



SCHOOL OF ELECTRICAL AND COMPUTER ENGINEERING

2001-2002

A N N U A L R E P O R T

GEORGIA INSTITUTE OF TECHNOLOGY



ECE FACTS

FACULTY/STAFF	UNDERGRADUATE STUDENTS (Fall Semester 2001)	GRADUATE STUDENTS (Fall Semester 2001)*	DEGREES AWARDED	GRANTS AND CONTRACTS
Number of faculty (tenure-track)110	Electrical engineering909	Doctoral401	B.S.Cmp.E.109	Total funds received on external grants during FY 02 ... \$26,461,226
Joint appointments2	Computer engineering977	Special4	B.S.Cmp.E.-GTREP3	Proposals submitted to external agencies during FY 02 235
Adjunct and part-time faculty41	Computer engineering-GTREP26	Master of Science/ M.S.E.C.E.494	B.S.E.E.221	
Professors Emeriti17	Total1,912	Total899	M.S.66	
Research and administrative staff165			M.S.E.C.E.155	
			Ph.D.53	
			Total607	
		*Graduate program offers combined electrical and computer engineering degree		

MISSION STATEMENT

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

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

PROFESSIONALISM OF METHOD We participate in the most noble aspect of a noble profession. We will honor that profession by example, instilling in our students by our own conduct, the highest standards of professional behavior.



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HIGHLIGHTS

The School of Electrical and Computer Engineering (ECE) remains among the largest producers of electrical engineering and computer engineering graduates in the United States and continues to develop programs of exploratory research in both new and existing technologies. Our commitment to supporting and recognizing our outstanding faculty, staff, and students and their accomplishments; creating innovative research programs; and providing state-of-the-art educational programs to our students is reflected in the following highlights for 2001-02.

FACULTY

Ian F. Akyildiz was awarded the 2002 Harry Good Memorial Award by the IEEE Computer Society for his significant and pioneering contributions to advanced architectures and protocols for wireless and satellite networking.

Yucel Altunbasak received a National Science Foundation (NSF) CAREER Award "for error correction and concealment for wireless video: an integrated and adaptive approach."

Kevin F. Brennan received the Georgia Tech Vice Provost for Research Special Recognition Award for Graduate Education and Research Scholarship.

Ian F. Akyildiz (r) with Willis King, President, IEEE computer Society

Kevin F. Brennan (l) with Charles Liotta

James D. Meindl's research in Microelectronics



Thomas G. Habetler was named as an IEEE Fellow "for contributions to electric motor control and condition monitoring."

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

Gary S. May was named as executive assistant to Georgia Tech President G. Wayne Clough. Dr. May also received a Quality Education for Minorities Mathematics, Science, and Engineering Network's 2002 Giants in Science Award.

James H. McClellan and **Ronald W. Schafer** received the IEEE Signal Processing Society Education Award for creating the textbook, *DSP First*, and showing how to introduce digital signal processing (DSP) early in the engineering curriculum and to use it as a vehicle for explaining engineering ideas.

James D. Meindl was named one of the top R&D stars to watch in the December 2001 issue of *Industry Week* and was recognized for his career contributions to the microelectronics field.

A.P. Sakis Meliopoulos received the 2002 Georgia Tech Outstanding Continuing Education Award.

Russell M. Mersereau received the 2002 Georgia Tech Outstanding Doctoral Thesis Advisor Award.

John Papapolymerou received an NSF CAREER Award "for next generation micromachined THz circuits for communication, radio astronomy, and biological applications."

Andrew F. Peterson was named ECE's associate chair for Faculty Development.

Hans B. Püttgen is the 2002-03 president-elect of the IEEE Power Engineering Society.

Paul G. Steffes was named as a Lifetime National Associate of the National Academies in recognition of his past service as chair of the National Academy of Sciences' Committee on Radio Frequencies (CORF).

David G. Taylor was named director of the Center for Board Assembly Research and associate director of the Manufacturing Research Center.

Douglas B. Williams was named as ECE liaison to the Georgia Tech Regional Engineering Program.

Anthony J. Yezzi, Jr. received an NSF CAREER Award “for unifying segmentation and other image processing problems via variational partial differential equations.”

STAFF

Lajuana F. Guillory received a Georgia Tech Outstanding Staff Performance Award.

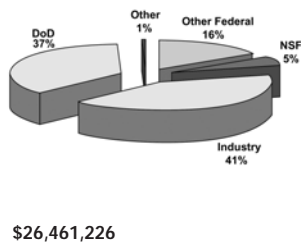
STUDENTS

Brian Patrick Boyd and **Jon Perry Entwistle** 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.

Henrik Bahr Christophersen received the Georgia Tech Center for the Enhancement of Teaching and Learning (CETL)/Frank Bogle Nontraditional Student Award.

Michael Reid received a CETL/BP Foundation Graduate Teaching Assistant Teaching Excellence Award for his outstanding service and positive impact that teaching assistants make toward the Institute's instructional mission.

Andrew Neil Stein received the Phi Kappa Phi Scholarship Cup for having the most outstanding scholastic record in the entire graduating Georgia Tech senior class.



Lajuana Guillory received the Georgia Tech Outstanding Staff Performance Award

Grants and contracts acquisitions total

George J. Vachtsevanos' research in unmanned aerial vehicles

■ RESEARCH, EDUCATIONAL, AND PROFESSIONAL MILESTONES

NEW RECORD IN 2001-02 GRANTS AND CONTRACTS ACQUISITION Despite a sluggish economy, ECE faculty members acquired a record-breaking \$26,461,226 in research grants and contracts during fiscal year 2002. This stellar effort represented 32 percent of the research funding in the College of Engineering, 16 percent of the research funding for the Georgia Tech academic units, and 9 percent of the entire Institute, including the academic units and the Georgia Tech Research Institute.

Of the \$26.4 million, two ECE-based research centers that partner heavily with industry amassed a combined total of almost \$9.5 million in industrial memberships. The Packaging Research Center, led by Rao R. Tummala, garnered \$6,215,133, while the National Electric Energy Testing, Research, and Applications Center—led by Hans B. Püttgen—secured \$3,273,300. In addition, the Georgia Tech Broadband Institute, led by Nikil Jayant, had \$300,000 in industry memberships. The four individuals who brought in the most research dollars were Ian F. Akyildiz, Krishna V. Palem, Ajeet Rohatgi, and George J. Vachtsevanos.

U.S. NEWS AND WORLD REPORT RANKINGS Georgia Tech's College of Engineering continues to increase its stature and visibility in the U.S., rising to fourth in the 2003 graduate engineering school rankings compiled by *U.S. News and World Report*. In rating specific, graduate engineering disciplines, electrical engineering ranked seventh, and computer engineering ranked twelfth.

In the magazine's rankings for undergraduate engineering programs, completed in fall 2002, the College of Engineering ranked sixth, an increase of two positions from the last rankings that were published in 2000. *U.S. News and World Report* also ranked Georgia Tech's undergraduate electrical engineering program seventh and the computer engineering program twelfth, mirroring the rankings for the graduate programs.

INTELLECTUAL PRODUCTS Faculty members, in conjunction with their graduate students and their academic peers, produced 215 journal publications, 573 conference presentations, five books, 23 parts of books, 17 patents, 104 miscellaneous presentations, and three federal filings.

GEORGIA TECH LORRAINE Georgia Tech Lorraine (GTL), Georgia Tech's platform into Europe, offers undesignated master's, a master's in ECE or in mechanical engineering, and Ph.D. degrees in both disciplines. Total fall 2001 enrollment was 157 and total spring 2002 enrollment was 162. GTL also offers a 10-week long undergraduate summer program in which 118 students participated in summer 2001 and 104 students participated in summer 2002. GTL is led by Hans B. Püttgen and François J. Malassenet, as president and directeur, respectively.

GTL enjoyed an eventful year as it celebrated its 10th anniversary. In coordination with fall 2001 commencement ceremonies at Georgia Tech's Atlanta campus, graduating GTL students; public officials from Lorraine, France; leaders of GTL's partner institutions; GTL faculty; and Georgia Tech-Atlanta officials celebrated the program's growth and achievements. In October 2001, GTL won the Best Initiative Award at the awards ceremony for the Trophées de la Nouvelle Economie. Considered a coveted achievement in France, these awards are sponsored by *L'Express*, a weekly national news magazine; Cegetel, a major telecommunications company; *Journal du Net*, the leading web journal/newsletter in France; and NRJ, a leading French radio station.

In February 2002, GTL hosted 30 students, or "partners," from the Franklin W. Olin College of Engineering, along with eight of the College's faculty members and student life officers, for a month-long academic study abroad program, coupled with language lessons and history seminars. Based on the experience acquired during this inaugural visit, top administrators from the Olin College and GTL are working together to determine the optimum way to integrate a European component, centered around GTL, into the highly innovative Olin College curriculum.

GEORGIA TECH REGIONAL ENGINEERING PROGRAM Enrollment in the computer engineering portion of the Georgia Tech Regional Engineering Program (GTREP) was 26 students amongst the program's three participating institutions—Georgia Southern University, Armstrong Atlantic State University, and Savannah State University. A total of 16 computer engineering courses were delivered to GTREP students via distance learning from the Atlanta campus, and 46 lecture and lab sections were taught by the computer engineering faculty based in Savannah and Statesboro. Joseph L.A. Hughes and Douglas B. Williams coordinate the GTREP 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. The program offers undergraduate degrees in civil engineering and computer engineering, as well as master's degrees in ECE, civil and environmental engineering, and mechanical engineering. Bachelor's degrees in electrical engineering and mechanical engineering are scheduled to be added in the near future.

Georgia Tech and the Savannah Economic Development Authority (SEDA) broke ground in June 2002 on a new academic and research campus to house the hub GTREP facilities. The GTREP campus—to be situated on about 47 acres in SEDA's Crossroads Business Centers—is the centerpiece of an approximately 150-acre development that will house research and development-oriented industries along I-95 near the Savannah International Airport. The development is called the Technology and Engineering Campus, or "TEC." Other operations slated to occupy the campus are the Georgia Tech Economic Development Institute (EDI), and the Savannah Advanced Technology Development Center (SATDC). Construction began in summer 2002 and is scheduled to be complete by fall 2003.

ARBUTUS CENTER FOR DISTRIBUTED ENGINEERING EDUCATION Led by Thomas P. Barnwell, the Arbutus Center for Distributed Engineering Education (ACDEE) combines educational resources from a number of different places—both at Georgia Tech and elsewhere—to create a single, coordinated program in computer enhanced education delivery. In addition to the University System of Georgia and Georgia Tech, the four most important programs that contribute resources to ACDEE are GTREP, the Yamacraw initiative, GTL, and a similar, distributed engineering education effort called Connexions at the School of Engineering at Rice University.

Founded in 2001, the Center's goals are to deliver a comprehensive undergraduate ECE core curriculum, online graduate programs, and lifelong learning opportunities to a geographically distributed population of students. ACDEE's activities have existed since the early 1990s through faculty efforts with *DSP First* and ECE's Computer Enhanced Education Taskforce, in which more than half of the ECE faculty participated. Through ACDEE, distributed teams of faculty, students, government agencies, and industrial partners are cooperating to revolutionize all aspects of the educational development process. These areas include research for education, research on pedagogy, content creation, and the distributed delivery of education and to solve the engineering education problem in a long-term programmatic way. Specific technical areas that researchers are currently addressing include education databases and interfaces; very low bit rate education delivery; telepresence for education delivery; and pedagogy research and assessment.

TEXAS INSTRUMENTS DSP UNIVERSITY LEADERSHIP PROGRAM Georgia Tech was again selected to partici-

pate in the Texas Instruments DSP Leadership University Program, a collaborative university network to pioneer advanced DSP research, along with Rice University and the Massachusetts Institute of Technology. Each institution received a three-year, \$1 million grant that will be used for innovative education and collaborative research ventures. The Georgia Tech program, led by Ronald W. Schafer, focuses on wireless video transmission, interpolation for color digital cameras, face recognition, speech recognition, chaotic systems for digital communication, and low bit-rate speech coding.

GEORGIA TECH ANALOG CONSORTIUM The Georgia Tech Analog Consortium (GTAC) consists of 14 full-time faculty, two research/administrative staff members, and approximately 50 Ph.D. students and 30 master's students. During FY 02, GTAC was led by J. Alvin Connelly, Phillip E. Allen, and Gabriel A. Rincón-Mora. Major areas of research are the design, fabrication, testing, and application of analog integrated circuits and systems for mixed-signal applications using integrated circuit technologies. ECE has a very active educational program in analog circuits and systems at both the undergraduate and graduate level, resulting in approximately 60 bachelor's and 20 master's degrees. In the last two years, 17 analog students graduated with their Ph.D. degrees.

Formed in 1989 to provide a stronger relationship with companies that are interested in analog microelectronics research and educational output, GTAC is a proven, excellent way for companies to receive direct and tangible benefits and, at the same time, better educate students for meeting future industrial needs. During FY 02, the Consortium's member companies included Adtran, Agilent Technologies, Anadriill-Schlumberger, Analog Devices, Cypress Semiconductor, IBM, Intersil, Motorola, Nokia Networks, ON Semiconductor, Raytheon, RF Micro Devices, and Texas Instruments. Despite a flagging economy, the spring 2002 research review attracted 18 industrial representatives, and the fall 2001 review drew 15 industrial representatives.

GEORGIA TECH BROADBAND INSTITUTE Last year was a very tough year economically for most companies in advanced telecommunications. However, the Georgia Tech Broadband Institute (GTBI), led by Nikil Jayant, saw the renewal of sponsorships from BellSouth, Broadcom, EG Technology, Hewlett-Packard, Intel, NTT DoCoMo Labs USA, and Sprint. In addition, new memberships were received from Arris and 3e Technologies International.

