ECE’s Undergraduate Program: Education Redefined for the 21st Century

With its consistent top national rankings in news and business publications and in surveys of professional engineers, the School of Electrical and Computer Engineering (ECE) has become a benchmark program, standing solidly beside traditional giants such as MIT, the University of California at Berkeley, and Stanford University. It would be natural to attribute its solid reputation to the caliber of the faculty and to the breadth and depth of the academic curriculum. Although these factors represent the core of the School’s strength, they tell just a part of ECE’s success story, as its undergraduate programs enable its students to be dynamically engaged with the world outside the classroom through research, work, and travel.

“Undergraduate research gives our students an early taste of how exciting it can be to work side by side with faculty in applying their engineering knowledge to actual problems.” — Douglas B. Williams

The primary venue for undergraduate research at ECE is the Undergraduate Research Opportunities Program (UROP), which is designed to engage upper level students in research projects with ECE faculty members while earning course credit. Over a third of ECE’s students participate in this program. UROP gives students an early taste of what academic research is. By its very nature, research is exploratory and solutions are uncertain,” said Bonnie S. Heck, a professor in systems and controls. “This differs from classroom projects where problems are well defined, methodologies for solving problems are straightforward, and results are predictable. UROP is especially beneficial for students who are considering graduate school.”

“The Co-Op Program embeds a real-world context into the student’s entire undergraduate experience, and molds engineers who graduate, ready to seamlessly enter the workforce.” — Harold Simmons

Georgia Tech’s Cooperative Education Program is a five-year academic program in which students alternate between semesters of full-time study and semesters of full-time work. Tech’s co-op experience is the largest totally optional program in the nation and has been listed in U.S. News & World Report as a “Top Ten” program for three consecutive years. As an integral part of their overall undergraduate education, the intent of this program is to offer students increasing levels of responsibility in their work assignments as they progress in their academic studies. “Students who enter this program get very serious about their education, as we see grades improve as they gain direct insights into where this is all taking them,” said Mr. Simmons.

In addition to the nearly 550 ECE students participating in the co-op program, 300 more students are engaged in paid internships that are also directly related to electrical and computer engineering, bringing the net of ECE students engaged in related work to nearly half of the undergraduate student body.

“International study programs are an essential ingredient to the education of engineers who will be effective players in the global marketplace of the 21st Century.” — Hans B. Pulstgen

President, Georgia Tech Lorraine

Georgia Tech’s strategic plan stresses the importance of preparing students for lifelong engagement in an international setting and of imparting an awareness and appreciation for cultural and linguistic differences around the world. ECE has played a major role in realizing this educational vision through the summer program offered for the past six years at Georgia Tech Lorraine (GTL), located in Metz, France, and through study abroad programs in England, New Zealand, Australia, and most recently in Shanghai.

Next year, GTL will introduce a new Undergraduate International Program for junior-level students in electrical engineering, computer engineering, mechanical engineering, and industrial and systems engineering. Participating students will spend two semesters in Metz, taking some coursework taught in French at a French engineering school. Howard Rollins, director of Tech’s Office of International Education said, “Our intent is to offer students cultural immersion experiences such as the new GTL initiative continued on page 72
ECE Salutes Retiring School Chair Roger P. Webb

As a student, faculty member, associate director, and finally as Steve W. Chaddick School Chair, Roger P. Webb’s association with Georgia Tech and the School of Electrical and Computer Engineering (ECE) has spanned 45 years. During this time, he has traveled along, and then led the School in its journey of dramatic growth and achievement.

Dr. Webb’s personal story begins in southern Utah, where he was born and raised. At the age of 16, he was granted an early admission to the University of Utah through a Ford Foundation Scholarship program. The program required Dr. Webb not only to pursue an electrical engineering curriculum, but also to complete a comprehensive liberal arts program that included coursework in philosophy, psychology, political science, economics, and history. Even then, he was already operating outside the conventional box. When he graduated in 1957, he moved to California, where he spent the next two years working as a design engineer for Douglas Aircraft Company and working toward his master’s degree at the University of Southern California.

Having earned his master’s degree in 1959, Dr. Webb came to Georgia Tech to pursue his doctorate. He worked as a Georgia Tech Ford Fellow from 1961-63, at which time he became an assistant professor a year before earning his doctorate, in 1964, thus beginning his long and illustrious career with the School.

The School that Dr. Webb entered bears scant resemblance to the entity that exists today. Then, the School had a faculty of 20, all housed in the newly-constructed Van Leer Building, and existed primarily as a teaching-oriented undergraduate institution with small research and graduate programs. He served as assistant professor for four years, as associate professor for seven years, and has held the title of professor since 1974. In 1978, Dr. Webb began service as the School’s associate director. In 1989, he served as acting director, and then became chair of the School in 1990, a position he has held for nearly 15 years. On the eve of his retirement, December 1, 2004, when asked what he considers his greatest achievement, his simple and humble response was, “I hired great faculty.”

In fact, the faculty of ECE has grown under his leadership from 79 to a peak of 118 in 2004, an unprecedented increase of over 50 percent. Among the current faculty are five members of the National Academy of Engineering, four Fellows of the Optical Society of America, and 35 Fellows of the Institute of Electrical and Electronic Engineers (IEEE). ECE also counts among its faculty, seven Georgia Research Alliance (GRA) Eminent Scholars, 25 named professors (22 of which were created during Dr. Webb’s tenure as the School’s chair), two Presidential Early Career Award in Science and Engineering recipients, and 27 National Science Foundation (NSF) Presidential Young Investigator/National Young Investigator (CAREER) Award recipients. These men and women represent the nation’s most pre-eminent scholars, researchers, and innovators who are recognized and respected worldwide.

