School of Electrical and Computer Engineering
# TABLE OF CONTENTS

## HIGHLIGHTS OF THE YEAR ................................. 1

## PERSONNEL
- Faculty Profile ............................................. 7
- Academic Faculty ......................................... 7
- GTREP Faculty ............................................. 13
- Professors Emeriti ......................................... 13
- Joint Faculty Appointments ............................ 14
- Adjunct and Part-time Appointments .................. 14
- Faculty Service on Institute Governing Bodies and Committees ...... 14
- Technical Interest Groups ................................ 15
- Standing Committees ..................................... 16
- Continuing Education Conferences and Courses ............. 17
- Research and Administrative Personnel ................... 18

## STUDENTS
- Student Body Profile .................................... 20
- Degrees Awarded ......................................... 20
- Student Honors and Awards ............................ 20
- Ph.D. Students Graduated ............................... 21
- IEEE Student Branch Officers ......................... 24
- Eta Kappa Nu Officers ................................ 24
- ECE Student Advisory Council ......................... 24

## ACADEMIC OPERATIONS
- Undergraduate Instructional Operations ................. 25
- Graduate Instructional Operations ...................... 25
- International Study Opportunities ..................... 25

## EXTERNAL AFFAIRS
- College of Engineering Hall of Fame .................. 27
- Council of Outstanding Young Engineering Alumni .... 27
- Academy of Distinguished Engineering Alumni ........ 27
- Georgia Tech Foundation Grants and Gifts ............. 28
- ECE Alumni/Professional Advisory Board ............. 29

## RESEARCH ACTIVITY ...................................... 30

## FINANCIAL SUMMARY
- Financial Summary ........................................ 30
- Expenditure Summary .................................... 30

## CONTACT INFORMATION ................................. inside back cover
UNITY OF PURPOSE

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

DIVERSITY OF FUNCTION

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

PROFESSIONALISM OF METHOD

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

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**ECE FACTS**

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*Graduate program offers combined electrical and computer engineering degree
Vijay K. Madisetti 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 Demetrious Paris Professorship.

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

STAFF

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. Karen, 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 telecommunication 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 impractical, 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 Raghuveer 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. Madisetti (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.

**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.

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.
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. Abler, 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.

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**Academic Faculty**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Regents’ Professors</th>
<th>Professors</th>
<th>Associate Professors</th>
<th>Assistant Professors</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
<td>47</td>
<td>32</td>
<td>19</td>
<td>103</td>
</tr>
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</table>

**Tenured**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Regents’ Professors</th>
<th>Professors</th>
<th>Associate Professors</th>
<th>Assistant Professors</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
<td>43</td>
<td>26</td>
<td>19</td>
<td>103</td>
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</table>

**Female and Minority Representation**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Female</th>
<th>African-American</th>
<th>Multi-racial</th>
<th>Asian</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8</td>
<td>2</td>
<td>1</td>
<td>14</td>
</tr>
</tbody>
</table>

*Includes GTREP faculty

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**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

