

School of Electrical and Computer Engineering

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***2000-2001
Annual Report***



School of Electrical and Computer Engineering



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SCHOOL OF ELECTRICAL AND COMPUTER ENGINEERING

MISSION STATEMENT

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.

HIGHLIGHTS

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 highlights for 2000-01.

Major Faculty, Staff, and Student Accomplishments

Ian F. Akyildiz, Kevin F. Brennan, and James H. McClellan were named as Byers Professors for a period of five years.

Mark G. Allen, April S. Brown, Nan Marie Jokerst, Joy Laskar, and Gordon L. Stüber were named as Joseph M. Pettit Professors for a period of five years.

Mark G. Allen, with Ari Glezer of the Woodruff School of Mechanical Engineering, received the College of Engineering Research Award "for work in the microelectromechanical systems area and leadership in establishing this program on the Georgia Tech campus."

Phillip E. Allen received the Georgia Tech Outstanding Continuing Education Award for the quality of instruction, value of courses, and successful development of new courses in the primary area of CMOS analog integrated circuits.

Thomas P. Barnwell, III received the College of Engineering Excellence in Education Award "for work and leadership in establishing the educational technology program in ECE and on the Georgia Tech campus."

Robert J. Butera, Jr. received a James S. McDonnell Foundation 21st Century Scientist Award "for hybrid complex systems—a case study using neuronal dynamics."

W. Russell Callen received the Georgia Tech Class of 1940 W. Roane Beard Outstanding Teacher Award for his extraordinary efforts in teaching, direct impact and involvement with students, intellectual integrity and scholarship, and impact on post-graduate success of students. Dr. Callen also received the El Paso Energy Award "for exceptional dedication as an educator and a mentor."

J. Alvin Connelly received the Georgia Tech Outstanding Service Award for his contributions to the Institute, ECE, the engineering profession, and the Atlanta community.

Jeffrey A. Davis received a National Science Foundation (NSF) CAREER Award "for interconnect dominant ULSI designs: a new paradigm for 21st century IC design and education."

Faramarz Fekri received a NSF CAREER Award "for finite-field wavelets for cryptography and error control coding."

Paul E. Hasler received a NSF CAREER Award "for analog VLSI integrated circuits for real-time neural control."

Nikil Jayant was named executive director of the Georgia Centers for Advanced Telecommunications Technology.

Nan Marie Jokerst was named a Fellow of the Optical Society of America (OSA) "for hybrid integration of optoelectronics onto hosts such as silicon CMOS circuits and polymers, with application to interconnections and computation." ECE has four OSA Fellows on its current faculty.

Joy Laskar received the Georgia Tech Outstanding Faculty Leadership for the Development of Graduate Research Assistants Award for providing extraordinary leadership in direct research advising. Dr. Laskar was also named as Yamacraw's new director of Research.

ECE FACTS

Number of Faculty/Staff

Number of faculty (tenure-track)	103
Joint appointments	2
Adjunct and part-time faculty	43
Professors Emeriti	14
Research and administrative staff	174

Number of Undergraduate Students (Fall Semester 2000)

Electrical engineering	941
Computer engineering	922
Total	1,863

Number of Graduate Students (Fall Semester 2000)*

Doctoral	450
Special	3
Master of Science/M.S.E.C.E.	329
Total	782

Number of Degrees Awarded

B.S.Cmp.E.	104
B.S.E.E.	224
M.S.	51
M.S.E.C.E.	170
Ph.D.	56
Total	605

Grants and Contracts

Total funds received on external grants during FY 01	\$26,324,934
Proposals submitted to external agencies during FY 01	218

*Graduate program offers combined electrical and computer engineering degree

Vijay K. Madiseti received the Georgia Tech Outstanding Doctoral Thesis Advisor Award in recognition of the achievements of a faculty member’s doctoral students.

Gary S. May was named ECE’s associate chair for Faculty Development. Dr. May also received a five-year appointment as the Motorola Foundation Professor for his commitment to excellence in research and diversity issues in science and engineering.

James D. Meindl received the Georgia Tech Distinguished Professor Award for his significant, long-term contributions in teaching, research, and public service. This award is the most prestigious honor given to a faculty member at Georgia Tech.

John B. Peatman received the Richard M. Bass/Eta Kappa Nu Outstanding Teacher Award, which is decided by a majority vote of the ECE senior class. Dr. Peatman is a three-time recipient of this honor.

Hans B. Püttgen was named as the Georgia Power Distinguished Chair Professor.

William E. Sayle received the 2001 American Society for Engineering Education ECE Meritorious Service Award “for outstanding service to the electrical and computer engineering education community, including five years as editor of *The Interface* newsletter.”

Ronald W. Schafer and **G. Tong Zhou** received the College of Engineering/ SUCCEED Mentoring Award “for the Georgia Tech mentor and mentee who together have demonstrated an exemplary teaching and research partnership.”

Jay H. Schlag was named ECE’s associate chair for Operations.

Paul G. Steffes received the Georgia Tech Graduate Student Government Professor of the Year Award for his work and dedication to the Institute’s graduate student body.

Roger P. Webb was named the Steve W. Chaddick School Chair “for his outstanding management of academic and research growth in the School of ECE.”

Linda M. Wills received a NSF CAREER Award for “automated software understanding for retargeting embedded image processing software for data parallel execution.” Dr. Wills was also named as the first recipient of the Demetrius Paris Professorship.

STAFF

Dean Sutter received a Georgia Tech Outstanding Staff Performance Award for his dedicated service to the Packaging Research Center.

STUDENTS

Faramarz Fekri received the Sigma Xi Outstanding Doctoral Thesis Award for his dissertation entitled “Finite-field Wavelet Transforms and Their Application to Error Control Coding.” Currently an assistant professor in ECE, Dr. Fekri was co-advised by **Russell M. Mersereau** and **Ronald W. Schafer**.

Chung-Tse Mar and **David Richard Reid** each received the Henry Ford II Scholar Award, which is given to the engineering students with the best academic records at the end of the third year of undergraduate study.

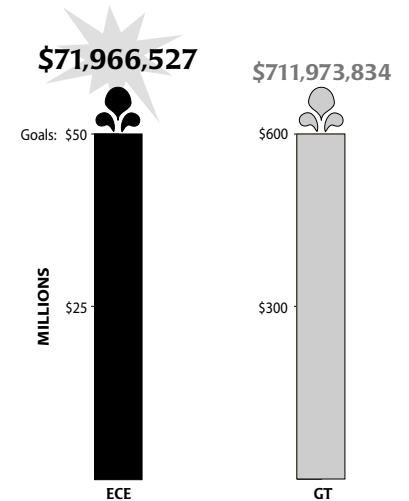
Lawrence Edward McDonald received the Robert Engineering Award, which is presented on an annual rotation to an outstanding rising senior in civil and environmental, electrical, or mechanical engineering.

Rajiv Saigal received the Women’s Student Union Annual “Make a Difference” Award for actively causing positive change in women’s issues to occur within the Georgia Tech community.

Research, Professional, and Educational Milestones

2000-01 GRANTS AND CONTRACTS ECE faculty members acquired \$26,324,934 in research grants and contracts during the last fiscal year. This total represents 33 percent of the research funding in the College of Engineering and 9.5 percent of the entire Institute.

ECE AND THE CAMPAIGN FOR GEORGIA TECH ECE ended “The Campaign for Georgia Tech: The Threshold of a New Era” with a final total of \$71,966,527, far outpacing any other academic unit and representing 10 percent of the Institute’s total of \$711,973,834. The dedicated, efficient, and effective efforts of the ECE external affairs staff—Suzy Briggs, Harry L. Vann, and Hans B. Püttgen—have resulted in 17 new graduate fellowships, seven new endowed chairs, and numerous equipment and financial donations. A number of industrial research and educational partnerships flourished during this period, including the highly successful Georgia Tech Analog Consortium, the Packaging Research Center, the Georgia Tech Broadband Institute, and the National Electric Energy Testing, Research, and Applications Center.



U.S. NEWS AND WORLD REPORT RANKINGS Georgia Tech's College of Engineering maintained its powerful national stature, placing fifth in the 2002 graduate school rankings compiled by *U.S. News & World Report*. In rating the various engineering disciplines, electrical engineering tied for sixth with the California Institute of Technology, and computer engineering ranked twelfth. Georgia Tech's biomedical/bioengineering program, an initiative in which ECE faculty members are also quite active, tied for sixth with the University of Washington.

INTELLECTUAL PRODUCTS Faculty members, in conjunction with their graduate students and peers, produced 215 journal publications, 597 conference presentations, 11 books, 24 parts of books, 14 patents, 15 miscellaneous publications, and 126 miscellaneous presentations, eight magazine articles, and two federal filings.

GEORGIA TECH REGIONAL ENGINEERING PROGRAM Enrollment in the computer engineering portion of the Georgia Tech Regional Engineering Program (GTREP) grew to 87 students amongst the three participating institutions—Georgia Southern University, Armstrong Atlantic State University, and Savannah State University. A total of 11 computer engineering courses were delivered to GTREP students via distance learning from the Atlanta campus, and 15 lecture and lab sections were taught by the computer engineering faculty based in Savannah and Statesboro. Joseph L.A. Hughes coordinates GTREP's computer engineering program.

Established in fall 1999, GTREP was conceived as a far-reaching program that would unite education, industry, and technology to help in meeting the demand for engineers in southeast Georgia and to spur economic development in that part of the state. Operating as a satellite program, GTREP affords students in southeast Georgia the opportunity to earn a Georgia Tech degree without leaving their communities by using local faculty, facilities, and distance learning connections.

Original to the program are undergraduate degree curricula in civil engineering and computer engineering. Through a focused agreement with Gulfstream Aerospace, electrical engineering, with an emphasis in aviation electronics, is to be added in August 2001. Undergraduate students are already involved in a variety of research projects, from Bluetooth® wireless technologies and Palm® programming to improving the blast resistance of structures through the use of fiber-reinforced polymers.

Online graduate programs were added to GTREP in fall 2000. This format allows the working professional greater scheduling flexibility while still maintaining ready access to research support through the guidance of local faculty and the availability of local research facilities. Graduate programs are available in the areas of civil and environmental engineering, electrical and computer engineering, and mechanical engineering.

HP EDUCATIONAL INITIATIVE Installation of computers in ECE classrooms, made possible with a \$3 million equipment grant from The Hewlett-Packard (HP) Company, continued during FY 2001. Led by Thomas P. Barnwell, III, ECE, along with the College of Computing and the School of Literature, Communication, and Culture, has used this grant to purchase HP equipment for high-

tech classrooms and for designing interactive learning tools. Equipment includes HP development stations, laptop computers for the creation of sophisticated multimedia courseware, new servers supporting traditional World Wide Web environments and state-of-the-art technologies like streaming audio and video, and 300 laptops in eight ECE classrooms.

INTERNET COURSE DELIVERY In fall 2001, ECE, in conjunction with the Georgia Tech Center for Distance Learning, introduced one of the first online master's programs in electrical and computer engineering in the country. Unlike many other universities that adapt existing video footage and place it on a streaming video server, the courses offered through ECE's online programs have been designed specifically for the World Wide Web, using state-of-the-art streaming audio and video technologies, synchronized slides, simulators, and other multimedia. Thirty-two students enrolled in ECE online courses, which included Advanced Digital Signal Processing, Random Processes, Error Control Coding, and Statistical Digital Signal Processing. ECE also introduced an online continuing education course, DSP for Practicing Engineers, and began to offer undergraduate level courses to other universities through GTREP. These online initiatives, led by Thomas P. Barnwell, III and Monson H. Hayes, have gained momentum as an ever-widening network of ECE faculty members join in the development of online courses.

NORTEL NETWORKS SCHOLARS Nortel Networks contributed \$500,000 for technology studies to Georgia Tech through the Nortel Networks Foundation. This donation will provide support for approximately 200 scholarships and fellowships in ECE and the College of Computing as part of the Nortel Networks Scholars Program. This initiative was led by Gordon L. Stüber.

CENTER FOR BOARD ASSEMBLY RESEARCH The Center for Board Assembly Research (CBAR) offers high quality educational and research programs to faculty, students, and industry personnel in the dynamic field of electronics assembly. The Center conducts research programs in the areas of process technology and development; production and manufacturing systems; electrical test and automated optical inspection; roadmapping/benchmarking and standards; and factory information systems. During FY 2001, CBAR expanded its laboratory capabilities valued at over \$3 million with the addition of new component placement machines and optical inspection tools. Five new companies joined forces with CBAR, bringing the number of industry sponsors involved with the program to over 30. Led by Edward W. Kamen, the Center is comprised of a multidisciplinary team of individuals, including faculty from electrical and computer engineering, industrial and systems engineering, materials science and engineering, and mechanical engineering.

GTAC ACTIVITIES The Georgia Tech Analog Consortium (GTAC) experienced a year of record-breaking proportions. Five more companies—Adtran (Huntsville, AL), IBM (Yorktown Heights, NY), Intersil (Palm Bay, FL), Nokia Networks (Irving, TX), and Raytheon (Andover, MA)—joined GTAC, thus bringing the total number of industrial members to 13. The fall 2000 review saw the Consortium's highest attendance ever, with 32 industry representatives coming to the event. Despite a lackluster economy, the March 2001 research review drew 25 indus-

try representatives. GTAC consists of 14 faculty members, one visiting professor, two administrative and research staff members, and approximately 70 graduate students.

GTBI ACTIVITIES The Georgia Tech Broadband Institute (GTBI) consists of nearly 40 faculty and staff members in ECE, the College of Computing, the Georgia Tech Research Institute, the Georgia Tech Information Security Center, the School of Textile and Fiber Engineering, and the School of Public Policy. As signified by the code name PLATINUM (Physical Layer Access Technologies, Integrated Networks, and Ubiquitous Multimedia), GTBI's mission is to create a center of excellence in broadband communications research and in applications that bring broadband technologies and services to the home and the community. The Institute promotes educational programs in related science and engineering, as well as technology transfer by means of fundamental and applied research and by experiments with state-of-the-art testbeds. Recent testbeds include a software radio laboratory and the Broadband Institute Residential Laboratory. In linking broadband technology to economic and business prosperity, particularly in Georgia, the Institute supports the broader missions of the Georgia Centers for Advanced Telecommunications Technology and the Georgia Research Alliance. Led by Nikil Jayant, GTBI has 15 sponsors from the telecommunications and computing industries.