GTBI funded 12 projects in FY 02 that were selected based on inputs from the industrial sponsors. These projects addressed the physical layer—both wireless and optical; networking and security; and multimedia and the user interface. The funding for these projects supported 18 students. In addition, GTBI held semi-annual Industrial Advisory Board meetings in October 2001 and April 2002, where the results of the industry-guided research were presented. These sessions offered the sponsors opportunities to interact with the faculty and students during poster sessions and lab tours/demo sessions.

GTBI continued to provide direct support to some of its sponsors via its Named Student Fellowship Program. In this program, the company provides funding to support a specific student who works on a project that is mutually agreed upon by the sponsoring company and the faculty advisor. Presently, GTBI has three such fellowships in place. Hewlett-Packard supports Brian Delaney, who is advised by Nikil Jayant. EG Technology supports two students—Yujie Shu, who is advised by Raghupathy Sivakumar, and Nejat Kamaci, who is advised by Yucel Altunbasak.

YAMACRAW ACTIVITIES Yamacraw is a state-funded economic development initiative to grow the telecommunications infrastructure industry in Georgia. Professor Michael E. Porter of Harvard University, the world-renowned cluster guru, recently reported "that the Atlanta region, because of such innovative programs as the Georgia Research Alliance, the Intellectual Capital Partnership (ICAPP), and Yamacraw, has earned a national leadership position in the area of 'Government Policy and Regulatory Environment.'"

Companies join the Yamacraw Design Center to gain access to cutting-edge research and the faculty and students performing that research. Yamacraw member companies include Ardext, Barco, BellSouth, Broadcom, Carina Networks, Cermet, Ciena, Cirrex, Cypress Semiconductor, Echostar, EG Technology, IDT, Intracom, iVivity, Microcoating Technologies Inc., Movaz, Nanoventions, National Semiconductor, Nortel Networks, Quellan, RF Solutions, SecureWorks, Siemens, SoC Solutions, VeriSign Savannah, Vocalocity, and Wave7 Optics.

Now in its third year, Yamacraw is led by Director Herb Lehman and Research Director Joy Laskar and has further solidified their activities in system prototyping, broadband access hardware, and embedded software. Nikil Jayant's system prototyping group efforts to create next generation tools and systems for broadband information technology have surpassed projections. The embedded software group, led by Vijay Madiseti and consisting of 130-plus members, is now recognized among the largest of its kind in the world. Dr. Laskar's broadband access hardware group continues to gain attention with its novel semiconductor designs. The alliance forged within these three Yamacraw research areas has evolved beyond original expectation. The focus of the groups has expanded from establishing and building individual teams to collaborating on forward-looking relationships. The growth of each area has provided a natural teamwork environment fostering the overall mission of Yamacraw. The Yamacraw research activities to date coupled with the completion of the new Yamacraw building in the coming months provides a tangible symbol of the Yamacraw mission to become the center of technology in Georgia.

GEORGIA CENTERS FOR ADVANCED TELECOMMUNICATIONS TECHNOLOGY An advanced communications

research, policy, and commercialization initiative of the Georgia Research Alliance (GRA), the Georgia Centers for Advanced Telecommunications Technology 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. Nikil Jayant serves as GCATT's executive director.

During FY 02, GCATT reinforced its "TCP" theme—technology, commercialization, and policy—and continued to receive positive feedback from both industry and government supporters in these areas. In the last year, GCATT began to focus on three major areas in technology—networking, content, and system solutions. In September 2001, GCATT was awarded a five-year, \$5 million contract from the U.S. Department of Education to establish a Rehabilitation Engineering Research Center (RERC) focused on using mobile wireless technology to assist persons with disabilities. GCATT also co-hosted an event with InvestUK on "Future Communications Technologies: Perspectives from the UK and Georgia" in May 2002, and it hosted a national town hall meeting on "Cyber Security" that featured a distinguished panel of experts from industry and government agencies. Dr. Jayant recently chaired a national committee on Broadband Last Mile Technology for the Computer Science and Telecommunications Board (CSTB), a division of the National Research Council. The Committee was established as a board of experts in the fields of Broadband Technology, Economics, and Policy. Asked to assess strategies to enhance deployment of broadband for the last mile, to homes and small businesses, the Committee returned with a strategy for the government to monitor and support greater progress in this area rather than creating policies that could possibly hinder the growth of this technology.

On the commercialization front, GCATT launched "DayLIGHT" in fall 2002. "DayLIGHT" is designed to bring together industry and university experts for panel discussions on a particular topic of interest to the marketplace. Three such sessions have been held that have focused on "Last Mile Access to the Home" and have addressed high speed cable to the home, fiber to the home, and wireless communications.

In the area of policy, GCATT's Office of Technology Policy continues to receive outstanding feedback as a legislative "early warning system." In this role, they provide a monthly newsletter featuring telecommunications/information technology policy highlights to the GCATT center directors and other interested parties. This service provides keen insight into regulatory bills and appropriations that affect the advanced communications area. GCATT also hosts a regular public policy luncheon series designed to highlight the telecommunications policy sector. GCATT's Office of Technology Policy reviewed and analyzed 800 MHz Public Spectrum Uses in Georgia for State Representative Alan Powell and the Georgia House of Representatives "Green Door Committee." GCATT was also asked by U.S. Senator Max Cleland to provide a review and analysis of U.S. Senator Joseph Lieberman's bill "S2582 National Strategy for Deployment of High Speed Broadband Internet Telecom Services" and to advise Senator Cleland as to whether he should co-sponsor this bill.

CENTER FOR EXPERIMENTAL RESEARCH IN COMPUTER SYSTEMS The Georgia Tech Center for Experimental Research in Computer Systems (CERCS) was established in fall 2001. Led by Karsten Schwan of the College of Computing (CoC) and co-directors Douglas M. Blough and Sudhakar Yalamanchili of ECE and Calton Pu from CoC, the Center brings together 13 faculty members from ECE and 16 faculty from CoC. Constituting one of the largest experimental systems programs in the U.S., CERCS has a mission to promote experimental research in computer and software systems; produce high quality students trained in the experimental method of systems research and development; foster high impact and multi-disciplinary research efforts using shared personnel and facilities; and support researchers and educators at Georgia Tech and its affiliated institutions.

Shortly after its creation, CERCS was awarded a planning grant by the National Science Foundation to establish the Center as a NSF Industry/University Cooperative Research Center. CERCS has attracted seven industry members to date and organized an industrial workshop in early October 2002 to solicit additional members. Current industry members include Hewlett-Packard, Dell, Microsoft, Intel, Raytheon, Boeing, and Siemens. In addition to its industrial partnerships, CERCS carries out numerous research projects funded by agencies such as DARPA, NSF, and the U.S. Department of Education, many of which are cooperative efforts between faculty from both ECE and CoC.

CENTER FOR RESEARCH IN EMBEDDED SYSTEMS AND TECHNOLOGY Led by Krishna V. Palem, the Center for Research in Embedded Systems and Technology (CREST) was established in 2000 with a two-fold mission of impacting technology through groundbreaking research and leading in curricular innovations focused on embedded systems.

CREST has made significant strides toward its research mission while collaborating with a number of entities, including ECE and CoC at Georgia Tech, the Courant Institute at New York University, George Washington University, Harvard University, Hewlett-Packard, Intel, Imperial College (London, UK), National University of Singapore (NUS), and the Weizmann Institute. CREST develops compiler-centric technologies for rapid prototyping of embedded system designs. To this end, CREST has become a leader in developing innovative compiler optimizations for compiler-controlled cache management and power-aware computing.

At the heart of this research is Trimaran, which was co-developed by CREST, the Compiler and Architecture Research Group at HP Labs, and the Impact project at the University of Illinois to foster compiler and architecture research in instruction-level parallelism. CREST manages Trimaran, and freely distributes it to universities and research groups worldwide.

CREST's research interests have sparked the development of several courses, supported by funds from Hewlett-

Packard, to address the key factors affecting modern embedded systems design. These courses have been successfully offered at Georgia Tech in a state-of-art classroom facility. CREST has also influenced and steered courses given at the Courant Institute, NUS, the Indian Institute of Technology at Hyderabad, and the Asian Institute of Technology in Bangkok, Thailand.

CREST acknowledges support by DARPA, Hewlett-Packard, and Yamacraw. CREST continues to influence curriculum development through its research agenda: developing automated compiler-centric embedded system design strategies to reduce specification to design time to mere days.

MICROELECTRONICS RESEARCH CENTER Led by James D. Meindl, the Microelectronics Research Center (MiRC) serves the needs of over 280 graduate and undergraduate students in its clean room and auxiliary lab facilities, along with supporting the research needs of 40 faculty researchers and a growing group of industrial participants. In December 2001, James D. Meindl was named one of the top R&D stars to watch in the December 2001 issue of *Industry Week* and was recognized for his career contributions to the microelectronics field. In that particular issue, *Industry Week* showcased the contributions of individuals who drive innovation and provide the initial spark to economic growth.

Sponsored support of MiRC activities topped \$25 million during FY 02. The Center's products are manifold—cutting edge-research, collaborative research programs, and industrial training and support, but mainly research education for world-class undergraduate and graduate students in fields as diverse as mechanical engineering, physics, electrical engineering, and computer engineering.

Operating at 150 percent of capacity, the busy labs and clean room research areas of MiRC are geared for growth. The Center plans to acquire a state-of-the-industry electron beam nanolithography system in the upcoming months; this tool will enable nanotechnology and microelectronics processes to interface in exciting new ways. Also on the fast-track is the planning and construction of a new \$85 million Microelectronics Research Center to meet the demands of a growing Georgia research economy. Key areas for emphasis are nanotechnology and collaborations with other research institutions and industrial partners.

The MiRC's flagship program, the Interconnect Focus Center (IFC), is an example of the continuing synergy between Georgia Tech and her sister institutions across the country. The IFC, a driving force in the MiRC since 1998, is a part of a unique program of research Focus Centers that unites industrial partners (MARCO) with government agencies (DARPA), and a consortium of universities along common semiconductor research goals. Georgia Tech, through MiRC, is the lead university in the IFC, with subcontracting universities including the Massachusetts Institute of Technology, Rensselaer Polytechnic Institute, the University at Albany, Stanford University, and the University of California at Los Angeles. The IFC's mission is to address the technical challenges faced by the semiconductor industry in order to maintain the rate of progress that has been the hallmark of the industry. Add this challenge to the increasing demand for smaller and faster semiconductor circuitry, which is the central driving force behind nanotechnology, and you have a multi-disciplinary center with a unique place in the research life of Georgia Tech and the nation.

CENTER FOR BOARD ASSEMBLY RESEARCH Founded six years ago, the Center for Board Assembly Research (CBAR) is engaged in research that will enable the manufacture of next generation electronic products. CBAR's mission is to develop new technology for system-level board assembly to support ongoing product development trends such as reduced size and cost and enhanced performance. CBAR has a state-of-the-art surface mount technology (SMT) assembly laboratory that contains two SMT assembly lines with extensive post-process inspection capabilities. The total value of the consigned equipment exceeds \$4.5 million. CBAR's industrial membership consists of 23 companies, and eight faculty members participate in CBAR research activities. In May 2002, leadership of CBAR was transferred from Edward W. Kamen (now retired) to David G. Taylor, who also serves as associate director of the Manufacturing Research Center.

UNIVERSITY CENTER OF EXCELLENCE IN PHOTOVOLTAICS RESEARCH AND EDUCATION During its 10-year existence at Georgia Tech, the University Center of Excellence in Photovoltaics Research and Education (UCEP) has made considerable strides in making solar-electric power technology less expensive and more efficient. Established by the U.S. Department of Energy in 1992, UCEP is one of the largest solar power research centers in the U.S.

Led by Ajeet Rohatgi, Regents' Professor and Georgia Power Distinguished Professor, UCEP is unique because it has both state-of-the-art research laboratories and an on-campus solar powered facility that also acts as a research laboratory. UCEP labs house facilities for materials characterization, solar cell modeling, process development and cell fabrication, and solar cell testing. During the last six years, Dr. Rohatgi and researchers in the Center have established world records for high efficiency cells, including a 18.6% cast multicrystalline cell (1996), a 19% RTP cell on single crystal silicon (1997), 15% manufacturable screen-printed ribbon cells (2000), and 15.9% manufacturable RTP screen printed cells on low-cost silicon ribbon (2002). In addition, UCEP has developed a novel high throughput phosphoric acid spray technology for forming n+-p junctions for silicon solar cells.

A technological centerpiece during the 1996 Summer Olympics, the 342 kW rooftop, grid connected photovoltaic (PV) system at the Georgia Tech Aquatic Center now serves as a test bed for large-scale PV arrays. The solar-powered system provides about 30 percent of the electrical energy needed for the Aquatic Center and saves Georgia Tech almost \$30,000 a year in energy bills. It has produced more than 2 billion watt hours of electrical energy during the last six years, an

amount sufficient to provide power to about 70 homes, and prevents the release of almost 400 tons of carbon dioxide into the atmosphere every year.

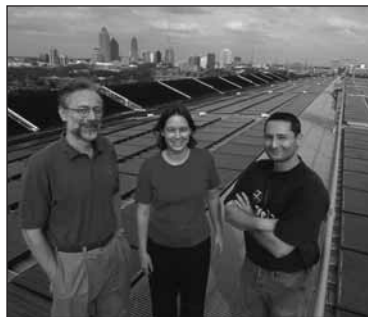
In addition to Dr. Rohatgi, Associate Professors Miroslav M. Begovic and Christiana B. Honsberg, five full-time research professionals, and 10 Ph.D. students are also involved in the Center.

NATIONAL ELECTRIC ENERGY TESTING, RESEARCH, AND APPLICATIONS CENTER 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. Led by Hans B. Püttgen, NEETRAC consists of 11 faculty members—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.