---

**PROFESSORS**

**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

**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)
<table>
<thead>
<tr>
<th>Name</th>
<th>Title and Affiliation</th>
<th>Research Interests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phillip E. Allen</td>
<td>Schlumberger Chair Professor in Microelectronics, Ph.D., University of Kansas</td>
<td>Analog IC design; analog filters; analog modeling and computer-aided design (CAD); analog circuits and systems for telecommunication applications</td>
</tr>
<tr>
<td>Thomas P. Barnwell, III</td>
<td>Schlumberger Chair Professor in Microelectronics, Ph.D., Massachusetts Institute of Technology</td>
<td>Computer-enhanced education; speech analysis, synthesis, and coding; multiprocessor architectures for DSP; DSP algorithms; objective speech quality measures</td>
</tr>
<tr>
<td>Douglas M. Blough</td>
<td>Schlumberger Chair Professor in Microelectronics, Ph.D., Johns Hopkins University</td>
<td>High field carrier transport in semiconductors; optoelectronic device physics; transport properties and device potential of wide band gap semiconductors; electronic device modeling and theory</td>
</tr>
<tr>
<td>Kevin F. Brennan</td>
<td>Schlumberger Chair Professor in Microelectronics, Ph.D., University of Illinois at Urbana-Champaign</td>
<td>Compound semiconductor heterojunction bipolar transistors and high electron mobility transistors; nanostructure synthesis and devices; molecular beam epitaxy; heterojunction device design and process</td>
</tr>
<tr>
<td>April S. Brown</td>
<td>Associate Dean of the College of Engineering, Associate Professor in Microelectronics, Ph.D., Cornell University</td>
<td>Compound semiconductor heterojunction bipolar transistors and high electron mobility transistors; nanostructure synthesis and devices; molecular beam epitaxy; heterojunction device design and process</td>
</tr>
<tr>
<td>J. Alvin Connelly</td>
<td>Schlumberger Chair Professor in Microelectronics, Ph.D., Massachusetts Institute of Technology</td>
<td>Computer communication networks; digital cable television networks; computer architecture and operating systems</td>
</tr>
<tr>
<td>John F. Dorsey</td>
<td>Schlumberger Chair Professor in Microelectronics, Ph.D., Michigan State University</td>
<td>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</td>
</tr>
<tr>
<td>Robert K. Feeney</td>
<td>Schlumberger Chair Professor in Microelectronics, Ph.D., Georgia Institute of Technology</td>
<td>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</td>
</tr>
<tr>
<td>James D. Foley</td>
<td>Schlumberger Chair Professor in Microelectronics, Ph.D., University of Michigan</td>
<td>Computer graphics; information visualization; human-computer interaction; management of R&amp;D</td>
</tr>
<tr>
<td>Elias N. Glytsis</td>
<td>Schlumberger Chair Professor in Microelectronics, Ph.D., Georgia Institute of Technology</td>
<td>Diffractive optics; optical interconnections; integrated and fiber optic devices; numerical techniques in electromagnetic problems</td>
</tr>
<tr>
<td>Thomas G. Habetler</td>
<td>Schlumberger Chair Professor in Microelectronics, Ph.D., University of Wisconsin at Madison</td>
<td>Current-based condition monitoring of electric machines; control of electric machine drives; power electronics; design and protection of electric machines</td>
</tr>
<tr>
<td>Monson H. Hayes, III</td>
<td>Schlumberger Chair Professor in Microelectronics, Sc.D., Massachusetts Institute of Technology</td>
<td>Stereo image processing; face and gesture recognition; multimedia signal processing; adaptive signal processing; Internet education</td>
</tr>
<tr>
<td>David R. Hertling</td>
<td>Schlumberger Chair Professor in Microelectronics, Ph.D., University of Illinois at Urbana-Champaign</td>
<td>Modeling of linear and non-linear active devices; CAD and analysis of electronic circuits; computer-CAD of planar dipole phased antenna arrays</td>
</tr>
</tbody>
</table>
| William D. Hunt             | Schlumberger Chair Professor in Microelectronics, Ph.D., University of Illinois at Urbana-Champaign | 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 (GS)

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: Network interconnection; embedded communication networks; reconfigurable logic; 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 R. 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

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; microelectronic 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
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 Boussert, 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. Gimnesdal, 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
R.O. Lauwitz, University of Washington
Y.-L. Li, Intel
John O. Limb, Broadcom
François J. Malassenet, Georgia Tech Lorraine
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

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

Academic Faculty Standing Committees

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

* Indicates committee chair
Technical Interest Groups

**BIOENGINEERING**

**COMPUTER ENGINEERING**
Ian F. Akyildiz David V. Anderson Thomas P. Barnwell, III Douglas M. Blough Robert J. Butera, Jr. Abhijit Chatterjee Jeffrey A. Davis

**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 R. Taylor Glenn J. Smith* Joy Laskar Madhavan Swaminathan Emmanouil M. Tentzeris

**ELECTROMAGNETICS**
John A. Buck David R. DeBoer Thomas K. Gaylord Eliason N. Glytsis Joy Laskar W. Marshall Leach, Jr. Andrew F. Peterson