However, what Dr. Webb offered about his accomplishments tells only a part of how the School has been transformed under his leadership. A few additional facts begin to fill out this story:

In 1990, the Georgia Tech College of Engineering graduate programs were ranked 14th in the nation by U.S. News and World Report. In 2004, the College ranked fifth in the nation, and ECE ranked seventh. Although comparable figures for Georgia Tech’s rank among electrical engineering graduate schools for 1990 are not available, a logical correlation exists between the College’s and School’s respective national rankings.

Since 1990, the research infrastructure has grown into one of the world’s most sophisticated networks of laboratories and centers that support the work of ECE’s faculty and students. Included among them are such world-renowned facilities as the Microelectronics Research Center (MIRC), the Packaging Research Center (PRC), the University Center of Excellence for Photovoltaics Research and Education (UCEREP), the Georgia Centers for Advanced Telecommunications Technology (GCATT), and the Georgia Electronic Design Center (GEDC).

Anyone who has known or worked with Dr. Webb recognizes him as an exceptionally modest individual and a man of few words. Many remember an illustration of this character trait, when at a large social gathering of faculty and family, he stood up and said, “The best speeches are the shortest ones, and you just heard mine.” ECE Advisory Board member Steve W. Chaddick said, “I have often wondered how a guy with no apparent ego, who is so modest and unassuming, has managed to assert such enormous influence over the School.”

The observations of some people who have known him longest and best lend some insight into this query. In his understated way, Dr. Webb did indeed reveal the essence of his great accomplishment—he hired great faculty. He recognized talent and was able to effectively recruit...
faculty who are arguably the top in their field. Joy Laskar, director of the GEDE, stated, “He is a man of great wisdom and judgment. He focused a large part of his career on working with and fostering faculty careers. ECE Professor Emeritus J. Alvin Connelly offered further: “Beyond bringing the best faculty to the School, he enabled and empowered them to pursue lofty goals.” ECE Professor Emeritus Aubrey M. Bush added, “He challenged, and then enabled our faculty to achieve at their highest level.”

The perspectives of faculty members who have recently joined the School affirm these observations. Magnus Egerstedt, an assistant professor who came to ECE in 2001, said, “When I met Roger, he gave me such a strong sense of optimism for the future of the School, where other schools seemed to be satisfied with where they were.” Russell D. Dupuis, Steve W. Chaddick Endowed Chair in Electro-optics and GIRA Eminent Scholar, came to Tech in 2003. He credits Dr. Webb for a “thorough, impressive introduction to Tech,” which included meetings with Tech President Wayne Clough and Georgia Governor Sonny Perdue. Both professors speak with admiration and appreciation of how welcomed they felt, and most importantly, how completely the promise of support was honored once they were on board.

Dr. Webb’s quiet nature has no bearing on his genius as a communicator. Mr. Chaddick spoke of the “subtle, persistent influence” that Dr. Webb has had on shaping the growth of the School, and his ability to effectively coalesce diverse external constituents. “ECE’s new Advisory Board Chair C. Meade Sutterfield said, “In his subtle way, Roger has built consensus around hundreds of important decisions that have shaped the success and growth of ECE.” ECE Regents’ Professor Emeritus Kendall L. Su, who was one of Dr. Webb’s first professors at Tech said, “He is a very quiet person, but when says something, everyone listens.”

The apparent absence of ego with which Dr. Webb operates is importantly revealing about his success. C. Dean Allford, ECE advisory board member, said, “I don’t think that I have ever known anyone who is as unselfish as Roger is.” ECE Regents’ Professor Emeritus Ronald F. Schafer said, “Anyone who looks back at the history of the School during the past 15 years will see many instances where he put his personal credibility on the line for things that he believed in.” Abutus Chair in Distributed Engineering Education and GIRA Eminent Scholar Thomas P. Barnwell added, “He worked tirelessly beside and behind faculty, and would do anything to truly make progress. He was not just my ally—he was everyone’s ally.” ECE Professor Emeritus William E. Sayle said, “He absolutely has no ambitions. Instead, his purpose is to facilitate those around him to achieve great goals. We are most fortunate to have had him as our colleague and friend.” Mr. Sutterfield’s description of Dr. Webb speaks eloquently of leading by example. “I think Roger is one of the best leaders with whom I have had the privilege to work. His personal strength, calm, integrity, and wisdom coupled with his low key style encourage those around him to act similarly.” Jean Lou Chameau, Georgia Tech provost, said about him, “Roger, in his low key way, made Georgia Tech take risks and take on initiatives that were critical to our success. More importantly, he was always the voice of reason and the person who cut to the chase. I was fortunate to have him as a mentor. He made me a much better person.” Mr. Allford captured the essence of these collective sentiments when he said, “Roger Webb is a classic case study of what servant-leadership is all about.”

Enabler, facilitator, consensus builder, visionary. These words are universally used in describing Dr. Webb. Brilliant, dedicated, compassionate, unassuming. These words spill forth in describing how he operates. Together, they describe the man that has stood at the helm of ECE for 15 successful years. It has been said that the test of a true leader is the ability to leave behind others with the ability, conviction, and dedication to carry on. In what he has done in the course of his career and in how he is leaving the School, Dr. Webb stands as a true leader in its purest sense.

Post Script. Dr. Webb will continue as interim chair on a half-time basis. He will then work with the Provost’s Office on issues of strategic importance to Tech.
PRC Celebrates Its 10th Anniversary

On Thursday, September 23, 2004, the Packaging Research Center (PRC) gathered with its industry, government, and university partners at the Georgia Tech Hotel and Conference Center at Technology Square to celebrate a significant milestone—its 10 year anniversary as a National Science Foundation (NSF) Engineering Research Center (ERC).