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 the Georgia Tech Research Institute. During FY 2002, the Center's industrial membership consisted of 24 companies, totaling \$2.98 million. Member companies include Southern States, Inc.; The Southern Company; NRECA; Exelon; Progress Energy; Cooper Power; Dominion (Virginia Power Company); Duke Power; Florida Power and Light; GRESCO; Borealis; Pirelli Cable-N.A.; Public Service Electric and Gas; Raychem-Tyco Electronics; Schlumberger; South Carolina Electric and Gas; Southern California Edison; Southwire; ONCOR; Dow Chemical; Xcel; Equistar Chemicals LP; Baltimore Gas and Electric; and Entergy Transmission.

During FY 02, NEETRAC received the first gift of intellectual property ever made to Georgia Tech when Schlumberger Resource Management Services, Inc. donated two patents in power line carrier (PLC) technology that are valued at \$4.079 million. PLC technology uses power lines to carry data signals to and from businesses and homes. Schlumberger RMS has

*Miroslav Begovic,
Christiana Honsberg,
and Aleksandar Pregelj
on the photovoltaic
roof of the aquatic
center*



*2002 Georgia Tech
FutureTruck team*



also joined NEETRAC as a corporate member and will work with the Center to further develop and commercialize their PLC technologies.

FUTURETRUCK Georgia Tech was among the 15 teams from U.S. and Canadian universities that competed in the third year of FutureTruck, held June 11-21, 2002 at Ford's Arizona Proving Ground in Yucca, Ariz., the California Air Resources Board in El Monte, Calif., and the California Motor Speedway in Fontana, Calif. The Georgia Tech Hybrid Electric Vehicle team, dubbed as "FutureWreck," drove into third place in two technical performance categories, while finishing 10th place in the overall competition.

FutureTruck is a joint government-industry project created by the U.S. Department of Energy to explore alternative propulsion systems and fuels through student competition. The program's goal is to help raise the environmental performance of the popular SUV segment while keeping the amenities and features that have made it so popular.

The "FutureWreck" team, with guidance from ECE faculty and technical help from the U.S. Department of Energy and Ford, attempted to re-engineer a 2002 Ford Explorer into a low-emissions vehicle with at least 25 percent higher fuel economy—without sacrificing performance, utility, safety, and affordability. Comprised mostly of undergraduate students in mechanical and electrical engineering, the team was advised by Jerome Meisel, an ECE visiting professor, and Caryn Riley and Boyd Pettitt, research engineers in the Electric and Hybrid Vehicle Research Center at NEETRAC.

IEEE OUTSTANDING STUDENT BRANCH The national headquarters of the Institute of Electrical and Electronics Engineers (IEEE) named the Georgia Tech student branch of IEEE as the number one student branch in the U.S. at the end of 2001. Catherine Thorn served as the organization's chair during 2001-02, and the chapter advisor was John H. Matthews. The Georgia Tech IEEE student branch plays an active role in the daily life of ECE by hosting seminar speakers from various companies and organizations on a weekly basis. The group also sponsors a Student-Professional Awareness Conference each spring, and they participate in numerous competitions, as well as national and regional conferences.

CAMBRIDGE SCHOLARS Jay Silver and Nick Bronn, two recent ECE graduates, will study at the University of Cambridge

in England starting in fall 2002 as winners of the highly esteemed Gates Cambridge Scholarship. Mr. Silver, who received his B.S.E.C.E. in May 2002, will use the award to pursue a master's degree in computer speech, text, and Internet technology. Mr. Bronn graduated with a bachelor's degrees in physics and applied mathematics and a master's degree in ECE in December 2001 and will study applied mathematics and theoretical physics.

Messrs. Silver and Bronn are Georgia Tech's first recipients of the prestigious award created by Microsoft founder Bill Gates. Started with funds from the Bill and Melinda Gates Foundation two years ago, the Gates Cambridge Trust chooses approximately 150 students from across the globe to study at Cambridge. The award covers the cost of tuition and airfare, plus a small stipend. Students may use the award to pursue a second bachelor's degree, a one-year postgraduate degree, or conduct research leading to a doctoral degree.

KAMEN AND CONNELLY RETIREMENTS J. Alvin Connelly and Edward W. Kamen—two well-respected leaders in the ECE and Georgia Tech communities—retired during 2001-02.

Dr. Connelly retired in December 2001 after 33 years of service, devoting much of his career to building ECE's analog electronics program and establishing the Georgia Tech Analog Consortium. In the last 11 years of his career, Dr. Connelly served as associate chair for Faculty Development, guiding a period of tremendous increase in the School's faculty while leading the School's reappointment, promotion, tenure, and post-tenure processes.

Dr. Kamen, the Julian T. Hightower Professor of Manufacturing Engineering, retired in May 2002 after a total of 20 years of service. Dr. Kamen first served on the ECE faculty from 1971-80. During his most recent tenure at Georgia Tech from 1991-2002, he served as director of the Center for Board Assembly Research and associate director of the Manufacturing Research Center.

MAY NAMED EXECUTIVE ASSISTANT TO THE PRESIDENT Gary S. May was named as executive assistant to Georgia Tech President G. Wayne Clough, after serving as ECE associate chair for Faculty Development. In his new position, Dr. May now acts as Dr. Clough's chief liaison to a variety of Georgia Tech constituencies and carries out actions on the president's behalf. Although his formal responsibilities are administrative, he will continue to conduct his research program in ECE and advise his graduate students. Dr. May replaced April S. Brown, also an ECE faculty member, in this position. Dr. Brown resigned from ECE and Georgia Tech in May 2002 to become chair of the Department of Electrical and Computer Engineering at Duke University.

PETERSON NAMED AS ASSOCIATE CHAIR Andrew F. Peterson was named ECE associate chair for Faculty Development, effective July 2002. Dr. Peterson replaced Gary S. May, who now serves as executive assistant to Georgia Tech President G. Wayne Clough. Dr. Peterson's new duties include management of the School's reappointment, promotion, tenure, and post tenure processes, as well as personnel retention, public relations, and development activities.

FACULTY PROMOTIONS Three faculty members were promoted or tenured, effective July 1, 2001. W. Russell Callen and David G. Taylor were promoted to professor, while Ronald G. Harley, the Duke Power Company Distinguished Professor, was awarded tenure.

Nine faculty members were promoted and/or tenured effective July 1, 2002. James O. Hamblen, Bonnie S. Heck, Joy Laskar, and Yorai Y. Wardi were promoted to professor. A. Bruno Frazier was promoted to associate professor and tenured. Madhavan Swaminathan was promoted to professor and also received tenure. Douglas M. Blough, Stephen E. Ralph, and Krishna V. Palem received tenure.



■ INAUGURAL ECE AWARDS PROGRAM A SMASHING SUCCESS

The School of Electrical and Computer Engineering held its first annual awards program on April 25, 2002 at the Student Center Ballroom. Six student awards, three staff awards, and 11 faculty awards were presented during the evening, recognizing some of the most outstanding members of the ECE community. C. Dean Alford, chair of the ECE Advisory Board, and James Carreker, member of the Georgia Tech Advisory Board, hosted the program.

ECE faculty and staff who received awards at the Georgia Tech Faculty/Staff Honors Luncheon, students who received recognitions at the Georgia Tech Student Honors Day, and recipients of ECE Outstanding Graduate Teaching Assistant Awards were also recognized during this event. These awards were supported in part by the following alumni: Mr. Warren Batts, Mr. and Mrs. Joel Spira, Mr. and Mrs. Jim Stratigos, Mr. and Mrs. Tom Quigley, and Mr. and Mrs. Meade Sutterfield.

STUDENT AWARDS

ECE Junior Scholar Award	Brian Patrick Boyd
Most Outstanding ECE Senior Co-op Award	Michelle Middleton
ECE Undergraduate Research Award	Mehdi Javanmard
Outstanding Service to Georgia's Community Award	Alexandru Talpasanu
ECE Teaching Assistant Excellence Award	Michael Reid
Outstanding ECE Ph.D. Thesis Award	Rangarajan Tallam

STAFF AWARDS

GTEAM Performance Award	Marilouise Mycko Jacqueline Trappier Suzette Willingham
Research Spotlight Award	Walter Henderson
Hats Off Performance Award	Deborah King

FACULTY AWARDS

Outstanding Service Award	David R. Hertling
Excellence in Continuing Education Award	Monson H. Hayes
Innovation in Education Award	James H. McClellan Ronald W. Schafer
Outstanding Research Author Award	Gary S. May
Outstanding Graduate Research Advisor Award	Madhavan Swaminathan
Outstanding Research Program Development Award	Mark G. Allen
Outstanding Junior Faculty Member Award	Emmanouil M. Tentzeris
Richard M. Bass/Eta Kappa Nu Outstanding Teacher Awards	Ali Adibi W. Marshall Leach, Jr.
Distinguished Professor Award	Kevin F. Brennan
Lifetime Achievement Award	Thomas P. Barnwell

SPECIAL RECOGNITION

Establishment of the J. Alvin Connelly Endowment Fund "to benefit students and student initiatives in ECE."	J. Alvin Connelly
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FACULTY

One hundred and ten faculty members were employed in ECE during 2001-02. Nine new faculty members were hired, three faculty members resigned, and two faculty members retired. Five faculty members are associated with the Georgia Tech Regional Engineering Program (GTREP).

Nine new faculty members joined ECE in fall semester 2001, including David S. Citrin, associate professor of optics and photonics and electromagnetics; Magnus Egerstedt, assistant professor of computer engineering and systems and controls; Ian T. Ferguson, professor of microsystems; Chuanyi Ji, associate professor of telecommunications; Aaron D. Lanterman, assistant professor of digital signal processing (DSP); Sung Kyu Lim, assistant professor of computer engineering; Ioannis (John) Papapolymerou, assistant professor in electromagnetics and electronic design and applications (EDA); George Riley, assistant professor in computer engineering; and Gabriel Rincón-Mora, assistant professor in EDA. Yogendra Joshi, a professor who joined the Woodruff School of Mechanical Engineering in fall 2001, also holds a joint appointment with ECE. Chai-Keong Toh, an assistant professor in telecommunications, resigned during fall 2001.

During spring semester 2002, two faculty members resigned and two faculty members retired. David R. DeBoer, an assistant professor in electromagnetics, resigned to take a full-time position with the SETI Institute. April S. Brown-Joseph M. Pettit Professor in Microelectronics, associate dean of the College of Engineering, and executive assistant to Georgia

FACULTY PROFILE	RANK	TENURED	FEMALE AND MINORITY REPRESENTATION
	Regents' Professors5	Regents' Professors5	Female9
Professors50	Professors46	African-American2	
Associate Professors30	Associate Professors21	Asian17	
Assistant Professors25		Hispanic1	
Total110		Multi-racial1	

Tech President G. Wayne Clough—resigned to become chair of the Department of Electrical and Computer Engineering at Duke University. J. Alvin Connelly retired after 33 years of service as a faculty member and 10 years as associate chair for Faculty Development and Operations. Edward W. Kamen retired after 10 years of service as the Julian T. Hightower Chair in Manufacturing Systems, director of the Center for Board Assembly Research, and associate director of the Manufacturing Research Center. Dr. Kamen also held an ECE faculty position from 1971-80.

Upon Dr. Brown's resignation, Gary S. May, ECE associate chair for Faculty Development, was named as Dr. Clough's executive assistant. Andrew F. Peterson was named as Dr. May's successor during summer 2002.

GTREP faculty members, Randal T. Abler, Ashraf Saad, Feodor Vainstein, and Rahman Zaghloul are based in Savannah, Ga., but frequently visit the main Georgia Tech campus either in person or via teleconference. Joel R. Jackson is based at the Atlanta campus, serving online distance learning needs in the ECE curricula and continuing education. Dr. Zaghloul joined the GTREP faculty in fall 2001.

Sixty-four percent of the ECE faculty is tenured, with all members holding doctorates. The table above summarizes the academic ranks and the ethnic and gender composition of the faculty. A list of the faculty members and their research interests is also included in this section.

■ ACADEMIC FACULTY

REGENTS' PROFESSORS

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

*Diffractive optics; optical interconnects; fiber optic devices; optics instrumentation; semiconductor quantum devices; nanos-
tructure optoelectronics*

Russell M. Mersereau; Sc.D., Massachusetts Institute of Technology

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

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

*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

*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

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

PROFESSORS

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

Wireless networks; satellite networks; next generation Internet

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

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

Phillip E. Allen; Schlumberger Chair Professor in Microelectronics; Ph.D., University of Kansas

*Analog IC design; analog filters; analog modeling and computer-aided design (CAD); analog circuits and systems for telecom-
munication applications*

Thomas P. Barnwell, III; Director of the Arbutus Center for Distributed Engineering Education; Ph.D., Massachusetts
Institute of Technology

*Computer-enhanced education; speech analysis, synthesis, and coding; multiprocessor architectures for DSP; DSP algorithms;
objective speech quality measures*

Douglas M. Blough; Co-Director of the Center for Experimental Research in Computer Systems; Ph.D., The Johns
Hopkins University

Multicomputer architecture; fault-tolerant computer systems; operating systems and middleware

Kevin F. Brennan; Byers Professor in Microelectronics; Ph.D., University of Illinois at Urbana-Champaign

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

April S. Brown; Executive Assistant to Georgia Tech President G. Wayne Clough, Associate Dean of the College of
Engineering, and Joseph M. Pettit Professor in Microelectronics; Ph.D., Cornell University

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

W. Russell Callen, Jr.; Ph.D., Stanford University

Engineering educational methods; integration of engineering and the humanities; professional engineering education

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

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

J. Alvin Connelly; Associate Chair for ECE Faculty Development and Operations; Ph.D., University of Tennessee
CMOS (complementary metal-oxide-semiconductor) and bipolar IC design; macromodeling of analog/digital systems; low noise circuit and system design; phase locked loops

John A. Copeland; John H. Weitnauer, Jr. Technology Transfer Chair, Georgia Research Alliance (GRA) Eminent Scholar, and Director of the Communications Systems Center; Ph.D., Georgia Institute of Technology
Computer communication networks; digital cable television networks; computer architecture and operating systems

