationships with the analog microelectronics industry. It was founded in 1989 and is now under the leadership of Paul E. Hasler. GTAC consists of 14 full-time faculty members, 1 full-time staff member, approximately 50 Ph.D. students, and 30 master’s students. The Consortium’s member companies include Analog Devices, Intersil, ON Semiconductor, Raytheon, RF Micro Devices, Schlumberger, and Texas Instruments.

The Georgia Tech Broadband Institute (GTBI) is an interdisciplinary research institute that fosters interdisciplinary research in networking and security, and multimedia and user interfaces. The funding for these projects supported over 25 students. In addition, GTBI held semi-annual Industrial Advisory Board meetings in October 2003 and April 2004, where the results of the industry-guided research were presented. These sessions offered the sponsors opportunities to interact with the faculty and students during poster sessions and lab tours/demos. The April meeting resulted in over 33 proposals for new or continued funding in FY05 within the same areas of focus. GTBI expects to fund about half of these, taking industry feedback into account.

The Interactive Media Technology Center (IMTC) is focused on advancing science, technology, education, and culture through the use of interactive technologies. IMTC also contains a biomedical component referred to as the Biomedical Interactive Technology Center (BITC). The Center is directed by Dr. John C. Hightower, and is a member of the chartered MiRC (Microelectronics Research Center) and the Georgia Tech Bicentennial Corporation.

The Interactive Media Technology Center (IMTC) is focused on advancing science, technology, education, and culture through the use of interactive technologies. IMTC also contains a biomedical component referred to as the Biomedical Interactive Technology Center (BITC). The Center is directed by Dr. John C. Hightower, and is a member of the chartered MiRC (Microelectronics Research Center) and the Georgia Tech Bicentennial Corporation.

The GEORGIA TECH ANALOG CONSORTIUM is a proven, effective way for companies to receive direct and tangible benefits through faculty access, student research, and semi-annual research reviews that are held in the spring and fall. At the same time, the program gives sponsored students real-world experience through ongoing research interactions with faculty and fellow students and via cooperative/internship assignments. ECE has a very active educational program in analog circuits and systems at both the undergraduate and graduate level.

In addition, GTBI held semi-annual Industrial Advisory Board meetings in October 2003 and April 2004, where the results of the industry-guided research were presented. These sessions offered the sponsors opportunities to interact with the faculty and students during poster sessions and lab tours/demos. The April meeting resulted in over 33 proposals for new or continued funding in FY05 within the same areas of focus. GTBI expects to fund about half of these, taking industry feedback into account.

The INTERACTIVE MEDIA TECHNOLOGY CENTER is one of the world’s foremost electric energy research, testing, and evaluation facilities, the National Electric Energy Testing, Research, and Applications Center (NEETRAC) is a member of the Electric Energy Research, Development, and Testing Center that is engaged in a wide spectrum of innovative activities, including cable and cable accessory assessment, connector evaluation, failure analysis, grounding and surge protection service, high voltage testing services, and overhead conductor assessment.
RESEARCH AND EDUCATION
UNIVERSITY CENTER FOR EXCELLENCE IN PHOTOVOLTAICS

and Engineering (UCEP) has made considerable strides in making solar-electric power technology less expensive and more efficient. Established by the U.S. Department of Energy in 1992, UCEP is one of the largest solar power research centers in the U.S. Led by Ajay Rohatgi, Regents Professor and Georgia Power Dissatisfied Professor, UCEP is unique because it has both state-of-the-art research laboratories and an on-campus solar powered facility that also acts as a research laboratory. UCEP labs house facilities for materials characterization, solar cell modeling, process development and cell fabrication, and solar cell testing. Dr. Rohatgi and researchers in the Center have established several world records for high efficiency cells. In 2003, UCEP achieved five new record efficiencies, including 18.2 percent and 17.9 percent efficient cells on BGF and String Ribbon Si with photolithography contacts and 17 percent, 16.1 percent, and 15.6 percent efficient cells on EFG, SR, and HMP multicrystalline materials with manufacturable screen printed contacts. A technological centerpiece in the 1996 Summer Olympics, the 342 kW rooftop, grid connected photovoltaic (PV) system at the Georgia Tech Aquatic Center now serves as a test bed for large-scale PV arrays. The solar-powered system provides about 30 percent of the electrical energy needed for the Aquatic Center and saves Georgia Tech almost $30,000 a year in energy bills. It has produced more than 2 billion watt hours of electrical energy during the last six years, an amount sufficient to provide power to about 70 homes, and prevents the release of almost 400 tons of carbon dioxide into the atmosphere every year.

ECOE-FOUNDED STARTUPS REACH MILESTONES During FY 04, significant investments were made in Advanced Technology Development Center’s (ATDC) graduate companies founded by ECE faculty members: Quellan ($5.5 million, founded by Joy Laskar); Lancope ($12.5 million, founded by John A. Copeland); N杏edia (formally known as Fast Talk Communications, $7.5 million, co-founded by Mark A. Clements); and CardioMEMS ($14 million, co-founded by Mark G. Allen). In its May 6, 2004 issue, the Atlanta Business Chronicle listed the top 25 venture investments in Atlanta of 2003. Four companies were established by ECE faculty members – CardioMEMS (seventh), Nexidia (13th), BGF, Inc. (18th, founded by Mark A. Clements); and Lancope (24th). ATDC, based on the Georgia Tech campus in Technology Square, is a nationally recognized technology incubator that helps Georgia entrepreneurs launch and build successful companies. In July 2004, JMD Micro Devices (1st) closed on its first round of financing for an undisclosed sum from Non-Vesalius Partners, Swin Van Roos-Funds, Imbuy Investments, the ATDC Seed Capital Fund, and Atlanta Technology Angels. Company founders are Madhavan Swami-nathan and Rao Tummala, professors in ECE and deputy director and director of the Packaging Research Center (PRC), respectively; Ven- katesh Sundaram, a PRC researcher; and George White and Sridhar Dalmia, formerly PRC researchers who now work full-time with MD. In March 2004, Jim Stratigos (BEE ’74, MSEE ’80) joined (MD as its CEO). In July 2004, GTRI, a new startup company created through ATDC’s VentureLab initiative, closed a round of seed financing with Silicon Valley-based Menlo Ventures that will support commercialization of a new technology aimed at integrating its novel, fully programmable analog chips into future generations of portable wireless products to improve performance, lower costs, and reduce power consumption. The new company has exclusively licensed two patents for cooperative analog-digital signal processing that were developed...
in the laboratory of Paul Hasler, an associate professor in ECE, Hal Cal-
houn (EE, 87, PhD ’93) is the managing director at Menlo Ventures and will serve on the STMicro’s board of directors, and Dr. Hasler serves as the company’s chief science officer.

ATDC hosted its 34th annual Open House in May 2004. The event featured the graduation of two ATDC companies, “a company showcase” featuring products and services from member companies, and recognition of ATDC supporters and volunteers. Among the graduate companies, congratulated for their accomplishments measured by sustainable operations, investment, and revenues, was EGT, Inc. EGT produces MPEG-2 digital video encoders used by cable, satellite, and telecommunications networks to provide the best-quality video with the lowest possible bandwidth. Based on innovations in signal processing and compression technologies, EGT’s encoder allows a network operator to deliver more channels of content within a given amount of bandwidth, reduce requirements for rack space, power, and cooling, and build in flexibility for future video processing applications. EGT has sold and deployed encoders to leading cable and satellite providers throughout North America and the world, enabling operators to optimize bandwidth utilization and deliver new services to subscribers over their existing networks.

**FUTURETRUCK**

Georgia Tech was among the 13 teams from U.S. and Canadian universities that competed in the fifth year of FutureTruck, held in June 2004 at Ford’s Michigan Proving Grounds in Romeo, Mich. The Georgia Tech team placed third in the overall competition and won first place in the technical event for Acceleration. Comprised of undergraduate students in mechanical and electrical engineering, the team was advised by Jerome Meisel, an ECE visiting professor. FutureTruck is a joint government-industry project created by the U.S. Department of Energy to explore alternative propulsion systems and fuels through student competition. The program’s goal is to help raise the environmental performance of the popular sports utility vehicle, reduce requirements for rack space, power, and cooling, and build in flexibility for future video processing applications. EGT has sold and deployed encoders to leading cable and satellite providers throughout North America and the world, enabling operators to optimize bandwidth utilization and deliver new services to subscribers over their existing networks.

**FIRST LEGO LEAGUE COMPETITION**

Twenty-nine teams of students ages 9 to 14 gathered at SciTrek Museum to compete in the State of Georgia’s FIRST LEGO League Challenge in November 2003. ECE faculty, staff, and students, in partnership with SciTrek, hosted this event, and Jeffrey A. Davis, an assistant professor in the computer engineering and microsystems areas, served as the overall competition coordinator for the third consecutive year. Under his leadership, this activity has more than quadrupled in size. Following the theme of “Mission Mars;” the 2003 Challenge provided students the experience of what it would be like to visit and explore Mars, with visions toward colonization.

**FIRST (For Inspiration and Recognition of Science and Technology)**, an organization founded to inspire interest in science and engineering among young people, joined forces with The LEGO Company to create FIRST LEGO League, which designs a different, real-world game challenge every year. The 2003 competition winners were the Galactic Designers, a six-member team from the Galloway School in Atlanta and Sope Creek Elementary School in Marietta, Ga. The State of Georgia’s FIRST LEGO League Challenge was supported by grants from NSF, Kimberly Clark, and the Netherlands American Trust.

**DUPUIS APPOINTMENT**

Russell D. Dupuis joined ECE in August 2003 as the Steve W. Chadick endowed chair in Electro-Optics and GPA Eminent Scholar and is involved in the microsystems and optics and photonics areas. Before moving to Georgia Tech, he held the Judson S. Swearingen Regents Chair in Engineering in the Department of Electrical and Computer Engineering at the University of Texas at Austin. Dr. Dupuis is a member of the NAE and Fellow of the IEEE and Optical Society of America. In November 2003, he was awarded a National Medal of Technology by U.S. President George W. Bush at a White House ceremony.

**McClellan named as McCarty Chair Professor**

James H. McClellan was named as the new John and Marietta McCarty Chair Professor in the School of ECE, effective July 1, 2004. Dr. McClellan assumes this new title after the retirement of Ronald W. Schafer, who held the McCarty Chair since his arrival at Georgia Tech in 1974. A member of the ECE faculty since 1987, Dr. McClellan has most recently held the title of Byers Professor. An IEEE Fellow, Dr. McClellan is the 2004 co-recipient of the IEEE Jack S. Kilby Signal Processing Medal, with his Ph.D. thesis advisor, Tom Parks of Cornell University, “for fundamental contributions to digital filter design and interpolation, especially the Parks-McClellan algorithm.”

**Cressler, McLaughlin named to Byers Professorships**

John D. Cressler and Steven W. McLaughlin were named as Byers Professors, effective July 1, 2004. Endowed by Kenneth G. Byers, Jr. (BEE ’69, MSEE ’66), these professorships provide a major incentive to retain faculty members who are leading teachers and scholars, yet who are attractive to industry and other institutions. Dr. Cressler’s main interests are in silicon-based microelectronic devices and technologies, radiation effects in electronics, cryogenic electronics, and transistor-level numerical simulation and compact circuit modeling. A Fellow of the IEEE and a recipient of the IEEE Third Millennium Medal, Dr. Cressler is associated with the Georgia Electronics Design Center and the Georgia Tech Analog Consortium. He is a member of the microsystems and electronic design and applications technical interest groups.

Dr. Cressler is the director of Research at Georgia Tech’s Institute of Electronics and Information Technology, and his research interests are in the areas of information theory, error control coding, coding and signal processing for magnetic/ optical storage and fiber optic transmission systems, and source coding and data compression. Dr. McLaughlin is a past recipient of the NSF Presidential Early Career Award for Scientists and Engineers, and he is the second vice president of the IEEE Information Theory Society. He is a member of the telecommunications technical interest group.

**Lantermann named to Paris Professorship**

Aaron D. Lantermann was named as the Demetrius T. Paris Professor in ECE, effective July 1, 2004. The ECE Advisory Board established this professorship in 1998 in honor of Dr. Paris—who served as the School’s chair from 1969-89—to support the professional advancement of junior faculty. An assistant professor in DSP, Dr. Lantermann’s research interests are in the areas of target recognition, image reconstruction, and radar systems.
MERSEREAU, YALAMANCHILI NAMED TO PETITT PROFESSORSHIPS
Russell M. Mersereau and Sudhakar Yalamanchili were named as Joseph H. Pettit Professors, effective July 1, 2004. Funds from these professorships will support program development in Dr. Mersereau's and Yalamanchili's areas of interest.

Dr. Mersereau is a Regents Professor who is a member of the DSP technical interest group. His research lies primarily in the areas of enhancement, modeling, and coding of computerized images and video; DSP for communications; acoustic arrays for echo removal and object tracking; and pattern recognition. An IEEE Fellow, he has been on the ECE faculty since 1975 and is an international leader in two-dimensional signal processing.

Dr. Yalamanchili is a professor in the computer engineering area. His research is in the areas of customizable hardware/software for embedded platforms, design and analysis of interconnection networks, and cluster computing architectures. A member of the ECE faculty since 1989, he is the associate director for the Center for Research on Embedded Systems and Technology and leads the Center's architecture design thrust group.

SAYLE RETIREMENT
After 33 years of distinguished service, William E. Sayle retired as professor and associate chair for ECE Undergraduate Affairs in August 2003. Dr. Sayle began his career at Georgia Tech in 1970 and devoted it to teaching in the power electronics, microsystems, and electronic design and applications areas and in the overall development and promotion of engineering education. During Dr. Sayle's 15-year tenure as associate chair for ECE Undergraduate Affairs, the School's reach grew from its Atlanta campus to Georgia Tech Savannah in southeast Georgia. He was also heavily involved in Georgia Tech faculty governance, and he championed diversity and recruitment of underrepresented minorities and women to engineering and science, long before it became a national issue.

HERTLING AND SCHAEFER RETIREMENTS
In Spring 2004, both David R. Hertling and Ronald W. Schafer retired after many years of tireless efforts on behalf of ECE, Georgia Tech, and their technical fields as a whole.

Dr. Hertling came to Georgia Tech in 1978, and throughout his career, he taught and performed research in electronics, radio frequency electronics, modeling of active devices, computer-aided design and analysis of circuits, and computer-aided design of dipole phased antenna arrays. In 1999, Dr. Hertling became associate chair for ECE Graduate Affairs, where he increased the office's staff to serve the School's graduate students more effectively and efficiently, in using the Internet to distribute information and for the application process, and in more aggressively recruiting the top graduate student applicants. He will continue with the School on a part-time basis, assisting in the ECE Graduate Office and maintaining his longstanding involvement in continuing education courses for RF engineering and wireless communications.

Dr. Schafer came to ECE in 1974 as the John and Marli McCarty Chair Professor of Electrical Engineering, where he was the second faculty member to join the DSP group. In his 30-year career, he has played a major role in establishing the Center for Signal and Image Processing as one of the world's finest, counting 20 affiliated faculty and more than 100 graduate students. He was involved in teaching and research in speech and image processing, nonlinear signal processing algorithms, applications of DSP in multimedia systems, and DSP applications in medicine and biology. A member of the National Academy of Engineering and a Fellow of the IEEE, Dr. Schafer is the recipient of numerous teaching and educational honors from both Georgia Tech and IEEE.