The day began with welcoming comments from Georgia Tech Provost Jean-Lou Chameau and Lynn Preston, deputy division director for the National Science Foundation. Dr. Chameau spoke of the PRC’s significant role in realizing the Institute’s vision of becoming a global model for research and economic development.

Ms. Preston reflected on the challenge that the NSF faced 20 years ago to change the academic culture in engineering from its highly theoretical and scientific emphasis to one that would be more interdisciplinary, systemic, and reflective of industry thinking and needs. The PRC’s designation as one of NSF’s first ERCs marked the beginning of this evolution. Ms. Preston spoke of the leadership of Dr. Tummala and the PRC in influencing this culture shift, where cross-disciplinary teams of faculty and students have worked in effective collaboration with industry to transform research, education, and technology in the next generation of system-level electronics packaging.

Charles L. Liotta, vice provost for Research and dean of Graduate Studies referred to the PRC as a “platform of excellence” at Georgia Tech. “The trajectory of where Georgia Tech is going has been significantly influenced by the PRC,” Dr. Liotta said.

The day was spent discussing the local, national, and international impact of the PRC’s educational and research programs, with a look forward to the next decade.

Dr. Chameau served as the master of ceremonies for a series of celebration talks, which concluded commemoration of the PRC’s decade of achievements. “The PRC is proud to have contributed to the nation and to industry,” said Dr. Tummala, who also holds the Joseph M. Pettit Chair in Electronics Packaging and is a GRAW Eminent Scholar.

Thank the NSF, the Georgia Research Alliance, the Georgia Tech administration, faculty, students, global collaborators, and the electronics industry for investing in the Center.

New Initiative to Address Energy Issues

Georgia Tech’s Strategic Energy Initiative (SEI) held its inaugural meeting on November 12, 2004 at the Global Learning Center at Technology Square. The SEI was initiated this year to address the global challenge of reconciling the growing need for energy worldwide with limited world oil and gas production. Its goal is to develop viable and environmentally sound energy options that will render the U.S. more independent and secure in its energy future.

The work of the SEI is intended to prepare America for the inevitable “tipping point” when demand for finite petroleum resources overshadows supply. “We simply cannot continue to rely on conventional energy sources to meet future energy demands,” said Samuel V. Shelton, director of the SEI and associate professor in the Woodruff School of Mechanical Engineering. “The strain of the approach is already being seen in higher energy prices, which place a burden on the economic growth of energy importing nations, including the U.S.” In addition to exploring alternative energy sources such as wind and solar energy, the SEI will simultaneously explore conservation strategies such as building modifications that reduce energy demands and new developments, such as hybrid vehicles.

Steve W. Chaddick School Chair Roger F. Webb moderated a panel forum for this event, which included a presentation from Matthew Simmons, an investment banker and energy industry specialist of Simmons and Company International, and Stanley R. Bull, associate director for Science and Technology at the National Renewable Energy Laboratory and vice president of the Midwest Research Institute.

“The strength of this initiative is in the way it is bringing together industry, government, and academic leaders to tackle this issue of such enormous import,” Dr. Webb said. “The research of our faculty—Dr. Russell D. Dupuis’ research in LEDs and the photovoltaic research of Dr. Ayet Rokhargi, for example, will no doubt play a major role in the work of the SEI.”

The College of Computing building expands, housing the new School of Hape, (Corporate Engineering)

The Manufacturing Research Center expands into the new Structures (GEF)

Georgia Tech’s Undergraduate Program of Research in Electrical Engineering is in the Electrical Engineering (GEF)

Georgia Tech Engineering (GEF) is expanded by the National Renewable Energy Laboratory (NREL)

The School of Electrical Engineering is expanded by the National Renewable Energy Laboratory (NREL)

The National Science Foundation establishes the Packaging Research Center as one of its first Engineering Research Centers.
Siemens Donates to GEDC Testbed

Siemens Communications, Inc. has joined with the Georgia Electronic Design Center (GEDC) to undertake joint research on next-generation wireless products and applications. Siemens donation includes a substantial investment in third-generation wireless infrastructure equipment and will support the research in a newly constructed state-of-the-art wireless testbed at the GEDC. Research will focus on developing next generation voice, wireless data, and IP-based multimedia subsystem applications which include high-speed access to the Internet and wireless video and audio, as well as a variety of services such as high-resolution digital image transfer, full-motion video location and presence-based services, fixed mobile convergence, and advanced interactive gaming.

“We are proud to be a part of such a dynamic and diverse community of technology-minded students and leaders here in the heart of Atlanta,” said Berndt Baumgarten, president, Mobile Division, Siemens Communications, Inc.

With the commitment of Georgia Tech’s GEDC and the U.S. carriers, 3G is no longer limited to just polite conversation about futuristic technologies. It is going to become a real enhancement to wireless communications in the near future.”

The dedication of Siemens’ gift took place at the Technology Square Research Building on October 18, 2004 as part of the GEDC Industrial Advisory Board meeting. “We are pleased to work with Siemens Communications, Inc., a global leader in UMTS networks and IMS solutions,” said Jay Laskar, Pettit Professor of E-technologies and director of the GEDC. “These third and fourth generation wireless systems are expected to trigger an explosion in wireless Internet and data applications by delivering dramatically higher data rates and many new multimedia applications for signaling, video, data and speech, enhancing the user experience.”