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

Robert K. Feeney; Ph.D., Georgia Institute of Technology
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

Ian T. Ferguson; Ph.D., University of St. Andrews in Scotland
Solid state lighting; LEDs/lasers for UV and biomedical applications; MOCVD growth and fabrication of GaN-based materials; intelligent epitaxy; spintronics; entrepreneurship

Elias N. Glytsis; Ph.D., Georgia Institute of Technology
Diffraction optics; optical interconnections; integrated and fiber optic devices; numerical techniques in electromagnetic problems

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

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

Monson H. Hayes, III; Sc.D., Massachusetts Institute of Technology
Stereo image processing; face and gesture recognition; multimedia signal processing; adaptive signal processing; Internet education

David R. Hertling; Associate Chair for ECE Graduate Affairs; Ph.D., University of Illinois at Urbana-Champaign
Modeling of linear and non-linear active devices; CAD and analysis of electronic circuits; CAD of planar dipole phased antenna arrays

William D. Hunt; Ph.D., University of Illinois at Urbana-Champaign
Thin film piezoelectric materials; surface acoustic wave and bulk acoustic wave devices for wireless applications; microelectronic 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
Signal compression; multimedia communications; wireless systems; broadband access

Nan Marie Jokerst; Joseph M. Pettit Professor in Electro-optics; Ph.D., University of Southern California
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, and Director of the Center for Board Assembly Research; Ph.D., Stanford University
Mathematical system theory; control theory; estimation theory; signal processing

W. Marshall Leach, Jr.; Ph.D., Georgia Institute of Technology
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
Computer technology applied to education; sensor array signal processing; radar signal processing; software for DSP

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

- Gary S. May;** Executive Assistant to President G. Wayne Clough, Associate Chair for ECE Faculty Development, and Motorola Foundation Professor; Ph.D., University of California at Berkeley
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 and Director of the Microelectronics Research Center; Ph.D., Carnegie-Mellon University
Microelectronics; gigascale integration (GSI)
- A.P. Sakis Meliopoulos;** Ph.D., Georgia Institute of Technology
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
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
Development of low-cost tools for designing microcontroller applications; low-cost, dedicated logic analyzer design using FPGA technology; embedded microcontroller applications
- Andrew F. Peterson;** Associate Chair for ECE Faculty Development; Ph.D., University of Illinois at Urbana-Champaign
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
Power systems analysis and planning; utility deregulation; electric transportation vehicles and systems
- William T. Rhodes;** Ph.D., Stanford University
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
Power electronics devices and circuits; analog electronics
- Jay H. Schlag;** Associate Chair for ECE Operations; Ph.D., Georgia Institute of Technology
Computer applications; CAD; neural networks
- Waymond R. Scott, Jr.;** Ph.D., Georgia Institute of Technology
Methods for detecting buried objects using both electromagnetic and acoustic waves; measurement of electromagnetic properties of materials; transient electromagnetic fields; numerical methods including the finite element and the finite-difference time-domain techniques
- Mark J.T. Smith;** Ph.D., Georgia Institute of Technology
Image and video processing; telemedicine; object detection and reception; data compression for transmission and storage
- Paul G. Steffes;** Ph.D., Stanford University
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
Wireless physical communications; cellular mobile radio systems; broadband wireless access systems
- Allen Tannenbaum;** Julian Hightower Professor; Ph.D., Harvard University
Computer vision; image processing; computer graphics; control theory; cryptography; biomedical imaging
- David G. Taylor;** Director of the Center for Board Assembly Research and Associate Director of the Manufacturing Research Center; Ph.D., University of Illinois at Urbana-Champaign
Nonlinear control systems; electromechanical systems and devices; modeling, simulation, and control of assembly robots; design and control of linear motion actuators and generators

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

John P. Uyemura; Ph.D., University of California at Berkeley
10/100 GBs CMOS circuits for ethernet applications; phase-locked and delay-locked loops; high-speed, dual-rail CMOS VLSI logic networks; optical telecommunication circuits and systems

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

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

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

Sudhakar Yalamanchili; Co-Director, Center for Experimental Research in Computer Systems; Ph.D., University of Texas at Austin
Cluster interconnection networks; embedded communication networks; reconfigurable logic in high performance communication

ASSOCIATE PROFESSORS

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

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

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

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

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

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

Stephen P. DeWeerth; Ph.D., California Institute of Technology
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
Video compression; nonlinear optimization; system theory; computer-aided engineering system design; robust control

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

Bonnie S. Heck; Ph.D., Georgia Institute of Technology
Control theory; power electronics; software architecture for control systems

Christiana B. Honsberg; Ph.D., University of Delaware
Design, development, and characterization of novel, commercially oriented solar cell structures using buried contact technology; identification, modeling, and analysis of novel techniques to overcome traditional homojunction or two-stack tandem efficiency limits; GaAs solar cells

Joseph L.A. Hughes; Associate Chair for Computer Engineering and ECE Program Development; Ph.D., Stanford University

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

Mary Ann Ingram; Ph.D., Georgia Institute of Technology

Wireless communications systems; RF propagation measurements and modeling; array signal processing; antenna pattern synthesis

Chuanyi Ji; Ph.D., California Institute of Technology

Management and control of heterogeneous and large networks; adaptive algorithms, statistics, and information theory

David C. Keezer; Ph.D., Carnegie-Mellon University

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

J. Stevenson Kenney; ON Semiconductor Junior Professor; Ph.D., Georgia Institute of Technology

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

Rehabilitation engineering; medical diagnostic protocols

Joy Laskar; Yamacraw Research Director and Joseph M. Pettit Professor in Electronics; Ph.D., University of Illinois at Urbana-Champaign

RF and microwave ICs in CMOS, SiGe, GaAs, and InP; integration and packaging techniques for RF/microwave applications; next generation IC applications in 4G wireless and hybrid RF/optoelectronic ICs

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

Wireless communications; adaptive signal processing

Steven W. McLaughlin; Ph.D., University of Michigan at Ann Arbor

Communications and information theory; error control coding; coding and signal processing for magnetic and optical storage and fiber optic transmission systems; source coding and data compression

Linda S. Milor; Ph.D., University of California at Berkeley

Circuit performance (speed) modeling and prediction; analog and mixed-signal testing; yield modeling and prediction; modeling of process modules; statistical process modeling and characterization; digital testing

Henry L. Owen; Ph.D., Georgia Institute of Technology

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

Stephen E. Ralph; Ph.D., Cornell University

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

David E. Schimmel; Ph.D., Cornell University

Parallel computer architecture and reconfigurable computing; VLSI system design; system area computer network design; asynchronous and self-timed system design

Madhavan Swaminathan; Ph.D., Syracuse University

Numerical methods in electromagnetics; interconnect design and analysis; power distribution for GHz systems; time domain characterization methods; IC package co-design

Yorai Y. Wardi; Ph.D., University of California at Berkeley

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

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

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

Statistical signal processing; signal processing for communications; DSP-based linearization of nonlinear power amplifiers for wireless communications; network traffic analysis; seismic deconvolution; bio-signal analysis

ASSISTANT PROFESSORS

Ali Adibi; Ph.D., California Institute of Technology

Holographic data storage; holographic optical elements for optical communications; design, characterization, and applications of photonic crystals; optical communication and networking

Yucel Altunbasak; Ph.D., University of Rochester

Multimedia processing and communications; scalable video coding, high definition television, Internet video, and wireless video; audio-visual information management; 3-D graphics streaming; inverse problems in signal processing

David V. Anderson; Ph.D., Georgia Institute of Technology

DSP for speech and audio enhancement; signal processing for the hearing impaired; ultra-low power signal processing systems; Internet-based engineering education

Farrokh Ayazi; Ph.D., University of Michigan at Ann Arbor

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

Neural control of breathing; pattern-generating neural circuits; real-time computing applied to electrophysiology; nonlinear dynamics in electronic circuits; nonlinear dynamics in biological circuits

Jeffrey A. Davis; Ph.D., Georgia Institute of Technology

System-level interconnect prediction; interconnect limits for GSI; compact distributed RLC interconnect device modeling; interconnect-centric design methodologies; on-chip high speed networks and optimal multilevel network design

David R. DeBoer; Ph.D., Georgia Institute of Technology

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

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

Magnus Egerstedt; Ph.D., Royal Institute of Technology, Stockholm, Sweden

Hybrid automata theory; robotics, optimal control; complexity issues in control

Faramarz Fekri; Ph.D., Georgia Institute of Technology

Error control coding; wavelets; cryptography; digital communications; DSP for communications

A. Bruno Frazier; Ph.D., Georgia Institute of Technology

Micromachining, MEMS, and microsystems technology; biomedical microsystems; integrated biodetection systems; microsystems fabrication technologies

Paul E. Hasler; Ph.D., California Institute of Technology

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

Aaron D. Lanterman; Ph.D., Washington University in St. Louis

Target recognition; image reconstruction; radar systems

Sung Kyu Lim; Ph.D., University of California at Los Angeles

VLSI CAD; performance driven logic synthesis and physical design; low power oriented logic synthesis and physical design; high-speed interconnect modeling and optimization; fundamental CAD algorithms; combinatorial optimization

Vincent J. Mooney, III; Ph.D., Stanford University

System level design; hardware-software co-design; synthesis of reconfigurable architectures; logic synthesis; application-specific system design; low-power architectures, modeling, and compilers

Ioannis (John) Papapolymerou; Ph.D., University of Michigan

Monolithic microwave/millimeter wave integrated circuits; silicon micromachining for high-frequency applications; RF/microwave MEMS; EBG structures; packaging and wireless interconnects; W-band transmit/receive modules

George F. Riley; Ph.D., Georgia Institute of Technology

Distributed discrete event simulation techniques; large-scale computer networks; distributed computing; operating systems; communications front-end processors

Gabriel A. Rincón-Mora; Ph.D., Georgia Institute of Technology

Precision low-voltage/low-power analog circuit design; low-noise analog circuit design; high performance power management integrated circuits; mixed-signal IC/layout design techniques

Raghupathy Sivakumar; Ph.D., University of Illinois at Urbana-Champaign

Computer networks; wireless networks; mobile computing; network quality of service

Emmanouil M. Tentzeris; Ph.D., University of Michigan at Ann Arbor

Real-time multiresolution algorithms for 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

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

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

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

Quality of service in IP networks; multi-protocol label switching; IP delivery of multimedia content in the educational environment

Joel R. Jackson; Assistant Professor; Ph.D., Georgia Institute of Technology

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

Artificial intelligence; intelligent manufacturing; agents research

Feodor Vainstein; Professor; Ph.D., Boston University

Fault-tolerant computing; computer hardware and software testing; computer hardware design; digital communication and error-correcting codes; applied mathematics; control

Rahman Zaghoul; Professor; Ph.D., University of Nebraska at Lincoln

Ellipsometric experimental techniques; reflection-type optical devices; laser signatures of the breakdown of gases and liquids; integration of ellipsometry and power engineering

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)

J. Alvin Connelly, 1968-2001
(Employed with ECE on a part-time basis)

Daniel C. Fielder, 1948-88, deceased October 2002

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

Edward W. Kamen, 1971-80, 1991-2002

Richard P. Kenan, 1986-99

Mohamed F. Moad, 1963-2001
(Employed with ECE on a part-time basis)

Dale C. Ray, 1966-99

George P. Rodrigue, 1968-96

Kendall L. Su, 1954-94
(Employed with ECE on a part-time basis)

Carl M. Verber, 1986-2000, deceased October 2002

Thomas M. White, 1948-88
(Employed with ECE on a part-time basis)

JOINT FACULTY APPOINTMENTS

James Foley; Associate Dean, Professor, and Stephen Fleming Chair in Telecommunications; College of Computing

Yogendra Joshi, Professor, Woodruff School of Mechanical Engineering

ADJUNCT AND PART-TIME APPOINTMENTS

Emmanuel Anemogiannis, Nortel Networks

Paul J. Benkeser, Wallace H. Coulter Department of Biomedical Engineering

Daniel J. Blumenthal, University of California at Santa Barbara

David E. Bockelman, Free Electron Technology

Bertrand Bousert, Georgia Tech Lorraine

Catherine Brechignac, Centre National De La Recherche Scientifique

Marijn Brummer, Emory University

Donald D. Davis, Antec Corp.

Jim D. Echard, Georgia Tech Research Institute

Robert Eisner, Emory University

Irfan Essa, College of Computing

Gary G. Gimmestad, Georgia Tech Research Institute

Jean-Pierre Goedgebuer, Georgia Tech Lorraine

Mathieu Hans, Hewlett-Packard Co.

Nile F. Hartman, Georgia Tech Research Institute
(Retired)

E. Jefferson Holder, Georgia Tech Research Institute

Fred Kitson, Hewlett-Packard

Bob Lee, The Wallace H. Coulter Department of Biomedical Engineering at Georgia Tech/Emory University

Y.-L. Li, Intel

John O. Limb, Broadcom

François J. Malassenet, Georgia Tech Lorraine

John H. Matthews, John H. Matthews and Associates, Inc.

Kenneth M. Mackenzie, College of Computing

Bill McKinnon, Georgia Tech Research Institute

Robert McNally, Cryolife, Inc.

Jerome Meisel, Georgia Tech

Stephen C. Mettler, Lucent Technologies

J.W. Monaco, Line Imaging Systems

Romain Murenzi, Clark Atlanta University

William R. Owens, Georgia Tech Research Institute

Umakashore Ramachandran, College of Computing

Craig Richardson, ASPI Digital

Tariq Samad, Honeywell

Karsten Schwan, College of Computing

Robert E. Schwerzel, Georgia Tech Research Institute

Oskar Skrinjar, The Wallace H. Coulter Department of Biomedical Engineering at Georgia Tech/Emory University

Christopher Summers, School of Materials Science and Engineering

Kwan K. Truong, ASPI Digital

May Wang, The Wallace H. Coulter Department of Biomedical Engineering at Georgia Tech/Emory University

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. These groups include the Institute Executive Board, the Academic Senate, and the General Faculty; six general faculty standing committees and eight academic faculty standing committees study issues and make policy recommendations.