WEBB RETIREMENT
In May 2004, Roger P. Webb, the Steve W. Chadwick School Chair of ECE, announced his plans to retire, effective January 1, 2005, after having served on the ECE faculty since 1964. Dr. Webb served as ECE's associate director from 1978 to 1989, and since 1990, he has served as its director chair. In his 15-year tenure as ECE's top administrator, the School has experienced an incredible amount of growth in the breadth and depth of research, instructional, and economic development programs. Twenty-three new named professor positions, including seven that have GMA Eminent Scholar status, were created during his watch. Under his leadership, the amount of research funding per fiscal year has grown by almost eightfold, and the size of the faculty has increased from 79 in 1990 to a total of 114 who will be employed in ECE as of fall 2004. Upon his retirement, Dr. Webb will join the Office of the Provost and Vice President for Academic Affairs for specific programmatic initiatives.

NEW ACADEMIC AFFAIRS ADMINISTRATORS
Douglas B. Williams became the associate chair for ECE Undergraduate Affairs, effective fall semester 2003. Dr. Williams replaced William E. Sayle, who retired in August 2003. He is responsible for ECE undergraduate curriculum issues, student recruitment, and student advising, and he has continued as ECE coordinator for Georgia Tech Savannah. Dr. Williams teams with Joseph L.A. Hughes, associate chair for ECE Academic Operations. Dr. Hughes handles faculty workload, course scheduling, and oversight of assessment and accreditation activities and has served as an associate chair in ECE Academic Affairs since 1997.

Paul G. Steffes became associate chair for ECE Graduate Affairs, effective at the end of spring semester 2004 with the retirement of David R. Hertling. Dr. Steffes is responsible for curricula, student recruitment, and advising for a graduate program that has numbered approximately 1,000 students during the last couple of years.

McLAUGHLIN APPOINTED TO GTL POST
Steven W. McLaughlin joined the GTL team as its new director of Research, effective January 2004. Significant research collaborations with the French government are already in place. In 1998, an agreement was reached between Georgia Tech, the local Lorraine authorities, and the Centre National de la Recherche Scientifique (CNRS) to establish the GTL-CNRS Telecom Laboratory. This laboratory represents the first partnership of this kind that the CNRS has established with an American university. In 2003, Georgia Tech entered into a research partnership with the Lorraine government to create the Laboratory for Acoustic Characterization of Advanced Materials. Dr. McLaughlin and other GTL personnel also intend to pursue research support from such entities as NSF, the U.S. Department of Education, and the U.S. Department of Defense.

LASKAR NAMED GEDC DIRECTOR
Joy Laskar was named the director of GEDC in March 2004. The initiative combines the efforts of private enterprise, academia, and state government to leverage Georgia's existing high-technology base and its global leadership in

highlights
highlights

Third Annual Awards Program Honors ECE's Best

ECE held its third annual awards program on April 22, 2004 at the Georgia Tech Student Center Ballroom. Twelve student awards, three staff awards, and three faculty awards were presented, recognizing some of the most outstanding members of the ECE community. C. Dean Alford and C. Meade Sutterfield, both ECE alumni and ECE Advisory Board members, hosted the program.

ECE faculty and staff who received awards at the Georgia Tech Faculty/Staff Honors Luncheon, students who received recognitions at the Georgia Tech Student Honors Day and Sigma Xi Awards Program, and recipients of ECE Outstanding Graduate Teaching Assistant Awards were also recognized during this event.

STUDENT AWARDS
Outstanding ECE Sophomore Award.............G. Wallace Tennille
ECE junior Scholar Award....................Adam Eisenman
Most Outstanding ECE Senior Co-op Award.....Robert Yhap
ECE Undergraduate Research Award...........Paul Mandeltort
Outstanding Service to Georgia's Community Award...Jennifer Lee
ECE Faculty Award..............................James Holland
Outstanding Electrical/Engineering Senior Award..............Jon Perry Entwistle
Outstanding Computer Engineering Senior Award........Karthik Balakrishnan
ECE Senior Scholar Award....................Eric Clapper, Triadskar Kasivajhula, Scott Marlette, Michael McDaiden, Lucas Milner, Matthew Moseley, Steven Sanders, David Sinyard
Colonel Oscar P. Cleaver Awards..............William Potocavage, Amanda Preyer

ECE Teaching Assistant Excellence Award.............Samuel Li
ECE Graduate Research Assistant Excellence Award..........Majid Fozunbal

STAFF AWARDS
Hats Off Performance Award..........Sharon Crouch, Pamela Halverson
Research Spotlight Award............Ajay Upadhyaya
Academic Spotlight Award..............Christina Bourgeois

FACULTY AWARDS
Outstanding Junior Faculty Member Award.........Ali Adibi, Raghupathy Sivakumar
Richard M. Bass/Eta Kappa Nu Outstanding Teacher Awards.............Farrokh Ayazi, James O. Hamblen
Distinguished Faculty Achievement Award........Ronald Harley

In Loving Remembrance

ECE Professor Emeritus Thomas M. White, whose career with Georgia Tech spanned over half a century, died unexpectedly on June 26, 2004. Dr. White joined the School in 1948 as an instructor and dedicated his early years to laboratory and course development. In 1969, Dr. White became an undergraduate coordinator for ECE. For nearly 20 years, he continued his leadership in ECE's undergraduate program, as assistant director in 1976, and associate director in 1985. After his retirement from Georgia Tech in 1988, he continued to work part-time in the ECE Academic Office until August 2003. His dedication and love for his students and the School were legendary, and he will be missed.


### Faculty Profile

#### FACULTY PROFILE

<table>
<thead>
<tr>
<th>RANK</th>
<th>Number</th>
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<tbody>
<tr>
<td>Regents' Professors</td>
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<tr>
<td>Professors</td>
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<tr>
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<tr>
<td>Assistant Professors</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>118</strong></td>
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#### Tenured

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<td>Regents' Professors</td>
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<tr>
<td>Professors</td>
<td>54</td>
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<tr>
<td>Associate Professors</td>
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#### Female and Minority Representation

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<tr>
<td>Female</td>
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<tr>
<td>African-American</td>
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</tr>
<tr>
<td>Asian</td>
<td>20</td>
</tr>
<tr>
<td>Hispanic</td>
<td>1</td>
</tr>
<tr>
<td>Multi-racial</td>
<td>1</td>
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</tbody>
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* Includes GT Savannah faculty and all faculty members employed during FY 2004

### Regents' Professors

- **Thomas K. Gaylord**, Ph.D., Rice University
  - Julius Breen Chair Professor
  - Optics; optoelectronics; photovoltaics; photovoltaics in systems; DSP in medicine and biology research; DSP for communications

- **Russell M. Mersereau**, S.D., Massachusetts Institute of Technology
  - Distinguished Professor, Director of the University Center for Photovoltaics Research and Education
  - Modeling and fabrication of low-cost high-efficiency silicon solar cells; growth and characterization of low-temperature and high-performance dielectric; defects and carrier lifetime in semiconductors; rapid thermal processing of SiC devices; growth and optoelectronic properties of compound semiconductors

- **Ajeet Rohatgi**, Ph.D., Lehigh University
  - Georgia Power Distinguished Professor
  - Modeling and fabrication of low-cost high-efficiency silicon solar cells; growth and characterization of low-temperature and high-performance dielectric; defects and carrier lifetime in semiconductors; rapid thermal processing of SiC devices; growth and optoelectronic properties of compound semiconductors

### Faculty

<table>
<thead>
<tr>
<th>Name</th>
<th>Affiliation</th>
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<tbody>
<tr>
<td>Russell D.Dupuis</td>
<td>Steve W. Chaddick Endowed Chair in Electro-Optics</td>
</tr>
<tr>
<td>David R. Hertling</td>
<td>Julius Breen Chair Professor</td>
</tr>
<tr>
<td>Ronald W. Schafer</td>
<td>Julius Breen Chair Professor</td>
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<tr>
<td>Kevin F. Brennan</td>
<td>Regents' Professor</td>
</tr>
<tr>
<td>Martin A. Brooke</td>
<td>Regents' Professor</td>
</tr>
<tr>
<td>Nan Marie Jokerst</td>
<td>Regents' Professor</td>
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</table>

**Total**: 118 faculty members were employed in ECE during 2003-04. Six faculty members were hired—three in ECE and three ECE-affiliated faculty members at Georgia Tech Savannah. Two faculty members resigned; two faculty members retired, and one faculty member died. As of fall 2004, 114 faculty members will be employed in ECE.

Three new faculty members joined ECE for the start of fall semester 2003. Russell D. Dupuis is the Steve W. Chaddick Endowed Chair in Electro-Optics and is a Georgia Research Alliance (GRA) Eminent Scholar, and he is involved in the microsystems and optics and photonics areas. Bernard Kippelen, who came from the University of Arizona, is a professor in the microsystems and optics and photonics areas, and Gregory D. Durgin joined the electromagnetics areas as an assistant professor. Ghassan Al-Regib, Benjamin D. Klein, and P. Douglas Yoder were the newest ECE additions to Georgia Tech Savannah. Dr. Al-Regib is an assistant professor in telecommunications and digital signal processing (DSP); Dr. Klein is an assistant professor in microsystems and optics and photonics; and P. Douglas Yoder is an associate professor in microsystems and optics and photonics. David R. Hertling and Ronald W. Schafer, two faculty members who have made invaluable contributions to the growth and reach of the School of ECE and their respective fields, retired in spring 2004. Dr. Hertling began his career at Georgia Tech in 1978, and in 1999, he became associate chair for ECE Graduate Affairs. Dr. Hertling will continue working with the School on a part-time basis. In 1974, Dr. Schafer came to ECE as the John and Marili McCarty Chair Professor of Electrical Engineering, where he was the second faculty member to join a new area known as DSP. Since then, he played a major role in establishing ECE’s DSP group, known as the Center for Signal and Image Processing, as one of the finest in the world that counts 20 affiliated faculty and more than 100 graduate students.

At the end of summer semester 2003, Kevin F. Brennan, Byers Professor in Microelectronics, died after a long battle with cancer. Dr. Brennan set the bar high for what a faculty member can achieve, while retaining the respect, support, and camaraderie of his academic colleagues and his students. Martin A. Brooke and Nan Marie Jokerst, both named associate chair for ECE Graduate Affairs.

One hundred eighteen faculty members will be employed in ECE.

Sixty-four percent of the ECE faculty is tenured, with all members holding doctorates, and the average age of the faculty was 48. The table summarizes the academic ranks and the ethnic and gender composition of the faculty. A list of the faculty members and their research interests is also included in this section.
Glen S. Smith, Ph.D., Harvard University
John Hopkin Chair in Electromagnetics
Basic electromagnetic theory and measurement; antennas and wave propagation in materials; radiation and reception of pulsed by antennas

Professors
Ian F. Akyildiz, Ph.D., University of Erlangen
Byers Professor in Telecommunications
Wireless networks; satellite networks; next generation Internet

Mark G. Allen, Ph.D., Massachusetts Institute of Technology
Joseph M. Pettit Professor in Microelectronics and Co-Director, Center for MEMS and Microsystems Technologies
Microrheology/microsensors and microactuator fabrication compatible with integrated circuit (IC) fabrication; microelectromechanical systems (MEMS)

Phillip E. Allen, Ph.D., University of Kansas
Schlumberger Chair Professor in Microelectronics
Analog IC design; analog filters; analog modeling and computer-aided design (CAD); analog circuits and systems for telecommunications applications

Thomas P. Barnwell, III, Ph.D., Massachusetts Institute of Technology
Director, Arbutus Center for Distributed Engineering Education; Arbutus Chair in Distributed Engineering Education; and GRA Eminent Scholar
Computer-enhanced education; speech analysis, synthesis, and coding; multiprocessor architectures for DSP; DSP algorithms; objective speech quality measures

Douglas M. Blough, Ph.D., The Johns Hopkins University
Co-Director, Center for Experimental Research in Computer Systems
Multicomputer architecture; dependable computer systems; operating systems and middleware; computer systems security

Kevin F. Brennan, Ph.D., University of Illinois at Urbana-Champaign
High field carrier transport in semiconductors: optoelectronic device physics; transport properties and device potential of wide band gap semiconductors; electronic device modeling and theory

John A. Buck, Ph.D., University of California at Berkeley
Nonlinear pulse propagation in optical fibers and fiber amplifiers

W. Russell Callen, Jr., Ph.D., Stanford University
Engineering educational methods; integration of engineering and the humanities; professional engineering education

Gee-Kung Chang, Ph.D., University of California at Riverside
Byers Endowed Professor in Optical Networking
Optoelectronic and photonic subsystems; optical networks and systems; optical networking technologies; next-generation optical Internet

Mark A. Clements, Sc.D., Massachusetts Institute of Technology
Director, Interactive Media Technology Center
DSP and analysis; speech recognition; analysis and compensation of stress in speech; sensory aids for the hearing impaired; pattern recognition

John A. Copefand, Ph.D., Georgia Institute of Technology
John H. Weithauer, Jr., Technology Transfer Chair; GRA Eminent Scholar; and Director, Communications Systems Center
Computer communication networks; digital cable television networks; computer architecture and operating systems

John D. Crescador, Ph.D., Columbia University
Silicon-germanium (SiGe) microelectronic devices and technology; Si-based RF/microwave/mm-wave heterostructure devices and circuits; radiation effects in electronics; cryogenic electronics; silicon carbide (SiC) microelectronic devices and technology; transistor-level numerical simulation and compact circuit modeling

Stephen P. DeWeerdth, Ph.D., California Institute of Technology
Neuromorphic engineering, hybrid neural-MEMS systems; biologically-inspired sensor/motor systems and motor learning; analog VLSI circuits and systems; “smart” sensors; remote interfacing to embedded systems

John F. Dorseys, Ph.D., Michigan State University
Modeling and control of large-scale systems; real-time identification of parameters of power system models; online power system security assessment; elimination of sustained oscillations in power systems; effect on stability of nonutility generation

Russell D. Dupuis, Ph.D., University of Wisconsin at Urbana-Champaign
Steve W. Chaddick Endowed Chair in Electro-Optics and GRA Eminent Scholar
Semiconductor materials and devices; epitaxial growth by molecular beam epitaxy; chemical vapor deposition; heterojunction structures in III-V compound semiconductors

Robert K. Fenney, Ph.D., Georgia Institute of Technology
CAD and fabrication of printed-circuit phased-array antennas; integration of advanced monolithic microwave ICs with microwave antennas; CAD for radio frequency (RF) and microwave circuit analysis and design

Ian T. Ferguson, Ph.D., University of St. Andrews in Scotland
Solid state lighting; light-emitting diodes (LEDs)/lasers for UV and biomedical applications; MOLED growth and fabrication of GaN-based materials; intelligent epitaxy; spintronic materials

Bbili G. Glytsis, Ph.D., Georgia Institute of Technology
Diffractive optics; optical interconnections; integrated and fiber optic devices; numerical techniques in electromagnetic problems

Thomas G. Habetler, Ph.D., University of Wisconsin at Madison
Current-based condition monitoring of electric machines; control of electric machine drives; power electronics; design and protection of electric machines