2004 Career Fair Draws Students, Companies

Over 600 undergraduate and graduate students from ECE met with company representatives that came with the specific intent of recruiting ECE students at Georgia Tech’s annual Career Fair; held on September 13-14, 2004. Ralph Mobley, director of Tech’s Career Services Office said, “The fact that so many companies committed their time and resources to meet ECE’s upcoming graduates speaks for the high regard they hold for the quality of the School’s educational programs, and for the caliber of the students the School graduates.”

The 104 participating companies are listed in alphabetical order:

- 3Dlabs
- AAM/Aero Time
- Aetna
- AETNA Inc.
- Alcatel
- AI Systems
- Alltel
- Amazon.com
- Analog Devices
- Applied Materials
- AREVA
- AS&T
- ATR Tactical Systems Company
- Avantek
- Bailey Material Handling
- Baxter Corporation
- Beckton Allen Hamilton
- Bell Microproducts
- Best Buy
- Bittium
- Boeing
- Broadcom Corporation
- Bruel & Kjer
- Capital One Services, Inc.
- Central Intelligence Agency
- Cerena Corporation
- Chilkas, Inc.
- Clark Construction Companies, Inc.
- Cleco Systems, Inc.
- Clearwire, Inc.
- Columbia
- Communications Corporation
- Eauzu, Inc.
- General Electric
- Georgia Tech Research Institute
- Harris Corporation
- Hewlett-Packard
- Honda/ASH America, Inc.
- IBM Corporation
- Intel Corporation
- Internal Corporation
- John Hopkins Univ/Aerospace
- JPL Communications
- Lawrence Livermore National Laboratory
- Lockheed Martin
- Los Alamos National Laboratory
- LL Logic Corporation
- MM Global
- Medicor America, Inc.
- Microsoft Corporation
- Motorola
- MRA Associates
- MT Air & Space Intelligence Center
- National Security Agency
- Naval Surface Warfare Center
- Naval Undersea Warfare Center
- Night Vision and Sensor Directorate
- Orchard Sciences Corporation
- PacTel
- Power Technologies
- QUACOMM
- Raytheon
- Redstone Technical Test Center
- Reynolds, Smith, and Hills, Inc.
- Rockwell
- Rocket Research Corporation
- Roadrock Associates
- RONOM Electronics
- Salt Lake City
- Samsung America
- Sags
- Schlumberger
- Scientific Atlanta, Inc.
- Shaw Industries, Inc.
- Siemens USA
- Stockbridge & Associates
- Stradis, Inc.
- Texas Instruments
- The Aerospace Company
- TCI附属
- U.S. Army Corps of Engineers
- U.S. Marine Corps
- U.S. Nuclear Regulatory Commission
- Unibic
- U.S. Navy
- U.S. Patent and Trademark Office
- United Technologies Corporation
- U.S. Air Force
- U.S. Air Force-Masson Career Development Office
- U.S. Army-CSC
- Versico
- Vencor
- WorkForce, Inc.
- Wright Patterson Air Force Base
Sutterfield Named Advisory Board Chair

This spring, C. Meade Sutterfield (BEE ’72) was named the new chair of ECE’s Advisory Board, succeeding C. Dean Alford in this post. Mr. Sutterfield, a native of Atlanta, came to Georgia Tech on a football scholarship in 1968. He majored in electrical engineering on the advice of his father who maintained then that “whether you want to be a doctor, lawyer, or Indian chief, this field will leave you the best prepared for any direction you would want to pursue.”

Sage advice, indeed, eloquently demonstrated by how Mr. Sutterfield’s personal story has unfolded. Upon graduation, he entered the Harvard Business School where he earned his MBA in 1974. Harnessing his excellent technical and business training, he began his career in executive management positions with Scientific-Atlanta, Inc. and Kimberly-Clark Corporation. In 1986, he founded two wireless communications companies that were merged into what is now NefTel Communications, Inc. Presently, Mr. Sutterfield’s primary business is angel investing in telecommunications-oriented companies. He presently serves as a director for several corporations and as an advisor to two venture capital firms. He also serves as the chair for the Society of International Business Fellows and is a past president of the Harvard Business School Club of Atlanta.

Mr. Sutterfield’s business leadership is paralleled by his leadership in the academic world. In addition to serving as chair of ECE’s Advisory Board, he is an officer of the Georgia Tech Alumni Association and serves on the College of Engineering Advisory Board. He refers to his involvement with Tech as “an enjoyable full-time unpaid job.”

In 2002, Mr. Sutterfield co-founded the Central Eurasian Leadership Alliance (CELA). This bold initiative aims to strengthen emerging leaders in Central Asia and the Caucasus, a region of the world of enormous geopolitical importance. The mission of CELA strikes at the heart of what Mr. Sutterfield values and into which he pours his energies. “To enhance leadership skills in the Central Eurasia region and form an international network of leaders working toward peace, prosperity, and improved cooperation through an exchange of ideas and a respect for cultural diversity.”

Steve W. Chaddock School Chair Roger P. Webb said, “Meade’s presence on the ECE Advisory Board has been an enormous boost to the School. His interest, dedication, and insight enable him to provide unique and valuable counsel.”

ECE Welcomes Three New Advisory Board Members

The ECE Advisory Board added three new members in fall 2004, including Mel Coker (BEE ’87), Sherra Kerns, and Theresa Maldonado (BEE ’81, MSE ’82, PhD ’90).

Mel Coker is the executive director of BellSouth’s Corporate Strategy and Planning. Prior to her current assignment, Ms. Coker was the general manager of BellSouth Mobility for Middle Georgia. She has also held positions in regional operations for BellSouth’s start-up video business, as well as various assignments in construction, installation, maintenance, budgeting, and technical support.