During 2001-02, 18 ECE faculty members were involved in academic government, with Joseph L.A. Hughes serving as standing committee chair for the Institute Undergraduate Curriculum Committee.

EXECUTIVE BOARD

Yorai Y. Wardi

ACADEMIC SENATE/GENERAL FACULTY ASSEMBLY

Miroslav M. Begovic

Thomas G. Habetler

William D. Hunt

Andrew F. Peterson

William E. Sayle

Yorai Y. Wardi

D. Scott Wills

GENERAL FACULTY STANDING COMMITTEES

Faculty Honors

Paul G. Steffes

Faculty Status & Grievance

Erik I. Verriest

Welfare & Security

Mary Ann Ingram

Frank Lambert

Gail O. Palmer

ACADEMIC FACULTY STANDING COMMITTEES

Undergraduate Curriculum

Joseph L.A. Hughes*

D. Scott Wills

Graduate Curriculum

April S. Brown

Stephen P. DeWeerth

Monson H. Hayes, III

Andrew F. Peterson

Student Academic & Financial Affairs

Miroslav M. Begovic

Yorai Y. Wardi**

Student Computer Ownership

James H. McClellan

* Committee chair

** Ex-officio

■ STANDING COMMITTEES

EDUCATION & RESEARCH TECHNOLOGY TRANSFER

Thomas P. Barnwell, III*	A. Bruno Frazier	Monson H. Hayes, III	David C. Keezer	Sung Kyu Lim
Vijay K. Madiseti	William T. Rhodes	Jay H. Schlag**	George J. Vachtsevanos	Erik I. Verriest
Douglas B. Williams				

FACULTY HONORS

Ian F. Akyildiz	J. Alvin Connelly**	Elias N. Glytsis	Gary S. May**	Ajeet Rohatgi
Mark J.T. Smith	Paul G. Steffes	Rao R. Tummala*	John P. Uyemura	G. Tong Zhou

FACULTY RECRUITMENT

Mark G. Allen	Douglas M. Blough	John A. Copeland	Joy Laskar	Roger P. Webb*
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GRADUATE

David V. Anderson	April S. Brown	David R. Hertling**	Christiana B. Honsberg	Nan Marie Jokerst
J. Stevenson Kenney	Ye (Geoffrey) Li	Steven W. McLaughlin	A.P. Sakis Meliopoulos	Andrew F. Peterson*
Raghupathy Sivakumar				

GRADUATE STUDENT RECRUITMENT

Yucel Altunbasak	Farrokh Ayazi	John R. Barry	Kevin F. Brennan*	Robert J. Butera, Jr.
Mark A. Clements	Ronald G. Harley	Vincent J. Mooney, III	Gabriel A. Rincón-Mora	David G. Taylor
Emmanouil M. Tentzeris				

LABORATORY

Thomas E. Brewer**	John A. Buck	John F. Dorsey	Magnus Egerstedt	Ian T. Ferguson
Henry L. Owen	John B. Peatman	George F. Riley	Waymond R. Scott, Jr.*	

REAPPOINTMENT, PROMOTION, & TENURE

Phillip E. Allen	J. Alvin Connelly*	Thomas K. Gaylord	Nikil Jayant	Edward W. Kamen
Gary S. May*	Russell M. Mersereau	Hans B. Püttgen	William E. Sayle	Glenn S. Smith
Allen Tannenbaum	Sudhakar Yalamanchili			

SEMINAR

Abhijit Chatterjee	Bonnie S. Heck*	James D. Meindl	Linda S. Milor	Krishna V. Palem
Gordon L. Stüber				

STATUTORY ADVISORY

Miroslav M. Begovic	Thomas K. Gaylord	James H. McClellan	Andrew F. Peterson	David E. Schimmel*
D. Scott Wills				

STUDENT/FACULTY

Ali Adibi	David S. Citrin	Jeffrey A. Davis*	Faramarz Fekri	Arthur Koblasz
I. (John) Papapolymerou	Linda S. Wills	Anthony J. Yezzi, Jr.		

UNDERGRADUATE

Martin A. Brooke	W. Russell Callen, Jr.	W. Alan Doolittle	Robert K. Feeney	Thomas G. Habetler
James O. Hamblen	Paul E. Hasler	Joseph L.A. Hughes**	W. Marshall Leach, Jr.	James H. McClellan*
William E. Sayle**	W. Whitfield Smith	Madhavan Swaminathan	D. Scott Wills	

■ TECHNICAL INTEREST GROUPS

BIOENGINEERING

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

COMPUTER ENGINEERING

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

DIGITAL SIGNAL PROCESSING

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

ELECTRIC POWER

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

ELECTROMAGNETICS

John A. Buck	David S. Citrin	David R. DeBoer	Robert K. Feeney	Thomas K. Gaylord
Elias N. Glytsis	William D. Hunt	J. Stevenson Kenney	Joy Laskar	W. Marshall Leach, Jr.
I. (John) Papapolymerou	Andrew F. Peterson	Stephen E. Ralph	Waymond R. Scott, Jr.	Glenn S. Smith*
Paul G. Steffes	Madhavan Swaminathan	Emmanouil M. Tentzeris		

ELECTRONIC DESIGN & APPLICATIONS

Phillip E. Allen	Farrokh Ayazi	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.	Linda S. Milor	I. (John) Papapolymerou	Gabriel A. Rincón-Mora	William E. Sayle
John P. Uyemura				

MICROSYSTEMS

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

OPTICS & PHOTONICS

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

SYSTEMS & CONTROLS

John F. Dorsey	Magnus Egerstedt	K.-H. Michael Fan	Bonnie S. Heck	Edward W. Kamen
Gary S. May	A.P. Sakis Meliopoulos	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	Chuanyi Ji	J. Stevenson Kenney
Ye (Geoffrey) Li	Steven W. McLaughlin	Henry L. Owen	Ronald W. Schafer	Raghupathy Sivakumar
Paul G. Steffes	Gordon L. Stüber	Chai-Keong Toh	Erik I. Verriest	Yorai Y. Wardi
Douglas B. Williams				

■ CONTINUING EDUCATION CONFERENCES AND COURSES

During 2001-02, both active and retired ECE faculty members offered and taught 23 sections of courses through the Georgia Tech Distance Learning and Continuing Education Office. Below is a listing of course dates, titles, and ECE-based instructors and administrators; all classes were taught at Georgia Tech's Atlanta campus, unless indicated otherwise. DLCEO-sponsored conferences are also included in this list.

DATE	NAME	INSTRUCTOR / ADMINISTRATOR (A)
August 6-10, 2001 and May 6-10, 2002	<i>CMOS Analog Integrated Circuits</i>	Phillip E. Allen
August 27-31, 2001	<i>Near-field Antenna Measurements and Microwave Holography</i>	Edward B. Joy Location: Boulder, CO
September 11-14, 2001 and May 20-23, 2002	<i>Fault Diagnostics/Prognostics for Equipment Reliability and Health Maintenance</i>	George J. Vachtsevanos
September 17-21, 2001	<i>RF and Wireless Engineering</i>	Robert K. Feeney and David R. Hertling
September 25-27, 2001	<i>Power Distribution System Grounding and Transients</i>	A.P. Sakis Meliopoulos
October 16-19, 2001	<i>Power Systems Relaying: Theory and Application</i>	Miroslav M. Begovic and A.P. Sakis Meliopoulos
November 6-7, 2001	<i>Grounding, Harmonics, and Electromagnetic Influence Design Practices</i>	A.P. Sakis Meliopoulos and George Cokkinides
November 13-15, 2001	<i>Modern Energy Management Systems</i>	A.P. Sakis Meliopoulos
November 16-17, 2001	<i>International Conference on Compilers, Architectures, and Synthesis for Embedded Systems</i>	(A) Krishna V. Palem
December 3-7, 2001	<i>Far-field, Anechoic Chamber, Compact, and Near-field Antenna Measurements</i>	Edward B. Joy
January 26-March 16, 2002	<i>Electrical Engineering: Preparation for the PE Exam</i>	(A) W. Russell Callen, Jr. and William E. Sayle
February 11-April 3, 2002	<i>Fundamentals of Engineering</i>	(A) W. Russell Callen, Jr.
March 1-3, 2002	<i>Wafer Level CSP and Flip Chip Packaging</i>	(A) Rao R. Tummala
March 11-12, 2002	<i>Wireless Local Area Networks</i>	Benny Bing
March 11-14, 2002	<i>Integrated Grounding System Design and Testing</i>	A.P. Sakis Meliopoulos
April 18-19, 2002	<i>EMI, Power Quality, and Safety Workshop</i>	A.P. Sakis Meliopoulos
April 29-30, 2002	<i>Fault and Disturbance Analysis Conference</i>	(A) A.P. Sakis Meliopoulos
May 1-3, 2002	<i>Fifty-sixth Annual Georgia Tech Protective Relaying Conference</i>	(A) A.P. Sakis Meliopoulos
May 28-31, 2002	<i>MEMS Boot Camp</i>	Farrokh Ayazi, Mark G. Allen, and A. Bruno Frazier
June 3-4, 2002	<i>Grounding, Harmonics, and Electromagnetic Influence Design Practices</i>	A.P. Sakis Meliopoulos
June 10-14, 2002	<i>Antenna Engineering, Including Cellular, Mobile, and Portable Antennas</i>	Edward B. Joy, Waymond R. Scott, Jr., and Glenn S. Smith

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ERSONNEL

ACADEMIC PROFESSIONALS, RESEARCH PERSONNEL, AND ADMINISTRATIVE STAFF

One hundred and seventy-nine employees holding academic professional titles, research faculty/personnel titles, and administrative staff titles were employed in ECE during 2001-02. There were 12 terminations and resignations, 37 new hires, 11 promotions, five transfers, and one death. As of June 30, 2002, ECE employed 165 administrative, research, and academic professionals.

ACADEMIC PROFESSIONALS

Jill Auerbach Academic Professional
Christina Bourgeois Lecturer
Leyla Sutcu Conrad Academic Professional
Michael D. Furman Academic Professional
Warren M. Lanier Academic Professional
François J. Malassenet Directeur of Georgia Tech
 Lorraine/Academic Professional
Christopher McGahey Academic Professional
Gail O. Palmer Lecturer
Kathleen Robichaud Senior Academic Professional
Miroslav Velez Instructor
David S. Webb Senior Academic Professional and
 Assistant to the Chair for Computer Support

Comas Haynes Postdoctoral Fellow
Walter Henderson Research Scientist I
Thorsten Hertel Postdoctoral Fellow
Jeffrey Hildreth Research Engineer I
Raymond C. Hill Research Technologist
Jimmie Jones Research Technician II
Admela Jukan Visiting Assistant Professor
Tong-Ho Kim Postdoctoral Fellow
Dong Seop Kim Research Engineer II
Christian Kral Visiting Assistant Professor
Frank C. Lambert Senior Research Engineer
Seock-Hee Lee Postdoctoral Fellow
Ronglin Li Postdoctoral Fellow
Kyutae Lim Research Engineer II
Ching-Lang Lin Research Engineer II
Fuhan Liu Research Engineer I
David Majernik Research Engineer II
Pulugurtha Markondeya-Raj Postdoctoral Fellow
Alexey Maslov Postdoctoral Fellow
Janeen McReynolds Research Engineer I
Sebastien Nuttinck Research Engineer I
Thomas J. Parker Research Technologist II
Shashikant G. Patel Research Engineer II
Stephane Pinel Postdoctoral Fellow
Ashanti Pyrtle Research Scientist II
Mark A. Richards Principal Research Engineer
Caryn Riley Research Engineer II
Catrina Scoglio Research Engineer I
Samuel F. Smith Research Scientist I
W. Whitfield Smith Senior Research Engineer
Paul L. Springer Senior Research Engineer
Harry T. Sullivan Research Scientist I
Venkatesh Sundaram Research Engineer II
Dean A. Sutter Electrical Engineer III
Charles Thomas Research Technician IV
Tuna Tugcu Postdoctoral Fellow
Ajay Uphadhyaya Research Engineer I
Lixi Wan Research Engineer II
George White Senior Research Engineer
Weng-Fei Wong Visiting Assistant Professor
Wei Dong Xiang Postdoctoral Fellow
Kwang Yoon Visiting Professor
Guang Yuan Postdoctoral Fellow

RESEARCH FACULTY/ PERSONNEL

Adriano Batista Postdoctoral Fellow
Abdul Beyah Research Engineer I
Swapan K. Bhattacharya Senior Research Scientist
Benny Bing Research Engineer I
John Bordelon Senior Research Engineer
Stuart Bowden Research Engineer II
Giorgio Casinovi Senior Research Engineer
Thomas C. Champion Research Engineer I
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
Maryann D'Alessandro Postdoctoral Fellow
Richard Dansereau Research Engineer I
Abasifreke U. Ebog Research Engineer II
Alex Z. Goldstein Research Engineer II
Sergei Goupalov Postdoctoral Fellow
Mason Graff Research Scientist I
Joseph Haralson Research Engineer II
Charles Hardnett Research Scientist I
Richard A. Hartlein Senior Research Engineer
Lonnie D. Harvel Senior Research Scientist