James G. Hambloten, Ph.D., Georgia Institute of Technology
Rapid prototyping; embedded systems; computer architecture; CAD

Ronald G. Harley, Ph.D., London University
Duke Power Company Distinguished Professor
Power system stability and control; including flexible AC systems devices; power electronics; motor drives, and electric vehicles; neural networks applied to power electronics and electrical machines

Monsen H. Hayes, III, Sc.D., Massachusetts Institute of Technology
Stereo image processing; face and gesture recognition; multimedia signal processing; adaptive signal processing; Internet education
Bonnie S. Heck, Ph.D., Georgia Institute of Technology
Control theory; power electronics; software architecture for control systems

David R. Herrling, Ph.D., University of Illinois at Urbana-Champaign
Modeling of linear and non-linear active devices; CAD and analysis of electronic circuits; CAD of planar diode phase shifter arrays

Joseph L.A. Hughes, Ph.D., Stanford University
Associate Chair for ECE Academic Operations
IC testing; VLSI system design; optical communication networks; educational program assessment

William D. Hunt, Ph.D., University of Illinois at Urbana-Champaign
Thin film piezoelectric materials; surface acoustic wave and bulk acoustic wave devices for wireless applications; microelectronic acoustic transducers in chemical sensing and biological research; device physics and fabrication of microelectronic acoustic devices

Ramesh C. Jain, Ph.D., Indian Institute of Technology at Kharagpur
Research in fabricating of microelectronic acoustic devices for wireless applications; microelectronic acoustic transducers in chemical sensing and biological research; device physics and fabrication of microelectronic acoustic devices

Biing-Hwang (Fred) Juang, Ph.D., University of California at Santa Barbara
Modeling of linear and non-linear active devices; optical network interfaces and imaging systems; alignment tolerance in electronic packaging applications; antennas and microwave devices; computational electromagnetics; radar signature prediction; signal processing for portable devices, wireless communications; multimedia and multimodal communications

W. Marshall Leach, Jr., Ph.D., Georgia Institute of Technology
Electroacoustic modeling of transducers; audio signal processing; analog circuit design; low-noise electronics; electromagnetics

Chin-Hui Lee, Ph.D., University of Washington
Speech and speaker recognition; multimedia signal and information processing; speech and language understanding; spoken dialogue processing; pattern recognition; machine learning; biometric authentication; multimodal access; information retrieval and text categorization

James R. McClellan, Ph.D., Rice University
Syens Professor in Digital Signal Processing
Computer technology applied to education, sensor array signal processing; radar signal processing; software for DSP

Vijay K. Madisetti, Ph.D., University of California at Berkeley
Embedded software systems; digital system design; VLSI systems; system-on-package and system-on-chip technologies; DSP hardware and software

Gary S. May, Ph.D., University of California at Berkeley
Executive Assistant to President G. Wayne Clough and Motorola Foundation Professor
Computer-aided manufacturing of ICs and devices; monitoring, modeling, simulation, control, and diagnosis of semiconductor fabrication processes; IC design for manufacturability; IC yield modeling; computer-aided design; education

Joseph D. Meindl, Ph.D., Carnegie Mellon University
Professor of Electrical and Computer Engineering
Computer technology applied to education; sensor array signal processing; speech and language understanding; spoken dialogue processing; pattern recognition; machine learning; biometric authentication; multimodal access; information retrieval and text categorization

John B. Peatman, Ph.D., Case Western Reserve University
Development of low-cost tools for the design of microcontroller applications; embedded microcontroller applications

Andrew F. Peterson, Ph.D., University of Illinois at Urbana-Champaign
Associate Chair for ECE Faculty Development
Computational electromagnetics; radar signature prediction; signal integrity in electronic packaging applications; antennae and microwave devices

Hans B. Püttgen, Ph.D., University of Illinois at Urbana-Champaign
Associate Chair for ECE Academic Affairs
Power system reliability and risk assessment; power systems operations planning; electromagnetic influence of power systems; power quality; protective relaying and disturbance analysis; simulation, animation, and visualization of power systems

Krishna V. Palam, Ph.D., University of Texas at Austin
Director, Center for Research in Embedded Systems and Technology
Adaptive hardware, compiler optimizations for instruction level parallel processors, embedded and fault-tolerant systems; parallel computing, programmable memory hierarchies, and smart caches; real-time systems, timing, and pattern matching

John B. Peatman, Ph.D., Case Western Reserve University
Development of low-cost tools for the design of microcontroller applications; embedded microcontroller applications

Andrew F. Peterson, Ph.D., University of Illinois at Urbana-Champaign
Associate Chair for ECE Faculty Development
Computational electromagnetics; radar signature prediction; signal integrity in electronic packaging applications; antennae and microwave devices

Hans B. Püttgen, Ph.D., University of Illinois at Urbana-Champaign
Associate Chair for ECE Academic Affairs
Power system reliability and risk assessment; power systems operations planning; electromagnetic influence of power systems; power quality; protective relaying and disturbance analysis; simulation, animation, and visualization of power systems

James R. McClellan, Ph.D., Rice University
Syens Professor in Digital Signal Processing
Computer technology applied to education, sensor array signal processing; radar signal processing; software for DSP

Gary S. May, Ph.D., University of California at Berkeley
Executive Assistant to President G. Wayne Clough and Motorola Foundation Professor
Computer-aided manufacturing of ICs and devices; monitoring, modeling, simulation, control, and diagnosis of semiconductor fabrication processes; IC design for manufacturability; IC yield modeling; computer-aided design; education

Joseph D. Meindl, Ph.D., Carnegie Mellon University
Professor of Electrical and Computer Engineering
Computer technology applied to education; sensor array signal processing; speech and language understanding; spoken dialogue processing; pattern recognition; machine learning; biometric authentication; multimodal access; information retrieval and text categorization

John B. Peatman, Ph.D., Case Western Reserve University
Development of low-cost tools for the design of microcontroller applications; embedded microcontroller applications

Andrew F. Peterson, Ph.D., University of Illinois at Urbana-Champaign
Associate Chair for ECE Faculty Development
Computational electromagnetics; radar signature prediction; signal integrity in electronic packaging applications; antennae and microwave devices
Jay H. Schlag, Ph.D., Georgia Institute of Technology
Associate Chair for ECE Operations
Computer applications; CAD; neural networks

Waymond R. Scott, Jr., Ph.D., Georgia Institute of Technology
Methods for detecting buried objects using both electromagnetic and acoustic waves; measurement of electromagnetic properties of materials; transient electromagnetic fields; numerical methods including the finite element and the finite-difference time-domain techniques; antennas

Paul G. Steffes, Ph.D., Stanford University
Associate Chair for ECE Graduate Affairs (Effective May 2004)
Microwave systems for remote sensing of planetary atmospheres and surfaces; microwave and millimeter-wave properties of terrestrial and planetary atmospheres; satellite communications and navigation systems; spectrum allocation and usage; non-invasive monitoring of glucose in the human body/radio astronomy

Gordon L. Stubber, Ph.D., University of Waterloo
Joseph M. Pettit Professor in Communications
Wireless physical communications; cellular mobile radio systems; broadband wireless access systems

Madhavan Swaminathan, Ph.D., Syracuse University
Deputy Director, Packaging Research Center
Numerical methods in electromagnetic interconnect design and analysis; power distribution for GHZ systems; time domain characterization methods; IC package co-design

Allen Tannenbaum, Ph.D., Harvard University
Julian Hightower Professor
Computer vision; image processing; computer graphics; control theory; cryptography; biomedical imaging

David G. Taylor, Ph.D., University of Illinois at Urbana-Champaign
Director, Center for Board Assembly Research, and Associate Director, Center for Experimental Research in Computer Systems
Nonlinear control systems; electromagnetic systems and devices; optimization of manufacturing machines

Rao R. Tummala, Ph.D., University of Illinois at Urbana-Champaign
Director, Packaging Research Center; Joseph M. Pettit Chair in Electronics Packaging; OSA Eminent Scholar
Microwave electronics systems packaging; electronic materials; display technologies; magnetic storage

George J. Vachtsevanos, Ph.D., The City University of New York
Co-Director, Center for Experimental Research in Computer Systems, and Associate Director, Center for Research in Embedded Systems and Technologies
Hierarchical/intelligent control of large-scale industrial processes; fault-tolerant and mode transitioning control of unmanned aerial vehicles; vision- and IR-based inspection technologies for textile, glass, and other industrial products; analysis of EEG signals for detection and prediction of epileptic seizures; sensor fusion techniques for classification and control

Erik I. Verriest, Ph.D., Stanford University
Mathematical system theory; algorithms for optical signal processing; effects of finite precision on control model reduction; stochastic realization theory; data compression

Yorai Y. Wardi, Ph.D., University of California at Berkeley
Analysis and optimization of discrete event dynamical systems; gradient estimation via simulation; modeling and simulation of high-speed networks; optimal control of manufacturing systems

Roger P. Webb, Ph.D., Georgia Institute of Technology
Steve W. Chaddick School Chair
Electric power systems; instrumentation; control systems

D. Scott Willis, S.C., Massachusetts Institute of Technology
Portable multimedia supercomputers; short wire VLSI architectures; GSI system modeling; parallel computing; embedded software architectures; high efficiency computing; multiprocessor interconnection networks

Sudhakar Yalamanchili, Ph.D., University of Texas at Austin
Co-Director, Center for Experimental Research in Computer Systems; and Associate Director, Center for Research in Embedded Systems and Technologies
Customizable hardware/software for embedded platforms; design and analysis of interconnection networks; cluster computing architectures

Associate Professors

John R. Barry, Ph.D., University of California at Berkeley
Communication theory; coding, equalization, and synchronization; wireless communications; signal processing for multiuser systems

Miroslav M. Begovic, Ph.D., Virginia Polytechnic Institute and State University
Wide area disturbances in transmission networks; distributed energy resources in power systems; sustainable energy systems; distribution network analysis; applications of DSP to power system protection

Oliver Brand, Ph.D., ETH Zurich
Co-Director, Center for MEMS and Microsystems Technologies
Micromachining, MEMS, micro, and nano systems technology; microsensors for physical, chemical, and biological applications; microsensor fabrication based on IC technologies; microsystem packaging

Martin A. Brooke, Ph.D., University of Southern California
High-speed, high-performance signal processing

Abhijit Chatterjee, Ph.D., University of Illinois at Urbana-Champaign
Mixed-signal and mixed-signal testing; fault tolerant computing; low power circuit design; computer algorithms; digital automation

David S. Citrin, Ph.D., University of Illinois at Urbana-Champaign
Nonlinear optical properties of semiconductor materials and devices; high-speed electronic, photonic, and optoelectronic devices; quantum computing; ultrahigh speed, all-optical switching; terahertz technology

K.-H. Michael Fan, Ph.D., University of Maryland
Video compression; nonlinear optimization; system theory; computer-aided engineering system design; robust control

A. Bruno Frazier, Ph.D., Georgia Institute of Technology
Co-Director, Center for MEMS and Microsystems Technologies
Micromachining, MEMS, and microsystems technology; biomedical microsystems; integrated biodetection systems; microsystems fabrication technologies

Paul E. Hepler, Ph.D., California Institute of Technology
Director, Georgia Tech Analog Consortium
Mixed-signal ICs; floating-gate devices, circuits, and systems; use of floating-gate MOS transistors to build “smart” interfaces for MEMS sensors; low power electronics; analog VLSI models of on-chip learning and sensory processing in neurobiology
Christiana B. Honosberg, Ph.D., University of Delaware  
Design, development, and characterization of novel, commercially-oriented solar cell structures using buried contact technology; identification, modeling, and analysis of novel techniques to overcome traditional homojunction or two-stack tandem efficiency limits; GaAs solar cells.

Mary Ann Ingram, Ph.D., Georgia Institute of Technology  
Wireless communications systems; RF propagation measurements and modeling; array signal processing; antenna pattern synthesis

Chuanery J. Ph.D., California Institute of Technology  
Management and control of heterogeneous and large networks; adaptive algorithms, statistics, and information theory

David C. Kezner, Ph.D., Carnegie-Mellon University  
Test methods for high-performance electronic systems; design of high-speed logic systems; advanced electronics packaging methods; computer applications for music

J. Steven Kenney, Ph.D., Georgia Institute of Technology  
On Semiconductor Junior Professor  
RF and microwave power amplifier design; behavioral simulation and PA linearization; advanced RFC design; phase shifters and beam forming networks for smart antennas

Arthur Kohlaz, Ph.D., California Institute of Technology  
Rehabilitation engineering; medical diagnostic protocols

Ye (Geoffrey) Li, Ph.D., Auburn University  
Wireless communications; adaptive signal processing

Steven W. McLaughlin, Ph.D., University of Michigan at Ann Arbor  
Research Director, Georgia Tech Lorraine  
Communications and information theory; error control coding; coding and signal processing for magnetic and optical storage and fiber optic transmission systems; source coding and data compression

Jennifer E. Michaels, Ph.D., Cornell University  
Ultrasonic testing of components and structures; nondestructive materials characterization; DSP applied to measurement processes; sensors and measurement systems; robotics and motion controls for automated measurements

Thomas E. Michaels, Ph.D., Washington State University  
Nondestructive evaluation of components and structures; materials characterization using ultrasonic methods; development of instrumentation and controls for automated testing; DSP of ultrasonic signals; measurement technology and sensor development

Linda S. Milor, Ph.D., University of California at Berkeley  
Circuit performance (speed) modeling and prediction; analog and mixed-signal testing; yield modeling and prediction; modeling of process modules; statistical process modeling and characterization; digital testing

Henry L. Owen, Ph.D., Georgia Institute of Technology  
Internetworking; computer networks; quality of service in the Internet; network protocol implementations in operating systems

Stephen E. Ralph, Ph.D., Cornell University  
Ultrastable optical devices for high-speed optical communications; ultrafast processes in photonic devices; all-optical switching; optical telecommunications networks; optical materials and phenomena for optical signal processing

David E. Schimmel, Ph.D., Cornell University  
Parallel computer architecture and reconfigurable computing; VLSI system design; system area computer network design; asynchronous and self-timed system design

Douglas B. Williams, Ph.D., Rice University  
Associate Chair for ECE Undergraduate Affairs (Effective August 2003)  
Statistical signal processing; signal processing techniques for communications; adaptive radar signal processing; applications of chaos and nonlinear dynamics to communications

Linda M. Wills, Ph.D., Massachusetts Institute of Technology  
Demetrius T. Paris Professor  
Reverse engineering existing systems for redesign and reuse; retargeting multimedia software to data parallel architectures; dynamically reconfigurable, self-adaptive software; rapid prototyping of real-time embedded systems; interactive architectural simulators for educational use

G. Tong Zhou, Ph.D., University of Virginia  
Statistical signal processing; signal processing for communications applications; DSP-based power amplifier linearization; network traffic analysis; seismic deconvolution; bioinformatics

Assistant Professors

Ali Adibi, Ph.D., California Institute of Technology  
Holographic data storage; holographic optical elements for optical communications; design, characterization, and applications of photonic crystals; optical communication and networking

Yucel Altunbasak, Ph.D., University of Rochester  
Multimedia processing and communications; scalable video coding, high definition television, Internet video, and wireless video; audio-visual information management; 3-D graphics streaming; inverse problems in signal processing

