Chair in Embedded Systems Established in Memory of Father

The School of Electrical and Computer Engineering at Georgia Tech announces the establishment of the Rhesa Screven Farmer, Jr. Chair in the School of ECE in Embedded Systems. The Farmer Family created this chair in memory of Rhesa Screven “Ray” Farmer, Jr. (BSEE ’49), who died in March 1999. The School is working with the Georgia Research Alliance (GRA) to establish the chair as a GRA Eminent Scholar.

“ECE recognizes the growing importance of embedded systems in telecommunications, and we seek to enhance our posture as a leader in telecommunications education by establishing a focused program in this area,” said Roger P. Webb, chair of ECE. “Since Ray Farmer was a pioneer and leader in the wireless/telecommunications arena, it is only appropriate that a chair in this area carry his name,” said Webb.

Ray Farmer, former executive vice president and general manager of the Communications Sector of Motorola, Inc., was born in Louisville, GA, in 1926; served in the U.S. Navy during World War II; attended the University of Georgia; and graduated from Georgia Tech. After working with the Gondas Corporation and Philco Corporation, Farmer joined Motorola, Inc., now headquartered in Schaumburg, IL, in 1957, ultimately rising to the senior leadership position of Motorola’s Communications Sector. During Mr. Farmer’s tenure as head of this business, the sector enhanced its position as the global leader of the two-way radio, cellular, and paging businesses, respectively. Mr. Farmer was instrumental in Motorola’s initial involvement with the Manufacturing Research Center at Georgia Tech. He retired from Motorola, Inc. in 1987, after more than 30 years of service to the corporation.

Bob Bigony, president of the North American Region of Motorola, Inc., said, “Ray Farmer provided significant leadership in the early days of cellular communications. He did so by the allocation of engineering resources to a program that many people thought would take far too long before it reached commercialization. Fortunately for the long-term growth of Motorola, Ray’s decision in 1975, provided the foundation for what has turned out to be a most significant business for our corporation. His wisdom and dedication to future business scenarios provided the impetus for change, and his leadership is deeply appreciated.”

“I knew Ray Farmer for 40 years in every facet of our careers with Motorola,” said his long-time friend and former associate, Vann Carson. “Ray was a firm, but fair, manager who got results in every assignment given to him. I can truthfully say that he left every assignment or responsibility given to him in better shape than he received it.”

Screven Farmer, who followed in his father’s footsteps to earn a degree at Georgia Tech, said “As we grew up, our parents always emphasized the importance of a quality education. When asked what experiences prepared him to be a successful business leader, husband, and parent, Dad always pointed to his education from Georgia Tech. Given the importance of Georgia Tech in our father’s life, the Farmer Family was pleased to endow a chair in his memory,” stated his son.

Ray Farmer married Anna-Lise Andersen of Copenhagen, Denmark, in 1953. They had three children: Rhesa Screven Farmer III (BS ’76), Peter, and Anna-Lise. He is also survived by three grandchildren: James, Joseph, and Jason.
Chair’s Corner
Academia and the Marketplace

The academic world should be isolated, and therefore insulated from societal pressures and parameters. Only in this context can “pure” research be done, and “pure” knowledge be disseminated.

There are members of academia—even engineering professionals—who support this view, and work to protect and perpetuate academic detachment. While this idealistic notion may have had some merit in the past, it is neither appropriate nor desirable in engineering education today. In fact, it can be argued that in professional education, particularly engineering education, detachment is neither possible, nor desirable, and that attachment should be recognized as a desired reality to be managed and directed.

The natural connection between electrical and computer engineering and the marketplace has never before been more evident than it is today. It can be seen in the job opportunities that exist for graduates of electrical engineering (EE) programs, in the increasing pressure for electrical engineers to become involved in economic development and technology transfer, and perhaps most compellingly, in the recruitment and retention of EE faculty.

It is generally acknowledged by employers that there is a growing shortage of electrical engineers. This is supported by many economic and demographic indicators that predict that this shortage will continue, and in fact, become more serious. In the microelectronics industry, for example, within a short two-year span, it is predicted that resources will meet barely 10 percent of the anticipated need.

To those who engage in recruiting and retaining EE faculty, the interplay between EE and the marketplace is perhaps the most evident. Those on the National Electrical Engineering Department Heads Association email list know that hardly a day passes without an urgent plea from a department head desperate to hire new faculty. There are several reasons why we are experiencing such difficulty in recruiting and retaining faculty. There is the issue of competing opportunities, including technology transfer where faculty members leave academia to initiate their own commercial enterprises. The large inductive component of university salary adjustment processes fuels this scenario.