Tiejun Zhang Postdoctoral Fellow
Qing Zhou Postdoctoral Fellow

ADMINISTRATIVE STAFF

Nancy L. Baines Administrative Assistant II
Debra Balkcom Accountant I
Harry Beck Director of Operations
Erick Beebe Systems Support Specialist III
Brian Bennett Mechanical Technician I
Margaret Boehme Administrative Assistant I
Margarita Bolet Administrative Coordinator
Robert C. Boozer Business Operations Manager
Louis Boulanger Mechanical Technician III
Thomas E. Brewer Assistant to the Chair
and Laboratory Manager II
Yvonne Bridges Administrative Assistant II
Suzy Briggs Director of ECE
Development-Alumni
Rose Brundage Administrative Assistant I
Lynda D. Buescher Assistant Director for
ECE Personnel Services
Valarie Burnette Senior Accounting Assistant
Dale E. Callaway Research Coordinator II
Mary Jane Chappell Administrative Assistant II
Kathy B. Cheek Administrative Assistant II
Sherrie Cooper Academic Assistant I
Sharon Crouch Assistant Director for ECE Accounting
Marion Crowder Senior Information Specialist
Bethany Davis Program Coordinator II
Wayne Devezin Research Equipment Specialist
Charlotte A. Doughty Administrative Assistant II
Erica Edwards Accountant II
Angela Elleby Academic Advisor I
Christy K. Ellis Administrative Assistant II
Heather L. Emmert-Cudmore Program Coordinator II
Christopher Evans Project Director II
Barry N. Fairley Research Coordinator I
Cordai Farrar Senior Administrative Secretary
Claudia Ford Academic Advisor II
Diana L. Fouts Graphics Specialist
Fabienne Gayet-Berge Program Coordinator II
Kayron C. Gilstrap Administrative Manager I
LaJauna F. Guillory Program Manager
Pamela F. Halverson Administrative Assistant II
Trina Hamlin Web Author
David W. Harwell Research Coordinator I
Sandra Song Hayes Program Manager
Fanchette Hillery Computer Services Specialist III
Robert R. House Electronics Specialist
Richard L. Howell Research Coordinator I
Leslie Hudson Accountant II
Angela Hughes Administrative Manager I
Marcus Johnson Program Manager
Edgar L. Jones Facility and Laboratory Coordinator

Rajib Joshi-Acharya Computer Services Specialist III
Debra B. Kelley Program Manager
Kimberly Keeling Program Coordinator I
Deborah K. King Administrative Assistant II
Rochelle F. Kraehe Administrative Assistant II
Sharon D. Lawrence Academic Assistant II
Angelo Lawton Research Coordinator I
Herbert Lensch Computer Services Specialist II
Bennie Little Program Coordinator II
Kelli Littlefield Program Coordinator II
Eric Logan Computer Services Specialist II
Judith C. Lorier Accounting Manager I
Ephraim Macharia Administrative Assistant I
Keith May Computer Services Specialist III
Elizabeth McDonald Systems Support Specialist I
W. Bruce McFarland Laboratory Coordinator
Thomas McKoon Research Coordinator II
Rachel Melton Web Developer
Doria Moore Accountant III
Marilouise Mycko Academic Advisor II
Janet M. Myrick Administrative Assistant II
Jacqueline L. Nemeth Senior Information Specialist
Linda Newton Administrative Assistant II
Jalisa Norton Program Coordinator II
Lisa Novak Accounting Manager I
Rekha Patel Financial Manager I
Boyd M. Pettitt Research Coordinator II
Sharon Pugh Administrative Assistant II
Gail A. Reeves Program Coordinator II
Mary Render Accountant III
Carl A. Rust Business Operations Manager
Gwendolyn J. Satchel Administrative Assistant II
Jason Seletos Program Coordinator I
Melissa Sherrer Administrative Coordinator
Fred T. Stanley Research Coordinator I
Florence I. Stoia Program Coordinator II
Christine Sun Programmer III
Dean C. Sutter Electronics Technician I
Denise D. Taylor Administrative Assistant II
Selina Tinsley Administrative Secretary
Janet Tippens Information Analyst II
Michael Toole Electronics Technician I
Jacqueline Trappier Records Coordinator II
Nancy Trent Program Coordinator II
Alvis Turner Assistant to the Director
for NEETRAC Operations
Judith Vanderboom Administrative Manager I
Harry L. Vann Director of ECE
Development-Corporate Relations
Darryl Warsham Accountant III
Todd E. Whitehurst Computer Services Specialist IV
Dean Williams Research Coordinator II
Rochelle Y. Williams Accountant III
Suzette Willingham Academic Assistant II
Carla Zachery Accountant III

S STUDENTS

Computer engineering kept its status as one of the fastest growing majors at Georgia Tech and surpassed overall electrical engineering enrollment for the first time during fall 2001. Electrical engineering enrollment dropped slightly from 941 in 2000-01 to 909 in 2001-02, but still remained as a popular choice of study for undergraduate students. The average high school grade point average (GPA) for the incoming ECE freshman class was 3.72, with an average SAT score of 1,352.

The graduate program also continued to expand at a steady pace that was consistent with its growth in the last several years. The average GPA for entering ECE graduate students at their previous institutions was 3.59, with an average GRE score of 1,975.

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 HONORS AND AWARDS

Brian Patrick Boyd received the ECE Junior Scholar Award for having the highest grade point average in his class.

Brian Patrick Boyd and **Jon Perry Entwistle** each received a Henry Ford II Scholar Award for having the best academic records in the College of Engineering at the end of the third year of undergraduate study.

	STUDENT BODY PROFILE (Based on Fall 2001 Enrollment)				DEGREES AWARDED (Summer 2001-Spring 2002)			
		% Women	% African-Americans	Other Minorities*		% Women	% African-Americans	Other Minorities*
STUDENT PROFILE	BSEE	909			BSEE	221		
	BSCmpE	977			BCmpE	109		
	BSCmpE/GTREP	26			BSCmpE (GTREP)	3		
	Total	1,912	11.9%	11.3%	Total	333	12.3%	12.6%
	MS/MSECE	401			MS	66		
	Special	4			MSECE	155		
	PhD	494			PhD	53		
	Total	899	12.3%	6.0%	Total	274	14.6%	5.1%
	Grand Total	2,811			Grand Total	607		

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

Samuel Douglas Chitwood, Michael Chow, Timothy John Cobb, Mohd Wajih Abdul-Jalil El Sallal, Arthur W. Hinson, Matthew Bruce Hortman, Jenfeng Samuel Li, Alan Michaels, Jeffrey Neil Miller, Borka Milosevic, Sylvain Pagerit, Michael Reid, and Christopher Michael Twigg each received an Outstanding ECE Graduate Teaching Assistant Award.

Henrik Bahr Christophersen received Center for the Enhancement of Teaching and Learning (CETL)/Frank Bogle Nontraditional Student Award for his outstanding performance and attitude.

Souvik Dihidar and **Jingnong Yang** each received the Colonel Oscar P. Cleaver Award for receiving the highest scores on the doctoral preliminary examination.

Carlos Alberto Do Mato, Stephen Halbgewachs, and Chung-Tse Mar each received the ECE Senior Scholar Award for having the highest academic averages in their class.

Jon Perry Entwistle received the Outstanding ECE Sophomore Award for having the highest scholastic average in his class.

Bryce Landon Gantt and **Jay Silver** received the International Engineering Consortium/William L. Everitt Student Awards of Excellence for their outstanding academic records.

Melanie Garrick and **Alantria Harris** received Georgia Tech Women's Forum Scholarships for their outstanding academic performances.

Yevgeny Germanovich received a Georgia Tech Faculty Women's Club Scholarship for his outstanding academic achievement.

Mehdi Javanmard received the ECE Undergraduate Research Award for demonstrating an unusually strong aptitude for research.

Michelle Middleton was chosen for the Most Outstanding ECE Senior Co-op Award from a set of nominees considered by their co-op employers to be the most outstanding co-op employees in their companies.

Shane Owens received an Alumni Association Student Leadership Award for International Study for his outstanding leadership abilities and for demonstrating significant potential for leadership as a future alumnus.

Michael Reid received one of the CETL/BP Foundation Graduate Teaching Assistant Teaching Excellence Awards for his outstanding service and his positive impact toward the instructional mission of Georgia Tech. Mr. Reid also received the ECE Teaching Assistant Excellence Award for his outstanding instructional performance.

Andrew Neil Stein received the Phi Kappa Phi Scholarship Cup for having the most outstanding scholastic record in the entire Georgia Tech graduating senior class. Mr. Stein also received the Outstanding ECE Senior Award for having a very high scholastic average and his active role in extracurricular activities.

Rangarajan Tallam received the Outstanding ECE Ph.D. Thesis Award for producing the thesis that represents innovative ideas that could have significant impact on the fields of electrical engineering and computer engineering.

Alexandru Talpasanu received the Outstanding Service to Georgia's Community Award for advising students at Atlanta's Inman Middle School in programming and robotics and for organizing the First LEGO League Pilot Robotic Competition, which involved 10 Georgia middle schools

Catherine Ann Thorn received the Faculty Award, School of ECE for being the student who, in the opinion of the ECE faculty, has done the most to improve the educational environment within the School or the Institute and who has contributed significantly to both student welfare and student-faculty interactions.

G.K. Venayagamoorthy received a Best Poster Paper Award for "Experimental Studies with Continually Online Trained Artificial Neural Network Identifiers for Multiple Turbogenerators on the Electric Power Grid," at the 2001 International Joint Conference on Neural Networks. His Ph.D. advisor is Ronald G. Harley.

■ PH.D. STUDENTS GRADUATED

Fifty-three students graduated with their doctoral degrees in 2001-02. The students are listed in this section, along with their advisors, graduation dates, thesis titles, and current places of employment.

Mutlu Arpacı—Advisor: Copeland—Fall 2001
Thesis: Congestion Avoidance in TCP/IP Networks
Current Status: Employed as a system architect with Paceon Corp. in Duluth, Ga.

Blanca Austin—Advisor: Meindl—Summer 2001
Thesis: Performance Analysis and Scaling Opportunities of Bulk CMOS Inversion and Accumulation Devices
Current Status: Not employed at this time.

Ganesh Balachandran—Advisor: P. Allen—Fall 2001
Thesis: A Switched-current Filter in Digital-CMOS Technology with Low Charge-injection Errors
Current Status: Employed with Analog Devices in Research Triangle Park, N.C.

David Barlow—Advisor: Owen—Spring 2002
Thesis: Router-based Traffic Engineering in MPLS/Diffserv/HMIP Radio Access Networks
Current Status: Employed as an assistant professor in the Department of Electrical Engineering and Computer Science at the U.S. Military Academy in West Point, N.Y.

Brent Buchanan—Advisor: Brooke—Summer 2001
Thesis: A Mixed Signal CMOS VLSI Image Convolution Circuit Using Error Spectrum Shaping
Current Status: Employed as a principal design engineer at Philips Semiconductor in Duluth, Ga.

Lawrence Carastro—Advisor: Brooke—Spring 2002
Thesis: Predictive Statistical Analysis of Embedded Meander Resistors via Measurement of Canonical Building Blocks
Current Status: Employed as a principal design engineer at Philips Semiconductor in Duluth, Ga.

Yi-Jan Emery Chen—Advisor: Laskar—Summer 2001
Thesis: Development of Integrated RF CMOS Power Amplifiers for Wireless Communications
Current Status: Employed at National Semiconductor in Atlanta, Ga.

Sasikumar Cherubal—Advisor: Chatterjee—Spring 2002
Thesis: Fault Isolation and Diagnosis Techniques for Mixed-signal Circuits
Current Status: Employed as a principal engineer at Ardext Technologies in Tucson, Ariz.

Hyung-Kee Choi—Advisor: Copeland—Summer 2001

Thesis: Measurement Characterization and Modeling of World Wide Web Traffic
Current Status: Employed as a research engineer at Lancope, Inc. in Alpharetta, Ga.

Liang Chu—Advisor: Brooke—Fall 2001
Thesis: ADSL System Enhancement with Multiuser Detection
Current Status: Employed at IBM in Yorktown Heights, N.Y.

Sungjun Chun—Advisor: Swaminathan—Spring 2002
Thesis: Methodologies for Modeling Simultaneous Switching Noise in Multi-layered Packages and Boards
Current Status: Employed as a staff engineer at IBM in Austin, Tex.

David Coe—Advisor: M. Allen—Spring 2002
Thesis: Fabrication Technology Approaches to Micromachined Synthetic Jets
Current Status: Employed as an assistant professor at the University of Alabama at Huntsville in Huntsville, Ala.

Maryann D'Alessandro—Advisor: Benkeser—Fall 2001
Thesis: Utility of Intracranial EEG Feature and Channel Synergy for Evaluating the Spatial and Temporal Behavior of Seizure Precursors
Current Status: Employed as a postdoctoral fellow in the School of Electrical and Computer Engineering at Georgia Tech in Atlanta, Ga.

Subrato De—Advisor: Madisetti—Spring 2002
Thesis: Design of a Retargetable Compiler for Digital Signal Processors
Current Status: Employed as vice president for Software Platforms at VP Technologies, Inc. in Marietta, Ga.

Eylem Ekici—Advisor: Akyildiz—Spring 2002
Thesis: Routing and Multicasting in Satellite IP Networks
Current Status: Employed as an assistant professor in the Department of Electrical and Computer Engineering at Ohio State University in Columbus, Ohio.

Yun-Hui Fan—Advisor: Mersereau/Madisetti—Spring 2002
Thesis: A Stereo Audio Coder with a Nearly Constant Signal to Noise Ratio
Current Status: Seeking employment.

Wenzhong Gao—Advisor: Meliopoulos—Spring 2002
Thesis: New Methodology for Power System Modeling and Its Application in Machine Modeling and Simulation
Current Status: Employed as a research assistant professor in the Department of Electrical Engineering at the University of South Carolina in Columbia, S.C.

Raymond Garcia—Advisor: Copeland—Summer 2001
Thesis: A Soft Computing Approach to Anomaly Detection with Real-time Capability
Current Status: Employed as a consultant with Scientific-Atlanta in Lawrenceville, Ga.

Antonio Ginart—Advisor: Habetler—Summer 2001
Thesis: Single Ended Switching Analog Audio Amplifier with Dead Zone
Current Status: Employed as an associate professor in the Department of Electrical Engineering at Universidad Simon Bolivar in Caracas, Venezuela.