In addition to her Georgia Tech degree, Ms. Coker has a MBA from Georgia State University. She is a licensed electrical engineer in the State of Georgia and a member of the IEEE. Ms. Coker was inducted into the Georgia Tech Council of Outstanding Young Engineering Alumni in November 1996, received the Technology Education Alumni Achievement Award in 1997, and was named the 2000 Georgia Tech Outstanding Young Alumna.

Sherra E. Kerns has been the vice president for Innovation and Research at Olin College, located in Needham, Mass., since 1999, and is also the F.W. Olin Professor of Electrical and Computer Engineering. Dr. Kerns came to Olin from Vanderbilt University, where she was a senior faculty member and held various posts, including chair of the Department of Electrical and Computer Engineering and director of the multidisciplinary, multi-institutional University Consortium for Research on Electronics in Space.

A fellow of the IEEE, Dr. Kerns has also received the prestigious IEEE Millennium Medal and the IEEE Education Society’s Harriet B. Rigas Award. She has been named to the Advisory Committee for the National Academy of Engineering’s (NAE) Center for the Advancement of Scholarship on Engineering Education and the Steering Committee for the NAE Engineer of 2020 Phase II: Engineering Education in the New Century initiative, which is
intended to launch a nationwide reform movement in engineering education. Dr. Korns is currently the president of the American Society for Engineering Education (ASEE), the nation’s premier society for technical education, and is an ASEEE Fellows.

Theresa Maldonado has been on the faculty at Texas A&M University since September 2003, where she is currently the associate dean for the Dwight Look College of Engineering, the associate director of the Texas Engineer- ing Experiment Station, and a professor in the Department of Electrical Engineering. Prior to her arrival at Texas A&M, Dr. Maldonado worked at both University of Texas at Arlington (UTA) and at AT&T Bell Laboratories.

She was a previous recipient of the National Science Foundation (NSF) Presidential Young Investigator Award and received the Halliburton Award for Outstanding Young Faculty from the UTA College of Engineering. In 1995, Dr. Maldonado was inducted into the inaugural Council of Outstanding Young Engineering Alumni at Georgia Tech. At NSF, she was recognized with the 2001 Director’s Award for Program Management Excellence and the Director’s Award for Collaborative Integration for her services on the CAREER Coordinating Committee and with a Certificate of Appreciation for Distinguished Service in the Development of the NSF Program, ADVANCE, which aims to increase the participation and advancement of women in academic science and engineering careers.

New Associate Director of Development

Nancy Sandlin joined ECE in July 2004 as the new associate director of Development, replacing Harry Vann who was recently named Georgia Tech’s director of Corporate Development. Ms. Sandlin is a Tech alumna (MGT ’92) and has worked in corporate affairs and external relations for 12 years, most recently with the College of Computing. She will be responsible for ECE’s industrial relations activities.

Deepak Divan, Professor

B.Tech in EE ’75, Indian Institute of Technology at Kanpur

M.SEE ’79, University of Calgary

PHD ’83, University of Calgary

Area: Electric power

Before coming to Georgia Tech in August 2004, Dr. Divan served as chairperson of the board and chief technology officer for Soft Switching Technologies (SST), a spinoff company from the University of Wisconsin at Madison. As founder and CEO of the company from 1995-2003, he was responsible for setting strategic direction, fund raising, and establishing the company as a technology leader in the market. SST has a primary focus on products that clean up dirty power, helping eliminate unscheduled downtime in today’s digital factories, and has developed and commercialized innovative new products in this market segment.

From 1985-95, he was a professor in the Department of Electrical and Computer Engineering at the University of Wisconsin at Madison and served as associate director of the Wisconsin Electric Machines and Power Electronics Consortium (WEMPEC), and as the first chair of the UW Technology Enterprise Cooperative (UW TEC). Under his leadership, Dr. Divan helped attract over 65 companies to join WEMPEC and was responsible for establishing the power electronics and power quality component of the Consortium’s teaching and research program. A Fellow of the IEEE and a Distinguished Lecturer for the IEEE Industry Applications Society, he has published over 200 technical papers and presentations and has 30 issued or pending patents.

Elliot Moore, II, Assistant Professor

B.EE ’98, Georgia Institute of Technology

MSEE ’99, Georgia Institute of Technology

PHD ’03, Georgia Institute of Technology

Area: Digital signal processing

Prior to taking his new position at Georgia Tech Savannah, Dr. Moore was a postdoctoral fellow in ECE. Dr. Moore conducted his PhD research in the analysis of objectively measurable speech features and their relationship to vocal affect and depression in a human voice. He also taught ECE 2025 Introduction to Signal Processing and ECE 2015 Introduction to Signal Processing and ECE 2025 Introduction to Signal Processing and ECE 2035 Introduction to Signal Processing and ECE 2015 Introduction to Signal Processing and ECE 2035 Introduction to
4271 Applications to Digital Signal Processing and was recognized with an ECE Outstanding Graduate Teaching Assistant Award. While a graduate student, Dr. Moore was a National Science Foundation Fellow, President’s Fellow, and a PACES Program Fellow (Facilitating Academic Careers in Engineering). He was also a tutor with the Georgia Tech Office of Minority Education Development and a mentor for SURE (the Summer Undergraduate Research in Engineering/Science Program).

McClellan Named McCarty Chair Professor

James H. McClellan has been named as the new John and MariLu McCarty Chair Professor in the School of ECE. Dr. McClellan assumes this new title after the retirement of Ronald W. Schafer, who held the McCarty Chair since his arrival at Georgia Tech in 1974.