**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

**MICROSYSTEMS**
Ali Adibi Kevin F. Brennan Mark G. Allen Farrokh Ayazi Martin A. Brooke April S. Brown J. Alvin Connelly Christiana B. Honsberg
Jeffrey A. Davis W. Alan Doolittle Robert K. Feeney A. Bruno Frazier Thomas K. Gaylord Elias N. Glytsis
John P. Uyemura Erik I. Verriest

**OPTICS AND PHOTONICS**
Christiana B. Honsberg William D. Hunt Mary Ann Ingram Nan Marie Jokest* Stephen E. Ralph William T. Rhodes Ajeet Rohatgi
Glenn S. Smith* Erik I. Verriest

**SYSTEMS AND CONTROLS**
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
<table>
<thead>
<tr>
<th>Committee</th>
<th>Members</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CONTINUING EDUCATION</strong></td>
<td>Phillip E. Allen, John A. Copeland, John F. Dorsey, A. Bruno Frazier, Monson H. Hayes, III, A.P. Sakis Meliopoulos, John B. Peatman</td>
</tr>
<tr>
<td><strong>FACULTY RECRUITMENT</strong></td>
<td>Mark G. Allen, Stephen P. DeWeerth, Joy Laskar, Steven W. McLaughlin, Roger P. Webb</td>
</tr>
<tr>
<td><strong>GRADUATE</strong></td>
<td>Miroslav M. Begovic, Allen Tannenbaum, David M. Blough, Erik I. Veriest, April S. Brown, D. Scott Wills, David R. Hertling, Russell M. Mersereau, Andrew F. Peterson, Stephen E. Ralph</td>
</tr>
<tr>
<td><strong>GRADUATE STUDENT RECRUITMENT</strong></td>
<td>Yucel Altunbasak, John R. Barry, Kevin F. Brennan, Raghupathy Sivakumar, Robert J. Butera, Jr., Mark A. Clements, Thomas K. Gaylord, David G. Taylor, Emmanouil M. Tentzeris, David R. Hertling</td>
</tr>
<tr>
<td><strong>REAPPOINTMENT, PROMOTION, AND TENURE</strong></td>
<td>Phillip E. Allen, Mark A. Clements, Glenn S. Smith, Thomas K. Gaylord, Nikil Jayant, Nan Marie Jokerst, Edward W. Kamen</td>
</tr>
<tr>
<td><strong>RESEARCH</strong></td>
<td>Farrokh Ayazi, Ronald G. Harley, William D. Hunt, David C. Keezer, J. Stevenson Kenney, Vijay K. Madisetti, Krishna Palem</td>
</tr>
<tr>
<td><strong>STATUTORY ADVISORY</strong></td>
<td>Robert K. Feeney, Thomas K. Gaylord, Joy Laskar, Andrew F. Peterson, David E. Schimmel, Sudhakar Yalamanchili</td>
</tr>
<tr>
<td><strong>STUDENT/FACULTY</strong></td>
<td>Ali Adibi, Jeffery A. Davis, Anthony J. Yezzi, Jr., David R. DeBoer, Faramarz Fekri, Nan Marie Jokerst, Mohamed F. Moad, W. Whitfield Smith</td>
</tr>
<tr>
<td><strong>UNDERGRADUATE</strong></td>
<td>Thomas P. Barnwell, III, Paul J. Benkeser, Martin A. Brooke, Madhavan Swaminathan, Thomas G. Habetler, Paul E. Hasler, Joseph L.A. Hughes, Gary S. May</td>
</tr>
</tbody>
</table>

*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.