MICROELECTRONICS RESEARCH CENTER Led by James D. Meindl, the Microelectronics Research Center (MiRC) provides expertise, facilities, infrastructure, and teaming environments for interdisciplinary research in microelectronics, integrated optoelectronics, and microsensors and actuators. The MiRC actively partners with centers that have main focus areas in manufacturing, telecommunications, and packaging. The Center's participants come from many disciplines of science, computer science, the Georgia Tech Research Institute (GTRI), and engineering, including 29 faculty members from ECE. In the last year, Dr. Meindl and his colleague, Jeffrey A. Davis, defined a fundamental limit that will help extend a half-century's progress in producing ever-smaller microelectronic devices for increasingly more powerful and less expensive computerized equipment. This limit provides the foundation for determining a set of higher-level boundaries on materials, devices, circuits, and systems that will define future opportunities for miniaturization advances possible through traditional microelectronics—and its further extension to nanoelectronics.

NEETRAC Widely recognized as 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-supported electric energy research, development, and testing center that is engaged in a wide spectrum of innovative activities.

Through membership in this innovative enterprise, NEETRAC's industrial partners enjoy streamlined access to the faculty, students, and facilities of Georgia Tech's world-class engineering schools and GTRI. During FY 2001, the Center's industrial membership consisted of 20 companies. Eleven faculty members participated in NEETRAC—five from ECE, two from industrial and systems engineering, two from materials science and engineering, one from mechanical engineering, and one from civil and environmental engineering.

NEETRAC is led by Hans B. Püttgen.

During the last year, researchers in NEETRAC and GTRI merged laser vibrometry and neural networks to create a remote inspection system that analyzes power pole crossarms from the air. Susceptible to rot, wooden crossarms must be inspected and replaced periodically, or otherwise lines could collapse and cause outages. Such inspections have traditionally required workers to climb poles, hit the crossarm with a hammer, and judge its condition by listening to the resulting ring. However, these manual inspections are imprecise, time-consuming, costly, and hazardous. The potential financial savings by using this remote inspection system are impressive. Average costs for manual inspections are \$50 per crossarm. Using a laser vibrometer and neural network, remote inspections would slice that to about \$5 per structure.

PACKAGING RESEARCH CENTER The Packaging Research Center (PRC) received an A++ rating during its sixth-year review from a panel of academic and industrial experts formed by the NSF. Led by Rao R. Tummala, 30 academic and research faculty members participate in the Center, 15 who are affiliated with ECE. In May 2001, the PRC launched a two-week, professional development program on system-on-package (SOP) technology. Entitled "Next Generation of Microsystems Packaging Beyond CSP, Flip Chip, MCM, and Microvia," the series was based upon the PRC's SOP vision. This vision integrates digital functions with analog, RF, opto, and MEMS functions into one ultra compact and low cost package to serve the needs of the telecommunications, consumer, and computer industries in the 21st century. The series involved 15 individual short courses that were taught by faculty from Georgia Tech and by industry experts. Altogether, 237 engineers from around the world registered for the short courses.

UCEP RENEWAL In July 2000, the U.S. Department of Energy renewed funding for the University Center of Excellence in Photovoltaics Research and Education (UCEP) for another five years. UCEP has been in operation since 1992, when the U.S. Department of Energy awarded the Center to Georgia Tech on the basis of sustained contributions to the science and technology of photovoltaics (PV) and the competitive edge it has given the U.S. in the field of silicon solar cells. Led by Ajeet Rohatgi, UCEP has generated more than \$22 million in PV research funding, including about \$9 million in the last five years. Dr. Rohatgi has been largely responsible for developing classroom and laboratory courses on solar cells, building state-of-the-art laboratories for electrical and optical characterization of PV materials and devices, and establishing complete solar cell fabrication facilities involving three different cell process lines. Another landmark contribution was the design and construction of the 340 kW rooftop PV system at the Georgia Tech Aquatic Center, a technological centerpiece of the 1996 Summer Olympics. This PV system has produced more than 1 billion watt hours of electrical energy during the last five years. It provides about 25 percent of the electrical energy needed for the Aquatic Center and saves Georgia Tech almost \$30,000 a year in energy bills. It also produces 440,000 kWh of electrical energy a year, 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.

YAMACRAW ACTIVITIES Yamacraw is a strategic economic development initiative that combines the efforts of academia, industry, and state government to develop high-bandwidth communications education, research, and businesses in Georgia. Eight state universities are involved in this effort, including Georgia Tech, the University of Georgia, Georgia State University, Georgia Southern University, Southern Polytechnic State University, Kennesaw State University, Savannah State University, and Armstrong Atlantic State University. During FY 2001, the participating universities hired 17 faculty members. Yamacraw enabled the hiring of five additional faculty in ECE—W. Alan Doolittle, Faramarz Fekri, Ye (Geoffrey) Li, Linda Milor, and Raghupathy Sivakumar.

The research agenda of Yamacraw extends from basic system-on-a-chip electronics through the design of wireless and broadband communications systems. The three major research areas are led by ECE professors—Vijay K. Madiseti (embedded software), Joy Laskar (broadband access hardware), and Nikil Jayant (system prototyping).

Eight companies joined the Yamacraw Design Center during FY 2001. They include BARCO, BellSouth, Cirrex, Cypress Semiconductor, H.O. Systems, Integrated Device Technology, Microcoating Technologies, and Movaz Networks. Yamacraw's Seed Capital Fund also funded three start-up companies—Ardext, Quantira, and Quellan—which involve ECE faculty members.

YAMACRAW POSITIONS Herbert Lehman was named director of Yamacraw, following the resignation of James D. Foley, who returned to academia on a full-time basis. As director, Mr. Lehman oversees all operations. Prior to this position, Mr. Lehman served as Yamacraw's director of Research. He has also served as a senior consultant to Georgia Tech for economic development and as director of Operations at the Packaging Research Center. Mr. Lehman also spent 34 years at IBM Corporation, where he was the recipient of 13 IBM Outstanding Achievement awards.

Joy Laskar, Yamacraw's new research director, is responsible for establishing and managing strategic direction for Yamacraw research activity. In addition, Dr. Laskar is responsible for recruiting industry affiliates to the Yamacraw Design Center and for maintaining close liaison between the research activities and industry. An associate professor in ECE, Dr. Laskar serves chair of the electronic design and applications technical interest group. He and his students are heavily involved in the Packaging Research Center and the Georgia Tech Analog Consortium.

GCATT DIRECTOR The Georgia Research Alliance (GRA) named Nikil Jayant as the new executive director of the Georgia Centers for Advanced Telecommunications Technology (GCATT). An advanced communications research, policy, and commercialization initiative of the GRA, GCATT houses a number of Georgia Tech and ECE-based research centers, multi-university collaborative projects, and an advanced communications business incubator. As a GRA initiative, GCATT also supports advanced telecommunications research centers from the University of Georgia, the Medical College of Georgia, and Georgia State University. Dr. Jayant is a GRA Eminent Scholar, the John Pippin Chair in Wireless Systems, and the director of the Georgia Tech Broadband Institute. He also leads the system prototyping thrust of Yamacraw.

NEW ASSOCIATE CHAIRS Gary S. May began the transition to his new duties as ECE associate chair for Faculty Development and Operations on June 1, 2001. Those responsibilities include management of ECE's reappointment, promotion, tenure, and post-tenure processes, as well as other personnel retention, public relations, and development activities. Dr. May will replace J. Alvin Connelly, who will retire from full-time teaching, research, and administration on December 1, 2001.

Jay H. Schlag was appointed as ECE associate chair for Operations, also effective on June 1, 2001. Dr. Schlag will oversee ECE facility and financial issues that impact almost 300 full-time faculty and staff and more than 2,600 students. He will also coordinate the eventual moves to the Advanced Computer Technology Building and the Yamacraw Design Center. In addition, Dr. Schlag will be responsible for the development of processes and software tools that provide critical support to research project and instructional accounting functions.

BYERS PROFESSORSHIPS Ian F. Akyildiz, Kevin F. Brennan, and James H. McClellan were named as Byers Professors in the respective areas of telecommunications, microelectronics, and digital signal processing (DSP). These professorships, which are awarded for a five-year period, provide major incentives to retain faculty members who are leading teachers and scholars, yet who are also attractive to industry and other institutions. These professorships were created from an endowment that was first established to support an endowed chair in microelectronics in 1986.

CHADDICK CHAIR Steve W. Chaddick, senior vice president of Systems and Technology for CIENA Corporation, made a \$2.5 million commitment to name the Electrical and Computer Engineering School Chair, which is currently held by Roger P. Webb. This gift recognizes ECE's extraordinary growth in research and education under Dr. Webb's leadership and the relationship that Dr. Webb and ECE have established with CIENA.



GEORGIA POWER DISTINGUISHED CHAIR PROFESSOR Hans B. Püttgen was named to the Georgia Power Distinguished Chair Professor. Dr. Püttgen received this honor for his outstanding leadership and program development initiatives in the electric power area. He is the director of NEETRAC and the president of Georgia Tech Lorraine, the European platform of Georgia Tech.

MOTOROLA FOUNDATION PROFESSORSHIP AND INITIATIVE The Motorola Foundation donated \$1.5 million to Georgia Tech to assist students in earning graduate-level degrees in the fields of engineering and science. The endowment will be used to create The Motorola Chair in ECE. In connection with The Motorola Foundation gift, the GRA committed \$750,000 in matching funds to create and fund the Motorola Foundation Professorship at Georgia Tech, a separate, five-year faculty appointment. ECE has formed a search committee, led by Nikil Jayant, to fill the newly created chair. Meanwhile, the School

has named Gary S. May to the Motorola Foundation Professorship. Dr. May coordinates the Summer Undergraduate Research in Engineering and Science program (SURE), a 10-week summer research program designed to attract qualified minority students to graduate studies in the fields of engineering and science. Georgia Tech is recognized as one of the nation's strongest proponents of diversity education in engineering.

PARIS PROFESSORSHIP Linda M. Wills was named as the first Demetrius T. Paris Professor in ECE. This award was made possible by an endowment that was created in honor of Dr. Paris by ECE's Alumni/Professional Advisory Board to support the professional advancement of junior faculty. Dr. Wills is an assistant professor in the computer engineering area.

PETTIT PROFESSORSHIPS A committee of ECE chaired professors and College of Engineering Dean Jean-Lou Chameau named Mark G. Allen, April S. Brown, Nan Marie Jokerst, Joy Laskar, and Gordon L. Stüber as Joseph M. Pettit Professors for a five-year period. Funds from these professorships will support program development in the areas of microelectronics for Drs. Allen and Brown, electro-optics for Dr. Jokerst, electronics for Dr. Laskar, and communications for Dr. Stüber.

FACULTY PROMOTIONS Effective July 1, 2000, Elias N. Glytsis, Thomas G. Habetler, Gary S. May, and Waymond R. Scott, Jr. were promoted to professor. G. Tong Zhou was promoted to associate professor with tenure. Promotions effective July 1, 2001 include W. Russell Callen, Jr. and David G. Taylor to professor; Ronald G. Harley was awarded tenure.

INAUGURAL CARREKER LECTURE/DSP CELEBRATION The first James R. Carreker Distinguished Lecture was held in October 2000. As an ECE alumnus and president and CEO of Aspect Communications, Mr. Carreker has returned to campus several times to speak to students. His belief in the importance of sharing an industrial perspective with an academic audience led him to establish this new lecture series. Gene Frantz, Texas Instruments Senior Fellow and Business Development Manager for the DSP Semiconductor Group, was the inaugural speaker for the Carreker Lecture; his topic was "Engineering a Better World with DSP and Analog Technologies." The lecture was followed by a dinner for DSP alumni who returned to Georgia Tech to attend Mr. Frantz's talk and to celebrate 30 years of DSP at Georgia Tech. The celebration continued the next day, featuring an open house, hosted by the Center for Signal and Image Processing, complete with poster sessions, technical demonstrations, and a panel discussion featuring top executives in the DSP field.



(l-r) Jean-Lou Chameau, Provost, and James R. Carreker

FUTURETRUCK Fifteen teams from universities across the U.S. competed in the second year of FutureTruck, which was held June 4-11, 2001 at the General Motors Milford Proving Ground in Milford, MI. Georgia Tech's team placed fourth in the overall competition and won first place in the areas of Best Consumer Acceptability, Best Acceleration, and Best Dynamic Handling. The team also received a second place award for Innovations in Aluminum and third place for MathWorks Vehicle Modeling Award.



2001 FutureWreck Team

In total, the team returned with \$6,750 in prize money.

Following the weeklong competition, the FutureTruck competition vehicles moved to a finish line ceremony and media event on June 13 at the U.S. Department of Energy headquarters in Washington, DC. Later that day, vehicles were on display at the U.S. Capitol Building, where members of Congress met with the university teams. The Georgia Tech team, dubbed "FutureWreck," consisted of 35 mostly undergraduate students from mechanical, industrial, electrical, computer, and civil engineering, and was advised by Jerome Meisel, an ECE visiting professor, and Caryn Riley and Boyd Pettitt, research engineers in NEETRAC. The team was led by several students over the course of the academic year, including Jerry Reeves, ISyE '00; Kate VanderHeyden CE '01; and Gil Edwards ME '01.

With material, technical, and financial support from General Motors and the U.S. Department of Energy, the team had to transform a full-size Chevrolet Suburban sports utility vehicle into a low-emission, high-efficiency hybrid electric vehicle without sacrificing the performance, utility, safety, and affordability that customers want. To accomplish these objectives, students explore cutting-edge automotive technologies, such as fuel cells and advanced propulsion systems, space age materials, and alternative fuels such as ethanol and hydrogen.

FACULTY

One hundred and three faculty members were employed in ECE during 2000-01. Six new faculty members joined ECE during 2000-01, one faculty member transferred, and one faculty member retired. Four faculty members are associated with the Georgia Tech Regional Engineering Program (GTREP).

Three new faculty members joined ECE in fall semester 2000, including Faramarz Fekri, assistant professor of digital signal processing (DSP) and telecommunications; Ye (Geoffrey) Li, associate professor of telecommunications; and Raghupathy Sivakumar, assistant professor of telecommunications. Paul J. Benkeser transferred to the Wallace H. Coulter Department of Biomedical Engineering at Georgia Tech and Emory University.