“Branding” and definitional issues often distort the manner in which manpower needs are defined for both graduates and faculty in the sub-specialties of EE. There is confusion within and between both the academic community and the commercial sector regarding the meaning of the terms electrical engineering, computer engineering, and computer science and of their associated degree programs. Looming on the horizon are additional terms and avocations, that portend even further confusion: software engineering, information technology, and e-commerce, to name a few.

It is critical for EE education and for the EE profession that there be increased awareness of the dynamic relation between academia and the marketplace, and a resultant increase in communication and collaboration. There is a growing commercial interest in the products of university-based research, and a simultaneous decrease in transition time constraints. The meaning of the terms “basic” and “applied” research has blurred, and no longer correlate with “university-based” and “industry-based”. Issues about how research is funded and how the results are utilized and commercialized are complex and challenging. These issues are not distinct from those arising from programs motivated by early access to potential employers.

There is widespread agreement that the resolution of conflicting issues facing industry and engineering academia is in the best interest of all. Much productive energy is being expended to understanding and resolving these issues, and progress is being made. However, economic as well as cultural barriers still remain. The issues are too important to be relegated to legal and quasi-legal entities within the constituent organizations. The attention and energy of engineering professionals is required to grow with, and meet, the future challenges of our profession.
Hewlett-Packard Continues Support of Computer Enhanced Education

The original goal was direct: find a more logical way to teach undergraduate electrical engineering. But, ECE professors at Georgia Tech surpassed the original plan by literally re-writing the book on digital signal processing (DSP). Now, with support from Hewlett-Packard (HP), they find themselves at the forefront of undergraduate engineering education.

Computer giant Hewlett-Packard is supporting Georgia Tech’s efforts to improve engineering education through a $1.7 million recipient enhanced grant of equipment for high tech classrooms. This grant is the second of two HP grants totaling $3 million. The first grant, valued at $1.3 million, was awarded in 1997.

Both grants are being used to support and expand the curricula revisions that began with the introduction of a course in DSP before the traditional circuits course. The concept of using DSP as the first electrical engineering course has taken the engineering community by storm, with approximately 70 universities adopting both DSP First, the textbook developed by ECE professors Jim McClellan and Ron Schafer, along with Mark Yoder of Rose-Hulman University, and the resultant curricular changes.

“Georgia Tech is one of the leading engineering programs in the country,” said Robert Bouzon of Hewlett-Packard’s University Affairs office. “It’s a rising institution with a visible trajectory. We want to strengthen our relationship with Georgia Tech by supporting curriculum development and enhanced delivery. Then, we want to hire those students!”

Hewlett-Packard Donates $2 Million to Improve Student Training in EPIC Architectures

Hewlett-Packard (HP) has announced that it will provide Georgia Tech, the University of Illinois at Urbana-Champaign, North Carolina State University, and California State University at Los Angeles with grants totaling more than $2 million in cash and equipment. These grants will be used to fund the teaching of Explicitly Parallel Instruction-set Computing (EPIC). EPIC is the foundation for IA-64 (Intel Architecture-64 bit), a next-generation computer architecture developed jointly by HP and Intel.

Krishna V. Palem, ECE professor and director of the new Center for Research in Embedded Systems and Technology (see p. 6), will lead the Georgia Tech portion of the EPIC program. He will focus on developing classroom technology and modules, laboratory modules and manuals, and teacher-training materials.

The HP EPIC Architectures Initiative in Computer Science, a program sponsored by HP’s University Grants Program, will fund curricula for training a new generation of computer engineers and software designers in EPIC-related concepts and will encourage the development of advanced technologies. Curriculum elements developed by the award recipients will be made widely available.
Madigan and Neel Join ECE Advisory Board

With a 20-year career in telecommunications, Scott Madigan, was most recently the executive vice president with World Access Inc., and previously worked for companies such as NorTel, DSC and ITT. In addition to receiving his EE degree from Georgia Tech, Mr. Madigan also attended the Duke University Fuqua School of Management Executive Program.