<table>
<thead>
<tr>
<th>Date</th>
<th>Course</th>
<th>Instructors</th>
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<tbody>
<tr>
<td>July 31-August 4, 2000</td>
<td>RF and Wireless Engineering</td>
<td>Robert K. Feeney and David R. Hertling</td>
</tr>
<tr>
<td>August 2-4, 2000</td>
<td>Electrical Issues in Packaging: Digital, RF, and Mixed Signal Applications</td>
<td>Joy Laskar, Andrew F. Peterson, and Madhavan Swaminathan</td>
</tr>
<tr>
<td>August 7-9, 2000</td>
<td>Wireless Physical Communications</td>
<td>Gordon L. Stüber</td>
</tr>
<tr>
<td>August 7-11, 2000</td>
<td>CMOS Analog Integrated Circuits</td>
<td>Phillip E. Allen</td>
</tr>
<tr>
<td>August 28-September 1, 2000</td>
<td>Near-field Antenna Measurements and Microwave Holography</td>
<td>Edward B. Joy (Location: Boulder, CO)</td>
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<tr>
<td>September 6-October 25, 2000</td>
<td>Fundamentals of Engineering</td>
<td>W. Russell Callen, Jr. (Administrator)</td>
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<tr>
<td>September 26, 2000</td>
<td>Production and Delivery of Streaming Internet Presentations</td>
<td>David V. Anderson, Monson H. Hayes, III, and Joel R. Jackson</td>
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<tr>
<td>September 26-28, 2000</td>
<td>Power Distribution System Grounding and Transients</td>
<td>A.P. Sakis Meliopoulos</td>
</tr>
<tr>
<td>October 16-18, 2000</td>
<td>The First Georgia Tech Conference on Nanoscience and Nanotechnology</td>
<td>April S. Brown (Administrator)</td>
</tr>
<tr>
<td>October 24-27, 2000</td>
<td>Power Systems Relaying: Theory and Application</td>
<td>Miroslav M. Begovic and A.P. Sakis Meliopoulos</td>
</tr>
<tr>
<td>November 7-8, 2000</td>
<td>Grounding, Harmonics, and Electromagnetic Influence Design Practices</td>
<td>A.P. Sakis Meliopoulos</td>
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<tr>
<td>November 14-16, 2000</td>
<td>Modern Energy Management Systems</td>
<td>A.P. Sakis Meliopoulos</td>
</tr>
<tr>
<td>December 4-8, 2000</td>
<td>Far-field, Anechoic Chamber, Compact, and Near-field Antenna Measurements</td>
<td>Edward B. Joy</td>
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<tr>
<td>February 14-April 4, 2001</td>
<td>Fundamentals of Engineering</td>
<td>W. Russell Callen, Jr. (Administrator)</td>
</tr>
<tr>
<td>March 20, 2001</td>
<td>Production and Delivery of Streaming Internet Presentations</td>
<td>David V. Anderson, Monson H. Hayes, III, and Joel R. Jackson</td>
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<tr>
<td>April 3-6, 2001</td>
<td>Power Electronics: Devices, Circuits, and Switching Power Supplies</td>
<td>Thomas G. Habetter, Ronald G. Harley, and William E. Sayle</td>
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<tr>
<td>April 30-May 1, 2001</td>
<td>Fault and Disturbance Analysis Conference</td>
<td>A.P. Sakis Meliopoulos</td>
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<tr>
<td>May 2-4, 2001</td>
<td>Fifty-fifth Annual Georgia Tech Protective Relaying Conference</td>
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<td>May 14-18, 2001</td>
<td>MEMS Boot Camp</td>
<td>Farrokh Ayazi, Mark G. Allen, and A. Bruno Frazier</td>
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<td>May 21-23, 2001</td>
<td>Emerging MEMS Fabrication Technologies</td>
<td>Farrokh Ayazi, Mark G. Allen, and A. Bruno Frazier</td>
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<tr>
<td>May 28-29, 2001</td>
<td>Grounding, Harmonics, and Electromagnetic Influence Design Practices</td>
<td>A.P. Sakis Meliopoulos (Location: Dallas, TX)</td>
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<td></td>
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<td>(Location: Boulder, CO)</td>
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</table>
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 Bernhardt (Research Engineer II)
- Swapan K. Bhattacharya (Senior Research Scientist)
- Dhanaanjay 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 (Research Engineer II)
- 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)
- Meson Graff (Research Scientist I)