During spring semester 2001, three new faculty members joined ECE, while one faculty member retired. W. Alan Doolittle was hired as an assistant professor of microsystems; Christiana B. Honsberg joined the faculty as an associate professor of electric power, microsystems, and optics and photonics; and Linda Milor was hired as an associate professor of microsystems. After 38 years of service as a faculty member, Mohamed F. Moad retired from ECE, but will continue to teach on a part-time basis.

GTREP faculty members, Randal T. Ablner, Ashraf Saad, and Feodor Vainstein are based in Savannah, GA, but frequently visit the main Georgia Tech campus. Joel R. Jackson is based at the Atlanta campus, serving online distance learning needs in the ECE curricula and in continuing education.

Seventy-two percent of the ECE faculty is tenured, with all members holding doctorates. The following 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.

Academic Faculty

■ REGENTS' PROFESSORS

Thomas K. Gaylord, Julius Brown Chair Professor
Ph.D., Rice University

Research interests: Diffractive optics; optical interconnects; fiber optic devices; optics instrumentation; semiconductor quantum devices; nanostructure optoelectronics

Russell M. Mersereau

Sc.D., Massachusetts Institute of Technology

Research interests: Enhancement, modeling, and coding of computerized images and video; DSP for communications; acoustic arrays for echo removal and object tracking; pattern recognition

Ajeet Rohatgi, Georgia Power Distinguished Professor, Director of the University Center of Excellence for Photovoltaics Research and Education
Ph.D., Lehigh University

Research interests: Modeling and fabrication of low-cost high-efficiency silicon solar cells; growth and characterization of low-temperature and high-performance dielectrics; defects and carrier lifetime in semiconductors; rapid thermal processing of silicon devices; growth and optoelectronic properties of compound semiconductors

Ronald W. Schafer, Institute Professor and John and Marilu McCarty Chair of Electrical Engineering
Ph.D., Massachusetts Institute of Technology

Research interests: Nonlinear signal processing systems; speech processing and multimedia systems; DSP in medicine and biology research; DSP for communications

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

Research interests: Basic electromagnetic theory and measurements; antennas and wave propagation in materials; radiation and reception of pulses by antennas

■ PROFESSORS

Ian F. Akyildiz, Byers Professor in Telecommunications
Ph.D., University of Erlangen

Research interests: Wireless networks; satellite networks; next generation Internet

Mark G. Allen, Joseph M. Pettit Professor in Microelectronics
Ph.D., Massachusetts Institute of Technology

Research interests: Micromachining; microsensor and microactuator fabrication compatible with integrated circuit (IC) fabrication; microelectromechanical systems (MEMS)

Rank

Regents' Professors	5
Professors	47
Associate Professors	32
Assistant Professors	19
Total	103*

Tenured

Regents' Professors	5
Professors	43
Associate Professors	26

Female and Minority Representation

Female	8
African-American	2
Multi-racial	1
Asian	14

* Includes GTREP faculty

Phillip E. Allen, Schlumberger Chair Professor in Microelectronics

Ph.D., University of Kansas

Research interests: Analog IC design; analog filters; analog modeling and computer-aided design (CAD); analog circuits and systems for telecommunication applications

Thomas P. Barnwell, III

Ph.D., Massachusetts Institute of Technology

Research interests: 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

Research interests: Multicomputer architecture; fault-tolerant computer systems; operating systems and middleware

Kevin F. Brennan, Byers Professor in Microelectronics

Ph.D., University of Illinois at Urbana-Champaign

Research interests: High field carrier transport in semiconductors; optoelectronic device physics; transport properties and device potential of wide band gap semiconductors; electronic device modeling and theory

April S. Brown, Associate Dean of the College of Engineering, Joseph M. Pettit Professor in Microelectronics

Ph.D., Cornell University

Research interests: Compound semiconductor heterojunction bipolar transistors and high electron mobility transistors; nanostructure synthesis and devices; molecular beam epitaxy; heterojunction device design and process

Mark A. Clements, Director of the Interactive Media Technology Center, Sc.D., Massachusetts Institute of Technology

Research interests: DSP and analysis; speech recognition; analysis and compensation of stress in speech; sensory aids for the hearing impaired; pattern recognition

J. Alvin Connelly, Associate Chair for ECE Faculty Development and Operations

Ph.D., University of Tennessee

Research interests: CMOS (complementary metal-oxide-semiconductor) and bipolar IC design; macromodeling of analog/digital systems; low noise circuit and system design; phase locked loops

John A. Copeland, John H. Weitnauer, Jr. Technology Transfer Chair, GRA

Eminent Scholar, Director of the Communications Systems Center

Ph.D., Georgia Institute of Technology

Research interests: Computer communication networks; digital cable television networks; computer architecture and operating systems

John F. Dorsey

Ph.D., Michigan State University

Research interests: 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

Robert K. Feeney

Ph.D., Georgia Institute of Technology

Research interests: CAD and fabrication of printed-circuit-phased-array antennas; integration of advanced monolithic microwave integrated circuits with microwave antennas; CAD for radio frequency (RF) and microwave circuit analysis and design

James D. Foley

Ph.D., University of Michigan

Research interests: Computer graphics; information visualization; human-computer interaction; management of R&D

Elias N. Glytsis

Ph.D., Georgia Institute of Technology

Research interests: Diffractive optics; optical interconnections; integrated and fiber optic devices; numerical techniques in electromagnetic problems

Thomas G. Habetler

Ph.D., University of Wisconsin at Madison

Research interests: Current-based condition monitoring of electric machines; control of electric machine drives; power electronics; design and protection of electric machines

Ronald G. Harley, Duke Power Company Distinguished Professor

Ph.D., London University

Research interests: 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

Monson H. Hayes, III

Sc.D., Massachusetts Institute of Technology

Research interests: Stereo image processing; face and gesture recognition; multimedia signal processing; adaptive signal processing; Internet education

David R. Hertling, Associate Chair for ECE Graduate Affairs

Ph.D., University of Illinois at Urbana-Champaign

Research interests: Modeling of linear and non-linear active devices; CAD and analysis of electronic circuits; computer-CAD of planar dipole phased antenna arrays

William D. Hunt

Ph.D., University of Illinois at Urbana-Champaign

Research interests: Thin film piezoelectric materials; surface acoustic wave and

bulk acoustic wave devices for wireless applications; microelectronic acoustics in chemical sensing and biological research; device physics and fabrication of microelectronic acoustic devices

Nikil S. Jayant, Executive Director for the Georgia Centers for Advanced Telecommunications Technology, Director of the Georgia Tech Broadband Institute, John Pippin Chair in Wireless Systems, and GRA Eminent Scholar
Ph.D., Indian Institute of Science, Bangalore
Research interests: Signal compression; multimedia communications; wireless systems; broadband access

Nan Marie Jokerst, Joseph M. Pettit Professor in Electro-optics
Ph.D., University of Southern California
Research interests: Integrated optoelectronic links; integrated microsystems and nanosystems; optical network interfaces and imaging systems; alignment tolerant high performance optoelectronic interfaces

Edward W. Kamen, Julian T. Hightower Chair Professor in Manufacturing Engineering, Associate Director of the Manufacturing Research Center, Director of the Center for Board Assembly Research
Ph.D., Stanford University
Research interests: Mathematical system theory; control theory; estimation theory; signal processing

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

James H. McClellan, Byers Professor in Digital Signal Processing
Ph.D., Rice University
Research interests: 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
Research interests: Embedded software systems; digital system design; VLSI systems; system-on-package and system-on-chip technologies; DSP hardware and software

Gary S. May, ECE Associate Chair for Faculty Development and Motorola Foundation Professor
Ph.D., University of California at Berkeley
Research interests: 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-enhanced education

James D. Meindl, Joseph M. Pettit Chair in Microelectronics, Director of the Microelectronics Research Center
Ph.D., Carnegie-Mellon University
Research interests: Microelectronics; gigascale integration (GSI)

A.P. Sakis Meliopoulos
Ph.D., Georgia Institute of Technology
Research interests: 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. Palem, Director, Center for Research in Embedded Systems and Technology
Ph.D., University of Texas at Austin
Research interests: 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, string, and pattern matching

John B. Peatman
Ph.D., Case Western Reserve University
Research interests: Development of low-cost tools for designing microcontroller applications; low-cost, dedicated logic analyzer design using FPGA technology; embedded microcontroller applications

Andrew F. Peterson
Ph.D., University of Illinois at Urbana-Champaign
Research interests: Computational electromagnetics; radar signature prediction; signal integrity in electronic packaging applications; antennas and microwave devices

Hans B. Püttgen, Associate Chair for ECE External Affairs; President of Georgia Tech Lorraine; Director of the National Electric Energy Testing, Research, and Applications Center; and Georgia Power Distinguished Chair Professor
Ph.D., University of Florida
Research interests: Power systems analysis and planning; utility deregulation; electric transportation vehicles and systems

William T. Rhodes
Ph.D., Stanford University
Research interests: Image formation; partially coherent optical systems; Fourier optics; information processing and telecommunications; secure communication technology

William E. Sayle, Associate Chair for ECE Undergraduate Affairs
Ph.D., University of Washington
Research interests: Power electronics devices and circuits; analog electronics

Jay H. Schlag, Associate Chair for Operations
Ph.D., Georgia Institute of Technology
Research interests: Computer applications; CAD; neural networks

Waymond R. Scott, Jr.
Ph.D., Georgia Institute of Technology
Research interests: 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

Mark J.T. Smith, Executive Assistant to Georgia Tech President G. Wayne Clough
Ph.D., Georgia Institute of Technology
Research interests: Image and video processing; telemedicine; object detection and reception; data compression for transmission and storage

Paul G. Steffes
Ph.D., Stanford University
Research interests: 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. Stüber, Joseph M. Pettit Professor in Communications
Ph.D., University of Waterloo
Research interests: Wireless physical communications; cellular mobile radio systems; broadband wireless access systems

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

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

John P. Uyemura
Ph.D., University of California at Berkeley
Research interests: CMOS digital IC techniques; VLSI system design; optical telecommunication networks; mixed-signal gallium arsenide chip design

George J. Vachtsevanos
Ph.D., The City University of New York
Research interests: 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
Research interests: Mathematical system theory; algorithms for optical signal processing; effects of finite precision on control; model reduction; stochastic realization theory; data compression

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

Sudhakar Yalamanchili
Ph.D., University of Texas at Austin
Research interests: Cluster interconnection networks; embedded communication networks; reconfigurable logic in high performance communication

■ ASSOCIATE PROFESSORS

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

Miroslav M. Begovic
Ph.D., Virginia Polytechnic Institute and State University
Research interests: 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

Paul J. Benkeser
Ph.D., University of Illinois at Urbana-Champaign
Research interests: Biomedical signal and image processing; ultrasonic bioengineering; biomedical sensors and transducers

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

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

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

Abhijit Chatterjee

Ph.D., University of Illinois at Urbana-Champaign

Research interests: VLSI and mixed-signal testing; fault tolerant computing; low power circuit design; computer algorithms; digital automation

Stephen P. DeWeerth

Ph.D., California Institute of Technology

Research interests: Neuromorphic engineering; hybrid neuronal-MEMS systems; biologically-inspired sensorimotor systems and motor learning; analog VLSI circuits and systems; "smart" sensors; remote interfacing to embedded systems

K.-H. Michael Fan

Ph.D., University of Maryland

Research interests: Robust control and optimization; optimization-based engineering system design

James O. Hamblen

Ph.D., Georgia Institute of Technology

Research interests: Rapid prototyping; embedded systems; computer architecture; CAD

Bonnie S. Heck

Ph.D., Georgia Institute of Technology

Research interests: Control theory; power electronics; software architecture for control systems

Christiana B. Honsberg

Ph.D., University of Delaware

Research interests: Bulk silicon solar cells; advanced solar cell device structures; GaAs solar cells

Joseph L.A. Hughes, Associate Chair for Computer Engineering and ECE Program Development

Ph.D., Stanford University

Research interests: IC testing; VLSI system design; optical communication networks; educational program assessment

Mary Ann Ingram

Ph.D., Georgia Institute of Technology

Research interests: Wireless communication systems; RF propagation measurements and modeling; array signal processing; antenna pattern synthesis

David C. Keezer

Ph.D., Carnegie-Mellon University

Research interests: Test methods for high performance electronic systems; design of high-speed logic systems; advanced electronics packaging methods; computer applications for music

J. Stevenson Kenney, ON Semiconductor Junior Professor

Ph.D., Georgia Institute of Technology

Research interests: RF and microwave power amplifier design; behavioral simulation of RF and microwave components; advanced RFIC design; microwave transmission and propagation

Arthur Koblasz

Ph.D., California Institute of Technology

Research interests: Rehabilitation engineering; medical diagnostic protocols

Joy Laskar

Joseph M. Pettit Professor in Electronics and Yamacraw Research Director

Ph.D., University of Illinois at Urbana-Champaign

Research interests: RF and microwave ICs; integration and packaging techniques for RF/microwave applications; next generation IC applications

Ye (Geoffrey) Li

Ph.D., Auburn University

Research interests: Wireless communications; adaptive signal processing

Steven W. McLaughlin

Ph.D., University of Michigan at Ann Arbor

Research interests: Communications and information theory; error control coding; coding and signal processing for magnetic and optical recording; source coding and data compression

Linda Milor

Ph.D., University of California at Berkeley

Research interests: 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

Mohamed F. Moad

Ph.D., Georgia Institute of Technology

Research interests: Circuits; systems analysis

Henry L. Owen

Ph.D., Georgia Institute of Technology

Research interests: Internetworking; computer networks; quality of service in the Internet; network protocol implementations in operating systems

Stephen E. Ralph

Ph.D., Cornell University

Research interests: Ultrafast optical devices for high-speed optical communications; ultrafast processes in photonic devices; all-optical switching; optical telecommunication networks; optical materials and phenomena for optical signal processing

David E. Schimmel

Ph.D., Cornell University

Research interests: Parallel computer architecture and reconfigurable computing; VLSI system design; system area computer network design; asynchronous and self-timed system design**Madhavan Swaminathan**

Ph.D., Syracuse University

Research interests: Numerical methods in electromagnetics; interconnect design and analysis; power distribution for GHz systems; time domain characterization methods; IC package co-design**David G. Taylor**

Ph.D., University of Illinois at Urbana-Champaign

Research interests: Nonlinear control systems; electromechanical systems and devices; modeling, simulation, and control of assembly robots; design and control of linear motion actuators and generators**Yorai Y. Wardi**