Dr. McClellan has been on the ECE faculty since 1987 and has most recently held the title of Byers Professor in Digital Signal Processing (DSP). His research and educational interests lie in the areas of computer technology applied to education, sensor array signal processing and software for DSP. He and Dr. Schafer co-wrote DSP First: A Multimedia Approach, which has had widespread impact outside of Georgia Tech as other schools look toward modernizing their teaching methods in electrical engineering and computer engineering. It was also the stimulus for many Georgia Tech ECE faculty members to update the way they teach their courses, whether they were in DSP or in another area of interest.

An IEEE Fellow, Dr. McClellan is the 2004 co-recipient of the IEEE Jack S. Kilby Signal Processing Medal, with his PhD thesis advisor, Tom Parks of Cornell University, “for fundamental contributions to digital filter design and interpolation, especially the Parks-McClellan algorithm.” He is the past recipient of several awards in ECE and Georgia Tech, including Richard M. Bass/Eta Kappa Nu Outstanding Teacher Award in ECE in 2003, the Georgia Tech Class of 1934 Outstanding Innovative Use of Education Technology Award in 2003, and the Georgia Tech W. Howard Ector Outstanding Teacher Award in 1998.

The John and Mary Franklin Foundation, which created the John and MariLu McCarty Chair Professor in 1973, is credited for being the single most important factor in initiating a program that has grown into the premier academic research and education program in the DSP field.

Developments from ECE’s program in DSP have led to key technology breakthroughs in almost every aspect of modern life—from medical (facilitating a defense and security systems to voice and data recognition to consumer products. Over the last 30 years, the Foundation has continually supported the McCarty professorship, fostering the growth of the DSP program from two faculty members in the early 1970s to its current total of 20, which now includes seven IEEE Fellows and two members of the National Academy of Engineering.

Five ECE Faculty Members Appointed to Professorships

Five faculty members have been appointed to various ECE professorships that will last for five-year terms.

BYERS PROFESSORSHIPS

John D. Cressler and Steven W. McLaughlin have been named as Byers Professors. Endowed by Kenneith G. Byers, Jr. (IEEE ‘66, MIEEE ‘98), these professorships provide a major incentive to retain faculty members who are leading teachers and scholars, yet who are attractive to industry and other institutions. These grants provide support to encourage innovation in teaching and research.

Dr. Cressler’s main interests are in silicon-based microelectronic devices and technologies, radars/censors in electronics, cryogenic electronics, and transistor-level numerical simulation and compact circuit modeling. A Fellow of the IEEE and a recipient of the IEEE Third Millennium Medal, Dr. Cressler is associated with the Georgia Electronic Design Center and the Georgia Tech Analog Consortium.

Dr. McLaughlin is the director of Research at Georgia Tech Lorraine and is a member of the telecommunications technical interest group. His research interests are in the areas of communications and information theory, error control coding, coding and signal processing for magnetic/optical storage and fiber optic transmission systems, and source coding and data compression. Dr. McLaughlin is a past recipient of the National Science...
Foundation Presidential Early Career Award for Scientists and Engineers, and he is the second vice president of the IEEE Information Theory Society.

DEMETERIUS T. PARIS PROFESSOR

Aaron D. Lanterman has been named as the Demetrius T. Paris Professor in ECE. The ECE Advisory Board established this professorship in 1998 in honor of Dr. Paris—who served as the School's chair from 1969-89—to support the professional advancement of junior faculty. An assistant professor in digital signal processing (DSP), Dr. Lanterman's research interests are in the areas of target recognition, image reconstruction, and radar systems.

JOSEPH M. PETTIT PROFESSORSHIPS

Russell M. Mersereau and Sudhakar Yalamanchili have been named as Joseph M. Pettit Professors. Funds from these professorships will support program development in Drs. Mersereau's and Yalamanchili's areas of interest.

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

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

Awards and Accomplishments

Four ECE faculty members and one adjunct faculty member were named as IEEE Fellows, effective January 1, 2005.

Mark A. Clements, for contributions to speech signal processing and robust speech recognition. "Dr. Clements is a professor in digital signal processing (DSP) and serves as director of the Interactive Media Technology Center.

Gee-Kung Chang, for contributions to optical networking and label switching technologies. In addition, Dr. Chang was elected as a Fellow of the Optical Society of America. He is the Byers Endowed Professor in Optical Networking and a member of the telecommunication and optics and photonics areas.

Gary G. Gimmedstad, for contributions to atmospheric remote sensing technology. Dr. Gimmedstad is an adjunct professor with ECE and is a principal research scientist in the Georgia Tech Research Institute's Electro-Optics, Envi- ronment, and Materials Laboratory.

Joy Laskar, for contributions to the modeling and development of high frequency communication modules. Dr. Laskar is the director of the Georgia Electronic Design Center (see related article, page 5) and is a professor in the microsystems and electronic design and applications areas.

W. Marshall Leach, for contributions to electroacoustics and near-field antenna measurements. Dr. Leach is a professor in the electromagnetics, microsystems, and electronic design and applications areas.

David V. Anderson received an NSF CAREER Award that will fund his research and educational efforts in "Ultra Low Power Programmable Analog Signal Processing Systems," a pioneering approach to designing and implementing signal processing and control systems that can do significant amounts of processing in both analog and digital circuits. An assistant professor in ECE since 1999, Dr. Anderson is involved in the computer engineering and DSP areas.