Thorsten Hertel—Advisor: G. Smith—Fall 2001
Thesis: Analysis and Design of Conical Spiral Antennas in Free Space and Over Ground
Current Status: Employed as an antenna design engineer at Time-Domain Corp. in Huntsville, Ala.

Scott Hrstar—Advisor: Copeland—Fall 2001
Thesis: An Available Bit-rate Service Class for Multicast IP Transport over Satellite Using Online Measurement and Wavelet Based Predictive Bandwidth Allocation
Current Status: Not known.

Muhammad Ikram—Advisor: Zhou—Fall 2001
Thesis: Multichannel Blind Separation of Speech Signals in a Reverberant Environment
Current Status: Employed as a systems engineer at Texas Instruments in Dallas, Tex.

Isara Indra—Advisor: Mersereau—Spring 2002
Thesis: Very Low Bit Rate Video Coding Using Adaptive Nonuniform Sampling and Matching Pursuit
Current Status: Employed at Texas Instruments in Dallas, Tex.

Amos Johnson—Advisor: Bobick—Spring 2002
Thesis: A Method for Human Identification Using Static Activity-specific Parameters
Current Status: Employed as a postdoctoral fellow in the College of Computing at Georgia Tech in Atlanta, Ga.

Sungyong Jung—Advisor: Brooke—Spring 2002
Thesis: A High dI/dt CMOS Differential Optical Driver for a Laser Diode
Current Status: Employed at Quellan in Atlanta, Ga.

Sun Wook Kang—Advisor: Meliopoulos—Fall 2001
Thesis: A New Approach for Power Transaction Evaluation and Transfer Capability Analysis
Current Status: Employed with American Transmission Company in Michigan.

Noppadon Khipiret—Advisor: Vachtsevanos—Summer 2001
Thesis: An Architecture for Intelligent Time Series Prediction with Causal Information
Current Status: Employed with the National Electronics and Computer Technology Center in Raj-thevi, Bangkok, Thailand.

Jeongwook Kim—Advisor: Hertling—Fall 2001

Thesis: Genetic Algorithms for Smart Embedded Systems

Current Status: Employed as a senior system engineer with Proceler, Inc. in Atlanta, Ga.

Bernd Koehler—Advisor: Owen—Spring 2002

Thesis: Best-effort Traffic Engineering in Multiprotocol Label Switching Networks

Current Status: Employed as an assistant professor in the Department of Electrical Engineering and Computer Science at the U.S. Military Academy in West Point, N.Y.

Chang-Ho Lee—Advisor: Laskar—Summer 2001

Thesis: Design and Implementation of a Ku-band Transmitter for Satellite Communication Applications

Current Status: Employed as a senior design engineer at RF Solutions in Norcross, Ga.

Sang-Bin Lee—Advisor: Habetler—Summer 2001

Thesis: Sensorless Stator Winding Temperature Estimation for Induction Machines

Current Status: Employed as a research engineer at General Electric Company in Niskayuna, N.Y.

Seung-Ho Lee—Advisor: Scott—Spring 2002

Thesis: Measurement of Time-varying Surface Displacement Using a Radar

Current Status: Employed at the Research and Development Division of High Gain Antenna Company, Ltd. in Ansan City, Kyung-Ki-Do, South Korea.

Worayot Lertniphonphun—Advisor: McClellan—Summer 2001

Thesis: Unified Design Procedure for Digital Filters in the Complex Domain

Current Status: Employed at Cicada Semiconductor in Austin, Tex.

Hongwei Liang—Advisor: Laskar—Fall 2001

Thesis: Development of Microwave and Millimeter-wave Pin Grid Array and Ball Grid Array Packages

Current Status: Employed as a senior engineer at Multilink Technology Corp. in Somerset, N.J.

Anh Nguyen—Advisor: Ingram—Spring 2002

Thesis: Concatenated Space-time Coding for Wireless Systems

Current Status: Employed as a senior technical staff member in the Product System Engineering Division of TRW Space and Electronics Group in Redondo Beach, Calif.

Seung-Mok Oh—Advisor: McClellan—Fall 2001

Thesis: Iterative Space-time Domain Fast Multiresolution SAR Imaging Algorithms

Current Status: Employed with Texas Instruments in Dallas, Tex.

Tien Pham—Advisor: P. Allen—Fall 2001

Thesis: Low-power, High-accuracy, and Fast Tuning Integrated Continuous-time 450-KHz Bandpass Filter

Current Status: Employed as a design engineer at National Semiconductor in Tucson, Ariz.

David Peters—Advisor: Hunt—Summer 2001

Thesis: Design of Diffractive Optical Elements through Low-dimensional Optimization

Current Status: Employed as a postdoctoral fellow at Sandia National Laboratories in Albuquerque, N.M.

Catalin Popescu—Advisor: Kamen—Fall 2001

Thesis: Modeling and Control of Extrusion Coating

Current Status: Employed as a staff scientist at RETEK, Inc. in Atlanta, Ga.

Tami Randolph—Advisor: M. Smith—Summer 2001

Thesis: Image Compression and Classification Using Nonlinear Filter Banks

Current Status: Employed as a senior member of technical staff at Northrop Grumman Information Technology TASC in Chantilly, Va.

John Rodgers—Advisor: Kenan—Fall 2001

Thesis: Self-guiding in a Multimode Interference Device

Current Status: Employed at Microcoating Technologies, Inc. in Chamblee, Ga.

Jordan Rosenthal—Advisor: Mersereau—Summer 2001

Thesis: Filters and Filterbanks for Hexagonally Sampled Signals

Current Status: Employed as a technical staff member at MIT Lincoln Labs in Lexington, Mass.

Christoph Schroder—Advisor: Scott—Summer 2001

Thesis: On the Interaction of Elastic Waves with Buried Land Mines: An Investigation Using the Finite-difference Time-domain Method

Current Status: Employed as a research scientist at Philips Research Laboratories in Hamburg, Germany.

Mario Simoni—Advisor: DeWeerth—Spring 2002

Thesis: Synthesis and Analysis of a Physical Model of a Biological Rhythmic Motor Control with Sensorimotor Feedback

Current Status: Employed as an assistant professor in the Department of Electrical and Computer Engineering at Rose-Hulman Institute of Technology in Terre Haute, Ind.

Daniela Staiculescu—Advisor: Laskar—Summer 2001

Thesis: Design Rules for RF and Microwave Flip Chip

Current Status: Employed as a senior engineer at RF Solutions in Norcross, Ga.

Rangarajan Tallam—Advisor: Habetler—Fall 2001

Thesis: Current-based Sensorless Detection of Stator Winding Turn Faults in Induction Machines

Current Status: Employed as a research engineer at Rockwell Automation in Milwaukee, Wis.

Ramakrishna Voorakaranam—Advisor: Chatterjee—Spring 2002

Thesis: Signature Based Testing of Analog and RF Circuits

Current Status: Employed as a principal engineer at Ardext Technologies in Tucson, Ariz.

Wenye Wang—Advisor: Akyildiz—Spring 2002

Thesis: Location Management Techniques for Next Generation Wireless Systems

Current Status: Employed as an assistant professor in the Department of Electrical and Computer Engineering at North Carolina State University in Raleigh, N.C.

Wei-Chung Wu—Advisor: Habetler—Fall 2001

Thesis: On-chip Charge Pumps

Current Status: Employed as a design engineer at Texas Instruments in Dallas, Tex.

Xiaozheng Zhang—Advisor: Mersereau—Spring 2002

Thesis: Automatic Speechreading for Improved Speech Recognition and Speaker Verification

Current Status: Seeking employment

Qing Zhou—Advisor: Keezer—Summer 2001

Thesis: Test Support Processor for Enhanced Testability of High Performance Integrated Circuits

Current Status: Employed as an optical engineer at Cirrex Corp. in Alpharetta, Ga.

■ STUDENT ORGANIZATIONS

Students are the lifeblood of ECE. The IEEE student branch, Eta Kappa Nu, and the ECE Student Advisory Council play very important roles by providing students with opportunities for personal and professional development. These groups also provide valuable input to the School's faculty and administrators regarding student issues and concerns.

During 2001-02, the IEEE National Headquarters named the Georgia Tech student branch of IEEE as the number one student branch in the U.S. The IEEE student members host seminar speakers from various companies and organizations on a weekly basis, and they sponsor a Student-Professional Awareness Conference each spring. They also participate in numerous competitions and conferences on the national and international levels.

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 the School's affairs, the ECE Student Advisory Council meets with ECE administrators and the ECE Advisory Board on a regular basis.

2001-02 IEEE STUDENT BRANCH OFFICERS

Catherine Thorn	<i>Chair</i>
Nasir Barday	<i>Vice Chair, Internal Relations</i>
Chris Wiczorek	<i>Vice Chair, External Relations</i>
Eric Clopper	<i>Treasurer</i>
Jared Summers	<i>Secretary</i>

2001-02 ETA KAPPA NU OFFICERS

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

2001-02 ECE STUDENT ADVISORY COUNCIL

Allison Laurel Amis
Shannon Brenner
Matthew Bryan
Arica Carter
Faye Charles
Daniel Collins
Douglas DesCamps
David Ewing
Suzanne Fike
Melissa Gravely
Kenneth Grove
Miguel Lopez
Elliot Moore
Luis Guillermo Salas
Andrew Neil Stein
Catherine Thorn
Richard Walls

A

CADEMIC OPERATIONS

■ UNDERGRADUATE INSTRUCTIONAL OPERATIONS

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

During 2001-02, ECE undergraduate enrollment exceeded 1,800 students on the Atlanta campus, with the majority of the School's entering first-year students choosing computer engineering as a major. Computer engineering also had a higher enrollment among second-year students, while electrical engineering enrollment was higher on the fourth-year student level and at the same level as computer engineering among third-year students. GTREP produced its first three graduates during this past academic year.

The ECE faculty continued preparations for upcoming evaluations by the Engineering Accreditation Commission (EAC) of ABET in 2002 and by the Southern Association of Colleges and Schools in 2003. Georgia Tech's EAC/ABET accreditation will be one of the first visits conducted for the second time under the new accreditation criteria (formerly known as EC 2000).

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



Students building remote-controlled cars

Graduate student inspecting molecular materials

ECE Graduate Office staff receive GTEAM awards

were required to meet on a regular basis to coordinate course material. This coordination was especially critical for ECE 2030, as 25 sections of this required course were offered during 2001-02. Coordination of programs assessment was enhanced by the addition of Jill Auerbach to the ECE staff as an assessment coordinator and academic professional.

William E. Sayle and Joseph L.A. Hughes continue to serve as associate chair for ECE Undergraduate Affairs and associate chair for Computer Engineering and Program Development, respectively. Claudia Ford, Angela Elleby, and Associate Chair Emeritus Tom White continue to advise students on a daily basis. In spring 2002, Janet Tippens joined the Undergraduate Affairs Office as an information analyst, where she is responsible for maintaining Banner schedules and reporting.

■ GRADUATE INSTRUCTIONAL OPERATIONS

During FY 2002, the ECE Graduate Affairs Office continued its quest to deliver its services more efficiently and effectively, as it processed over 5,000 pre-applications and handled 1,000 actual applications to the ECE program. David R. Hertling, associate chair for ECE Graduate Affairs, and Marilouise Mycko, academic advisor, advise all students and oversee proper documentation of student progress through master's and doctoral programs. Jacqueline Trappier and Suzzette Willingham serve as records coordinator and academic assistant, respectively, and Sherrie Cooper, also an academic assistant, works with both the graduate and undergraduate offices. These personnel are responsible for recruitment, admission, financial support, advisement, and record keeping. They also work in tandem with the ECE Graduate Committee and the ECE Graduate Student Recruitment Committee to enact sound academic policies and to attract high quality master's and doctoral students to the program.

The ECE 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.

In recognition of their hard work and dedication, Dr. Hertling was honored with the 2002 ECE Outstanding Service Award and the ECE Graduate Affairs Office staff members were awarded the 2002 ECE GTEAM Performance Award at the first annual ECE Awards Program, which was held in April 2002.

■ INTERNATIONAL STUDY OPPORTUNITIES

GEORGIA TECH LORRAINE

During 2001-02, Georgia Tech Lorraine (GTL) celebrated its 10th anniversary as Georgia Tech's platform into Europe and was awarded the 2001 Best Initiative Prize within the Trophées de la Nouvelle Economie. A non-profit corporation operating under French law, GTL's four areas of emphasis are graduate education, sponsored research, undergraduate summer education, and continuing education.

Located in Metz, France, GTL offers undesignated master's degrees, master's degrees in either electrical and computer engineering or mechanical engineering, and Ph.D. degrees in both disciplines. Total fall 2001 enrollment was 157, and total spring 2002 enrollment was 162. Cooperative agreements with local partner institutions enable students to pursue double degree programs in engineering and sciences, in addition to degrees from Georgia Tech. Upon successful completion of these highly innovative and integrated programs, students are awarded master's degrees from Georgia Tech and graduate diplomas from a partner institution.

The Binôme Program, a double-degree graduate program and an industry-university partnership between the U.S. and France, allows two-member, Franco-American student teams to immerse themselves in the other country's culture through an industrial internship and academic study. The sponsoring company places the American student on work assignment in France, and then the same company places a French student to work at one of its locations in the U.S. For the American student, the program begins with two consecutive semesters of study at GTL and then the student spends three months working for a French company. The program then concludes with a final semester of study at one of the partner institutions. The French half of the Binôme Program begins with a semester of study at one of the partner institutions, followed by a semester at GTL. The French student then travels to the U.S. to complete the program with a three-month internship and a final semester of study at the Georgia Tech-Atlanta campus.