Ph.D., University of California at Berkeley

Research interests: Analysis and optimization of discrete event dynamical systems; gradient estimation via simulation; modeling for rapid simulation of high-speed networks; optimal control of manufacturing systems**Douglas B. Williams**

Ph.D., Rice University

Research interests: Statistical signal processing; signal processing techniques for communications; adaptive radar signal processing; applications of chaos and nonlinear dynamics to communications**D. Scott Wills**

Sc.D., Massachusetts Institute of Technology

Research interests: Portable multimedia supercomputers; short wire VLSI architectures; GSI system modeling; parallel computing; embedded SIMD architectures; high efficiency computation; multicomputer interconnection networks**G. Tong Zhou**

Ph.D., University of Virginia

Research interests: Statistical signal processing; signal processing for communications; DSP-based linearization of nonlinear power amplifiers for wireless communications; network traffic analysis; seismic deconvolution; bio-signal analysis**■ ASSISTANT PROFESSORS****Ali Adibi**

Ph.D., California Institute of Technology

Research interests: 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

Research interests: 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

Research interests: 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

Research interests: Integrated MEMS; VLSI analog/mixed-mode circuits for sensor readout and control; integration of high aspect-ratio silicon technologies with CMOS circuits; high-precision inertial sensing microsystems**Robert J. Butera, Jr.**

Ph.D., Rice University

Research interests: 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

Research interests: System-level interconnect prediction; interconnect limits for GSI; compact distributed RLC interconnect device modeling; interconnect-centric design methodologies; on-chip high speed networks and optimal multi-level network design**David R. DeBoer**

Ph.D., Georgia Institute of Technology

Research interests: Atmospheric microwave remote sensing; radio astronomy; antenna characterization; search for extraterrestrial intelligence; wave propagation-planetary science**W. Alan Doolittle**

Ph.D., Georgia Institute of Technology

Research interests: Wide bandgap semiconductor materials and devices; dielectric materials growth and characterization; electrical, optical, and structural characterization and optimization of electronic materials and devices; micro-electronic device/circuit fabrication; RF power electronic devices

Faramarz Fekri

Ph.D., Georgia Institute of Technology

Research interests: Error control coding; wavelets; cryptography; digital communications; DSP for communications**A. Bruno Frazier**

Ph.D., Georgia Institute of Technology

Research interests: Micromachining, MEMS, microsystems technology; biomedical microsystems; integrated biodetection systems; microsystems fabrication technologies**Paul E. Hasler**

Ph.D., California Institute of Technology

Research interests: Mixed-signal ICs; floating-gate metal-oxide-semiconductor transistors for "smart" interfaces with MEMS sensors; low power electronics; analog VLSI models of on-chip learning and sensory processing in neurobiology**Vincent J. Mooney, III**

Ph.D., Stanford University

Research interests: System level design; hardware-software co-design; synthesis of reconfigurable architectures; logic synthesis; application-specific system design; low-power architectures, modeling, and compilers**Raghupathy Sivakumar**

Ph.D., University of Illinois at Urbana-Champaign

Research interests: Computer networks; wireless networks; mobile computing; network quality of service**Emmanouil M. Tentzeris**

Ph.D., University of Michigan at Ann Arbor

Research interests: Real-time multiresolution algorithms for the analysis and design of wireless communication front-ends; RF packaging; RF MEMs; antenna integration techniques; adaptive transient analysis of active circuits**Chai-Keong Toh**

D. Phil., University of Cambridge

Research interests: Wireless broadband networks; ad hoc wireless networking; next generation satellite networking; next generation Internet protocols; mobile and pervasive computing**Linda M. Wills, Demetrius T. Paris Professor**

Ph.D., Massachusetts Institute of Technology

Research interests: Reverse engineering existing systems for redesign and reuse; retargeting concurrent software to multiple parallel architectures; dynamically reconfigurable, self-adaptive software; real-time embedded systems; interactive architectural simulators for educational use**Anthony J. Yezzi, Jr.**

Ph.D., University of Minnesota

Research interests: Image processing; computer vision; estimation and control; computation and algorithms; applied differential geometry**GTREP FACULTY****Randal T. Abler**

Assistant Professor

Ph.D., Georgia Institute of Technology

Research interests: MPLS/DWDM integration; embedded system design using the IETF Session Initiation Protocol for use in distributed switching; telepresence for distance learning; distributed content systems to improve network connectivity**Joel R. Jackson**

Assistant Professor

Ph.D., Georgia Institute of Technology

Research interests: DSP with applications in medical imaging and remote sensing; DSP education; sonoelasticity imaging; embedded medical imaging devices; use of context-aware wireless devices for enhanced learning systems**Ashraf Saad**

Associate Professor

Ph.D., Vanderbilt University

Research interests: Artificial intelligence; intelligent manufacturing; agents research**Feodor Vainstein**

Professor

Ph.D., Boston University

Research interests: Fault-tolerant computing; computer hardware and software testing; self-timed systems; digital communication; error-correcting codes; control and applied mathematics**PROFESSORS EMERITI AND LENGTH OF SERVICE****Cecil O. Alford** 1968-98**Henry C. Bourne** 1982-92**Aubrey Bush** 1965-92 (Now employed with the National Science Foundation)**Daniel C. Fielder** 1948-88 (Employed with ECE on a part-time basis)**Joseph L. Hammond** 1955-84 (Now employed with Clemson University)**Richard J. Higgins** 1987-99**John W. Hooper** 1957-88**Edward B. Joy** 1970-98**Richard P. Kenan** 1986-99**Dale C. Ray** 1966-99**George P. Rodrigue** 1968-96

Kendall L. Su 1954-94 (Employed with ECE on a part-time basis)
Carl M. Verber 1986-2000
Thomas M. White 1948-88 (Employed with ECE on a part-time basis)

■ JOINT FACULTY APPOINTMENTS

William Ditto, Professor, School of Physics
Yogendra Joshi, Professor, Woodruff School of Mechanical Engineering

■ ADJUNCT AND PART-TIME APPOINTMENTS

Paul J. Benkeser, Wallace H. Coulter Department of Biomedical Engineering
Daniel J. Blumenthal, University of California at Santa Barbara
David E. Bockelman, Free Electron Technology
Bertrand Bousset, Georgia Tech Lorraine
Marvin Cohen, Georgia Tech Research Institute
Donald D. Davis, Antec Corp.
Jim D. Echard, Georgia Tech Research Institute
Robert Eisner, Emory University
Irfan Essa, College of Computing
Albin J. Gasiewski, National Oceanic and Atmospheric Administration
Gary G. Gimmestad, Georgia Tech Research Institute
Jean-Pierre Goedgebuer, Georgia Tech Lorraine
Mathieu Hans, Hewlett-Packard Co.
Nile F. Hartman, Georgia Tech Research Institute (Retired)
E. Jefferson Holder, Georgia Tech Research Institute
Morris Kesler, Georgia Tech Research Institute
Fred Kitson, Hewlett-Packard
P.O. Lauritzen, University of Washington
Y.-L. Li, Intel
John O. Limb, Broadcom
François J. Malassenet, Georgia Tech Lorraine
John H. Matthews, John H. Matthews and Associates, Inc.
Kenneth M. Mackenzie, College of Computing
Bill McKinnon, Georgia Tech Research Institute
Robert McNally, Cryolife, Inc.
Jerome Meisel, Georgia Tech
Stephen C. Mettler, Lucent Technologies
J.W. Monaco, Line Imaging Systems
Romain Murenzi, Clark Atlanta University
William R. Owens, Georgia Tech Research Institute
Umakishore Ramachandran, College of Computing
Edward K. Reedy, Georgia Tech Research Institute
Mark A. Richards, Georgia Tech Research Institute
Craig Richardson, ASPI Digital
Gabriel Rincon-Mora, Texas Instruments
Tariq Samad, Honeywell
Karsten Schwan, College of Computing

Robert E. Schwerzel, Georgia Tech Research Institute
Bhushan L. Sopori, Solar Energy Research Institute
Christopher Summers, School of Materials Science and Engineering
Kwan K. Truong, ASPI Digital
Gisele Welch, Georgia Tech Research Institute
Stephen B. Wicker, Cornell University

Faculty Service on Institute Governing Bodies and Committees

Georgia Tech has several governing bodies and standing committees that shape and administer Institute policies. During 2000-01, 19 ECE faculty members were involved in academic government, with Joseph L.A. Hughes and Gary S. May serving as standing committee chairs. William E. Sayle also led an ad hoc committee that provided counsel on reorganizing the committee structure of faculty governance.

■ EXECUTIVE BOARD

W. Russell Callen, Jr. Yorai Y. Wardi

■ ACADEMIC SENATE/GENERAL FACULTY ASSEMBLY

Miroslav M. Begovic	Paul J. Benkeser	W. Russell Callen, Jr.
Joseph L.A. Hughes	William D. Hunt	William E. Sayle
Yorai Y. Wardi	D. Scott Wills	

■ GENERAL FACULTY STANDING COMMITTEES

<i>Faculty Status & Grievance</i>	<i>Academic Services</i>	<i>Welfare & Security</i>
Erik I. Verriest	Bonnie S. Heck	Mary Ann Ingram
		Frank Lambert

■ ACADEMIC FACULTY STANDING COMMITTEES

<i>Undergraduate Curriculum</i>	<i>Graduate Curriculum</i>	<i>Student Academic & Financial Affairs</i>
Joseph L.A. Hughes*	April S. Brown	Miroslav M. Begovic
D. Scott Wills	Stephen P. DeWeerth	
	Monson H. Hayes, III	
	Andrew F. Peterson	
<i>Student Regulations</i>	<i>Student Activities</i>	<i>Student Honor</i>
Paul J. Benkeser	Arthur Koblasz	Gary May*
	Steven W. McLaughlin	

* Indicates committee chair

Technical Interest Groups

■ BIOENGINEERING

Mark G. Allen	Paul J. Benkeser	Robert J. Butera, Jr.	Mark A. Clements	Stephen P. DeWeerth*	A. Bruno Frazier	Paul E. Hasler
William D. Hunt	Arthur Koblasz	Allen Tannenbaum	George J. Vachtsevanos	Erik I. Verriest	Anthony J. Yezzi, Jr.	G. Tong Zhou

■ COMPUTER ENGINEERING

Ian F. Akyildiz	David V. Anderson	Thomas P. Barnwell, III	Douglas M. Blough	Robert J. Butera, Jr.	Abhijit Chatterjee	Jeffrey A. Davis
Stephen P. DeWeerth	James O. Hamblen	Bonnie S. Heck	Joseph L.A. Hughes	Nikil Jayant	David C. Keezer*	Vijay K. Madisetti
James H. McClellan	Vincent J. Mooney, III	Henry L. Owen	Krishna V. Palem	John B. Peatman	David E. Schimmel	Jay H. Schlag
Gordon L. Stüber	Madhavan Swaminathan	Rao R. Tummala	D. Scott Wills	Linda M. Wills	Sudhakar Yalamanchili	

■ DIGITAL SIGNAL PROCESSING

Yucel Altunbasak	David V. Anderson	Thomas P. Barnwell, III	Mark A. Clements	Faramarz Fekri	Monson H. Hayes, III	Vijay K. Madisetti
James H. McClellan	Russell M. Mersereau	Ronald W. Schafer*	Mark J.T. Smith	Douglas B. Williams	G. Tong Zhou	

■ ELECTRIC POWER

Miroslav M. Begovic	Thomas G. Habetler	Ronald G. Harley	Christiana B. Honsberg	A.P. Sakis Meliopoulos	Hans B. Püttgen*	Ajeet Rohatgi
William E. Sayle	David G. Taylor	George J. Vachtsevanos	Roger P. Webb			

■ ELECTROMAGNETICS

John A. Buck	David R. DeBoer	Thomas K. Gaylord	Elias N. Glytsis	Joy Laskar	W. Marshall Leach, Jr.	Andrew F. Peterson
Stephen E. Ralph	Waymond R. Scott, Jr.	Glenn S. Smith*	Paul G. Steffes	Madhavan Swaminathan	Emmanouil M. Tentzeris	

■ ELECTRONIC DESIGN AND APPLICATIONS

Phillip E. Allen	Farrokh Ayazi	Paul J. Benkeser	Martin A. Brooke	J. Alvin Connelly	Stephen P. DeWeerth	Robert K. Feeney
Paul E. Hasler	David R. Hertling	J. Stevenson Kenney	Joy Laskar*	W. Marshall Leach, Jr.	William E. Sayle	John P. Uyemura

■ MICROSYSTEMS

Ali Adibi	Mark G. Allen	Farrokh Ayazi	Kevin F. Brennan	Martin A. Brooke	April S. Brown	J. Alvin Connelly
Jeffrey A. Davis	W. Alan Doolittle	Robert K. Feeney	A. Bruno Frazier	Thomas K. Gaylord	Elias N. Glytsis	Christiana B. Honsberg
Joseph L.A. Hughes	William D. Hunt	Nan Marie Jokerst*	David C. Keezer	Joy Laskar	W. Marshall Leach, Jr.	Gary S. May
James D. Meindl	Linda Milor	Stephen E. Ralph	Ajeet Rohatgi	William E. Sayle	Jay H. Schlag	Rao R. Tummala
John P. Uyemura						

■ OPTICS AND PHOTONICS

Ali Adibi	Kevin F. Brennan	April S. Brown	John A. Buck*	W. Russell Callen, Jr.	Thomas K. Gaylord	Elias N. Glytsis
Christiana B. Honsberg	William D. Hunt	Mary Ann Ingram	Nan Marie Jokerst	Stephen E. Ralph	William T. Rhodes	Ajeet Rohatgi
Glenn S. Smith	Erik I. Verriest					

■ SYSTEMS AND CONTROLS

John F. Dorsey	K.-H. Michael Fan	Bonnie S. Heck	Edward W. Kamen	Gary S. May	A.P. Sakis Meliopoulos	Mohamed F. Moad
Allen Tannenbaum	David G. Taylor	George J. Vachtsevanos	Erik I. Verriest	Yorai Y. Wardi*	Anthony J. Yezzi, Jr.	