R.O. “Joe” Neel, BEE ’66, is the director of Planning and Strategy for Technology Development at ON Semiconductor, formerly a division of Motorola. Prior to joining Motorola in 1981, Mr. Neel served as a career officer in the Air Force where most of his assignments were in flight testing. In addition, he was an assistant professor in electrical engineering at the U.S. Air Force Academy. Mr. Neel now serves as the corporate liaison between ECE and ON Semiconductor, which is headquartered in Phoenix, AZ.

ECE Career Day a Huge Success

The ECE Career Day 2000 was held on March 23, 2000. The event is a student organized career fair specifically targeting companies in need of recruiting only electrical and computer engineers for full-time employment, summer internships and co-op positions. The invited companies are those that support year round student activities in ECE. Over 400 students attended the event visiting with corporate representatives from 18 companies.

Following are the corporate participants in the ECE Career Day:

Agilent Technologies
Lockheed-Martin
Alltera Corporation
Maxim Integrated Products
Analog Devices
Nortel Networks
Commonwealth Edison
ON Semiconductor
Cypress Semiconductor
Raytheon Missile Systems
Echostar
RF Micro Devices
Intel Corporation
Schlumberger
Integrated Device Technologies
Texas Instruments
Intersil
Xilinx

“This year’s ECE Career Day provided the School a chance to showcase its students to industry representatives. The results were a high student turnout and both the recruiters and the students went home satisfied. Next year’s Career Day will be even better!”

- Eric Woods

student chair of the ECE Student/Faculty Committee and chair of this year’s ECE Career Day
The College of Engineering has established three awards to honor outstanding alumni. Engineering Hall of Fame Membership for the highest honor that can be bestowed on College of Engineering alumni is reserved for individuals who have made sustained and meritorious engineering and/or managerial contributions during their careers.

Academy of Distinguished Engineering Alumni Membership is reserved for individuals whose contributions to Georgia Tech, the engineering profession and field, and/or society have brought distinction to themselves and the Institute.

Council of Outstanding Young Engineering Alumni Membership is reserved for alumni under 40 years of age who have demonstrated outstanding professional achievements.

ECE is seeking nominations for these awards. Please send names to:

Dr. Hans B. Püttgen
School of ECE
Georgia Institute of Technology
Atlanta, GA 30332-0250

The College of Engineering held its annual Alumni Awards celebration in October. Of the 60 total recipients in the following categories, 13 were alumni of ECE.

### Engineering Hall of Fame
- Thomas B. Gurley, BEE ’59
- D. Bones Howe, BEE ’55
- John J. Oster, Jr., BEE ’36

### Academy of Distinguished Engineering Alumni
- Alex B. Best, BEE ’63, MSEE ’66
- Thomas S. Blackstock, BEE ’75
- Jean Breedlove, BEE ’76
- James F. Chen, BEE ’73
- Frank B. Fortson, BEE ’71
- Robert M. Gemmell, BEE ’79 MSEE ’80
- A. Eugene Sapp, Jr., BEE ’59
- William H. Williams, BEE ’73

### Council of Outstanding Young Engineering Alumni
- Jefferson W. Hall, BEE ’91, MSEE ’92
- Scott N. Madigan, BEE ’79

The College of Engineering has many valued supporters who are recognized and appreciated continuously during the course of the on-going activities in the College. The Dean’s Appreciation Award has been established to honor those special individuals who have made extraordinary contributions to the advancement of the College of Engineering of Georgia Tech. Shirley C. Mewborn, BEE ’56, is the first recipient of this prestigious award.

The Georgia Tech Analog Consortium (GTAC) has welcomed several new faculty members and three new corporate members. J. Stevenson Kenney (see p. 6) joined ECE and GTAC in November 1999, as the ON Semiconductor Junior Professor.

“Georgia Tech is fortunate to attract Steve Kenney as a new faculty member,” J. Alvin Connelly, GTAC co-leader, said. “Steve has proven skills in RF circuit design with relevant industrial experience that makes him a very valuable addition to our existing, strong faculty group. The competition to recruit analog engineers is the fiercest it has been in 30 years, and it is a point of significance that our analog program continues to attract high quality faculty and students.”

GTAC has welcomed several companies—RF Micro Devices, Agilent Technologies, and Motorola. These companies have committed to graduate fellowship support and active participation in analog education and research.

Having raised $52,904,811 and surpassing its original campaign goal of $50 million, ECE has raised its campaign goal to $55 million. The Institute has raised $51,795,984 of its overall goal of $600 million.