GTL also offers a 10-week-long, undergraduate summer program that includes courses in architecture; electrical engineering; computer engineering; economics; French; industrial and systems engineering; history, technology, and society; mechanical engineering; and management. One hundred and eighteen students registered for the summer 2001 program, and 104 students registered for the summer 2002 program. To help the students take full advantage of this unique experience, Catherine Bass, an instructor of French in the Georgia Tech Department of Modern Languages, presented a series of non-credit, no-cost seminars on French language and "savoir-vivre" on the Georgia Tech-Atlanta campus during the spring 2002 semester. The GTL summer students also had ample time to savor the country's rich culture and history by travelling on their own during the weekends, as well as on organized excursions to the French cities of Nancy and Verdun and to specific sites in Metz.

Hans 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, while Josyane Roschitz and Marie-Pierre Delaleux serve as program coordinator and assistant to the directeur, respectively, at the GTL campus in France.

OXFORD STUDY ABROAD/PACIFIC STUDY ABROAD

The Oxford Study Abroad Program and Pacific Study Abroad Program are two unique academic and cultural experiences. Arthur Koblasz serves as Oxford's program director; Heather Emmert-Cudmore and Jason Seletos serve as its program coordinators.

Taking place during the spring semester, the Pacific Study Abroad Program allows students to take courses in biology, engineering, management, humanities, and social sciences. Coursework is taught at Melbourne University and Victoria University, which are both located in Australia. Students also visit New Zealand, Hong Kong, Japan, The Cook Islands, and Fiji. The 2001-02 Australia program had an enrollment of 85.

Coursework for the Oxford Study Abroad Program is taught primarily at Oxford University during the summer semester, and students also choose from one of three travel itineraries in continental Europe. The program offers classes in engineering, architecture, management, music, and social sciences and the humanities. Students take four three-hour courses, two while travelling throughout continental Europe and two while at Worcester College, which is one of the colleges located at Oxford University. The 2001-02 Oxford program had an enrollment of 146 students.

E XTERNAL AFFAIRS

The following honors were awarded to ECE alumni at the College of Engineering Awards Ceremony, which was held in November 2001.

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. One ECE alumnus received this award.

Stephen L. Johnson, B.E.E. '48, M.S.E.E. '49
Retired, U.S. Army
Huntsville, Ala.

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. Seven ECE alumni received this award.

Stephen B. Alexander, B.E.E. '81, M.S.E.E. '82
Senior Vice President & CTO
CIENA Corporation
Millersville, Md.

Jésus Leon, A.B.D. '74
Senior Vice President, Transport Products & Technology
CIENA Corporation
Linthicum, Md.

Janet G. Davidson, M.S.E.E. '79
Switching Solutions & InterNetworking Systems Group
Lucent Technologies, Inc.
Murray Hill, N.J.

William Y. McCaslin, Jr., B.E.E. '63
Pruitt McCaslin Inc.
Melbourne, Fla.

Fred L. Kitson, M.S.E.E. '75
Hewlett Packard Labs
Palo Alto, Calif.

Howard A. Thrailkill, B.E.E. '61
President & COO
ADTRAN
Huntsville, Ala.

John P. Lappington, B.E.E. '66
Vice President, Cable Products
Broadcom
Duluth, Ga.

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. Three ECE alumni received this award.

Michael Kluber, B.E.E. '87
President
Kluber Engineering & Architecture
Batavia, Ill.

Thomas J. Quigley, B.E.E. '84
Senior Director
Broadcom
Franklin, N.C.

Joseph L. Lias, M.S.E.E. '83
President & COO
Carina Networks
Atlanta, Ga.

■ GEORGIA TECH FOUNDATION GRANTS AND GIFTS

During FY 2002, corporate and individual donors contributed \$7,348,279.72 to ECE through the Georgia Tech Foundation. The table in the middle of the page shows the amount of funds designated for specific categories.

COMPANIES

3E Technologies International	Intersil, Inc.	<table border="1"> <thead> <tr> <th>GIFT CATEGORY</th> <th>TOTAL</th> </tr> </thead> <tbody> <tr> <td>Equipment</td> <td>\$5,595,100.87</td> </tr> <tr> <td>Faculty Support</td> <td>660,814.01</td> </tr> <tr> <td>Fellowships</td> <td>257,291.66</td> </tr> <tr> <td>General Support</td> <td>225,480.18</td> </tr> <tr> <td>Memberships</td> <td>559,500.00</td> </tr> <tr> <td>Student Support</td> <td>50,093.00</td> </tr> <tr> <td>Grand Total</td> <td>\$7,348,279.72</td> </tr> </tbody> </table>	GIFT CATEGORY	TOTAL	Equipment	\$5,595,100.87	Faculty Support	660,814.01	Fellowships	257,291.66	General Support	225,480.18	Memberships	559,500.00	Student Support	50,093.00	Grand Total	\$7,348,279.72
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Advanced Micro Devices, Inc.	John Wiley and Sons, Inc.																	
Agilent Technologies	Lucent Technologies																	
Amdahl Corporation	Lutech France																	
Analog Devices, Inc.	MEMS Optical, Inc.																	
Appalachian Electronic Instruments, Inc.	Matsushita Communication Industrial Corporation																	
Arris Interactive	Microcoating Technologies																	
Broadcom Corporation	Microsoft Corporation																	
Conexant Systems	Motorola, Inc.																	
Cypress Semiconductor Corporation	NCR Corporation																	
Docomo Communications Labs	National Semiconductor Corporation																	
EG Technology, Inc.	NeuroPace, Inc.																	
EMS Technologies, Inc.	Raytheon Company																	
Eaton Corporation	Schlumberger RMS, Inc. - Services USA																	
ExxonMobil Corporation	Schlumberger Well Service																	
Ford Motor Company	Siemens AG																	
FoxKiser and FoxKiser Development	Siemens Electronics Assembly Systems																	
Hewlett-Packard Company	Strategic Analysis, Inc.																	
Hitachi, Ltd.	Telcom Network Optimization																	
Hitachi Telecom USA	Texas Instruments, Inc.																	
Hughes Network Systems	Thomson Multimedia, Inc.																	
IBM Corporation	Triad Engineering																	
Integrated Device Technology, Inc.	Troxler Electronic Laboratories, Inc.																	
Intel Corporation	Verizon Communications, Inc.																	
Intelligent Automation Systems																		

PROFESSIONAL, RESEARCH, AND ACADEMIC ORGANIZATIONS

American Society for Engineering Education SRC Education Alliance The John and Mary Franklin Foundation, Inc.

FOUNDATIONS/NON-PROFIT ORGANIZATIONS

Community Foundation for Greater Atlanta Netherlands-America Community Trust Procter and Gamble Fund
St. Mark United Methodist Church The Dow Chemical Company Foundation

INDIVIDUALS

Suzy Briggs	James Franklin Johnston, Jr. PE	Chris E. Puckett
Michael D. Burtz	Edward W. Kamen	Hans B. Püttgen
Donald Allan Cope	Erica A. Kronen	Thomas J. Quigley
Sharon Crouch	Thomas R. Lee	William E. Sayle
Howard G. Dean, Jr.	Judith Lorier	William Frank Stembridge
Thomas Allbright Edwards	Kathleen A. Lubke	Charles Meade Sutterfield
Jerome Eric Estoye	Kenneth E. MacKenzie	Kristin S. Turgeon
Arthur R. Frederick	Joseph E. Mayes, Jr.	Harry L. Vann
Thomas K. Gaylord	Douglas W. Olsen	Sumner L. Wayne
Richard J. Higgins	Elsie E. Paris	Roger P. Webb
Gerald N. Hill, Sr.	John B. Peatman	Monroe J. Willner
Steven Daniel Hurst	John W. Pope	

■ ECE ADVISORY BOARD

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

During the last year, two ECE Advisory Board members relinquished their positions with the group, but they still remain active in ECE and Georgia Tech interests. James R. Carreker now serves on the Georgia Tech Advisory Board, while R.M.G. Frame is on the College of Engineering Advisory Board.

On a somber note, ECE wishes to remember Richard A. Snelling, who died in November 2001, and his service to the ECE Advisory Board from 1988 until the time of his death. Mr. Snelling's tenure as the first director for the Georgia Center (now Centers) for Advanced Telecommunications Technology (GCATT) spurred a flurry of activity in telecommunications, optics, and information technology throughout the 1990s for ECE, Georgia Tech, the metro Atlanta area, and the State of Georgia. His insight and expertise were key to many early successes at Georgia Tech that have paved the way toward the creation of today's telecommunications initiatives, such as Yamacraw and the Georgia Tech Broadband Institute.

Three new members joined the ECE Advisory Board in 2001-02. Hal Calhoun, partner of Menlo Ventures, and Thomas J. Quigley, senior director of Broadcom, joined the Board in fall 2001. Jim Maran also became a member; he is retired from Motorola, but still works as a consultant. In addition to his activity with the ECE Advisory Board, Mr. Maran is heavily involved with the Yamacraw Research Center Committee, which is charged with the strategic planning for Yamacraw research to continue with supplemental funding, once state support is reduced.

The 2001-02 advisory board members and their company affiliations are listed below.

Rodney Adkins

IBM
Somers, N.Y.

C. Dean Alford

Chair, ECE Advisory Board
Allied Utility Network
Conyers, Ga.

Antonio R. Alvarez

Cypress Semiconductor
San Jose, Calif.

Michael B. Bartlett

Texas Instruments, Inc.
Dallas, Tex.

Hal Calhoun

Menlo Ventures
Menlo Park, Calif.

Steve W. Chaddick

CIENA Corporation
Alpharetta, Ga.

Michael A. Coleman

Winter Garden, Fla.

H. Allen Ecker

Scientific-Atlanta, Inc.
Lawrenceville, Ga.

Scott Madigan

IAMBA Technologies, Inc.
Alpharetta, Ga.

Jim Maran

Consultant
Lawrenceville, Ga.

Michael R. McQuade

DuPont Company
Wilmington, Del.

Shirley Mewborn

Marietta, Ga.

Joe Neel

ON Semiconductor
Phoenix, Ariz.

E. Jock Ochiltree

Cirrus Logic, Inc.
El Dorado Hills, Calif.

Randall E. Poliner

Antares Capital Corporation
Melbourne, Fla.

John W. Pope

Southern Company Services
Birmingham, Ala.

Thomas J. Quigley

Broadcom Corporation
Franklin, N.C.

Richard Snelling (Deceased)

Home Wireless, Inc.
Norcross, Ga.

C. Meade Sutterfield

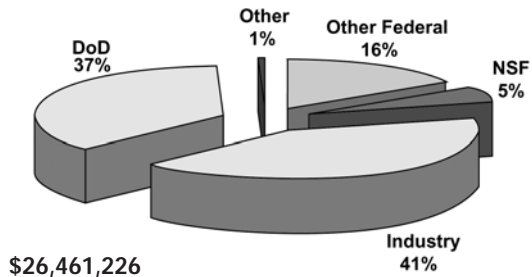
SSPCS Corporation
Atlanta, Ga.

F INANCIAL

RESEARCH FUNDING

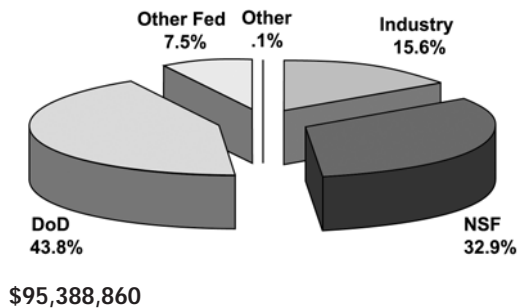
ECE faculty members acquired a record-breaking \$26,461,226 in research grants and contracts during the last fiscal year. This total represents 32 percent of the research funding in the College of Engineering, 16 percent of the research funding for the Georgia Tech academic units, and 9 percent of the entire Institute, including the academic units and the Georgia Tech Research Institute.

RESEARCH GRANTS AND CONTRACTS



ECE faculty members submitted 235 proposals to external agencies during FY 02 for \$95,388,860.

RESEARCH PROPOSALS SUBMITTED



FINANCIAL OPERATIONS

Financial Summary (FY 2001 Initial Allocation)

PERSONAL SERVICES

Salaries and Wages

Faculty	\$12,352,657
Summer Faculty	1,462,956
Graduate Assistants	7,275,751
Exempt Staff	4,394,242
Bi-weekly Staff	613,901
Others	75,924
Student Assistants	500,604
SUBTOTAL	\$26,676,035

Fringe Benefits\$4,695,354

TOTAL PERSONAL SERVICES **\$31,371,389**

NON-PERSONAL SERVICES

Travel\$1,074,914

Operating Expenses

Motor Vehicle Expense	\$8,588
Supplies & Materials	3,012,734
Repairs & Maintenance	256,571
Utilities	178,399
Rents	78,029
College Work Study	2,608
Other Operating Expenses	528,810
Software	304,251
Publications & Printing	55,537
Non-inventory Equipment	274,379
Transfers	6,123
Real Estate Rentals	74,215
Per Diem & Fees	80,689
Contracts	2,204,521
Telecommunications Data	9,399
Telecommunications	360,491
Fellowships	54,000
Stipends	48,000
Matriculation	706,491
Other Disbursements	2,155,081
SUBTOTAL	\$10,398,916

Equipment\$5,762,774

TOTAL NON-PERSONAL SERVICES **\$17,236,604**

INDIRECT EXPENSES **\$5,628,471**

TOTAL EXPENSES FOR ECE **\$54,236,464**

CONTACT INFORMATION

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404.894.2932	Associate Chair for Graduate Affairs, David R. Hertling
404.894.4740	Associate Chair for Undergraduate Affairs, William E. Sayle
404.894.2930	Associate Chair for Computer Engineering and Program Development, Joseph L.A. Hughes
404.894.2927	Associate Chair for External Affairs, Hans B. Püttgen
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404.894.3058	Director for Computer Enhanced Education, Lonnie D. Harvel
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404.894.7574	Human Resources, Lynda D. Buescher
404.894.4025	Development-Corporate, Harry L. Vann
404.894.5210	Development-Alumni, Suzy Briggs
404.894.2906	Public Relations, Jacqueline L. Nemeth

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