■ TELECOMMUNICATIONS

Ian F. Akyildiz	John R. Barry	Martin A. Brooke	John A. Copeland	Faramarz Fekri	Joseph L.A. Hughes	Mary Ann Ingram*
Nikil Jayant	J. Stevenson Kenney	Ye (Geoffrey) Li	Steven W. McLaughlin	Henry L. Owen	Ronald W. Schafer	Paul G. Steffes
Gordon L. Stüber	Chai-Keong Toh	Erik I. Verriest	Yorai Y. Wardi	Douglas B. Williams		

*indicates group chair

Standing Committees

■ COMPUTER RESOURCE

David V. Anderson	Bonnie S. Heck	David E. Schimmel	Jay H. Schlag	John P. Uyemura*	David S. Webb**	Douglas B. Williams
Linda M. Wills	G.Tong Zhou					

■ CONTINUING EDUCATION

Phillip E. Allen	John A. Copeland	John F. Dorsey	A. Bruno Frazier	Monson H. Hayes, III*	A.P. Sakis Meliopoulos	John B. Peatman
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■ FACULTY HONORS

J. Alvin Connelly**	Edward W. Kamen	Ajeet Rohatgi	Ronald W. Schafer	Paul G. Steffes	Gordon L. Stüber	Rao R. Tummala*
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■ FACULTY RECRUITMENT

Mark G. Allen	Stephen P. DeWeerth	Joy Laskar	Steven W. McLaughlin	Roger P. Webb*		
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■ GRADUATE

Miroslav M. Begovic	Douglas M. Blough	April S. Brown	David R. Hertling**	Russell M. Mersereau	Andrew F. Peterson*	Stephen E. Ralph
Allen Tannenbaum	Erik I. Verriest	D. Scott Wills				

■ GRADUATE STUDENT RECRUITMENT

Yucel Altunbasak	John R. Barry	Kevin F. Brennan*	Robert J. Butera, Jr.	Mark A. Clements	Thomas K. Gaylord	David R. Hertling**
Vincent J. Mooney, III	Hans B. Püttgen	Raghupathy Sivakumar	David G. Taylor	Emmanouil M. Tentzeris		

■ LABORATORY

Thomas E. Brewer **	John A. Buck	Robert K. Feeney	Michael D. Furman**	James O. Hamblen	Arthur Koblasz	W. Marshall Leach, Jr.
Linda Milor	Henry L. Owen*					

■ REAPPOINTMENT, PROMOTION, AND TENURE

Phillip E. Allen	Mark A. Clements	J. Alvin Connelly*	Thomas K. Gaylord	Nikil Jayant	Nan Marie Jokerst	Edward W. Kamen
Hans B. Püttgen	William E. Sayle	Ronald W. Schafer	Glenn S. Smith	Sudhakar Yalamanchili		

■ RESEARCH

Farrokh Ayazi	Abhijit Chatterjee	Elias N. Glytsis*	Christiana B. Honsberg	Mary Ann Ingram	Nikil Jayant	Ye (Geoffrey) Li
Waymond R. Scott, Jr.	Glenn S. Smith	George J. Vachtsevanos				

■ SEMINAR

Ian F. Akyildiz*	Ronald G. Harley	William D. Hunt	David C. Keezer	J. Stevenson Kenney	Vijay K. Madiseti	Krishna Palem
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■ STATUTORY ADVISORY

Robert K. Feeney*	Thomas K. Gaylord	Joy Laskar	Andrew F. Peterson	David E. Schimmel	Sudhakar Yalamanchili	
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■ STUDENT/FACULTY

Ali Adibi	Jeffrey A. Davis*	David R. DeBoer	Faramarz Fekri	Nan Marie Jokerst	Mohamed F. Moad	W. Whitfield Smith
Anthony J. Yezzi, Jr.						

■ UNDERGRADUATE

Thomas P. Barnwell, III	Paul J. Benkeser	Martin A. Brooke	Thomas G. Habetler	Paul E. Hasler	Joseph L.A. Hughes**	Gary S. May*
James H. McClellan	William E. Sayle**	Madhavan Swaminathan	Yorai Y. Wardi			

*indicates committee chair
**ex-officio

Continuing Education Conferences and Courses

The Georgia Tech Distance Learning, Continuing Education, and Outreach Department (DLCEO) offered two new conferences that involved ECE faculty as lead coordinators. The First Georgia Tech Conference on Nanoscience and Nanotechnology was offered in October 2000; April Brown served on the conference organizing committee, which consisted of faculty from four other academic units and the Georgia Tech Research Institute. The conference addressed the frontiers of research and the future directions in nanotechnology, the creation and utilization of materials, devices, and systems through the control of matter on the nanometer-length scale. In November 2000, the International Conference on Compilers, Architectures, and Synthesis for Embedded Systems (CASES 2000) was held for the first time, with Krishna V. Palem serving as conference chair and Vincent J. Mooney, III as publicity vice chair. The purpose of this working conference is to provide a forum for discussing emerging technology themes in embedded computing system design. Growing demand for high performance in embedded systems is creating new opportunities to leverage technologies such as instruction-level parallelism or explicitly parallel instruction computing.

During 2000-01, both active and retired ECE faculty members offered and taught 26 sections of courses through DLCEO. 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. Conferences are also included in this list.

<i>Date</i>	<i>Course</i>	<i>Instructors</i>
July 31-August 4, 2000	<i>RF and Wireless Engineering</i>	Robert K. Feeney and David R. Hertling
August 2-4, 2000	<i>Electrical Issues in Packaging: Digital, RF, and Mixed Signal Applications</i>	Joy Laskar, Andrew F. Peterson, and Madhavan Swaminathan
August 7-9, 2000	<i>Wireless Physical Communications</i>	Gordon L. Stüber
August 7-11, 2000	<i>CMOS Analog Integrated Circuits</i>	Phillip E. Allen
August 28-31, 2000	<i>Digital Signal Processing 2000 Fundamentals of DSP with Applications</i>	Mark A. Clements, Monson H. Hayes, III, and Steven W. McLaughlin
August 28-September 1, 2000	<i>Near-field Antenna Measurements and Microwave Holography</i>	Edward B. Joy (Location: Boulder, CO)
September 6-October 25, 2000	<i>Fundamentals of Engineering</i>	W. Russell Callen, Jr. (Administrator)
September 26, 2000	<i>Production and Delivery of Streaming Internet Presentations</i>	David V. Anderson, Monson H. Hayes, III, and Joel R. Jackson
September 26-28, 2000	<i>Power Distribution System Grounding and Transients</i>	A.P. Sakis Meliopoulos
October 16-18, 2000	<i>The First Georgia Tech Conference on Nanoscience and Nanotechnology</i>	April S. Brown (Administrator)
October 24-27, 2000	<i>Power Systems Relaying: Theory and Application</i>	Miroslav M. Begovic and A.P. Sakis Meliopoulos
November 7-8, 2000	<i>Grounding, Harmonics, and Electromagnetic Influence Design Practices</i>	A.P. Sakis Meliopoulos
November 14-16, 2000	<i>Modern Energy Management Systems</i>	A.P. Sakis Meliopoulos
November 17-19, 2000	<i>International Conference on Compilers, Architectures, and Synthesis for Embedded Systems</i>	Vincent J. Mooney, III and Krishna Palem (Administrators)
December 4-8, 2000	<i>Far-field, Anechoic Chamber, Compact, and Near-field Antenna Measurements</i>	Edward B. Joy
January 27-March 17, 2001	<i>Electrical Engineering: Preparation for the PE Exam</i>	W. Russell Callen, Jr. and William E. Sayle (Administrators)
February 5-9, 2001	<i>Antenna Engineering, Including Cellular, Mobile, and Portable Antennas</i>	Edward B. Joy, Waymond R. Scott, Jr., and Glenn S. Smith
February 14-April 4, 2001	<i>Fundamentals of Engineering</i>	W. Russell Callen, Jr. (Administrator)
March 12-15, 2001	<i>Integrated Grounding System Design and Testing</i>	A.P. Sakis Meliopoulos
March 20, 2001	<i>Production and Delivery of Streaming Internet Presentations</i>	David V. Anderson, Monson H. Hayes, III, and Joel R. Jackson
April 3-6, 2001	<i>Power Electronics: Devices, Circuits, and Switching Power Supplies</i>	Thomas G. Habetler, Ronald G. Harley, and William E. Sayle
April 30-May 1, 2001	<i>Fault and Disturbance Analysis Conference</i>	A.P. Sakis Meliopoulos
May 2-4, 2001	<i>Fifty-fifth Annual Georgia Tech Protective Relaying Conference</i>	A.P. Sakis Meliopoulos (Administrator)
May 14-18, 2001	<i>MEMS Boot Camp</i>	Farrokh Ayazi, Mark G. Allen, and A. Bruno Frazier
May 14-25, 2001	<i>Microelectronics: Next Generation Microsystems Packaging beyond CSP, Flip Chip, MCM, and Microvia</i>	Farrokh Ayazi, Swapan K. Bhattacharya, Abhijit Chatterjee, David C. Keezer, Joy Laskar, Gary S. May, James D. Meindl, Andrew F. Peterson, Madhavan Swaminathan, Emmanouil M. Tentzeris, Rao R. Tummala, and George E. White
May 21-23, 2001	<i>Emerging MEMS Fabrication Technologies</i>	Farrokh Ayazi, Mark G. Allen, and A. Bruno Frazier
May 28-29, 2001	<i>Grounding, Harmonics, and Electromagnetic Influence Design Practices</i>	A.P. Sakis Meliopoulos (Location: Dallas, TX)
June 11-15, 2001	<i>RF/Wireless Principles and Practice</i>	Robert K. Feeney, David R. Hertling, and W. Whitfield Smith

RESEARCH AND ADMINISTRATIVE STAFF

One hundred and seventy-four research and administrative staff members, who are listed below, were employed in ECE during 2000-01. There were 29 terminations and resignations, 27 new hires, 15 promotions, nine transfers, and two retirements. As of June 30, 2001, there were 134 administrative and research employees.

■ RESEARCH PERSONNEL

Randal T. Abler Research Engineer II
Enrico Bellotti Research Engineer II
Keith Bernhard Research Engineer II
Swapan K. Bhattacharya Senior Research Scientist
Dhananjay Bhusari Postdoctoral Fellow
Benny Bing Research Engineer
John Bordelon Senior Research Engineer
Stuart Bowden Research Engineer II
Giorgio Casinovi Senior Research Engineer
Thomas C. Champion Research Engineer I
Thomas Chen Postdoctoral Fellow
Young Cho Research Engineer II
Larry T. Coffeen Research Engineer II
George Cokkinides Visiting Professor
Timothy Collins Research Technician II
Didier Contis Research Engineer I
Florent Cros Research Engineer I
Lorand Csiszar Research Technologist
Richard Dansereau Research Engineer I
Abasifreke U. Ebong Research Engineer II
Alex Z. Goldstein Research Engineer II
Mason Graff Research Scientist I
Joe Haralson Research Engineer II
Richard A. Hartlein Senior Research Engineer
Lonnie D. Harvel Senior Research Scientist
Comas Haynes Postdoctoral Fellow
Jeffrey Hildreth Research Engineer I
Raymond C. Hill Research Technologist
Jimmie Jones Research Technician II
Youngjoong Joo Research Engineer II
Frank C. Lambert Senior Research Engineer
Kyeongkyun Lee Postdoctoral Fellow
Seock-Hee Lee Postdoctoral Fellow
Ronglin Li Postdoctoral Fellow
Kyutae Lim Research Engineer II
David Lin Postdoctoral Fellow
Ramanamurty Malladi Research Engineer II
Pulugurtha Markondeya-Raj Postdoctoral Fellow
Janeen McReynolds Research Engineer I
Giacomo Morabito Research Engineer I

Thomas J. Parker Research Technologist II
Shashikant G. Patel Research Engineer II
Stephane Pinel Postdoctoral Fellow
Caryn Riley Research Engineer II
Catrina Scoglio Research Engineer I
Samuel F. Smith Research Scientist I
W. Whitfield Smith Senior Research Engineer
Paul L. Springer Senior Research Engineer
Jegannathan Srinivasan Research Engineer II
Youngsuk Suh Research Engineer II
Harry T. Sullivan Research Scientist I
Venkatesh Sundaram Research Engineer II
Dean A. Sutter Electrical Engineer III
Pazhamaneri Thiagarajan Visiting Professor
Tuna Tugcu Postdoctoral Fellow
Greg Van Wiggeren Postdoctoral Fellow
Mahesh Varadarjan Research Engineer II
Martin Von Arx Postdoctoral Fellow
Lixi Wan Research Engineer II
Irene G. Wells Research Engineer II
George White Senior Research Engineer
Weng-Fei Wong Visiting Assistant Professor
Wei Dong Xiang Postdoctoral Fellow
Kwang Yoon Visiting Professor
Guang Yuan Postdoctoral Fellow

■ ADMINISTRATIVE STAFF

Nancy L. Baines Administrative Assistant I
Debra Balkcom Accountant I
Erick Beebe Systems Support Specialist III
Brian Bennett Mechanical Technician I
Margaret Boehme Administrative Assistant I
Margarita Bolet Administrative Coordinator
Robert C. Boozer Business Operations Manager
Louis Boulanger Mechanical Technician III
Christina Bourgeois Lecturer
Thomas E. Brewer Assistant to the Chair and Laboratory Manager II
Yvonne Bridges Administrative Assistant II
Rebecca "Suzy" Briggs Director of ECE Development-Alumni
Jamie Brinkley Administrative Assistant I

Lynda D. Buescher
Valarie Burnette
Donnie Gayle Burt
Darlene Bush
Dale E. Callaway
Stephanie Cappello
Mary Jane Chappell
Kathy B. Cheek
Tracy Childers
Tina Clonts
Leyla Sutcu Conrad
Sherrie Cooper
Sharon Crouch
Marion Crowder
Sharise J. Cunningham
MaryJo Davis
Wayne Devezin
Charlotte A. Doughty
Christy K. Ellis
Heather L. Emmert-Cudmore
Barry N. Fairley
Claudia Ford
Diana L. Fouts
Michael D. Furman
Kayron C. Gilstrap
LaJauna F. Guillory
Pamela F. Halverson
Trina Hamlin
David W. Harwell
Sandra S. Hayes
Fanchette Hillery
Robert R. House
Richard L. Howell
Angela Hughes
Joseph F. Jackson

Kesha L. Jackson
Valerie C. Johnson
Minionette R. Jolly
Edgar L. Jones
Rajib Joshi-Acharya
Debra B. Kelley
Deborah K. King
Rochelle F. Kraehe
Warren M. Lanier
Sharon D. Lawrence
Angelo Lawton
Herbert Lehman
Herbert Lensch
Bennie Little
Eric Logan