David V. Anderson, Ph.D., Georgia Institute of Technology  
DSP for speech and audio enhancement; signal processing for the hearing impaired; ultra-low power signal processing systems; Internet-based engineering education

Farrokh Ayazi, Ph.D., University of Michigan at Ann Arbor  
Co-Director, Center for MEMS and Microsystems Technologies  
Integrated MEMS; RF MEMS; VLSI analog/mixed-mode circuits for sensor readout and control; integration of high aspect-ratio silicon technologies with CMOS circuits; high-precision inertial sensor systems

Robert J. Butera, Jr., Ph.D., Rice University  
Neural control of breathing; pattern-generating neural circuits; real-time computing applied to electrophysiology; nonlinear dynamics in electronic circuits; nonlinear dynamics in biological circuits

Jeffrey A. Davis, Ph.D., Georgia Institute of Technology  
System-level interconnect prediction; interconnect limits for Gbps compact distributed RLC interconnect device modeling; interconnect-centric design methodologies; on-chip high-speed networks and optimal multi-level network design

 academic faculty

(Effective August 2003)
Ioannis (John) Papapolymerou, Ph.D., University of Michigan
Design; low-power architectures, modeling, and compilers

Gregory D. Durgin, Ph.D., Virginia Polytechnic Institute and State University
Space-time wireless channel modeling, radiolocation, RF engineering and measurement; applied electromagnetics; wireless communications

Magnus Egerstedt, Ph.D., Royal Institute of Technology, Stockholm, Sweden
Hybrid automata theory; robotics, optimal control; complexity issues in control

Faramarz Fekri, Ph.D., Georgia Institute of Technology
Error control coding; wavelets; cryptography; digital communications; DSP for communications

Aaron D. Lanterman, Ph.D., Washington University in St. Louis
Target recognition; image reconstruction; radar systems

Helen-Huin Sean Lee, Ph.D., University of Michigan at Ann Arbor
Computer architecture, compiler optimization, low-energy computing system design, performance modeling analysis techniques; parallel processing, computer graphics

Sung Kyo Lim, Ph.D., University of California at Los Angeles
Physical design automation for VLSI circuits; three-dimensional circuit packaging; layout automation; quantum circuit layout automation; micro-architecture design space exploration; layout automation for reconfigurable circuits; graph theory and combinatorial optimization

Vincent J. Mooney, III, Ph.D., Stanford University
System level design; hardware-software co-design; synthesis of reconfigurable architectures; logic synthesis; application-specific system design; low-power architectures, modeling, and compilers

Ioannis (John) Papapolymerou, Ph.D., University of Michigan
Monolithic microwave/millimeter wave integrated circuits; silicon microelectronics; microwave transistors and mixers; design and modeling of microwave components; circuit simulation; high-speed circuit design

George F. Riley, Ph.D., Georgia Institute of Technology
Electromagnetic simulation of two- and three-dimensional photonic crystals; coherent interactions between light and charge carriers in nanoscale semiconductor devices

Joel R. Jackson, Ph.D., Georgia Institute of Technology
Information and communication theory; DSP in radar and sonar; synthetic aperture imaging; pattern recognition and machine learning; high performance computing for radar and sonar

Anthony J. Yezzi, Jr., Ph.D., University of Minnesota
Image processing, computer vision; estimation and control; computation and algorithms; applied differential geometry

Christopher F. Barnes, Ph.D., Brigham Young University
Information and communication theory; DSP in radar and sonar; synthetic aperture imaging; pattern recognition and machine learning; high performance computing for radar and sonar

Emmanouil M. Tentzeris, Ph.D., University of Michigan
RF packaging; RF MEMS; antenna integration and miniaturization techniques; adaptive transient analysis of active circuits

W. Alan Doolittle, Ph.D., Georgia Institute of Technology
Wide bandgap semiconductor materials and devices; dielectric materials; growth and characterization; electrical, optical, and structural characterization and optimization of electronic materials and devices; microwave device/circuit fabrication; RF power electronic devices

Randal T. Abler, Ph.D., Georgia Institute of Technology
Assistant Professor
Multi-protocol label switching/dense wavelength division multiplexing (MPLS/DWDM) integration; embedded systems design using Internet Engineering Task Force (IETF) session initiation protocol; protocol for use in distributed switching; telepresence for distance learning and distributed content systems for improving network connectivity

Ghassan Al-Regib, Ph.D., Georgia Institute of Technology
Assistant Professor
Multimedia communications; image/video processing; error control coding; selective encryption; three-dimensional graphics streaming; animation compression; multimedia transport protocols; continuous media distribution services

Ghassan Al-Regib, Ph.D., Georgia Institute of Technology
Multimedia communications; image/video processing; error control coding; selective encryption; three-dimensional graphics streaming; animation compression; multimedia transport protocols; continuous media distribution services

Professor
Raghupathy Sivakumar, Ph.D., University of Illinois at Urbana-Champaign
Computer networks; wireless networks; mobile computing; network quality of service

Ashraf Sadl, Ph.D., Vanderbilt University
Associate Professor
Intelligent evolutionary systems; robotics; agent- and multiagent-based systems; mobile agents; artificial intelligence in education

Feodor Vainstein, Ph.D., Boston University
Professor
Fault-tolerant computing; computer hardware and software testing; computer hardware design; digital communication; error-correcting codes; applied mathematics and control

P. Douglas Yoder, Ph.D., University of Illinois at Urbana-Champaign
Assistant Professor
Physics of deep submicron MOS transistors and semiconductor photonic devices; Monte Carlo device simulation

Rahman Zaghoul, Ph.D., University of Nebraska at Lincoln
Professor
Semiconductor materials characterization; novel cognitive enabling educational environments; applications to machine learning, problem solving, robotics, and decision making under stressed conditions

Emmanouil M. Tentzeris, Ph.D., University of Michigan
Computer networks; wireless networks; mobile computing; network quality of service

Christopher F. Barnes, Ph.D., Brigham Young University
Information and communication theory; DSP in radar and sonar; synthetic aperture imaging; pattern recognition and machine learning; high performance computing for radar and sonar

Emmanouil M. Tentzeris, Ph.D., University of Michigan
RF packaging; RF MEMS; antenna integration and miniaturization techniques; adaptive transient analysis of active circuits

W. Alan Doolittle, Ph.D., Georgia Institute of Technology
Wide bandgap semiconductor materials and devices; dielectric materials; growth and characterization; electrical, optical, and structural characterization and optimization of electronic materials and devices; microwave device/circuit fabrication; RF power electronic devices
Professors Emeriti and Length of Service

Cecil O. Alford 1968–98
Henry C. Bourne 1982–92
Aubrey Bush 1965–92 (Employed with the Georgia Center for Advanced Telecommunications Technology)
J. Alvin Connelly 1968–2001 (Employed with ECE on a part-time basis)
Aubrey Bush 1965–92 (Employed with the Georgia Center for Advanced Telecommunications Technology)
J. Alvin Connelly 1968–2001 (Employed with ECE on a part-time basis)
Joseph L. Hammond 1955–84 (Employed with Clemson University)
Richard J. Higgins 1987–99
John W. Hooper 1957–88
Richard P. Kenan 1986–99
Mohamed F. Moad 1963–2001 (Employed with ECE on a part-time basis)
Dale C. Ray 1966–99
George P. Rodrigue 1968–96
William E. Suyk 1970–2003 (Employed with ECE on a part-time basis)
Kendall L. Su 1954–94 (Employed with ECE on a part-time basis)

Joint Faculty Appointments

Gisela Bennett, Senior Research Engineer, Georgia Tech Research Institute
James Foley, Associate Dean, Professor, and Stephen Fleming Chair in Telecommunications, College of Computing
Yogendra Joshi, Professor, Woodruff School of Mechanical Engineering

Adjunct and Part-time Appointments

Emmanuel Anemogiannis, Nortel Networks
Paul J. Benkeser, Wallace C. Coulter Department of Biomedical Engineering at Georgia Tech/Emory University
Daniel J. Blumenthal, University of California at Santa Barbara
David E. Buckman, Free Electron Technology
Bertrand Boussard, Georgia Tech Lorraine
Catherine Brechignac, Centre National De La Recherche Scientifique
Martin A. Brooks, Duke University
Marijn Brummer, Emory University
Brian Butka, Integrated Device Technology
Donald D. Davis, Antec Corporation
Jim D. Echard, Georgia Tech Research Institute
Robert Eisner, Crawford Long Hospital of Emory University

Irfan Essa, College of Computing
Gary G. Gimmead, Georgia Tech Research Institute
Jean-Pierre Goedgebuer, Centre National De La Recherche Scientifique
Mathieu Hans, Hewlett-Packard Company
Nile F. Hartman, Georgia Tech Research Institute (Retired)
E. Jefferson Holdener, Georgia Tech Research Institute
Michele L. Jamrozik, Georgia Tech Lorraine
Nan Marie Jokerst, Duke University
Lance Kaplan, Clark Atlanta University
Fred Kitson, Hewlett-Packard
Laurent Lager, Georgia Tech Lorraine
Bob Lee, Wallace C. Coulter Department of Biomedical Engineering at Georgia Tech/Emory University
Y.-L. Li, Intel Corporation
John O. Limb, Broadcom
Kenneth M. Mackenzie, College of Computing
Bill McKinney, Georgia Tech Research Institute
Robert McNally, NuTek BioMedical
Jerome Meisel, Georgia Tech
William L. Melvin, Georgia Tech Research Institute
Stephen C. Matttler, Lucent Technologies
Joseph W. Monaco, Line Imaging Systems
Romain Murenza, Clark Atlanta University
William R. Owens, Georgia Tech Research Institute
Umakishore Ramachandran, College of Computing
Craig Richardson, ASIC Digital
Tariq Samad, Honeywell
Karsten Schwan, College of Computing
Robert E. Schwerzel, Georgia Tech Research Institute
Oskar Skrinjar, Wallace C. Coulter Department of Biomedical Engineering at Georgia Tech/Emory University
Christopher Summers, School of Materials Science and Engineering
John O. Terry, Nokia
Kwan K. Truong, Polycom, Inc.
May Wang, Wallace C. Coulter Department of Biomedical Engineering at Georgia Tech/Emory University
Stephen B. Wicker, Cornell University
Zhiping (James) Zhou, Georgia Tech Microelectronics Research Center
Faculty Service on Institute Governing Bodies and Committees

Georgia Tech has several governing bodies and standing committees that shape and administer Institute policies. These groups include the Institute Executive Board, the Academic Senate, and the General Faculty; six general faculty standing committees and nine academic faculty standing committees study issues and make policy recommendations.

During 2003-04, 23 ECE academic and general faculty members were involved in academic government, two who served as committee chairs—Frank D. Lambert for the Institute Welfare and Security Committee and D. Scott Wills for the Institute Undergraduate Curriculum Committee.

Executive Board
Andrew F. Peterson

Academic Senate
Miroslav M. Begovic
Robert J. Butera
Jeffrey A. Davis
Joseph L.A. Hughes

General Faculty Assembly
Miroslav M. Begovic
Robert J. Butera
Jeffrey A. Davis
Joseph L.A. Hughes

General Faculty Standing Committees
Faculty Honors
Paul G. Steffes

Faculty Status & Grievance
Erik I. Verriest

Welfare & Security
Mary Ann Ingram
Frank C. Lambert*
Gail D. Palmer

Academic Faculty Standing Committees
Academic Integrity
W. Russell Callen, Jr.
Magnus Egerstedt

Graduate Curriculum
Stephen P. Dollarworth
Monson H. Hayes, III
David R. Herzing

Student Computer Ownership
James H. McClellan

Student Honor Committee
Jennifer E. Michaels
William T. Rhodes

Student Regulations
Thomas G. Habetter

Undergraduate Curriculum
Jeffrey A. Davis
Joseph L.A. Hughes
D. Scott Wills*

* Committee chair
** Ex-officio

Faculty Service on ECE Standing Committees

Education & Research Technology Transfer
Phillip E. Allen
Thomas P. Barnewell, JP
Robert K. Fenne
Monson H. Hayes, III
Borries S. Heck
William D. Hunt
Vijay K. Mariathal
Hans B. Puttgen
William T. Rhodes
Jay H. Shang**
Emmanouil M. Tentzeris

Graduate Student Recruitment
Farrokh Ayazi
Mark A. Clements
Thomas K. Gaylord
Ronald S. Harley
David R. Herzing
Ye Gefrey Li
Victor J. Mooney
John Papapolymerou
Paul G. Steffes
Anthony Y. Yozzi

Laboratory
John A. Budi
Ian P.ergusson
James G. Hambler
Christian B. Hunsberg
W. Marshall Leach, Jr.
Thomas E. Michaels
Waymond R. Scott, Jr.

Senior Appointments, Promotion, & Tenure
Ian F. Ayllos
Mark A. Ginn
Gee-Kung Chang
Stephen P. Dollarworth
Joseph L.A. Hughes
Joy Laskar
Russell M. Mersereau
Andrew F. Peterson*
Hans B. Puttgen
Glen S. Smith
Yves Y. Ward
Sudhakar Yalamanchi

Seminar
Yuval Atarabazak
David S. Chinn
K.H. Michael Fan
James C. Mcdon
Linda S. Milnor
Ronald A. Scher
Gordon L. Stuber*
G. Tong Zhou

Faculty Honors
John R. Barry
Russell D. Dupuis
David C. Keese
Gary S. May
John B. Peatman
Andrew F. Peterson**
Ajeet Rohatgi
Rao R. Tummala
George J. Vachtsevanos*

Faculty Recruitment
John A. Copeland
Nikil S. Jayant
George F. Riley
Allen Tannenbaum
Rogger P. Webb*

Graduate
David V. Anderson
Oliver Brand
Magnus Egerstedt
David R. Herzing*

Student Computer Ownership
James H. McClellan

Student Honor Committee
Jennifer E. Michaels
William T. Rhodes

Student Regulations
Thomas G. Habetter

Undergraduate Curriculum
Jeffrey A. Davis
Joseph L.A. Hughes
D. Scott Wills*
Technical Interest Groups

Bioengineering
Mark G. Allen
Paul E. Hader
Erik J. Veriest
Robert J. Butera, Jr.
William D. Hunt
Anthony J. Yezzi, Jr.
Mark A. Clements
Arthur Koblatz
G. Tong Zhou
Mark A. Clements

Computer Engineering
Randall T. Adler
Robert J. Butera, Jr.
James H. Mentzer
Illi S. Jayant
Vijay K. Madisetti
John B. Reisman
Gordon L. Stuber
D. Scott Wills

Digital Signal Processing
Ghassan Al-Regib
Mark A. Clements
Bing-Hwang (Fred) Juang
Russell M. Mersereau

Electric Power
Miroslav M. Begovic
Thomas G. Habetter
Kirk A. Martin
Ronald W. Schafer

Electronic Design & Applications
Phillip E. Allen
Farrokh Ayazi
John D. Cressler
Stephen E. Ralph

Microsystems
Ali Adibi
Ilan T. Ferguson
Joseph L. A. Hughes
Joy Laskar
Stephen E. Ralph

Optics & Photonics
Ali Adibi
Ilan T. Ferguson
Mary Ann Ingram
A. Bruno Frazier

Systems & Controls
John F. Dorsey
A. P. Sakis Meliopoulos
George J. Vachtsevanos

Telecommunications
Ilan T. Ferguson
Bing-Hwang (Fred) Juang
Ronald W. Schafer
Yorai Y. Ward

Electronic Warfare
Alain H. H. Barnes
George J. Vachtsevanos

Microelectronics
Ali Adibi
R. E. W. Brown

Nanotechnology
A. Bruno Frazier
Ramesh C. Jain

Power Systems
Miroslav M. Begovic
Thomas G. Habetler
Ronald G. Harley

RF & Microwave
Timothy A. Hallenbeck

Robotics
A. Bruno Frazier

Sensors
A. Bruno Frazier

Software Engineering
R. B. Cohn

* Chair
Distance Learning and Professional Education Conferences and Courses

During 2003-04, both active and retired ECE faculty members offered and taught 21 sections of courses through the Georgia Tech Distance Learning and Professional Education (DLPE) Office. Below is a listing of course dates, titles, and ECE-based instructors and administrators; all classes were taught at Georgia Tech’s Atlanta campus, unless indicated otherwise. Three ECE-sponsored conferences and workshops are also included in this list.