W. Alan Doolittle has been awarded a five-year, 56.7 million Multidisciplinary University Research Initiative (MURI) award from the Office of Naval Research for his research program entitled "Revolutionary Epitaxial Solutions: Creating a Platform for a New Generation of Military Applications." Dr. Doolittle, an assistant professor in the microsystems and optics and photonics areas, leads this effort, which involves 14 faculty members from 11 universities across the U.S. The goal of the project is to develop a new toolset that can be applied to sensors, communications, electronic weaponry, MEMS, radar, and electromagnetics/optics technology. While military-related applications are the main focus, Dr. Doolittle anticipates that these applications would readily translate into commercial applications in communications and sensing.

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Robert S. (Bob) Duggan, Jr. (BEE ’51, MSEE ’56) retired from Lockheed Martin, celebrated his 50th wedding anniversary with his wife, Kathleen Ringwald, in November. They have five children and 10 grandchildren. Mr. Duggan is still an active volunteer with IEEE.

Richard Pallet (BEE ’80) is a senior associate with B&A Consulting Engineers in Decatur, Ga. He reports that his oldest son, Eli, is in Georgia Tech’s freshman class and is planning to study Aerospace Engineering.

After more than 15 years with Siemens Information and Communication Networks (ICN), Clemens Martin Hauber (MSEE ’87) switched jobs and is now a patent officer in the telecommunications patent department of the German Patent and Trademark Office (GPTO) in Munich, Bavaria, Germany. During his time with Siemens, he gathered a broad scope of practical experience with broadband networks (ATM) as well as with converged networks (TDMA-F) and their applications in multimedia communication scenarios.

Colonel (Ret.) Herchall (Allen) Boyd (BAE ’76, MSEE ’88) has been named executive director of the National Ground Intelligence Center (NGIC) in Charlottesville, Va. In this capacity, Col. Boyd oversees the development of general military, scientific, and technical intelligence for worldwide ground forces. He previously directed the Joint Tactical Radio System (JTRS) business area for Rockwell Collins, Inc., in Cedar Rapids, Iowa.

David (Matt) Brewer (BEE ’85) earned his Doctorate of Medical Dentistry degree in 2002 and practices in Birmingham, Ala, with Sanderson and Brewer Aesthetic Dentistry. He and his wife, Jacques, have two children, Payton, 3, and Blake, 1.

Georgios Zouridis (MSEE ’99) is the managing director for Bosch–Roverth in Athens, Greece.

Ramin Eshaghi (BEE ’99) graduated from UCLA with a Ph.D. in electrical engineering. Dr. Eshaghi is currently with the Boeing Company in Anaheim, Calif, and is leading a research team on modeling and simulation of various aerospace vehicles.

Stanley Snow (BEE ’90) was recently elected chairman of the Board of Fidelity & Trust Bank in Bethesda, Md Fidelity & Trust Bank is currently the fastest growing bank in the U.S. After graduating from the Catholic University of America Columbus School of Law, Mr. Snow founded Millennium Health Services, which was the largest, privately held long-term care company in the state of Maryland prior to its sale in 2002.

Charles Gleaton (BEE ’94) is the manager for project planning services at the Georgia Transmission Corporation in Tucker, Ga.

Scott Belanger (PHDDEE ’96) is the business area manager for Radar and Electromagnetic Systems at the General Dynamics Advanced Information Systems Research and Development Center in Ann Arbor. Mich. His responsibilities include development and application of advanced radar systems for imaging and moving target detection and technologies associated with radar signature diagnostics and control.

Chong Pak (BEE ’97) is an engineer with Alcatel in Dallas, Tex, while currently finishing his MSEE at University of Texas at Dallas.

Eric Reed (MSEE ’96) is a senior manager with Sycamore Networks in Chelmsford, Mass.

Abdulkerim L. Coban (PhD ’98) is a principal engineer with Mindspeed Technologies in Newport Beach, Calif.

Ryan Thompson (BCmp DEE ’00, MSEE ’01) is an engineer with Qualcomm in Cary, N.C.

Jacques Fournier (MSEE ’01) is a security expert with Gemplus in Marseille, France. He writes, “In parallel to my thrilling job in one of the most exciting fields of security, I’m preparing a PhD at the University of Cambridge under the supervision of Dr. Simon Morris.”

H. DeWayne Johnson (BSEE ’87) is a systems engineer with Lockeed Martin in Washington, D.C. He recently celebrated his first wedding anniversary with Tamelka Michelle Cutter-Johnson and was blessed with a baby girl on April 12, 2004. Her name is Alexandra Michelle Johnson.

Lindsay Prater (BEE ’81) is an electrical engineer with the Office of Information Technology at Georgia Tech. He is learning Mandarin Chinese and loving it.

Kenneth Grove (BSEE ’82, MSEE ’04) is an electronic design engineer with Bell Helicopter (Textron) in Fort Worth, Tex.

Christian Bruno Frenza Lenarduzzi (MSEE ’02) is a systems engineer with TANDBERG Television in Orlando, Fla.

M. John Rafferty, Jr. (BSEE ’92) is a systems engineer with the U.S. Air Force at Eglin Air Force Base in Florida. He was recently elected president of the Emerald Coast GT Club and is also involved in the Knights of Columbus and volunteers as a Big Brother.

Salil Arora (BSEE ’93, MSEE ’04) is a manufacturing and automation engineer with Dell Inc. in Nashville, Tenn.

Yi-Yi Denise Chen (BSEE ’03) is an electronics engineer at Robins Air Force Base in Georgia.

Wade Lindsey (BCmp DEE ’03) is an embedded systems engineer with The Boeing Company. He works in the Integrated Defense Systems Area at the International Space Station in Alabama.

Fiyin Adewale (BCmp DEE ’04) is a hardware design engineer with Intel Corporation in Santa Clara, Calif.

Victor Blickenstaff (BCmp DEE ’04) is a computer engineer with BAE Systems in Rockville, Md.