Assistant Director for ECE Personnel Services
Senior Accounting Assistant
Administrative Assistant II
Administrative Assistant II
Research Coordinator II
Systems Support Specialist I
Administrative Assistant II
Administrative Assistant II
Computer Services Specialist III
Accountant III
Academic Professional
Academic Assistant I
Assistant Director for ECE Accounting
Senior Information Specialist
Information Specialist II
Academic Advisor II
Research Equipment Specialist
Senior Administrative Secretary
Administrative Assistant I
Program Coordinator II
Research Coordinator I
Academic Advisor II
Graphics Specialist
Academic Professional
Administrative Manager I
Program Manager
Administrative Assistant II
Web Author
Research Coordinator I
Program Manager
Computer Services Specialist II
Electronics Specialist
Research Coordinator I
Administrative Manager I
Director for Operations and Assistant to the
Chair
Administrative Assistant II
Administrative Coordinator
Senior Administrative Secretary
Facility and Laboratory Coordinator
Computer Services Specialist III
Program Manager
Administrative Assistant II
Administrative Assistant II
Academic Professional
Academic Assistant II
Research Coordinator I
Director of Operations
Computer Services Specialist II
Program Coordinator II
Computer Services Specialist II

Judith C. Lorier
Ephraim Macharia
François J. Malassenet

Keith May
Elizabeth McDonald
W. Bruce McFarland
Thomas McKoon
Rachel Melton
Marvin Mims
Doria Moore
Marilouise Mycko
Janet M. Myrick
Jacqueline L. Nemeth
Linda Newton
Jalisa Norton
Lisa Novak
James I. Nowell
Gail O. Palmer
Rekha Patel
Matthew Perry
Boyd M. Pettitt
Gail A. Reeves
Kathleen Robichaud
Nikki Roberts
Gail Rothman
Carl A. Rust

Gwendolyn J. Satchel
Stacy V. Schultz
Jason Seletos
Melissa Sherrer
Fred T. Stanley
Florence I. Stoia
Dean C. Sutter
Jennifer P. Tatham
Denise D. Taylor
Jacqueline Trappier
Nancy Trent
Alvis Turner

Judith Vanderboom
Harry L. Vann

David S. Webb

Todd E. Whitehurst
Dean Williams
Rochelle Y. Williams
Suzette Willingham
Carla Zachery

Accountant III
Administrative Assistant I
Directeur of Georgia Tech Lorraine/Academic
Professional
Computer Services Specialist III
Systems Support Specialist I
Laboratory Coordinator
Research Coordinator II
Web Developer
Mechanical Technician I
Accountant III
Academic Advisor II
Administrative Assistant II
Senior Information Specialist
Administrative Assistant I
Program Coordinator II
Accounting Manager I
Mechanical Technician III
Lecturer
Financial Manager I
Program Manager
Research Coordinator II
Program Coordinator II
Senior Academic Professional
Program Coordinator II
Program Coordinator II
Business Operations Manager for the Packaging
Research Center
Administrative Assistant II
Administrative Assistant II
Program Coordinator I
Administrative Coordinator
Research Coordinator I
Program Coordinator II
Electronics Technician I
Program Manager
Administrative Assistant II
Records Coordinator II
Program Coordinator II
Assistant to the Director for NEETRAC
Operations
Accountant III
Director of ECE Development-Corporate
Relations/Development Officer I
Senior Academic Professional and Assistant to
the Chair for Computer Support
Computer Services Specialist IV
Research Coordinator II
Accountant III
Academic Assistant II
Accountant II

STUDENTS

Computer engineering continued to be one of the fastest growing majors at Georgia Tech, as well as one of the most popular majors chosen by the 2000-01 freshman class. In FY 01, the number of computer engineering majors almost matched the number of students enrolled in electrical engineering. The average high school grade point average (GPA) for the incoming College of Engineering freshman class was 3.75, with an average SAT score of 1,339.

The graduate program also continued to expand at a steady pace that has been consistent with its growth in the last several years. The average starting graduate student GPA is 3.65, with an average GRE score of 2002.

The tables below detail enrollments and graduation totals for each of the School's academic programs, including percentages of women and underrepresented minority group involvement.

STUDENT BODY PROFILE (Based on Fall 2000 Enrollment)				
		% Women	% African-Americans	Other Minorities*
BSEE	941			
BSCmpE	922			
Total	1,863	11.7%	13.4%	4.2%
MS/MSECE	329			
Special	3			
PhD	450			
Total	782	14%	6.3%	2.8%
Grand Total	2,645			

DEGREES AWARDED (Summer 2000-Spring 2001)				
		% Women	% African-Americans	Other Minorities*
BSEE	224			
BCmpE	104			
Total	328	14.6%	11.9%	4%
MS	51			
MSECE	170			
PhD	56			
Total	277	15.5%	7.6%	2.9%
Grand Total	605			

* These statistics include Hispanics, Native Americans, and persons of multiracial origins.

Student Honors and Awards

Melinda Agyekum and **Parina Shah** received the Georgia Tech Alumni Association Student Leadership Award for International Study, so that they can broaden their education by travelling abroad.

Ghassan AlRegib, Yun-Hui Fan, Wesley Gee, Shirlan Johnson, Arden Huang, Wiehan Le Roux, Shaw Li, Chris Nee, David W. Peters, Timothy Stoneman, Ryan Thompson, and Alexander Yin each received an ECE Outstanding Graduate Teaching Assistant Award.

Amer Hani Atrash, Paul B. Hultz, and William L. Plishker each received an ECE Senior Scholar Award for having the highest academic averages in their class.

Philip D. Black received the Outstanding ECE Senior Award for his excellent scholastic average and his active role in extracurricular activities.

Brian Patrick Boyd received the Outstanding ECE Sophomore Award for having the highest scholastic average in his class.

Nathan Bushyager and **Brian McGarvey** received the Best Student Paper Award for "Adaptive Numerical Modeling of RF Structures Requiring the Coupling of Maxwell's, Mechanical, and Solid-State Equations" at the 2001 Applied Computational Electromagnetics Conference. Their advisor is Emmanouil M. Tentzeris.

Faramarz Fekri received the Sigma Xi Outstanding Doctoral Thesis Award for his dissertation entitled "Finite-field Wavelet Transforms and Their Application to Error Control Coding." He was co-advised by Russell M. Mersereau and Ronald W. Schafer. Dr. Fekri also received the 2000 Center for Signal and Image Processing Outstanding Graduate Research Award. Dr. Fekri is now an assistant professor in ECE.

Deukhyoun Heo received the Best Student Paper Award for "An Improved Deep Submicrometer MOSFET RF Non-linear Model with New Breakdown Current Model and Drain to Substrate Nonlinear Coupling" at the 2000 International Microwave Symposium. Dr. Heo, who is now employed with National Semiconductor in Norcross, GA, was advised by Joy Laskar.

James Hoffman won first place at the January 2001 National Radio Science Meeting Student Paper Competition for "Laboratory Measurements of the Microwave Opacity of Phosphine: Opacity Formalism and Application to the Atmospheres of the Outer Planets." He also received an award for the same

paper at the Georgia Tech Student Paper Competition, which was sponsored by Science Applications International Corporation. Dr. Hoffman, who is now employed with NASA Jet Propulsion Laboratory, was advised by Paul G. Steffes.

Heather L. Jegel received the ECE Faculty Award, which is given to the student who, in the opinion of the ECE faculty, has done the most to improve the educational environment within ECE at Georgia Tech and has contributed significantly to both student welfare and student-faculty interaction.

Joong-Ho Kim won the Best Student Paper Award for "Modeling of Irregular Shaped Power Distribution Networks Using the Transmission Matrix Method" at the Ninth Topical Meeting on Electrical Performance of Electronic Packaging, held in October 2000. His advisor is Madhavan Swaminathan.

Chung-Tse Mar and **David Richard Reid** each received the Henry Ford II Scholar Award, which is presented to the engineering students with the best academic records at the end of the third year of undergraduate study.

Lawrence Edward McDonald received the Robert Engineering Award; this award is presented on an annual rotation to an outstanding rising senior in civil and environmental, electrical, or mechanical engineering.

Cody Rowan received the William Gilmer Perry Award for writing the best paper in an English 1001, 1002, or a 2000-level course.

Rajiv Saigal received the Women's Student Union Annual "Make a Difference" Award for actively causing positive change in women's issues to occur within the Georgia Tech community.

Ph.D. Students Graduated

Fifty-six students graduated with their doctoral degrees in 2000-01. The students are listed in this section, along with their advisors, graduation dates, thesis titles, and current places of employment.

Randal Abler—Advisor: Copeland—Summer 2000
Thesis: Quality of Service and Fairness in ATM Based MPLS Switches Implementing Packet Based VC Merge
Current Status: Employed as an assistant professor in the Georgia Tech Regional Engineering Program in Savannah, GA.

Faisal Alturki—Advisor: Mersereau—Spring 2001
Thesis: Theory and Applications of Data Hiding in Still Images
Current Status: Not known

Kofi Anim-Appiah—Advisor: McLaughlin—Fall 2000
Thesis: Interleaved Concatenated Coding for Input-constrained Channels
Current Status: Employed as a technical staff member at Texas Instruments in Dallas, TX.

John Bendickson—Advisor: Buck—Fall 2000
Thesis: Analysis of Finite Diffractive Optical Elements
Current Status: Employed as a systems engineer at Dynetics, Inc. in Huntsville, AL.

Aveez Bhavnagarwala—Advisor: Meindl—Spring 2001
Thesis: Voltage Sealing Constraints for Static CMOS Logic and Memory Circuits
Current Status: Employed as a technical staff member at IBM T.J. Watson Research Center in Yorktown Heights, NY.

Keith Bowman—Advisor: Meindl—Spring 2001
Thesis: A Circuit-level Perspective of Opportunities and Limitations for Gigascale Integration
Current Status: Employed as a postdoctoral fellow in the School of Electrical and Computer Engineering at the Georgia Institute of Technology in Atlanta, GA.

John Callahan—Advisor: Drabik—Summer 2000
Thesis: Optoelectronic Hybrid Integration Utilizing Au/Sn Bonding
Current Status: Employed as a process development engineer at Bandwidth Semiconductor, LLC in Bedford, MA.

Sudipto Charkrabarti—Advisor: Chatterjee—Spring 2001
Thesis: Testing and Fault Diagnosis of Mixed-signal Circuits
Current Status: Employed as a principal engineer at Ardext Technologies in Atlanta, GA.

Jae Joon Chang—Advisor: Martin Brooke—Summer 2000
Thesis: CMOS Differential Analog Optical Receiver with Hybrid I-MSM Detector
Current Status: Employed with Agilent Technologies in San Jose, CA.

Georgiana Dagnall—Advisor: Brown—Summer 2000
Thesis: Solid Source Molecular Beam Epitaxial Growth of 1.55-um InAsP/InGaAsP Edge-emitting Lasers
Current Status: Employed at Harmonic Optics in Santa Clara, CA.

Suparana Datta—Advisor: McLaughlin—Fall 2000
Thesis: New Results on Coding for M-ary Runlength-limited Channels
Current Status: Employed as a research engineer in the DSP Solutions Research Center at Texas Instruments in Dallas, TX.

Maziar Farahmand—Advisor: Brennan—Summer 2000
Thesis: Advanced Simulation of Wide Band-gap Semiconductor Devices
Current Status: Employed with Movaz Networks in Norcross, GA.

Faramarz Fekri—Advisor: Schafer/Mersereau—Summer 2000
Thesis: Finite Field Wavelet Transforms and their Application to Error Control Coding
Current Status: Employed as an assistant professor in the School of Electrical and Computer Engineering at the Georgia Institute of Technology in Atlanta, GA.

Antonio Gentile—Advisor: D.S. Wills—Fall 2000
Thesis: Portable Multimedia Supercomputer System Architecture Design and Evaluation
Current Status: Employed as an assistant professor in the Department of Automatics and Computer Science at the University of Palermo in Palermo, Italy.

Yun Gong—Advisor: Fan—Summer 2000
Thesis: On Semidefinite Programming and Vector Quantization with Application to Image Coding
Current Status: Employed as an assistant professor in the Department of Electrical Engineering at Widener University in Chester, PA.

Ajay Gummala—Advisor: Limb—Summer 2000

Thesis: Wireless Home Networks: Architecture and Access Protocols
Current Status: Employed as a staff scientist at Broadcom Corp. in Duluth, GA.

Ozgur Gurbuz—Advisor: H. Owen—Summer 2000

Thesis: Power Control Based QOS Provisioning for Wireless Multimedia Networks
Current Status: Employed with Cisco in San Francisco, CA.

Deukhyoun Heo—Advisor: Laskar—Fall 2000

Thesis: Silicon MOS Field Effect Transistor RF/Microwave Nonlinear Model Study and Power Amplifier Development for Wireless Communications
Current Status: Employed as a senior design engineer at National Semiconductor Corp. in Norcross, GA.

James Hoffman—Advisor: Steffes—Spring 2001

Thesis: Microwave Opacity of Phosphine: Application to Remote Sensing of the Atmospheres of the Outer Planets
Current Status: Employed as a radio systems engineer at the NASA Jet Propulsion Laboratory in Pasadena, CA.

Junwei Hou—Advisor: Chatterjee—Spring 2001

Thesis: Concurrent Fault Simulation for Mixed-signal Circuits
Current Status: Employed a consulting staff member at Cadence Design Systems, Inc. in San Jose, CA.

Tsai Huang—Advisor: L. Wills—Spring 2001

Thesis: UDP/TCP/IP Packet Processing Using a Superscalar Microprocessor
Current Status: Employed as a technical staff engineer at Sanera Systems in Sunnyvale, CA.

Yiteng (Arden) Huang—Advisor: Mersereau—Spring 2001

Thesis: Real-time Acoustic Source Localization with Passive Microphone Arrays
Current Status: Employed as a technical staff member at Bell Laboratories/Lucent Corp. in Murray Hill, NJ.

Tina Hudson—Advisor: DeWeerth—Fall 2000

Thesis: A Neuromorphic Model of Muscular Contraction
Current Status: Employed as an assistant professor in the Department of Electrical and Computer Engineering at the Rose-Hulman Institute of Technology in Terre Haute, IN.

Seong-Ho Jeong—Advisor: Copeland—Fall 2000

Thesis: Flow Management for Voice/Data Transport over UDP/TCP Based Networks
Current Status: Employed at the Electronics and Telecommunications Research Institute in Daejeon, South Korea.