- Jee Hanason (Research Engineer II)
- Richard A. Hartlein (Senior Research Engineer)
- Lonnie D. Harvel (Research Engineer II)
- Comas Haynes (Postdoctoral Fellow)
- Jeffrey Hildreth (Research Engineer I)
- Raymond C. Hill (Postdoctoral Fellow)
- Jeannie Jones (Research Engineer II)
- Youngjoong Joo (Research Engineer II)
- Frank C. Lambert (Senior Research Engineer)
- Kyeongkyuun Lee (Postdoctoral Fellow)
- Seock-Hee Lee (Postdoctoral Fellow)
- Ranganurthy Malladi (Research Engineer II)
- Pulugurtha Markandeya-Raj (Postdoctoral Fellow)
- Janeen McReynolds (Research Engineer II)
- Giacomo Morabito (Research Engineer I)
- Thomas J. Parker (Research Technologist II)
- Shashikant G. Patel (Research Engineer II)
- Stephane Pinel (Postdoctoral Fellow)
- Caren Riley (Research Engineer II)
- Catrina Scoglio (Research Engineer II)
- Samuel F. Smith (Research Scientist I)
- W. Whittfield 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 (Visiting Professor)
- Pauhamaneri Thiagarajan (Postdoctoral Fellow)
- Tuna Tugcu (Postdoctoral Fellow)
- Greg Van Wijggen (Research Engineer II)
- Mahesh Varadarajan (Postdoctoral Fellow)
- Martin Von Arx (Research Engineer II)
- Lixi Wan (Research Engineer II)
- Irene G. Wells (Research Engineer II)
- George White (Visiting Assistant Professor)
- Weng-Fei Wibng (Postdoctoral Fellow)
- Wei Dong Xiang (Visiting Professor)
- Kwang Yoon (Postdoctoral Fellow)
- 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 Boehnee (Administrative Assistant I)
- Margarita Bozter (Administrative Coordinator)
- Robert C. Boozer (Business Operations Manager)
- Louis Boulander (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)
<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
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<tbody>
<tr>
<td>Lynda D. Buescher</td>
<td>Assistant Director for ECE Personnel Services</td>
</tr>
<tr>
<td>Valarie Burnette</td>
<td>Senior Accounting Assistant</td>
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<tr>
<td>Donnie Gayle Burt</td>
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<td>Dale E. Callaway</td>
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<td>Sherrie Cooper</td>
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<tr>
<td>Marion Crowder</td>
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<td>Sharise J. Cunningham</td>
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<tr>
<td>Wayne Devezin</td>
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<td>Charlotte A. Doughty</td>
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<td>Trina Hamlin</td>
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<td>Joseph F. Jackson</td>
<td>Director for Operations and Assistant to the Chair</td>
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<td>Kesha L. Jackson</td>
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<tr>
<td>Carl A. Rust</td>
<td>Business Operations Manager for the Packaging Research Center</td>
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<tr>
<td>Gwenoldyn J. Satchel</td>
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<td>Denise D. Taylor</td>
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<td>Records Coordinator II</td>
</tr>
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<td>Nancy Trent</td>
<td>Program Coordinator II</td>
</tr>
<tr>
<td>Alvis Turner</td>
<td>Assistant to the Director for NEETRAC Operations</td>
</tr>
<tr>
<td>Judith Vanderboom</td>
<td>Accountant III</td>
</tr>
<tr>
<td>Harry L. Vann</td>
<td>Director of ECE Development-Corporate Relations/Development Officer I</td>
</tr>
<tr>
<td>David S. Webb</td>
<td>Senior Academic Professional and Assistant to the Chair for Computer Support</td>
</tr>
<tr>
<td>Todd E. Whitehurst</td>
<td>Computer Services Specialist IV</td>
</tr>
<tr>
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<tr>
<td>Dean Williams</td>
<td>Research Coordinator II</td>
</tr>
<tr>
<td>Rochelle Y. Williams</td>
<td>Accountant III</td>
</tr>
<tr>
<td>Suzette Williams</td>
<td>Academic Assistant II</td>
</tr>
<tr>
<td>Carla Zachery</td>
<td>Accountant II</td>
</tr>
</tbody>
</table>
**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)