Matthew Bryant (BEE ’04) is an electronics engineer at
ECE Alumni PhDs Recognized for Their Technical Achievements

Anuj Batra (PhD ECE ’04) was named to the 2004 list of the world’s 100 Top Young Innovators by Technology Review/MIT’s Magazine of Innovation. The TR100, chosen by the editors of Technology Review and an elite panel of judges, consists of 100 individuals under age 35 whose innovative work in technology has a profound impact on today’s world. This year’s nominees are recognized for their contributions in transforming the nature of technology and business in industries such as biotechnology and medicine, computing, nanotechnology, and telecommunications.

Dr. Batra is a member of the technical staff in the DSP Solutions Research and Development Center at Texas Instruments (TI), located in Dallas, Tex. Among his many achievements, in 2002 he helped start an ultra wideband (UWB) development effort within Texas Instruments. UWB is a wireless technology for transmitting high-speed digital data over a large spectrum while consuming very low power. Dr. Batra was the lead author for the groundbreaking multi-band OFDM (Orthogonal Frequency Division Multiplexing) physical layer proposal for TI, which was submitted to the IEEE 802.15.3a task group standardization as a proposal for the next generation wireless ultra wideband (UWB) based physical layer for very high-speed communications. While a Ph.D. student at Georgia Tech, he was advised by John R. Barry, an associate professor in the telecommunications group.

John Terry (PhD ECE ‘99) was named to the 50 Most Important Blacks in Research Science for 2004 by U.S. Black Engineer Magazine. Honorees are chosen for this annual list based on their work in making science part of global society. During the year that the list was publicized, its members are presented to young people as role models, and their accomplishments are upheld as examples of the important contributions made on a daily basis by the small but growing cadre of African-Americans in the field. Dr. Terry is the director of Baseband Systems Engineering at WiQuest Communications, Inc., located in Allen, Tex., and is a recognized industry expert in OFDM technology, systems architecture, and design. He has been involved with wireless communication research and development for nearly 15 years. Before joining WiQuest, Dr. Terry was a principal scientist in Nokia’s Radio Communication Laboratory, where he has invented or co-invented over 14 issued/pending patents. Dr. Terry co-authored the book, OFDM WLANs: A Theoretical and Practical Guide, and in 2002 was honored with a national award as the Black Engineer of the Year for Outstanding Technical Contributions in Industry. While a Ph.D. student at Georgia Tech, he was advised by Douglas B. Williams, associate chair for ECE Undergraduate Affairs and an associate professor in digital signal processing.
Joy Laskar is the new director of the Georgia Electronic Design Center (GEDC). This initiative combines the efforts of private enterprise, academia, and state government to leverage Georgia’s existing high-technology base and its global leadership in broadband technology research. GEDC specifically focuses on innovations at the boundary between telecommunications, microelectronics, analog/RF, and mixed signal systems, and it is comprised of approximately 20 faculty and 150 graduate students.

James D. Meindl received the 2004 Aristotle Award from the Semiconductor Research Corporation (SRC) for “outstanding teaching in its broadest sense” at the 2004 SRC Graduate Fellowship Program Annual Conference Banquet, held in San Francisco, Calif. last September. Friends and colleagues at Texas Instruments nominated Dr. Meindl for this honor, with support from Georgia Tech colleagues and alumni, to recognize his outstanding research and his students whose accomplishments are a testament to his teaching abilities.

A.P. Sakis Mellopoulos was named as recipient of the IEEE Richard Harald Kaufmann Award for contributions to power system grounding design and testing procedures. “This award is presented to an individual, or team of up to three persons, who have made exceptional contributions to electrical engineering in the industrial environment through the design or application of systems technology, as well as apparatus, devices, or materials for plant power distribution, drive systems, process control, or other utilization systems.”

John Papapolymerou received an Army Research Office Young Investigator Award for his project, “Development of Micromachined Travelling Wave Tubes and Backward Wave Oscillators Operating above 100 GHz.” An assistant professor in electromagnetics, Dr. Papapolymerou is studying and developing powerful, efficient, compact, and low-cost sources of terahertz (THz) signals by using silicon laser micromachining techniques. Potential applications for devices that operate above 100 GHz and into the terahertz range are wide ranging in scope, such as detecting chemical or biological agents and gaining higher resolution in imaging systems.

William E. Sayle received the 2004 IEEE Education Activities Board (EAB) Award for Meritorious Service in Accreditation Activities “for contributions to enhancing the quality of engineering accreditation and dedicated service to ABET/IEEE accreditation bodies.”

UNDERGRADUATE PROGRAM, from page 1

that will create the next generation of global leaders.”

“The student body is the soul of Georgia Tech and the mark of our success.”

—Strategic Plan of Georgia Tech

The story of ECE’s undergraduate programs begins and ends with its students. The 1,300-plus undergraduate students are a body of intelligent, motivated, young men and women, who through active participation in these programs will graduate, prepared to fulfill the Institute’s strategic goal, to serve as future leaders who understand the power and ramifications of emerging technologies.

“Through the over 40 years that I have been with the School, I have seen impressive changes in our student body, both in terms of its demographics and in terms of their personal attributes. I believe that the greater diversity has resulted in a richer environment that promotes more creative thinking and problem solving,” said Steve W Chaddick School Chair Roger P Webb. “In addition, the students of today are far more proficient communicators and team players and demonstrate a much deeper understanding of how technology impacts the world around them. It gives me great hope for the future of our School.”

Georgia Institute of Technology

ECE Connection is published by the School of Electrical and Computer Engineering. Copyright 2004.

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