Qin Jiang—Advisor: Mersereau—Fall 2000

Thesis: Stereo Sequence Compression
Current Status: Employed as a research staff member at Hughes Research Laboratories in Malibu, CA.

Yong-Kyu Jung—Advisor: Madisetti—Spring 2001

Thesis: Model-based Processor Synthesis
Current Status: Employed as vice president for VLSI Technology at VP Technologies, Inc. in Atlanta, GA

Tong-Ho Kim—Advisor: Brown—Summer 2000

Thesis: Solid Source Molecular Beam Epitaxy of InP-based Composite-channel High Electron Mobility Transistor Structures for Microwave and Millimeter-wave Power Applications
Current Status: Employed as a postdoctoral fellow in the School of Electrical and Computer Engineering at the Georgia Institute of Technology in Atlanta, GA.

Yongchae (John) Kim—Advisor: Stüber—Spring 2001

Thesis: Resource Management Techniques for CDMA Cellular Systems
Current Status: Employed as a senior communications engineer at Envoy Networks, Inc. in Boston, MA.

Yongsub Kim—Advisor: Zhou—Fall 2000

Thesis: Estimation and Equalization of Time-selective Fading Channels
Current Status: Employed as the research and development director for Danam USA, Inc. in San Jose, CA.

King Lee—Advisor: Williams—Spring 2001

Thesis: Space-time and Space-frequency Coded Orthogonal Frequency Division Multiplexing Transmitter Diversity Techniques
Current Status: Employed with Motorola Labs in Schaumburg, IL.

Kuo-Hui Li—Advisor: Ingram—Fall 2000

Thesis: RF Beamformers for High-speed Wireless Communications
Current Status: Employed as a system engineer at Metawave Corp. in Redmond, WA.

Babak Matinpour—Advisor: Laskar—Spring 2001

Thesis: Design and Development of Compact and Monolithic Direct Conversion
Current Status: Employed as a staff engineer at RF Solutions, Inc. in Atlanta, GA.

Janise McNair—Advisor: Akyildiz—Fall 2000

Thesis: Handoff Techniques for Next Generation Wireless Multimedia Systems
Current Status: Employed as an assistant professor in the Department of Electrical and Computer Engineering at the University of Florida in Gainesville, FL.

Laura McPheters—Advisor: McLaughlin—Spring 2001

Thesis: Concatenated Coding and Iterative Decoding for Magnetic and Optical Recording
Current Status: Employed as an assistant professor in the Department of Electrical and Computer Engineering at San Diego State University in San Diego, CA.

Mile Milisavljevic—Advisor: Begovic—Spring 2001

Thesis: Information Driven Optimization in Control Systems, Signal Processing, Telecommunications, and Stochastic Finance
Current Status: Employed as a design engineer at Cicada Semiconductor in Austin, TX.

Nanju Na—Advisor: Swaminathan—Spring 2001

Thesis: Modeling and Simulation of Planes in Electronic Packages
Current Status: Employed as a research and development engineer at Agilent Technologies in San Jose, CA.

Krishnamurthy Nagarajan—Advisor: Zhou—Fall 2000

Thesis: New Resource Allocation Schemes Based on Statistical Network Traffic Models
Current Status: Employed as managing director of CouthIT.Com in Hyderabad, India.

Timucin Ozugur—Advisor: Copeland—Summer 2000

Thesis: Advanced Infrared Local Area Networks

Current Status: Employed as a researcher at Nortel in Dallas, TX.

Mondira Pant—Advisor: S. Wills—Summer 2000

Thesis: An Architectural Approach to Inductive Noise Issues in CMOS Circuits

Current Status: Employed as a hardware engineer at Compaq Computer Corp. in Shrewsbury, MA.

Pankaj Pant—Advisor: Chatterjee—Summer 2000

Thesis: Automated Diagnosis of Path Delay Failures in Digital Integrated Circuits

Current Status: Employed as a hardware engineer at Compaq Computer Corp. in Shrewsbury, MA.

Chirag Patel—Advisor: Meindl—Spring 2001

Thesis: Compliant Wafer Level Package (CWLP)

Current Status: Employed as a research staff member at IBM in Yorktown Heights, NY.

Freeman Rufus—Advisor: Vachtsevanos—Spring 2001

Thesis: Intelligent Approaches to Mode Transition Control

Current Status: Employed as a senior technical staff member at Channel Logics, Inc. in Atlanta, GA.

Ravi Sivasankaran—Advisor: McLaughlin—Fall 2000

Thesis: Sequential Iterative Decoding of Concatenated RSC Codes

Current Status: Employed as a technical staff member at Envoy Networks in Bedford, MA.

Charles Stokes—Advisor: May—Summer 2000

Thesis: Real-time Monitoring and Control of Reactive Ion Etching Using Neural Networks

Current Status: Employed as a process engineer at Cree, Inc. in Morrisville, NC.

Albert Sutono—Advisor: Laskar—Spring 2001

Thesis: Development and Implementation of Design Methodologies for Integrated Wireless Communications System on Package

Current Status: Employed as a staff engineer at RF Solutions, Inc. in Atlanta, GA.

Payam Torab Jahromi—Advisor: Kamen—Fall 2000

Thesis: Performance Analysis of Packet-switched Networks with Tree Topology

Current Status: Employed as a senior software engineer at Movaz Networks in McLean, VA.

Todd Ulmer—Advisor: Ralph—Fall 2000

Thesis: Resonant-cavity Enhanced Surface Emitted Second Harmonic Generation for Optical Time Division Demultiplexing

Current Status: Employed as a staff member at MIT Lincoln Laboratory in Lexington, MA.

Dongmei Wang—Advisor: Mersereau—Summer 2000

Thesis: Video Coding and Transmission for Multimedia Communications Using a 3-D Graphics Model

Current Status: Employed as a research engineer at StarCore Corp. in Atlanta, GA.

Peng Wang—Advisor: Vachtsevanos—Spring 2001

Thesis: Intelligent Signal/Image Processing for Fault Diagnosis and Prognosis

Current Status: Employed as a design engineer at Lucent Technologies in Norcross, GA.

Xiaoxiao Wang—Advisor: Copeland—Fall 2000

Thesis: QoS Management for Video Delivery over Mobile Wireless Networks

Current Status: Employed as a technical staff member at Bell Laboratories/Lucent Corp. in Murray Hill, NJ.

Tsan-Ming Wu—Advisor: Mersereau—Fall 2000

Thesis: Statistical Impulse Response Modeling

Current Status: Not known

Xuedong Yang—Advisor: Taylor—Fall 2000

Thesis: Modeling and Control of Two-Axis Belt Drive Gantry Robots

Current Status: Employed as an electrical engineer at Schlumberger Reservoir Completions Center in Rosharon, TX.

Seungyup Yoo—Advisor: Laskar—Fall 2000

Thesis: Field Effect Transistor Noise Model Analysis and Low Noise Amplifier Design for Wireless Data Communications

Current Status: Employed as a design engineer at RF Solutions, Inc. in Atlanta, GA.

Payman Zarkesh-ha—Advisor: Meindl—Spring 2001

Thesis: Global Interconnect Modeling for a Gigascale System on a Chip

Current Status: Employed as a research and development engineer at LSI Logic Corp. in Milpitas, CA.

Benyong Zhang—Advisor: P. Allen—Spring 2001

Thesis: A 2.4 GHz, Low Power, Fully Integrated CMOS Frequency Synthesizer for Wireless Communications

Current Status: Employed as a design engineer at National Semiconductor Corp. in Federal Way, WA.

Hai Zheng—Advisor: Copeland—Fall 2000

Thesis: QoS Concerned Efficient Video Communication over Wireless Network

Current Status: Employed as a member of the technical staff at Bell Labs/Lucent Technologies in Holmdel, NJ.

Student Organization Officers and Advisory Council

Students are the lifeblood of the School of ECE. The IEEE student branch, Eta Kappa Nu, and the ECE Student Advisory Council play very important roles in 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.

The IEEE student members host seminar speakers from various companies and organizations on a regular basis, and they sponsor a Student-Professional Awareness Conference each spring. Eta Kappa Nu (HKN) is the international honor society for electrical engineers; outstanding juniors, seniors, and graduate students are eligible to be elected to this program. HKN sponsors the annual ECE Spring Picnic and several awards that are given to faculty and students throughout the year. To give students a further voice in School affairs, the ECE Student Advisory Council meets with ECE administrators and the ECE Alumni/Professional Advisory Board on a regular basis.

■ 2000-01 IEEE STUDENT BRANCH OFFICERS

Phil Black	Chair
Ryan Holman	Vice Chair, Internal Relations
Rahul Prasad	Vice Chair, External Relations
Paul Hultz	Treasurer
Nasir Barday	Secretary, Spring Semester
Catherine Thorn	Secretary, Fall Semester

■ 2000-01 ETA KAPPA NU OFFICERS

President	Allison Amis
Vice President	Ryan Holman
Treasurer	Rumit Kanakia
Recording Secretary	James Freedman-Aponte
Corresponding Secretary	Sung-Hoon Kim
<i>Bridge</i> Correspondent	Ryan Swanson
Graduate Liaison	Nick Bronn

■ 2000-01 ECE STUDENT ADVISORY COUNCIL

Phil Black
Shannon Brenner
Nick Bronn
Daniel Collins
Heather Jegel
John D. Kitt
Gregory Martin
Elliot Moore
Chris Murray
John Parsons
David Peters
Rahul Prasad
Gregory Scherrer
David Spiller
Andrew Stein
Deborah Stutz
Catherine Thorn
Chip Vorndran
Sherry Womack
Eric Woods

ACADEMIC OPERATIONS

Undergraduate Instructional Operations

Undergraduate enrollments exceeded 1,800 students on the Atlanta campus in 2000-2001, with the majority of entering first-year students choosing computer engineering as a major. The Georgia Tech Regional Engineering program in Savannah was expected to produce its first computer engineering graduate in Fall 2001.

The Undergraduate Affairs Office schedules and coordinates electrical and computer engineering courses for the main Georgia Tech campus; the Georgia Tech Regional Engineering Program and its member schools, Georgia Southern University, Armstrong Atlantic State University, and Savannah State University; and Georgia Tech Lorraine.

The ECE faculty continued preparations for upcoming evaluations by the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology, Inc. (ABET) in 2002 and by the Southern Association of Colleges and Schools (SACS) in 2003.

The ECE Undergraduate Committee prepared and reviewed objectives and outcomes for the required and core courses for both the EE and the CmpE degree programs. Faculty members teaching multiple sections of required core courses were required to meet on a regular basis to coordinate course material. This coordination was especially critical for ECE 2030, as 26 sections of this required course were offered during 2000-01.

William E. Sayle and Joseph L.A. Hughes continue to serve as associate chair for Undergraduate Affairs and associate chair for Computer Engineering and Program Development, respectively. Claudia Ford and Associate Chair Emeritus Tom White continued to advise students on a daily basis. After many years of dedicated service, MaryJo Davis took another academic advising position in the Wallace Coulter Department of Biomedical Engineering, and Minionette Jolly left Georgia Tech for North Carolina State University. Angela Elleby, who previously worked in the Registrar's Office, joined ECE as an academic advisor.

Graduate Instructional Operations

During FY 2001, the ECE Graduate Affairs Office continued its quest to deliver its services more efficiently and effectively, as it processed over 4,000 requests for applications and handled 2,000 actual applications to the program. David R. Hertling, associate chair for Graduate Affairs, and Marilouise Mycko, academic advisor, advise all students and oversee proper documentation of student progress through master's and doctoral programs. Jacqueline Trappier and Suzzette Willingham serve as records coordinator and academic assistant, respectively, and Sherrie Cooper, also an academic assistant, works with both

the graduate and undergraduate offices. These personnel are responsible for recruitment, admission, financial support, advisement, and record keeping. They also work in tandem with the ECE Graduate Committee and Graduate Student Recruitment Committee to enact sound academic policies and to attract high quality master's and doctoral students to the program.

In the last year, the Graduate Affairs Office has made increasing use of the Internet by which to distribute information. On the ECE Intranet, students may download items such as new student packets, calendars of scheduled doctoral exams, course descriptions and schedules, and forms for registering for exams and applying for Ph.D. candidacy. Graduate affairs also sends periodic reports on accepted graduate students and their areas of interest via electronic mail, so that faculty may see who they might wish to advise and support as research assistants. ECE graduate applicants currently apply through the Institute's Office of Graduate Admissions and then apply through the ECE web site. Within the next year, it is expected that ECE graduate applicants will be able to check the status of their applications online.

INTERNATIONAL STUDY OPPORTUNITIES

Georgia Tech Lorraine

Georgia Tech Lorraine (GTL), Georgia Tech's platform into Europe, is a non-profit corporation operating under French law. Its four areas of emphasis are graduate education, sponsored research, undergraduate summer education, and continuing education.

Established in October 1990, GTL is a highly innovative program. Students may earn a Georgia Tech degree in one of the following programs: undesignated master's, a master's in either electrical engineering or mechanical engineering, or a Ph.D. Fall 2000 enrollments included 44 M.S.E.C.E. students, 49 M.S.M.E. students, and six Ph.D. students. Spring 2001 enrollments included 24 M.S.E.C.E. students, 49 M.S.M.E. students, and seven Ph.D. students.



GTL also offers an undergraduate summer program that includes courses in electrical engineering, mechanical engineering, management, and international affairs. Sixty-three students enrolled in the 2000 summer undergraduate program, and 118 students registered for the summer 2001 program.

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 a master's degree from Georgia Tech and a graduate diploma from a partner institution.

This year, the BINÔME Program was initiated as a major extension of the GTL dual degree program. This industry-university partnership between the U.S. and Europe enables students who are 100 percent supported by their industry sponsor, to become fully immersed in the partnering language and culture while earning their double degree. The total graduate program experience is a blend of academic coursework at GTL taught in English, academic coursework at the partner French institution taught in French, and an industrial internship where an American student works in a totally French-speaking environment, and their French counterpart works in a totally English-speaking environment.

Hans B. Püttgen and François J. Malassenet serve as GTL's president and directeur, respectively. Florence I. Stoa and Fabienne Berge are the GTL program coordinators at the Atlanta campus, and Jennifer Pereira is the program coordinator at the GTL campus, which is located in Metz, France.

OXFORD STUDY ABROAD

The Oxford Study Abroad Program offers two excursions—one to Australia and New Zealand during the spring semester and one to England during the summer semester.