<table>
<thead>
<tr>
<th>DATE</th>
<th>TITLE</th>
<th>INSTRUCTOR/ADMINISTRATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 2003</td>
<td>RF &amp; Wireless Principles and Practice</td>
<td>Robert K. Feeney and David R. Hertling</td>
</tr>
<tr>
<td>August 2003</td>
<td>CMOS Analog Integrated Circuits</td>
<td>Phillip E. Allen</td>
</tr>
<tr>
<td>August 2003</td>
<td>Near-Field Antenna Measurements and Microwave Holography</td>
<td>Edward B. Joy (Boulder, CO)</td>
</tr>
<tr>
<td>September 2003</td>
<td>Power Distribution System Grounding and Transients</td>
<td>A.P. Sakis Meliopoulos</td>
</tr>
<tr>
<td>September 2003</td>
<td>DSP for Practicing Engineers</td>
<td>Doug Williams (Online course)</td>
</tr>
<tr>
<td>October 2003</td>
<td>Fundamentals of Synthetic Aperture Radar Signal Processing</td>
<td>Mark Richards</td>
</tr>
<tr>
<td>October 2003</td>
<td>Power System Relaying Theory and Application</td>
<td>Nicoslav M. Begovic and A.P. Sakis Meliopoulos</td>
</tr>
<tr>
<td>November 2003</td>
<td>Wireless Local Area Networks</td>
<td>Benny Bing</td>
</tr>
<tr>
<td>November 2003</td>
<td>Modern Energy Management Systems</td>
<td>A.P. Sakis Meliopoulos</td>
</tr>
<tr>
<td>November 2003</td>
<td>Fault Diagnostics/Prognostics for Equipment Reliability and Health Maintenance</td>
<td>George Vachtsevanos</td>
</tr>
<tr>
<td>December 2003</td>
<td>Far-Field, Anechoic Chamber, Compact, and Near-Field Antenna Measurements</td>
<td>Edward B. Joy</td>
</tr>
<tr>
<td>January 2004</td>
<td>Electrical Engineering Refresher</td>
<td>W. Russell Callen, Jr. and William E. Sayle</td>
</tr>
<tr>
<td>February 2004</td>
<td>Radar Signal Processing</td>
<td>Mark Richards</td>
</tr>
<tr>
<td>March 2004</td>
<td>RF and Wireless Engineering</td>
<td>Robert K. Feeney and David R. Hertling</td>
</tr>
<tr>
<td>March 2004</td>
<td>First International Workshop on Nano &amp; Bio-Electronics Packaging</td>
<td>Leyla S. Conrad</td>
</tr>
<tr>
<td>March 2004</td>
<td>Integrated Grounding System Design and Testing</td>
<td>A.P. Sakis Meliopoulos</td>
</tr>
<tr>
<td>March 2004</td>
<td>Ninth International Symposium on Advanced Packaging Materials</td>
<td>Leyla S. Conrad</td>
</tr>
<tr>
<td>April 2004</td>
<td>Fault and Disturbance Analysis Conference</td>
<td>A.P. Sakis Meliopoulos</td>
</tr>
<tr>
<td>April 2004</td>
<td>Antenna Engineering</td>
<td>Edward B. Joy, Waymond R. Scott, Jr., and Glenn S. Smith</td>
</tr>
<tr>
<td>April 2004</td>
<td>58th Annual Protective Relaying Conference</td>
<td>A.P. Sakis Meliopoulos</td>
</tr>
<tr>
<td>May 2004</td>
<td>Grounding, Harmonics, and Electromagnetic Influence Design Practices</td>
<td>A.P. Sakis Meliopoulos and George Cokkinides</td>
</tr>
<tr>
<td>May 2004</td>
<td>Fault Diagnostics/Prognostics for Equipment Reliability and Health Maintenance</td>
<td>George Vachtsevanos</td>
</tr>
</tbody>
</table>
Two hundred thirteen employees holding academic professional titles, research faculty/personnel titles, and administrative staff titles were employed in ECE during 2003-2004. As of June 30, 2004, ECE employed 188 administrative, research, and academic professionals.

### Academic Professionals

- Jill Auerbach — Academic Professional
- Catherine Bass — Instructor
- Christina Bourgeois — Lecturer
- Leyla Sutuo Conrad — Senior Academic Professional
- Michael O. Purman — Academic Professional
- Warren M. Lander — Academic Professional
- Francois J. Malassenet — Director of Georgia Tech Lorraine/Academic Professional
- Christopher McGahey — Academic Professional
- Gail O. Palmer — Lecturer
- Ashani Perera — Academic Professional
- Kathleen Robichaud — Senior Academic Professional
- David S. Webb — Senior Academic Professional and Assistant to the Chair for Computer Support

### Research Faculty/Personnel

- Robin Abuthu — Research Scientist I
- Caryn Arrowood — Research Engineer I
- Ali Asghar — Research Engineer I
- Junfeng Bai — Postdoctoral Fellow
- Abdul Beysah — Research Engineer I
- Amir Beter — Senior Research Engineer
- Swapna K. Bhattacharya — Senior Research Scientist
- Benny Bing — Research Engineer II
- John Bordelon — Senior Research Engineer
- Edgar Brown — Research Engineer I
- Giorgio Casnodi — Senior Research Engineer
- Sudipto Chakraborty — Research Engineer I
- Thomas C. Champion — Research Engineer I
- Yi-Jan Chen — Research Engineer II
- Uyttie Chowdhury — Postdoctoral Fellow
- Theodore Chung — Postdoctoral Fellow
- Larry T. Coffen — Research Engineer I
- Geong Fook Hooi — Research Engineer II
- Didier Contis — Research Engineer I
- Christophe Courcierault — Research Engineer I
- Florent Crou — Research Engineer I
- Lorand Czakar — Research Technologist
- Siddharth Dalma — Research Engineer II
- Benoit Domench — Research Scientist I
- Ravi Dorowami — Research Engineer II
- Adriane Sivan Durey — Postdoctoral Fellow
- Abasthifreke Ebong — Senior Research Engineer
- Rabah Fesoubelkhes — Research Engineer I
- Mahmoud Fuad Almasri — Postdoctoral Fellow
- Serguei Goupilev — Postdoctoral Fellow
- Mason Graff — Research Scientist I
- Daniel Guildott — Senior Research Scientist
- Jeongseok Ha — Postdoctoral Fellow
- Zihl Hae — Postdoctoral Fellow
- Richard A. Hartlein — Senior Research Engineer
- Lonnie D. Harvel — Senior Research Scientist
- Walter Henderson — Research Scientist I
- Eliezer Hershkovits — Postdoctoral Fellow
- Raymond C. Hill — Research Scientist II
- Raquel Hill — Postdoctoral Fellow
- Zhaoan Huang — Postdoctoral Fellow
- Jianfeng Huang — Postdoctoral Fellow
- Ayaj Jeyaraj — Research Engineer I
- Jimmie Jones — Research Technician III
- Admela Jukan — Research Engineer II
- Sina Khosravi — Postdoctoral Fellow
- Kang-Woo Kim — Postdoctoral Fellow
- Sungwhan Kim — Postdoctoral Fellow
- Tong-Ho Kim — Postdoctoral Fellow
- Frank C. Lambert — Senior Research Engineer
- Chang Ho Lee — Research Engineer II
- Jongsoo Lee — Postdoctoral Fellow
- Peng Li — Postdoctoral Fellow
- Ronglin Li — Postdoctoral Fellow
- Kyu Doe Lim — Research Engineer II
- Fuhua Liu — Research Engineer I
- Pulogurtha Markondeya-Raj — Postdoctoral Fellow
- Jansen McReynolds — Research Engineer I
- Bao Mi — Postdoctoral Fellow
- Oleg Michailovich — Postdoctoral Fellow
- Elliot Moore — Postdoctoral Fellow
- Gun Namkoong — Postdoctoral Fellow
- Sebastian Nuttlicheb — Research Engineer II
- Ming Pan — Postdoctoral Fellow
- Hyun Min Park — Postdoctoral Fellow
- Jin-Woo Park — Postdoctoral Fellow
- Jung Hwan Park — Postdoctoral Fellow
- Thomas J. Parker — Research Technologist
- Shashikant G. Patel — Research Engineer II
- Adam Payne — Research Engineer II
- Stephane Pinael — Research Engineer II
- Mark A. Richards — Principal Research Engineer
- Jae-Hyun Ryu — Research Engineer II
- Caterina Scoglio — Research Engineer II
- Susanta Sengupta — Research Engineer
- Rahul Singh — Research Scientist II
- Samuel F. Smith — Research Scientist I
- W. Whitfield Smith — Senior Research Engineer
- Paul L. Springer — Senior Research Engineer
- Harry T. Sullivan — Research Scientist I
- Venkatesh Sundaram — Research Engineer II
- Dean A. Sutter — Electrical Engineer III
- Liang Tang — Postdoctoral Fellow
- Greg Triplett — Postdoctoral Fellow
- Ajay Uppadhyaya — Research Engineer II
- Patricio Vela — Postdoctoral Fellow
- Yixi Wan — Research Engineer II
- George White — Senior Research Engineer
- Shun-Oei Wu — Postdoctoral Fellow
LaJauna F. Guillory
Dale E. Callaway
Lauren Hall

.........................................................................................................Program Manager

Claudia Ford
Bethany Davis

Margarita Bolet
Debra Balkcom
Christy K. Ellis

Thomas E. Brewer
Robert C. Boozer

Diana L. Fouts
Sandra S. Hayes

Lynda D. Buescher

..................................................................................Program Coordinator II

Yvonne Bridges

Rebecca “Suzzy” Briggs
Director of ECE Development-Alumni

Lynda D. Buescher
Assistant Director for ECE Personnel Services

Mary Christine Bullard
Assistant Accountant III

Dale E. Callaway
Research Coordinator II

Kathy B. Cheek
Program Coordinator II

Sherrie Cooper
Academic Assistant I

Reed Crouch
Program Coordinator II

Sharon Crouch
Assistant Director for ECE Accounting

Marion Crowder
Senior Information Specialist

Bethany Davis
Program Coordinator II

Charlotte A. Daughtey
Administrative Assistant II

Erica Edwards
Accountant II

Angela Ellible
Academic Advisor I

Christy K. Ellis
Administrative Assistant II

Christopher Evans
Project Director II

Kimberly Faggatt
Program Coordinator I

Barry N. Fairley
Research Coordinator I

Cordell Farrar
Administrative Assistant II

Claudia Ford
Academic Advisor II

Diana L. Fouts
Graphics Specialist

Fabienne Guyot-Bergé
Program Coordinator II

Kaynor C. Gilstrap
Administrative Manager I

Lajonna F. Guillory
Program Manager

Samuel Gunderson
Computer Services Specialist III

Pamela F. Halverson
Administrative Assistant II

Lauren Hall
Program Manager

David W. Harwell
Research Coordinator I

Sandra S. Hayes
Program Manager

Elizabeth Hicks
Academic Research Assistant I

Fanchette Hillery
Computer Services Specialist III

Robert R. House
Electronics Specialist

Leslie Hudson
Accountant II

Angela Hughes
Administrative Manager I

Marcus Johnson
Program Manager

Edgar L. Jones
Facility and Laboratory Coordinator

Rajee Joshi-Acharya
Computer Services Specialist III

Debra B. Kelley
Program Manager

Deborah K. King
Administrative Assistant II

Sharon D. Lawrence
Academic Advisor II

Angelo Lawton
Research Coordinator I

Herbert Lensch
Computer Services Specialist II

Judith C. Lorier
Accounting Manager I

Ephraim Macharia
Administrative Assistant I

Keith May
Computer Services Specialist III

Elizabeth McDonald
Systems Support Specialist I

W. Bruce McFarland
Laboratory Coordinator

Thomas McKown
Research Coordinator II

Rachel Melton
Web Developer

Doria Moore
Accountant III

Mary Ellen Mount
Administrative Coordinator

Marilouise Myckio
Program Manager

Janet M. Myrick
Administrative Assistant II

Jacqueline L. Nemeth
Senior Information Specialist

Linda Newton
Administrative Assistant II

Jahila Norton
Program Coordinator II

Julie Peterson
Research Coordinator I

Boyd M. Pettit
Research Coordinator II

Sharon Pugh
Administrative Assistant II

Gail A. Reeves
Project Coordinator II

Mary Rendler
Accountant III

Brian Roussaville
Electronics Technician II

Gwendolyn J. Satchel
Administrative Assistant III

Leslie Schlag
Administrative Assistant

Jason Seabots
Program Coordinator II

Purnima Sharma
Administrative Assistant II

Fred T. Stanley
Research Coordinator I

Florence I. Stolia
Program Coordinator II

Brian Strickland
Programmer

Christine Sun
Programmer III

Dean C. Sutter
Electronics Technician II

Denise D. Taylor
Program Coordinator II

Marvin Tinger
Head of Supply and Materials

Selina Tinsley
Administrative Secretary

Janet Tippens
Information Analyst II

Michael Toolin
Electronics Technician I

Jacqueline Trappier
Administrative Assistant III

Advis Turner
Assistant to the Director for NITRAC Operations

Richard Turner
Electronics Technician II

Judith Vanderboom
Administrative Manager I

Harry L. Yane
Director of ECE Development-Corporate Relations

Darryl Warsham
Accountant III

Todd E. Whitehurst
Computer Services Specialist IV

Dean Williams
Research Coordinator II

Rochelle Y. Williams
Accountant III

Suzette Willingham
Program Coordinator II

Carla Zachary
Accountant III

academic, research, and administrative
Students

The official ECE student enrollment totaled 2,716, according to Georgia Tech’s Office of Institutional Research and Planning. This total represents all full-time and part-time undergraduate and graduate students; including those students enrolled in electrical engineering and computer engineering at the Georgia Tech Savannah campus, as of October 2003.

According to ECE Academic Office records, the average entering freshman had a high school grade point average (GPA) of 3.75, an SAT verbal score of 640, and an SAT math score of 703. The average entering undergraduate transfer student had a high school GPA of 3.50, a previous college GPA of 3.48, an SAT verbal score of 551, and an SAT math score of 642. The average entering graduate student had an undergraduate GPA of 3.62, a GRE analytical score of 724, a GRE quantitative score of 784, and a GRE verbal score of 527.