<table>
<thead>
<tr>
<th>Program</th>
<th>% Women</th>
<th>% African-Americans</th>
<th>Other Minorities*</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSEE</td>
<td>941</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BSCmpE</td>
<td>922</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1,863</td>
<td>11.7%</td>
<td>13.4%</td>
</tr>
<tr>
<td>MS/MSECE</td>
<td>329</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PhD</td>
<td>450</td>
<td>14%</td>
<td>6.3%</td>
</tr>
<tr>
<td>Total</td>
<td>782</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grand Total</td>
<td>2,645</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### DEGREES AWARDED (Summer 2000-Spring 2001)

<table>
<thead>
<tr>
<th>Program</th>
<th>% Women</th>
<th>% African-Americans</th>
<th>Other Minorities*</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSEE</td>
<td>224</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BSCmpE</td>
<td>104</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>328</td>
<td>14.6%</td>
<td>11.9%</td>
</tr>
<tr>
<td>MS</td>
<td>51</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MSECE</td>
<td>170</td>
<td>15.5%</td>
<td>7.6%</td>
</tr>
<tr>
<td>PhD</td>
<td>56</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>277</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grand Total</td>
<td>605</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*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, Wehan 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.

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. Mensereau 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 or 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 2010. His advisor is Madhavan Swaminathan.

Chung-Tse Mar and David Richard Reid each received the Henry 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.

<table>
<thead>
<tr>
<th>Name</th>
<th>Advisor</th>
<th>Year</th>
<th>Thesis Title</th>
<th>Employment</th>
<th>Current Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Randal Abler</td>
<td>Brennan</td>
<td>Spring 2000</td>
<td>Thesis Quality of Service and Fairness in ATM Based MPLS Switches Implementing Packet Based VC Merge</td>
<td>employed as an assistant professor in the Georgia Tech Regional Engineering Program in Savannah, GA.</td>
<td>current status: not known</td>
</tr>
<tr>
<td>Faisal Alturki</td>
<td>Mersereau</td>
<td>Spring 2000</td>
<td>Thesis Theory and Applications of Data Hiding in Still Images</td>
<td>employed as an assistant professor in the Georgia Tech Regional Engineering Program in Savannah, GA.</td>
<td>current status: not known</td>
</tr>
<tr>
<td>Kofi Anim-Appiah</td>
<td>McLaughlin</td>
<td>Fall 2000</td>
<td>Thesis Interleaved Concatenated Coding for Input-constrained Channels</td>
<td>employed as a technical staff member at Texas Instruments in Dallas, TX.</td>
<td>current status: not known</td>
</tr>
<tr>
<td>John Bendickson</td>
<td>Buck</td>
<td>Fall 2000</td>
<td>Thesis Analysis of Finite Diffractive Optical Elements</td>
<td>employed as a systems engineer at Dynetics, Inc. in Huntsville, AL.</td>
<td>current status: not known</td>
</tr>
<tr>
<td>Aveez Bhavnagarwala</td>
<td>Meindl</td>
<td>Spring 2001</td>
<td>Thesis Voltage Sealing Constraints for Static CMOS Logic and Memory Circuits</td>
<td>employed as a technical staff member at IBM T.J. Watson Research Center in Yorktown Heights, NY.</td>
<td>current status: not known</td>
</tr>
<tr>
<td>Keith Bowman</td>
<td>Meindl</td>
<td>Spring 2001</td>
<td>Thesis A Circuit-level Perspective of Opportunities and Limitations for Gigascale Integration</td>
<td>employed as a postdoctoral fellow in the School of Electrical and Computer Engineering at the Georgia Institute of Technology in Atlanta, GA.</td>
<td>current status: not known</td>
</tr>
<tr>
<td>John Callahan</td>
<td>Drabik</td>
<td>Summer 2000</td>
<td>Thesis New Results on Coding for M-ary Runlength-limited Channels</td>
<td>employed as a process development engineer at Bandwidth Semiconductor, LLC in Bedford, MA.</td>
<td>current status: not known</td>
</tr>
<tr>
<td>Sudipto Charkrabarti</td>
<td>Chatterjee</td>
<td>Spring 2001</td>
<td>Thesis CMOS Differential Analog Optical Receiver with Hybrid I-MSM Detector</td>
<td>employed by Agilent Technologies in San Jose, CA.</td>
<td>current status: not known</td>
</tr>
<tr>
<td>Georgiana Dagnall</td>
<td>Brown</td>
<td>Summer 2000</td>
<td>Thesis Advanced Simulation of Wide Band-gap Semiconductor Devices</td>
<td>employed as a software engineer at the DSP Solutions Research Center at Texas Instruments in Dallas, TX.</td>
<td>current status: not known</td>
</tr>
<tr>
<td>Maziar Faraehmand</td>
<td>Brennan</td>
<td>Summer 2000</td>
<td>Thesis: Finite Field Wavelet Transforms and their Application to Error Control Coding</td>
<td>employed as an assistant professor in the School of Electrical and Computer Engineering at the Georgia Institute of Technology in Atlanta, GA.</td>
<td>current status: not known</td>
</tr>
<tr>
<td>Antonio Gentile</td>
<td>D.S. Wills</td>
<td>Fall 2000</td>
<td>Thesis: Portable Multimedia Supercomputer System Architecture Design and Evaluation</td>
<td>employed as an assistant professor in the Department of Automation and Computer Science at the University of Palermo in Palermo, Italy.</td>
<td>current status: not known</td>
</tr>
<tr>
<td>Yun Gong</td>
<td>Fan</td>
<td>Summer 2000</td>
<td>Thesis: On Semidefinite Programming and Vector Quantization with Application to Image Coding</td>
<td>employed as an assistant professor in the Department of Electrical Engineering at Widener University in Chester, PA.</td>
<td>current status: not known</td>
</tr>
</tbody>
</table>