The Australia program allows students to take courses in biology, geology, engineering, and social sciences. Coursework is taught at Melbourne University and Victoria University, as well as on the islands of Fiji, Cook, and Hawaii. The 2000-01 Australia program had an enrollment of 115.



Coursework for the England program is taught at Oxford University, and students also choose from one of three travel itineraries in continental Europe. The program offers classes in engineering, architecture, music, and social sciences. The 2000-01 England program had an enrollment of 149.

Arthur Koblasz serves as Oxford's program director; Heather Emmert-Cudmore and Jason Seletos serve as its program coordinators.

EXTERNAL AFFAIRS

The following honors were awarded to ECE alumni at the College of Engineering Awards Ceremony, which was held in October 2000.

■ 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. Two ECE alumni received this award.

Joseph E. Mayes, Jr.
Retired Chairman
Southern Engineering
Atlanta, GA
B.E.E. 1946

Robert E. Morris
Retired
San Diego Power
San Diego, CA
B.E.E. 1944

■ COUNCIL OF OUTSTANDING YOUNG ENGINEERING ALUMNI

Membership in the Council of Outstanding Young Engineering Alumni is bestowed upon alumni under 40 years of age who have demonstrated outstanding professional achievements. Four ECE alumni received this award.

David Bockelman
Motorola-Motorola Labs
Plantation, FL
(Now with Free Electron Technology
Austin, TX)
B.E.E. 1989, M.S.E.E. 1990

Gabriel Rincon-Mora
Senior Design Engineer
Texas Instruments, Inc.
Dallas, TX
M.S.E.E. 1994, Ph.D. 1997

James McElvaney
Director, Aircraft Engineering
Delta Airlines
Douglasville, GA
B.E.E. 1988, M.S. Mgt. 1990

Brian Singleton
EE Lead Facilitator
U.S. General Services Administration
Atlanta, GA
B.E.E. 1988

■ 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. Six ECE alumni received this award.

Peter Bergstrom
Vice President and Chief Technical Officer
SETA
McLean, VA
B.E.E. 1959, M.S.E.E. 1963, Ph.D. 1973

Richard O. "Joe" Neel
Director, Planning and Strategy
ON Semiconductor
Phoenix, AZ
B.E.E. 1968

William B. Carter, Jr.
President
Global Crossing Development Company
Morristown, NJ
B.E.E. 1967

John W. Pope
Director, Bulk Power Operations
Southern Company Services
Birmingham, AL
B.E.E. 1969, M.S.E.E. 1970

L. George Maier, III
Information Technology Manager
Hewlett-Packard Company
Atlanta, GA
B.E.E. 1976

James Stratigos
Vice President and General
Manager
Echostar Data Networks
Atlanta, GA
B.E.E. 1974, M.S.E.E. 1980

Georgia Tech Foundation Grants and Gifts

ECE ended its portion of the Institute's Capital Campaign with \$71,966,527, far outpacing any other academic unit and representing 10 percent of the Institute's total of \$711,973,834. The School's remarkable success in the Campaign is due to the dedication of its external affairs staff—Suzy Briggs, Harry L. Vann, and Hans B. Püttgen.

During FY 2001, the Campaign's final year, donors contributed \$3,481,771 to ECE through the Georgia Tech Foundation. The first table shows the amount of funds designated for specific categories. The second table alphabetically lists the various constituencies and individuals that donated funds to ECE.

■ PROFESSIONAL, RESEARCH, & ACADEMIC ORGANIZATIONS

American Society for Engineering Education Institute of Electrical & Electronics Engineers SRC Education Alliance

■ FOUNDATIONS

California Community Foundation Charitable Gift Fund Duke Energy Corp. Foundation
 GE Fund GenCorp Foundation Honeywell Foundation
 Proctor & Gamble Fund Schlumberger Foundation, Inc. The Dow Chemical Foundation
 The John & Mary Franklin Foundation, Inc.

■ COMPANIES

ADTRAN, Inc.	Agilent Technologies	Amdahl Corp.	Appalachian Electronic Instruments	Cadence Design Systems, Inc.
Cisco Systems, Inc.	Conexant Systems	Cypress Semiconductor Corp.	Eastman Kodak Company	Ericsson GE Mobile Communications
ExxonMobil Corp.	Ford Motor Co.	Georgia Power Co.	Glotech, Inc.	Hewlett-Packard Co.
Hughes Network Systems	IBM Corp.	Infineon Technologies	Integrated Device Technology, Inc.	Intel Corp.
Intelligent Automation Systems	Intellimedix, Inc.	Intellisense Corp.	Intersil, Inc.	Lanier Worldwide, Inc.
Levine Lectronics & Lectric	Lucent Technologies	Mallick Investments Partnership	<i>Matsushita Comm. Industrial Corp.</i>	Matsushita Telecommunications Co.
Microcoating Technologies	Microsoft Corp.	Milli Sensor System & Actuators	Mobilink Telecom, Inc.	Motorola, Inc.
NCR Corp.	National Semiconductor Corp.	Nokia, Inc.	Online Computer Library Center, Inc.	Photon Dynamics
Rambus, Inc.	Raytheon Co.	Rockwell Automation	Schlumberger Well Services	Scientific-Atlanta, Inc.
Semiconductor Research Corp.	Siemens AG	Texas Instruments, Inc.	The Southern Co.	TXU Electric & Gas
Wireless Data Communication	Xilinx, Inc.			

■ INDIVIDUALS

Ms. Sharon K. Crouch	Mr. James Furman Bisher	Mr. Roger C. Bisher	Ms. Suzy Briggs	Ms. Lynda D. Buescher
Dr. Robert J. Butera, Jr.	Mr. Victor C. Cauthen	Mr. Steve W. Chaddick	Mrs. Jenifer B. Cistola	Mr. William L. Cooper
Mr. Edward E. David, Jr.	Mr. Howard G. Dean, Jr.	Mr. Jordan L. Dorrity	Dr. H. Allen Ecker	Mr. Jose M. Fernandez
Ltc. James W. Furlow (Retired)	Dr. Thomas K. Gaylord	Ms. Ozgur Gurbuz	Mr. Gerald N. Hill, Sr.	Mr. J.C. Hopper
Dr. Edward W. Kamen	Mrs. Aurelia Q. Keifer	Mr. Eric S. King	Mr. Thomas R. Lee	Ms. Judith Lorier
Mr. Kenneth E. MacKenzie	Mr. Scott N. Madigan	Mr. Joseph E. Mayes, Jr.	Mrs. Linda M. Murray	Dr. Demetrius T. Paris (Estate)
Mrs. Elsie Paris	Dr. John B. Peatman	Dr. Andrew F. Peterson	Dr. Hans B. Püttgen	Mr. Raymond H. Reynolds, Jr.
Dr. William E. Sayle	Mr. David A. Sedacca	Mr. James A. Stratigos, Jr.		

GIFT CATEGORY TOTAL

Endowment	\$1,041,146.88
Equipment	427,097.58
Faculty Support	1,453,686.65
Fellowships	126,488.00
General Support	78,526.75
Memberships	313,735.00
Scholarships	18,090.00
Student Support	23,000.00
Grand Total	\$3,481.770.86

ECE Alumni/Professional Advisory Board

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

Rodney Adkins joined the Board in fall 2000 and is its newest member. A BEE '81 and MSEE '83 graduate of Georgia Tech, Mr. Adkins is the top IBM executive in Texas and represents the company's business interests in the political arena. In 1996, he was inducted into the College of Engineering Council of Outstanding Young Engineering Alumni.

Rodney Adkins

Vice President & General Manager, Web Server Division
IBM
Austin, TX

C. Dean Alford

Chair, ECE Advisory Board
President & CEO
Allied Utility Network
Conyers, GA

Antonio R. Alvarez

Vice President, Research & Development
Cypress Semiconductor
San Jose, CA

Michael B. Bartlett

Vice President, Display Solutions Business Unit
Texas Instruments, Inc.
Dallas, TX

Michael J. Buckler

Director, OSBU Program & Process Management
Lucent Technologies, Inc.
Warren, NJ

James R. Carreker

President & CEO
Aspect Communications
San Jose, CA

Steve W. Chaddick

Senior Vice President, Products & Technology
CIENA Corporation
Linthicum, MD

Michael A. Coleman

CEO
Coleman Technologies, Inc.
Orlando, FL

H. Allen Ecker

President, Subscriber Networks
Scientific-Atlanta, Inc.
Norcross, GA

R.M.G. Frame

Vice President, Broadband Networks
Nortel
Alpharetta, GA

Scott Madigan

General Manager, U.S. Operations
IAMBA
Alpharetta, GA

Michael R. McQuade

Senior Research Associate
E.I. DuPont de Nemours & Company
Wilmington, DE

Shirley C. Mewborn

Vice President (Retired)
Southern Engineering Company
Atlanta, GA

Joe Neel

Director, Planning & Strategy, Technology Development
ON Semiconductor
Phoenix, AZ

E. Jock Ochiltree

President
ShareWave, Inc.
El Dorado Hills, CA

Randall E. Poliner

President
Antares Corporation
Melbourne, FL

John W. Pope

Manager
Southern Company Services
Atlanta, GA

Richard A. Snelling

Chair & CEO
Home Wireless, Inc.
Norcross, GA

C. Meade Sutterfield

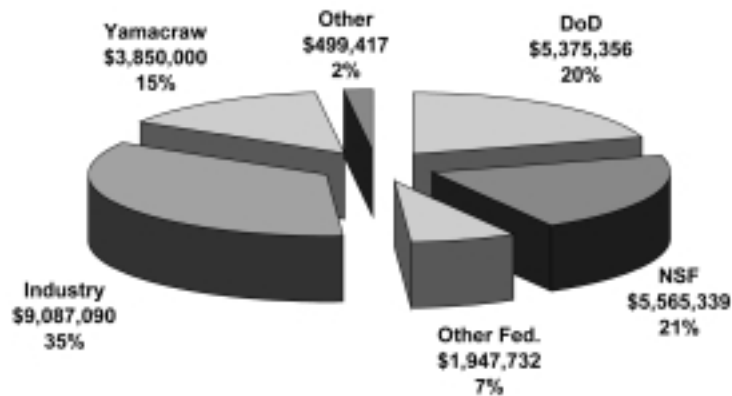
SSPCS Corporation
Atlanta, GA

FINANCIAL OPERATIONS

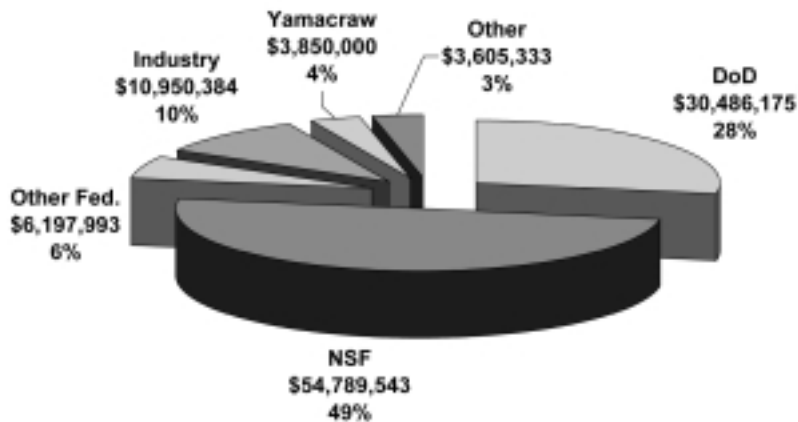
Research Funding

ECE faculty members acquired \$26,324,934 in research grants and contracts during the last fiscal year. This total represents 33 percent of the research funding in the College of Engineering and 9.5 percent of the entire Institute.

RESEARCH GRANTS AND CONTRACTS



RESEARCH PROPOSALS SUBMITTED



Financial Summary (FY 2001 Initial Allocation)

PERSONAL SERVICES

SALARIES & WAGES

Faculty	\$12,352,657
Summer Faculty	1,462,956
Graduate Assistants	7,275,751
Exempt Staff	4,394,242
Bi-weekly Staff	613,901
Others	75,924
Student Assistants	500,604

Subtotal **\$26,676,035**

FRINGE BENEFITS

\$4,695,354

Total Personal Services

\$31,371,389

NON-PERSONAL SERVICES

TRAVEL

\$1,074,914

OPERATING EXPENSES

Motor Vehicle Expense	\$8,588
Supplies & Materials	3,012,734
Repairs & Maintenance	256,571
Utilities	178,399
Rents	78,029
College Work Study	2,608
Other Operating Expenses	528,810
Software	304,251
Publications & Printing	55,537
Non-inventory Equipment	274,379
Transfers	6,123
Real Estate Rentals	74,215
Per Diem & Fees	80,689
Contracts	2,204,521
Telecommunications Data	9,399
Telecommunications	360,491
Fellowships	54,000
Stipends	48,000
Matriculation	706,491
Other Disbursements	2,155,081

Subtotal

\$10,398,916

EQUIPMENT

\$5,762,774

Total Non-Personal Services

\$17,236,604

INDIRECT EXPENSES

\$5,628,471

TOTAL EXPENSES FOR ECE

\$54,236,464

Contact Information

404.894.2901	ECE Main Office
404.894.4641	ECE Main Office Fax
404.894.2902	Chair, Roger P. Webb
404.894-4468	Administrative Manager I/Assistant to the Chair, LaJauna F. Guillory
404.894.2903	Associate Chair for Graduate Affairs, David R. Hertling
404.894.2930	Associate Chair for Computer Engineering and Program Development, Joseph L.A. Hughes
404.894.2911	Associate Chair for Faculty Development, Gary S. May
404.894.2927	Associate Chair for External Affairs, Hans B. Püttgen
404.894.4740	Associate Chair for Undergraduate Affairs, William E. Sayle
404.894.9485	Associate Chair for Operations, Jay H. Schlag
404.894.2946	Undergraduate Advising, Claudia Ford
404.894.2983	Graduate Advising, Marilouise Mycko
404.894.2905	Assistant to the Chair for Computer Support, David S. Webb
404.894.4733	Director for Operations, Harry L. Beck
404.894.3058	Director of Computer Enhanced Education, Lonnie D. Harvel
404.894.4769	Accounting, Sharon Crouch
404.894.4025	Development-Corporate, Harry L. Vann
404.894.5210	Development-Alumni, Suzy Briggs
404.894.7574	Human Resources, Lynda D. Buescher
404.894.2906	Public Relations, Jacqueline L. Nemeth

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