The tables in this section detail enrollments and graduation totals for each of the School’s academic programs, including percentages of female and ethnic group representation. Female enrollment and graduation totals are derived from the total number of women in each ethnic group.

The list of students includes students who have received awards and honors. Some of the recipients are:

- Pranjal Adurkar received a Georgia Tech Presidential Undergraduate Research Award for his project entitled “Pin Assignment for 3D Packaging.” His advisor on the project was Sung Kyu Lim.
- Gaurav S. Asthana, Majid Badieirostami, Jared Alan Causer, David Wayne Flowers, Andrew Britton Gardner, Kenneth G. Grove, Clyde Ajiforho Lettsome, Andrew W. McKenzie, Alan J. Michaels, Kartik Radhakrishnan, Elbert Michael Ruiz, and Richard Mark Tarbell each received an Outstanding ECE Graduate Teaching Assistant Award.
- Kartik Balakrishnan received the Outstanding Computer Engineering Senior Award for attaining a very high scholastic average and for his active role in Georgia Tech and ECE extracurricular activities. Mr. Balakrishnan also received a Georgia Tech Presidential Undergraduate Research Award for his project, “Congestion-Driven Global Placement for Three Dimensional VLSI Circuits.” His advisor on this project was Sung Kyu Lim.
- Suna Choi and Woopung Kim, and Jiyong Mao were awarded the Shir Keshopadyay Memorial Best Paper Award at the International Conference on Electromagnetic Interference and Compatibility held in Chenzhao, China in December 2003. Their advisor, Madhavan Swaminathan, also served as a co-author on the paper entitled “Electromagnetic Modeling of Switching Noise in On-Chip Power Distribution Networks.”
- Eric Copping received theTau Beta Pi Senior Engineering Cup for demonstrating academic excellence, leadership, and service to the engineering field and to Georgia Tech activities.
- Eric Copping, Trivikram Kasivisal, Scott Marletta, Michael McFadden, Lucas Milner, Matthew Nosalaty, Steven Sanders, and David Sinyard each received the ECE Senior Scholar Award for having the highest GPAs in their class.
- Siddharth Easwar received a Georgia Tech Presidential Undergraduate Research Award for his project entitled “Thermal Analysis for 3D Packaging.” His advisor on the project was Sung Kyu Lim.
- Adam Eisenman received the ECE Junior Scholar Award for having the highest GPA in his class.
- Adam Eisenman and Tianyu Tom Wang received the Henry Ford II Scholar Award for having among the best academic records in the College of Engineering at the end of the third year of undergraduate study.
- John Perry Entwistle received the Outstanding Electrical Engineering Senior Award for attaining a very high scholastic average and for his active role in Georgia Tech and ECE extracurricular activities.
- Siddharth Easwar received a Packaging Research Center National Science Foundation Undergraduate Research Scholarship for his work, “Thermal aware 3D Floorplanning.” His advisor on this project was Sung Kyu Lim.
- Majid Fozounbal received the ECE Graduate Research Assistant Excellence Award for his outstanding research productivity, helping to ensure that ECE remains a leader in the research community.
- James Holland received the ECE Faculty Award for being the student, in the opinion of the ECE faculty, who has done the most to improve the educational environment within ECE or Georgia Tech and has contributed significantly to both student welfare and student-faculty interactions.
- Hung-Yun Hsieh, Kyu-Han Kim, and Yujie Zhu received the Best Student Paper Award at the ACM International Conference on Mobile Computing and Networking (MobiCom) for their work entitled, “A Receiver-Centric Transport Protocol for Mobile Hosts with Heterogeneous Wireless Interfaces.” MobiCom was held in September 2003 in San Diego, Calif. Their advisor is Raghupathy Sivakumar, who was also a co-author on the paper.
- R. Reeve Ingles and Anil Rokatgi each received a Georgia Tech Faculty Women’s Club Scholarship. This scholarship is given to students who are in good academic standing and whose parents are employees of Georgia Tech.
- Deborah Johnson received the Center for the Enhancement of Teaching and Learning/Frank Bogie Nontraditional Student Award. This award is given to a nontraditional-aged junior or senior.
- Jennifer Lee received the ECE Outstanding Service to Georgia’s Community Award for her volunteer work with the FIRST LEGO League Robotic Competition and with the ECE Student Faculty Committee.
- Samuel Li received the ECE Teaching Assistant Excellence Award for his outstanding work in support of the ECE instructional program.
- Paul Mandellfont received the ECE Undergraduate Research Award for demonstrating an unusually strong aptitude for research.
- Rohan Mandrekar was the recipient of the IBM Best Paper Award for his paper entitled, “Extraction of Current Signatures for Simulation of Simultaneous Switching Noise in High Speed Digital Systems.” The paper was presented at the IEEE Electrical Performance of Electronic Packaging Conference (EPEP), held in Princeton, N.J., in October 2003. The co-authors of the paper were his advisor, Madhavan Swaminathan and Sungjun Chun of IBM.
- Jacob Minz received a graduate scholarship at the 40th ACM Design Automation Conference for his project entitled "Chip Package Co-design of Physical Layout for Fast and Reliable System-On-Packages." His advisor was Sung Kyu Lim.
- Rajeshri Mukhopadhyay placed third in the student paper competition at the IEEE MTT International Microwave Symposium in June 2004. His paper was entitled “Reconfigurable RFID’s for Frequency-Agile VCOs in..."
Si-Based Technology for Multi-Standard Applications; and his advisor is Joy Laskar.

Youngcheol Park received an honorable mention at the Student Paper Contest of the 2003 International Microwave Symposium for the paper, “Digital Predistortion Linearization of Frequency Multiplier.” His coauthors were K.M. Low and his Ph.D. advisor, J. Stevenson Kenney.

Eric Pichon received the Best Student Paper Award at MICCAI (International Society and Conference Series on Medical Image Computing and Computer-Assisted Intervention) for his paper, “Statistically Based Surface Evolution Method for Medical Image Segmentation: Presentation and Validation.” His co-authors were R. Kikinis and Allen Tannenbaum, his Ph.D. advisor.

William Potscavage and Amanda Preyer each received the Colonel Oscar P. Cleaver Award for earning the highest scores on the doctoral preliminary examination.

Don Andrew Pottinger received the Dorothy Cowser Yancy Award, given to an African-American freshman with the most outstanding academic record based on GPA, level of curriculum difficulty, and participation in activities related to the student’s program of study.

Aleksandar Pregelj received the Sigma Xi Best Dissertation Award; his advisor was Miroslav M. Begovic.

Sajid Saleem received a Georgia Tech Presidential Undergraduate Research Award for his project entitled “Thermal Analysis for 3D Packaging.” His advisor on this project was Sung Kye Lim.

Michael Sorensen received the Student Paper Award at the 25th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, held in September 2003 in Cancun, Mexico. The paper entitled, “Control of Bursting Activity with an Intrinsically Current in a Hybrid Half-Center Oscillator,” was co-authored by Gennady S. Cymbalyuk, Ronald L. Calabrese, and Stephen P. DeWeerth. Mr. Sorenson’s advisor in the bioengineering program is Miroslav M. Begovic.

Karthik Sundaresan received the Sigma Xi Best M.S. Thesis Award; his advisor was Raghuveer Sivarakum.

G. Wallace Tennille received the Outstanding Sophomore Award for having the highest scholastic average in his class.


Robert Thap received the Most Outstanding ECE Senior Co-op Award; he was chosen from a set of nominees considered by their co-op employers to be the most outstanding co-op employees in their companies.

Yong-Kyu Yoon received second place in the Student Paper Contest of the 2003 International Microwave Symposium for his paper, “Reduced Intermodulation Distortion Distorted Tunable Ferroelectric Capacitor: Architecture and Demonstration.” His co-authors were D.S. Kim, M.G. Allen, and his Ph.D. advisor, J. Stevenson Kenney.
Student Organizations

The lifeblood of ECE is its students. The IEEE student branch, Eta Kappa Nu (HKN), the ECE Student Advisory Council, and the ECE Student-Faculty Committee play very important roles by providing students with opportunities for personal and professional development. These groups also provide valuable input to the School’s faculty and administrators regarding student issues and concerns.

Maintaining its stature as the world’s largest student branch, the Georgia Tech IEEE hosts seminar speakers from various companies and organizations on a weekly basis. They also sponsor a Student Professional Awareness Conference each spring, and they participate in numerous competitions and conferences on the national and international levels.

HKN is the international honor society for electrical engineers; outstanding juniors, seniors, and graduate students are eligible for election to this program. This organization sponsors the annual ECE Spring Picnic and several awards throughout the year, including the Richard M. Bass Eta Kappa Nu Outstanding Teacher Awards, which were presented to Farrokh Ayazi and James O. Hambleton. The ECE Student Advisory Council meets with ECE administrators and the School’s Advisory Board on a regular basis, and the Student-Faculty Committee works on various projects throughout the year to promote more interactions and better relations among students and faculty.

Ph.D. Students Graduated

One hundred five students graduated with their doctoral degrees in 2003-04. The students are listed in this section, along with their advisors, graduation dates, thesis titles, and current places of employment.

Summer 2003

<table>
<thead>
<tr>
<th>Students</th>
<th>Advisors</th>
<th>Defense Type</th>
<th>Thesis Title</th>
<th>Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aziz Batur</td>
<td>Hayes</td>
<td>Illumination-Robust Face Recognition</td>
<td>Technical staff member at Texas Instruments in Dallas, Tex.</td>
<td></td>
</tr>
<tr>
<td>Raheem Bayeh</td>
<td>Copeland</td>
<td>Deployable Framework for Providing Better Than Best-Effort Quality of Service for Traffic Flows</td>
<td>Research engineer in the Communications Systems Center at the Georgia Institute of Technology in Atlanta, Ga.</td>
<td></td>
</tr>
<tr>
<td>Shankar Chandrasekaran</td>
<td>Frazier</td>
<td>Surface Micromachined Hollow Metallic Microneedles</td>
<td>Postdoctoral fellow in the School of Chemical and Biomolecular Engineering at the Georgia Institute of Technology in Atlanta, Ga.</td>
<td></td>
</tr>
<tr>
<td>Justin Davis</td>
<td>Keezer</td>
<td>An FPGA-Based Digital Logic Core for ATE Support and Embedded Test Applications</td>
<td>Assistant professor in the Department of Electrical and Computer Engineering at Mississippi State University in Mississippi State, Miss.</td>
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</tr>
<tr>
<td>Name</td>
<td>Affiliation</td>
<td>Position/Gmailbox</td>
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<tr>
<td>Mehmet Demirkol</td>
<td>Ingram</td>
<td>Assistant professor</td>
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<tr>
<td>Edward Gebara</td>
<td>Laskar</td>
<td>Systems application engineer</td>
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<tr>
<td>Jonathan James</td>
<td>Rhodes</td>
<td>Research engineer</td>
<td></td>
<td></td>
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<tr>
<td>Jung-Hyuck Jo</td>
<td>Jayant</td>
<td>Network consultant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>James Joyner</td>
<td>Meindl</td>
<td>Enrolled as a student</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jungwon Kang</td>
<td>Mersereau</td>
<td>Senior engineer in the Broadcasting Media Technology Department and Radio and Broadcasting Laboratory at the Electronics and Telecommunications Research Institute in Daejeon, South Korea.</td>
<td></td>
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</tr>
<tr>
<td>Joohee Kim</td>
<td>Alburnbasaki/ Mersereau</td>
<td>Senior engineer in the Multimedia Lab at Samsung Advanced Institute of Technology in Suwon, South Korea.</td>
<td></td>
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</tr>
<tr>
<td>Fang Lin</td>
<td>P.Allen</td>
<td>Analog integrated circuit (IC) design engineer at AVS Technology, Inc. in Fremont, Calif.</td>
<td></td>
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</tr>
<tr>
<td>Renato da Rocha Lopes</td>
<td>Barry</td>
<td>Postdoctoral fellow</td>
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<tr>
<td>Gon Namkoong</td>
<td>Brown</td>
<td>Postdoctoral fellow</td>
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<tr>
<td>Ramzy Obaid</td>
<td>Habibter</td>
<td>Postdoctoral fellow</td>
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<tr>
<td>Jung Wook Park</td>
<td>Harley</td>
<td>Postdoctoral fellow</td>
<td></td>
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</tr>
<tr>
<td>Shawn Pinkett</td>
<td>Hunt</td>
<td>SIG model developer at IBM Corporation in Hopewell Junction, N.Y.</td>
<td></td>
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</tr>
<tr>
<td>Arvind Raghavan</td>
<td>Laskar</td>
<td>Senior IC design engineer at Quellan, Inc. in Atlanta, Ga.</td>
<td></td>
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</tr>
<tr>
<td>Jun Tan</td>
<td>Slieber</td>
<td>Self-employed as a consultant in Chicago, Ill.</td>
<td></td>
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</tr>
<tr>
<td>Andrew Thangaraj</td>
<td>McLaughlin</td>
<td>Postdoctoral fellow at Georgia Tech Lorraine in Metz, France.</td>
<td></td>
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</tr>
<tr>
<td>Xudong Wang</td>
<td>Akyildiz</td>
<td>Senior staff research engineer at Klyon, Inc. in Lajolla, Calif.</td>
<td></td>
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</tr>
<tr>
<td>Name</td>
<td>Affiliation</td>
<td>Research Area</td>
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<tr>
<td>Jon Arrowood</td>
<td>Clements</td>
<td>Using Observation Uncertainty for Robust Speech Recognition</td>
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<td>Ashraf Awad</td>
<td>Sivakumar McKinlon</td>
<td>Scalable Application-Aware Router Mechanisms</td>
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<td>Muhammad Bakir</td>
<td>Meindl</td>
<td>Sea-of-Leads Electrical-Optical Pillar Chip I/O Interconnections for Gigascale Integration</td>
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<td>Irtaza Barlas</td>
<td>Yachtavanous</td>
<td>A Multiagent Framework for a Diagnostic and Prognostic System</td>
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<tr>
<td>Jed Brody</td>
<td>Rohatgi</td>
<td>Doping Dependence of Surface and Bulk Passivation of Multicrystalline Silicon Solar Cells</td>
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<tr>
<td>Terence Brown</td>
<td>May</td>
<td>Anion Exchange at the Interfaces of Mixed Anion III-V Heterostructures Grown by Molecular Beam Epitaxy</td>
<td></td>
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<td>Jinsoo Cho</td>
<td>Benkeser</td>
<td>Velocity-Based Cardiac Segmentation and Motion-Tracking</td>
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<tr>
<td>Kyu-Won Choi</td>
<td>Chatterjee</td>
<td>Hierarchical Power Optimization for Ultra-Low Power Digital Systems</td>
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<tr>
<td>Yuhua Ding</td>
<td>Yachtavanous</td>
<td>An Integrated Approach to Real-Time Multisensory Inspection with an Application to Food Processing</td>
<td></td>
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</tr>
<tr>
<td>Jeffrey Dugger</td>
<td>Hasler</td>
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**Students**