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 or Georgia Tech and has contributed significantly to both student welfare and student-faculty interaction.

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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.
Ajay Gummala—Advisor: Limb—Summer 2000
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
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 as 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: DeMeoeth—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 Daejon, 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.

Yongsuk 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.

Babaik 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: Kysildiz—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 McPeters—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: Bovic—Spring 2001
Current Status: Employed as a design engineer at Cicada Semiconductor in Austin, TX.

Narju 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
Current Status: Employed as managing director of CouthIT.Com in Hyderabad, India.
Timucin Özgür – 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 Movax 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.

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: Quality 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.

Tian-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.

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.
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

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chair</td>
<td>Phil Black</td>
</tr>
<tr>
<td>Vice Chair, Internal Relations</td>
<td>Ryan Holman</td>
</tr>
<tr>
<td>Vice Chair, External Relations</td>
<td>Rahul Prasad</td>
</tr>
<tr>
<td>Treasurer</td>
<td>Paul Hultz</td>
</tr>
<tr>
<td>Secretary, Spring Semester</td>
<td>Nasir Barday</td>
</tr>
<tr>
<td>Secretary, Fall Semester</td>
<td>Catherine Thom</td>
</tr>
</tbody>
</table>

### 2000-01 ETA KAPPA NU OFFICERS

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>President</td>
<td>Allison Amis</td>
</tr>
<tr>
<td>Vice President</td>
<td>Ryan Holman</td>
</tr>
<tr>
<td>Treasurer</td>
<td>Rumit Kanakia</td>
</tr>
<tr>
<td>Recording Secretary</td>
<td>James Freedman-Aponte</td>
</tr>
<tr>
<td>Corresponding Secretary</td>
<td>Sung-Hoon Kim</td>
</tr>
<tr>
<td>Bridge Correspondent</td>
<td>Ryan Swanson</td>
</tr>
<tr>
<td>Graduate Liaison</td>
<td>Nick Bronn</td>
</tr>
</tbody>
</table>

### 2000-01 ECE STUDENT ADVISORY COUNCIL

<table>
<thead>
<tr>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phil Black</td>
</tr>
<tr>
<td>Shannon Brenner</td>
</tr>
<tr>
<td>Nick Bronn</td>
</tr>
<tr>
<td>Daniel Collins</td>
</tr>
<tr>
<td>Heather Jegel</td>
</tr>
<tr>
<td>John D. Kitt</td>
</tr>
<tr>
<td>Gregory Martin</td>
</tr>
<tr>
<td>Elliot Moore</td>
</tr>
<tr>
<td>Chris Murray</td>
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<tr>
<td>John Parsons</td>
</tr>
<tr>
<td>David Peters</td>
</tr>
<tr>
<td>Rahul Prasad</td>
</tr>
<tr>
<td>Gregory Scherrer</td>
</tr>
<tr>
<td>David Spiller</td>
</tr>
<tr>
<td>Andrew Stein</td>
</tr>
<tr>
<td>Deborah Stutz</td>
</tr>
<tr>
<td>Catherine Thom</td>
</tr>
<tr>
<td>Chip Vorndran</td>
</tr>
<tr>
<td>Sherry Womack</td>
</tr>
<tr>
<td>Eric Woods</td>
</tr>
</tbody>
</table>
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, Mary J. 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 Marlouise Mycko, academic advisor, advise all students and oversee proper documentation of student progress through master's and doctoral programs. Jacqueline Trappier and Suzette 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. Stoia 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.