- Clements
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<tr>
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<tr>
<td>Yeun-Ho Jung</td>
<td>M. Allen, Postdoctoral associate at Clark Atlanta University in Atlanta, Ga.</td>
<td>Electroplating Bonding Technology for Chip Interconnect Wafer Level Packaging and Interconnect Layer Structures</td>
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<tr>
<td>Kyung Hun Jung</td>
<td>Mersereau, Unknown.</td>
<td>Postdoctoral associate at Clark Atlanta University in Atlanta, Ga.</td>
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<tr>
<td>Minjung Kim</td>
<td>Copeland, Quality of Service Support for Progressive Video Transmission over the Internet</td>
<td>Senior engineer in the Mobile Communication Division at Samsung Electronics, Suwon, South Korea.</td>
</tr>
<tr>
<td>Sangkeun Lee</td>
<td>Hayes, Video Analysis and Abstraction in the Compressed Domain</td>
<td>Senior software engineer at BES in Irvine, Calif.</td>
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<tr>
<td>Yen-Chi Lee</td>
<td>Atunbasak, Error Resilient Video Streaming over Lossy Networks</td>
<td>Employed at Nokia Research Center in Dallas, Tex.</td>
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<tr>
<td>Roy Melton</td>
<td>L. Wills, Parallelizing the Spectral Method in Climate and Weather Modeling</td>
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<tr>
<td>Jeongsaung Moon</td>
<td>Wardi, Timing Control in Manufacturing and Supply Chains</td>
<td>Research engineer at Samsung Electronics in Seoul, South Korea.</td>
</tr>
<tr>
<td>Elliot Moore</td>
<td>Clements, Evaluating Objective Feature Statistics of Speech as Indicators of Vocal Affect and Depression</td>
<td>Assistant professor in electrical and computer engineering at GT Savannah in Savannah, Ga.</td>
</tr>
<tr>
<td>Azad Naeemi</td>
<td>Meindl, Analysis and Optimization for Global Interconnects for Gigascale Integration</td>
<td>Research engineer in the Microelectronics Research Center at the Georgia Institute of Technology in Atlanta, Ga.</td>
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<tr>
<td>Vinod Rajasekaran</td>
<td>Heck, Power Delivery in Systems with Loosy Cables or Interconnects</td>
<td>Electrical engineer III at Schlumberger in Sugar Land, Tex.</td>
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<tr>
<td>Sang-Woo Seo</td>
<td>Jokerst, Development of Thin Film Photodetectors and Their Applications: Multiplexed Detection and High Speed Optical Interconnections</td>
<td>Research engineer in the School of Electrical and Computer Engineering at the Georgia Institute of Technology in Atlanta, Ga.</td>
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<tr>
<td>Mohamed Shalan</td>
<td>Mooney, Dynamic Memory Management for Embedded Real-Time Multiprocessor System on a Chip</td>
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<td>Eung Shin</td>
<td>Mooney, Automated Generation of Round-Robin Arbitration and Crossbar Switch Logic</td>
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<td>Frances Williams</td>
<td>May, Monitoring and Control of Semiconductor Manufacturing Using Acoustic Techniques</td>
<td>Assistant professor at the Department of Engineering at Norfolk State University in Norfolk, Va.</td>
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<tr>
<td>Janghyun Yoon</td>
<td>Jayant, A Network-Aware Semantics-Sensitive Image Retrieval System</td>
<td>Senior engineer in the Mobile Communications Division of Samsung Electronics in Suwon, South Korea.</td>
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<td>Xin Zhong</td>
<td>Clements, Speech Coding and Transmission for Improved Automatic Recognition in Communication Networks</td>
<td>Senior member of technical staff at Northrop Grumman Space Technology in Tustin, Calif.</td>
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<tr>
<td>Wajih Abu-Al-Saud</td>
<td>Assistant professor at King Fahd University of Petroleum and Minerals in Dhahran, Saudi Arabia.</td>
<td>Efficient Wideband Digital Front-End Transceivers for Software Radio Systems</td>
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<td>Ozgur Baris</td>
<td>Assistant professor in the Department of Electrical and Electronics Engineering at the Middle East Technical University in Ankara, Turkey.</td>
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<td>Bilge Akgul</td>
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<td>Assembly Instruction Level Reverse Execution for Debugging</td>
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<td>Tricha Anjali</td>
<td>Assistant professor in the Department of Electrical and Computer Engineering at the Illinois Institute of Technology in Chicago, Ill.</td>
<td>DiffServ/MPLS Network Design and Management</td>
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<td>Mohamed Babaali</td>
<td>Postdoctoral fellow at the General Robotics, Automation, Sensing, and Perception (GRASP) Laboratory/ Department of Electrical and Systems Engineering at the University of Pennsylvania in Philadelphia, Pa.</td>
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<td>Tariq Bakir</td>
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<td>Cagatay Candan</td>
<td>Assistant professor in the Electrical and Electronics Engineering Department at the Middle East Technical University in Ankara, Turkey.</td>
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<td>Cheolung Cha</td>
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<td>Ben Damiani</td>
<td>Senior process engineer at Intel Corporation in Hillsboro, Ore.</td>
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<tr>
<td>Lei Ding</td>
<td>Digital design engineer at Cirrus Logic in Austin, Tex.</td>
<td>Digital Predistortion of Power Amplifiers for Wireless Applications</td>
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<td>Yarkin Eker</td>
<td>Digital design engineer at Texas Instruments, Inc., in Dallas, Tex.</td>
<td>High Frequency Voltage Controlled Ring Oscillators in Standard CMOS</td>
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<td>Ali Erfan</td>
<td>Senior software engineer in the Research and Development Group at Texas Instruments, Inc., in Dallas, Tex.</td>
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<td>Andrew Gardner</td>
<td>Postdoctoral fellow in the Department of Neurology at the University of Pennsylvania, located in Philadelphia, Pa.</td>
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<td>Loran Jatunov</td>
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<td>Dongsu Kim</td>
<td>Kenney, Monolithic Analog Phase Shifters Based on Barium Strontium Titanate</td>
<td>Senior engineer at the Korea Electronics Technology Institute, R&amp;D Division,</td>
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<td>Coated Sapphire Substrates for WLAN applications</td>
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<td>Phongtharath</td>
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<td>Dong-Myung Lee</td>
<td>Habetter, A Voltage Sag Supporter Utilizing a PWM- Switched Autotransformer</td>
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<td>Kwan-Seop Lee</td>
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<td>Postdoctoral fellow in the School of Electrical and Computer Engineering at the Georgia Institute of Technology in Atlanta, Ga.</td>
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<td>Owen, A Methodology for Detecting and Classifying Root KIs</td>
<td>Associate professor in the Department of Electrical Engineering and Computer Science at the United States Military Academy in West Point, N.Y.</td>
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<td>Anthony Mule</td>
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<td>Senior processing engineer at Intel in Hillsboro, Ore.</td>
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<td>Raghunath Murali</td>
<td>Meindl, Scaling Opportunities for Bulk Accumulation and Inversion MOSFETs</td>
<td>Research engineer in the School of Electrical and Computer Engineering at the Georgia Institute of Technology in Atlanta, Ga.</td>
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<td>Postdoctoral fellow in the School of Electrical and Computer Engineering at the Georgia Institute of Technology in Atlanta, Ga.</td>
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<td>Principal research engineer at Global Technology Connection, Inc. in Atlanta, Ga.</td>
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<td>Raviv Raich</td>
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<td>Postdoctoral researcher at the Department of Electrical Engineering and Computer Science at the University of Michigan in Ann Arbor, Mich.</td>
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<td>Han-Woong Son</td>
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<td>Weilian Su</td>
<td>Akyldz, Enabling Quality of Service Applications in Sensor Networks</td>
<td>Assistant professor in the Naval Postgraduate School in Monterey, Calif.</td>
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<td>Jialin Tian</td>
<td>Hayes, Reconstruction of Irregularly Sampled Interferograms in Imaging Fourier Transform Spectrometry</td>
<td>Research scientist at SAIC in Hampton, Va.</td>
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<td>Gregory Triplett</td>
<td>May, Process Modeling of HPS-AAS Materials for High Electron Mobility</td>
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<td>Louis Tirino</td>
<td>Brennan Transport Properties of Wide Band Gap Semiconductors</td>
<td>Employed at MIT Lincoln Laboratory in Lexington, Mass.</td>
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<td>Brian Wilson</td>
<td>Heck Control Designs for Low Loss Active Magnetic Bearings Theory and Implementation</td>
<td>Employed at the U.S. Air Force Research Laboratory/VSSV at Kirtland Air Force Base, N.M.</td>
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<td>Shun Der Wu</td>
<td>Glytsis Polymer Based Volume Holographic Grating Couplers for Optical Interconnects</td>
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<tr>
<td>Jiang Xie</td>
<td>Akyildiz Mobility Management in Next Generation All IP-Based Wireless Systems</td>
<td>Assistant professor in the Department of Electrical and Computer Engineering at the University of North Carolina at Charlotte in Charlotte, N.C.</td>
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<td>Weilai Yang</td>
<td>Blough/Owen Pricing Network Resources for Differentiated Services Networks</td>
<td>Seeking employment.</td>
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<td>Andreas Yankopoulos</td>
<td>Copeland Adaptive Error Control for Wireless Multimedia</td>
<td>Senior engineer at Scientific Research Corporation in Marietta, Ga.</td>
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<tr>
<td>Yong Kyo Yoon</td>
<td>M. Allen Micromachined Components for RF Systems</td>
<td>Postdoctoral fellow in the School of Electrical and Computer Engineering at the Georgia Institute of Technology in Atlanta, Ga.</td>
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Undergraduate Instructional Operations

The ECE Undergraduate Affairs Office schedules and coordinates electrical and computer engineering courses for the main Georgia Tech campus; ECE programs for Georgia Tech Savannah (GT Savannah) and its partner schools, Georgia Southern University, Armstrong Atlantic State University, and Savannah State University; and Georgia Tech Lorraine. During 2003-04, ECE undergraduate enrollment totaled almost 1,800 students on the Atlanta campus. GT Savannah had an enrollment of 47 and produced six electrical engineering graduates—more than any other degree offered at the Savannah campus—and five computer engineering graduates.

Douglas B. Williams and Joseph L.A. Hughes served as associate chair for ECE Undergraduate Affairs and associate chair for ECE Academic Operations, respectively. Dr. Williams is responsible for undergraduate curriculum matters, student recruiting and advising, and served as the GT Savannah coordinator. Dr. Hughes handles faculty workload, course scheduling, and oversight of assessment and accreditation activities.

Jill Auerbach is the School's academic program assessment coordinator. Claudia Ford and Angela Elley continued to advise students on a daily basis, and during summer 2003, Julie Peterson transferred from the Registrar's Office to ECE Undergraduate Affairs, where she became the staff's third academic advisor. Jenet Tippen maintains class schedules in the Banner registration program, produces various reports, manages textbook information, and provides analysis of student and faculty data.

ECE Professor Emeritus Thomas M. White, whose career with Georgia Tech spanned more than 50 years, died unexpectedly on June 26, 2004. Dr. White joined the School in 1948, and from the late 1960s until his retirement in 1988, he advised ECE students in the School’s Academic Office for nearly 20 years, eventually rising to the position of associate director of Undergraduate Affairs. After his retirement in 1988, he continued to advise students on a part-time basis until August 2003, when he “retired” again. His dedication and love for his students and the School were legendary, and he will be missed.

Graduate Instructional Operations

During FY 2004, the ECE Graduate Affairs Office continued its quest to deliver its services more efficiently and effectively, as it processed thousands of pre-applications and actual applications to the ECE program.

David R. Hertling, associate chair for ECE Graduate Affairs, and Marliouise Mycock, academic advisor, advised all students, made graduate teaching assistant assignments, and oversaw proper documentation of student progress through master’s and doctoral programs. Jacqueline Trapier and Suzette Willingham served as administrative supervisor and program coordinator, respectively, and Sherrie Cooper also an academic assistant, works with both the graduate and undergraduate offices. All of these personnel are responsible for recruitment, admission, financial support, advisement, and record keeping. They also work in tandem with the ECE Graduate Committee and the ECE Graduate Student Recruitment Committee to enact sound academic policies and to attract high quality master’s and doctoral students to the program. In May 2004, Dr. Hertling retired after five years of service as associate chair for ECE Graduate Affairs, and Paul G. Steffes took on this position after a semester-long transition period.

Georgia Tech Lorraine

A non-profit corporation located in Metz, France and operated under French law, Georgia Tech Lorraine (GTL) has four areas of emphasis—graduate education, sponsored research, undergraduate summer education, and continuing education. GTL offers under/graduate master's degrees, master's degrees in either electrical and computer engineering or mechanical engineering, and Ph.D. degrees in both disciplines. In fall 2003, GTL graduate enrollment totaled 213—132 who majored in ECE and 81 in mechanical engineering—and graduated 74 M.S.C.E. and 39 M.S.M.E. students during the 2003-04 academic year.

Cooperative agreements with local partner institutions enable students to pursue double degree programs in engineering and sciences, in addition to degrees from Georgia Tech. Upon successful completion of these highly innovative and integrated programs, students are awarded master’s degrees from Georgia Tech and graduate diplomas from a partner institution. The Bâle Program, a double-degree graduate program and an industry-university partnership between the U.S. and France, allow two-member Franco-American student teams to immerse themselves in the other country’s culture through an industrial internship and academic study. The sponsoring company places the American student on work assignment in France, and then the same company places a French student to work at one of its locations in the U.S. For the American student, the program begins with two consecutive semesters of study at GTL and then the student spends three months working for a French company. The program then concludes with a final semester of study at one of the partner institutions.

GTL also offers a 10-week-long, summer undergraduate program that includes courses in architecture, electrical engineering, computer engineering, economics, French industrial and systems engineering, history, technology and society; mechanical engineering; and management. The GTL summer students also had ample time to savor the country’s rich culture and history by traveling on their own during the weekends, as well as on organized excursions to the French cities of Nancy and Verdun and to specific sites in Metz.

Hans E. Pütten and Francois J. Malassenet serve as GTL’s president and director, respectively. Florence I. Stoia and Fabienne Bergé are the GTL program coordinators at the Atlanta campus, while Josyane Raschzit-Pierre and Marie-Pierre Delaix serve as program coordinator and assistant to the director, respectively, at the GTL campus in France. Catherine Bass is the resident director of the summer undergraduate program, and William E. Spayle, retired associate chair for ECE Undergraduate Affairs, also works with Georgia Tech Lorraine academic program development. Steven W. McLaughlin joined the GTL team as its new director of Research in January 2004.
The School of ECE added three new advisory board members—Fred Kitson (MSEE ’75), Kelvin C. Hawkins, Sr. (MSEE ’92), and Ronald S. Slaymaker (BEE ’82)—during the past fiscal year; all who represent strong corporate partnerships with the School and Georgia Tech. Dr. Kitson is the director of the Mobile and Media Systems Lab with Hewlett Packard Laboratories in Palo Alto, Calif. He received his undergraduate degree from the University of Delaware and his Ph.D. from the University of Colorado, where he serves on the Engineering Advisory Council. A 2001 inductee into the College of Engineering, Academy of Distinguished Engineering Alumni, Dr. Kitson serves as an adjunct faculty member at Georgia Tech. Mr. Hawkins is the program director for Xcelience and Initialization Hardware Development for IBM in Research Triangle Park, N.C. He is involved in recruiting efforts on campus and is the technical leader to Tech for IBM. Mr. Hawkins is a 2002 inductee into the CoE Council of Young Engineering Alumni. Mr. Slaymaker is vice president of Investor Relations for Texas Instruments and is responsible for communications with Wall Street analysts and investors regarding the company’s strategies and performance. In this role, he has been recognized as one of the top investor relations officers in the U.S. by Barron’s and Investor Relations Magazine. Mr. Slaymaker also holds an MBA degree from the University of Chicago.

Three advisory board members—Rodney Adkins (BEE ’81, MSEE ’83) of SSPCS Corporation, Atlanta, Ga., and Hal Calhoun (BEE ’87, PhD ’93) of Menlo Ventures—both stepped down from the Board during 2003-04. Mr. Adkins served on the Board since 2000, and Mr. Calhoun was on the Board since 2001. After seven years of service, Mr. Bartlett (BEE ’76) left the ECE Advisory Board to prepare for retirement from Texas Instruments.

Effective fall 2004, C. Meade Sutterfield (BEE ’72) will become the chair of the ECE Advisory Board, succeeding C. Dean Alford (BEE ’76) who served as the Board’s chair for over a decade. Mr. Alford will assume the chair of the ECE Advisory Board, succeeding C. Dean Alford (BEE ’76) who served as the Board’s chair for over a decade. Mr. Alford will assume the chair of the CoE Advisory Board during 2003-04. Mr. Bartlett will assume the chair of the CoE Advisory Board in fall 2004 and will retain his membership on the ECE Advisory Board.

The College of Engineering (CoE) held its annual alumni awards induction ceremony in October 2003 at the Grand-Hyatt Atlanta. Six ECE alumni were inducted into distinct groups of honor—the CoE Hall of Fame, the CoE Academy of Distinguished Engineering Alumni, and the CoE Council of Outstanding Young Engineering Alumni.

Membership in the College of Engineering Hall of Fame is reserved for individuals who have made sustained and meritorious engineering and/or managerial contributions during their careers. Of a total of 13 inductees, one was an ECE alumnus.

Robert Lee Dixon
BEE ’77
Vice President, Information Technology
The Proctor and Gamble Company
Cincinnati, Ohio

David L. Foote
BEE ’81
Chief Technology Officer
Hitachi-Telecom USA
Norcross, Ga.

Leonard Haynes
BEE ’72
Executive Vice President and Chief Marketing Officer
Southern Company
Atlanta, Ga.

Membership in the Council of Outstanding Young Engineering Alumni is bestowed upon alumni under 40 years of age who have demonstrated outstanding professional achievements. Of a total of 13 inductees, two were ECE alumni.

Thomas A. Corker
BEE ’89, MSEE ’90
Vice President and General Manager, Access Products
Cable Networks, Inc.
Petaluma, Calif.

Michael R. Tinskey
MSEE ’91
Manager, Global Business Development
Ford Motor Company
Dearborn, Mich.

College of Engineering Alumni Awards

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College of Engineering Hall of Fame

Membership in the College of Engineering Hall of Fame is reserved for individuals who have made sustained and meritorious engineering and/or managerial contributions during their careers. Of a total of 13 inductees, one was an ECE alumnus.

M. John Willner
BEE ’50
Senior Scientist (Retired)
Hughes Aircraft Company
Santa Ana, Calif.

Academy of Distinguished Engineering Alumni

The College awards membership in the Academy of Distinguished Engineering Alumni to persons whose contributions to Georgia Tech, the engineering profession and field, and/or society have brought distinction to themselves and to the Institute. Of 13 total inductees, three were ECE alumni.

E C E A d v i s o r y B o a r d

An outside perspective is essential to maintaining the relevancy of the School’s programs to its alumni and corporate constituencies. The ECE Advisory Board, composed of mostly alumni industry representatives, provides this external assessment during its formal, biannual meetings and throughout the year.

The School of ECE added three new advisory board members—Fred Kitson (MSEE ’75), Kelvin C. Hawkins, Sr. (MSEE ’92), and Ronald S. Slaymaker (BEE ’82)—during the past fiscal year; all who represent strong corporate partnerships with the School and Georgia Tech. Dr. Kitson is the director of the Mobile and Media Systems Lab with Hewlett Packard Laboratories in Palo Alto, Calif. He received his undergraduate degree from the University of Delaware and his Ph.D. from the University of Colorado, where he serves on the Engineering Advisory Council. A 2001 inductee into the College of Engineering, Academy of Distinguished Engineering Alumni, Dr. Kitson serves as an adjunct faculty member at Georgia Tech. Mr. Hawkins is the program director for Xcelience and Initialization Hardware Development for IBM in Research Triangle Park, N.C. He is involved in recruiting efforts on campus and is the technical leader to Tech for IBM. Mr. Hawkins is a 2002 inductee into the CoE Council of Young Engineering Alumni. Mr. Slaymaker is vice president of Investor Relations for Texas Instruments and is responsible for communications with Wall Street analysts and investors regarding the company’s strategies and performance. In this role, he has been recognized as one of the top investor relations officers in the U.S. by Barron’s and Investor Relations Magazine. Mr. Slaymaker also holds an MBA degree from the University of Chicago.

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2003-04 Advisory Board Members and Their Company Affiliations

C. Dean Alford
BEE ’76
Chair, ECE Advisory Board

Antonio R. Alvarez
Cypress Semiconductor, San Jose, Calif.

Michael B. Bartlett
Texas Instruments, Inc., Dallas, Tex.

Michael Buckler
Lucent Technologies, Cary, N.C.

Hal Calhoun
Menlo Ventures, Menlo Park, Calif.

Steve W. Chadwick
CERN Corporation, Alpharetta, Ga.

Michael A. Coleman

H. Allen Ecker
Petaluma, Calif.

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

Leonard J. Haynes
The Southern Company, Atlanta, Ga.

Fred Kitson
Hewlett-Packard Laboratories, Palo Alto, Calif.

Scott Madigan
Tphone.us, Cumming, Ga.

Jim Maran
Allied Utility Network, Conyers, Ga.

Michael J. McCue
DuPont Company, Wilmington, Del.

Joe Noel
ON Semiconductor, Phoenix, Ariz.

E. Jack Ochiltree
Capital Valley Ventures, El Dorado Hills, Calif.

Randal E. Poliner
Gwinnett County Chamber of Commerce, Duluth, Ga.

Thomas J. Quigley

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

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

C. Meade Sutterfield
SSPCS Corporation, Atlanta, Ga.

*Chair, ECE Advisory Board
Georgia Tech Foundation Grants and Gifts

During FY 2004 various corporations, non-profit organizations, and individual donors contributed $40,703,119 to ECE through the Georgia Tech Foundation. The majority of this total is a $36 million contribution that will fund the construction of the Nanotechnology Research Center, to be located on the Georgia Tech campus. The first table shows the amount of funds designated for specific categories. The second table alphabetically lists the various companies, constituencies, and individuals that donated funds to ECE.

<table>
<thead>
<tr>
<th>FOUNDATIONS/NON-PROFIT ORGANIZATIONS</th>
<th>GIFT CATEGORY</th>
<th>AWARDS</th>
<th>EQUIPMENT</th>
<th>SCHOLARSHIPS</th>
<th>FELLOWSHIPS</th>
<th>LAND PURCHASES/BUILDING PROJECTS</th>
<th>STUDENT SUPPORT</th>
<th>MEMBERSHIPS</th>
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<td>Community Foundation for Greater Atlanta</td>
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**GIFTS**

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<th>STUDENT SUPPORT</th>
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<td>$36,000,000</td>
<td>$20,225</td>
<td>$1,730,804</td>
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**COMPANIES**

- Advanced Optical Systems, Inc.
- Agilent Technologies, Inc.
- Altera Corporation
- American Electric Power Company, Inc.
- AT&T Corporation
- AVX Corporation
- Baltimore Gas and Electric Company
- Bellwether Technologies
- Big Fun Development Corporation
- Boeing Company
- Broadcom Corporation
- Carolina Power and Light Company
- Chevron Texaco Corporation
- Citronet, Inc.
- Cisco Systems, Inc.
- ConEd
- Dominion Virginia Power
- EBS Technologies, Inc.
- Ettena Corporation
- Ewion Mobile Corporation
- Ford Motor Company
- Georgia Power Company
- Global Technology Connection, Inc.
- GRESCO
- Hewlett-Packard Company
- Hitachi Telecom USA
- Honeywell International, Inc.
- IBM Corporation
- Ikon Interventional Systems, Inc.
- LCC Company, Ltd.
- Indium Corporation of America
- Intel Corporation
- Intellix, Inc.
- Kimberly-Clark Corporation
- Kyma Technologies
- Kyocera Corporation
- Lancoze, Inc.
- Lockheed Martin Corporation
- Microsoft Corporation
- MII Sensor Systems and Actuators
- Motorola, Inc.
- National Semiconductor Corporation
- Nokia, Inc.
- Northrop Grumman Corporation
- Nova-Borealis Compounds LLC
- Pataphysics Unlimited, Ltd.
- PeopleSoft
- Polaris Wireless, Inc.
- Fried and Smith, LLC
- Promerus LLC
- Public Service Electric and Gas Company
- Qualcomm, Inc.
- Rambus, Inc.
- Raytheon Company
- Rockwell Collins
- Rogers Corporation
- Rubicon Technology
- Samsung SDI Company, Ltd.
- Schlumberger
- Schlumberger Laboratories
- Schwatz, Simon, Eitelstein, Celso, and Kessel, LLP
- Semiconductor Research Corporation
- Siemens AG
- SoC Solutions
- Sony Corporation
- Southern Company
- Southern States, Inc.
- Southwire Company
- Sumitomo Chemical Company, Ltd.
- Suntrust Bank
- Taiwan Semiconductor Manufacturing Company, Ltd.
- Texas Instruments, Inc.
- Toyota Technical Center USA, Inc.
- TRAP Designs
- Tyco Electronics Corporation
- United Parcel Service
- VT Silicon, Inc.
- Weissman Realty, LLC
- National Storage Industry Consortium
- Purdue University
- Ruitt Bridges Family Foundation
- Southeastern Center for Electrical Engineering Education

**INDIVIDUALS**

- Angela M. Baran
- Harry L. Beck
- T.J. Becker
- Stanley Best
- Rita C. Brennan
- Rebecca S. Briggs
- Michael A. Buckler
- Robert J. Butler
- J.R. W. Russell Callen, Jr.
- Rebecca V. Catovski
- Richard Catrambone
- Rebecca A. Champion
- Michael A. Coleman
- Thomas M. Collins
- Stephen E. Cross
- Sharon K. Craig
- Thomas A. Edwards
- Darleen C. Ferry
- Thomas K. Gaylord
- Stephen M. Goodnick
- Karl Hess
- Donna M. Hoblack
- W. Timothy Holman
- Chi-Ti Hash
- J. Wilson Hughes
- Joseph L.A. Hughes
- Benjamin R. Jordan
- Anne R. Karagozian
- Jan Kolnik
- Thomas J. Quigley
- Janice M. Read
- Robert J. Russnak
- Thomas J. Slater
- Pamela D. Rountree
- William E. Sayle
- Paul Sherly
- Leslie F. Spiegel
- James A. Stratigos
- Lee C. Sudath
- Harry T. Sullivan
- Christopher J. Summers
- Wendy L. Szuman
- Daniel B. Toon
- Kristin S. Tungsten
- Harry L. Vann
- Johnny Vardeman
- Dong X. Wang
- Johnny Vardeman
- Matthew C. Willner
- Jack W. Willner
- Joseph L.A. Hughes
- J. Wilson Hughes
- Chi-Ti Hsieh
- W. Timothy Holman
- Otto and Jenny Kraus Charitable Foundation Trust
- Procter and Gamble Fund
- Scientific-Atlanta Foundation, Inc.
Research Funding

For the third year in a row, the School of ECE broke records in both research grants and contracts and research proposal activity. In FY 2004, ECE faculty acquired a record-breaking $46,067,597 in research grants and contracts, which represented 39.9 percent of the research funding in the College of Engineering, 24.2 percent of the research funding in units receiving resident instruction funding, 19.9 percent of Georgia Tech awards excluding the Georgia Tech Research Institute (GTRI), and 12.2 percent of all Georgia Tech sponsored awards, including those of the GTRI. During FY 04, ECE faculty members submitted 325 proposals, totaling $194,941,178, to various governmental agencies and industrial sources.

These totals include research dollars acquired and proposed by ECE faculty in Atlanta, the Microelectronics Research Center, the Georgia Tech Broadband Institute, ECE faculty based at Georgia Tech Savannah, and the Georgia Electronic Design Center.

Funded Grants and Contracts

![Graph showing funded grants and contracts]

ECE Expenditures for FY 2004

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<td>Research Consortium</td>
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<td>Special Initiative</td>
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<td>Departmental Sales</td>
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<td>Total Expenditures for State-Funded Operations</td>
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<td>Georgia Research Alliance Expenditures</td>
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<td>Sponsored Expenditures*</td>
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<td>Total ECE Expenditures for FY 2004</td>
<td>$65,572,207</td>
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*Includes Georgia Tech Foundation expenditures

TOTAL ECE RESEARCH FUNDING $46,067,597
<table>
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<tr>
<td>404.894.2901</td>
<td>Administrative Office</td>
</tr>
<tr>
<td>404.894.2900</td>
<td>Academic Office</td>
</tr>
<tr>
<td>404.894.2946</td>
<td>Undergraduate Affairs</td>
</tr>
<tr>
<td>404.894.2904</td>
<td>Graduate Affairs</td>
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<tr>
<td>404.894.4025</td>
<td>Development-Corporate</td>
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<tr>
<td>404.894.5210</td>
<td>Development-Alumni</td>
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<tr>
<td>404.894.2906</td>
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<tr>
<td>404.894.4733</td>
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<tr>
<td>404.894.4769</td>
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<tr>
<td>404.894.7574</td>
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<thead>
<tr>
<th>Chair, Roger P. Webb</th>
<th>Program Manager / Assistant to the Chair, LaJauna F. Guillory</th>
</tr>
</thead>
<tbody>
<tr>
<td>404.894.2932</td>
<td>Graduate Affairs, Paul G. Steffes</td>
</tr>
<tr>
<td>404.894.4740</td>
<td>Undergraduate Affairs, Douglas B. Williams</td>
</tr>
<tr>
<td>404.894.2975</td>
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<tr>
<td>404.894.9485</td>
<td>Operations, Jay Schlag</td>
</tr>
<tr>
<td>404.894.4697</td>
<td>Faculty Development, Andrew F. Peterson</td>
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<tr>
<td>404.894.2927</td>
<td>External Affairs, Hans B. Püttgen</td>
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<table>
<thead>
<tr>
<th>Associate Chairs</th>
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</tr>
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<tbody>
<tr>
<td>404.894.2902</td>
<td>ECE Main Office</td>
</tr>
<tr>
<td>404.894.4641</td>
<td>ECE Main Office Fax</td>
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<tr>
<td>404.894.2902</td>
<td>Chair, Roger P. Webb</td>
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<tr>
<td>404.894.4468</td>
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