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**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. Course-work 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.
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  
(Motorola-Motorola Labs  
Austin, TX)  

**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  

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

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

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

**John W. Pope**  
Director, Bulk Power Operations  
Southern Company Services  
Birmingham, AL  

**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
GE Fund
Proctor & Gamble Fund
The John & Mary Franklin Foundation, Inc.

### COMPANIES

ADTRAN, Inc.
Cisco Systems, Inc.
ExxonMobil Corp.
Hughes Network Systems
Levine Electronics & Lectric
Microcoating Technologies
NCR Corp.
Rambus, Inc.
Semiconductor Research Corp.
Wireless Data Communication

### INDIVIDUALS

Ms. Sharon K. Crouch
Dr. Robert J. Butera, Jr.
Mr. Edward E. David, Jr.
Ltc. James W. Furlow (Retired)
Dr. Edward W. Kamen
Mr. Kenneth E. Mackenzie
Mrs. Elsie Paris
Dr. William E. Sayle

Mr. James Furman Bisher
Mr. Victor C. Cauthen
Mr. Howard G. Dean, Jr.
Dr. Thomas K. Gaylord
Mrs. Aurelia Q. Keifer
Mr. Scott N. Madigan
Dr. John B. Peatman
Mr. David A. Sedacca

Mr. Roger C. Bisher
Mr. Steve W. Chaddick
Mr. Jordan L. Dorrity
Ms. Ozgur Gurbuz
Mr. Eric S. King
Mr. Joseph E. Mayes, Jr.
Dr. Andrew F. Peterson
Mr. James A. Stratigos, Jr.

Ms. Suzy Briggs
Mrs. Jennifer B. Cistola
Dr. H. Allen Ecker
Mr. Gerald N. Hill, Sr.
Mr. Thomas R. Lee
Mrs. Linda M. Murray
Dr. Hans B. Püttgen

Mrs. Lynda D. Buescher
Mr. William L. Cooper
Mr. Jose M. Fernandez
Mr. J. C. Hopper
Ms. Judith Lorier
Dr. Demetrius T. Paris (Estate)
Mr. Raymond H. Reynolds, Jr.
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
Senior Vice President, Products & Technology
Ciena Corporation
Linthicum, MD

Steve W. Chaddick
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

<table>
<thead>
<tr>
<th>Source</th>
<th>Amount</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yamacraw</td>
<td>$3,850,000</td>
<td>15%</td>
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<tr>
<td>Industry</td>
<td>$9,087,090</td>
<td>35%</td>
</tr>
<tr>
<td>Other</td>
<td>$499,417</td>
<td>2%</td>
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<tr>
<td>NSF</td>
<td>$5,665,339</td>
<td>21%</td>
</tr>
<tr>
<td>DoD</td>
<td>$5,375,356</td>
<td>20%</td>
</tr>
<tr>
<td>Other Fed.</td>
<td>$1,947,732</td>
<td>7%</td>
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## Research Proposals Submitted

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<thead>
<tr>
<th>Source</th>
<th>Amount</th>
<th>Percentage</th>
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<tr>
<td>Industry</td>
<td>$10,950,384</td>
<td>10%</td>
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<tr>
<td>Other</td>
<td>$6,187,993</td>
<td>6%</td>
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<tr>
<td>NSF</td>
<td>$54,789,543</td>
<td>49%</td>
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<tr>
<td>DoD</td>
<td>$30,486,175</td>
<td>28%</td>
</tr>
</tbody>
</table>

## 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
- 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, Lajoura 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. Pütten
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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