The Campaign for Georgia Tech will end December 31, 2000. There are still many opportunities for giving related to student support, faculty support, and facility support.

Please contact Suzy Briggs at 404-894-5210 or Harry Vann at 404-894-4025 for more information on the Campaign for Georgia Tech.

All gifts to the Campaign should be directed to the Georgia Tech Foundation, Inc., a 501 (c) (3) charitable corporation which receives and manages contributions made for the benefit of Georgia Tech.
Faculty News

ECE now has 94 faculty members.

Farrokh Ayazi, Assistant Professor  
BSEE ‘94, University of Tehran  
MSEE ’97, PhD ’00, University of Michigan at Ann Arbor  
Areas: Microelectronics, electronic design and applications

Prior to joining ECE, Dr. Ayazi was a graduate research assistant at the Center for Integrated Microsystems at the University of Michigan, where he helped to develop all-silicon, high aspect-ratio microfabrication technologies.

J. Stevenson Kenney, ON Semiconductor Junior Professor and Associate Professor  
BEE ’85, MSEE ’90, PhD ’94, Georgia Institute of Technology  
Areas: Microelectronics and telecommunications

Dr. Kenney is the ON Semiconductor Junior Professor and the newest member of the Georgia Tech Analog Consortium. He comes to ECE from Spectran, Inc., where he was the director of Multicarrier Power Amplifier Engineering. Dr. Kenney is a member of the IEEE Microwave Theory and Techniques Society and also serves on its international body.

Krishna V. Palem, Professor  
MS ’81, PhD ’86, University of Texas at Austin  
Area: Computer engineering

Dr. Palem comes from the Courant Institute at New York University, where he was an associate professor of computer science and leader of the Real-time Compilation Technologies and Instruction Level Parallelism Laboratory. He is the director of the newly formed Center for Research in Embedded Systems and Technology at Georgia Tech.

Foley Appointed as Yamacraw Head

In November 1999, Georgia Governor Roy Barnes named James D. Foley the Executive Director of the Yamacraw Mission. Dr. Foley also serves as a professor in ECE and the College of Computing. Before coming to Georgia Tech, Dr. Foley was chair and CEO of ITA-Mitsubishi Electric Information Technology Center America in Cambridge, MA.

The Yamacraw Mission is aimed at developing semiconductor chip and high bandwidth telecommunications design business, research, and education in Georgia.

Awards and Accomplishments


Edward B. Joy received the Distinguished Achievement Award from the Antenna Measurement Techniques Association at the organization’s annual meeting.

John B. Peatman is the recipient of the IEEE Education Society McGraw-Hill/Jacob Millman Award “...for contributions to computational electromagnetics and electrical engineering education...”

Andrew F. Peterson was named as an IEEE Fellow, effective January 2000, “…for contributions to computational electromagnetics and electrical engineering education...”

Hans B. Püttgen received the Outstanding Achievement in Research Program Development at the Faculty/Staff Honors Luncheon on April 6, 2000.

W. Whit Smith received the Richard M. Bass-Eta Kappa Nu Outstanding Teacher Award.

Emmanouil M. Tentzeris received a National Science Foundation (NSF) CAREER Award “…for novel multi-resolution time-domain schemes for the adaptive analysis and design of high-frequency circuits and packaging structures.”

Rao Tummala has been elected president of the IEEE Components, Packaging, and Manufacturing Technology Society. Dr. Tummala also received The Educator of the Year Award from the India-American Cultural Association, Inc. and the Distinguished Alumni of the Year Award from the Indian Institute of Science Alumni Association. He is also director of the Packaging Research Center (PRC), which, in October 1999, received an A+ evaluation from a NSF panel of academic and industrial experts.
Geoffrey N. Mendenhall, P.E., BEE ’70, received the 1999 National Association of Broadcasters Radio Engineering Achievement Award for his outstanding contributions to the improvement of FM broadcasting technology. Mendenhall was a former chief engineer and general manager of WREK. The FM transmitters he developed are being used by WREK, WSB, and several other Atlanta radio stations today. He is currently vice president of advanced product development for Harris Broadcast Communications in Cincinnati, OH, where he is leading the development of digital radio and television broadcast transmitters.

Jeff V. Giglio, BEE ’77, was promoted to President/CEO of Inglett & Stubbs Electrical Contractors. He is married to Bonnie Pitner Giglio BSIM ’77.

Abder Guessoum, MSEE ’79, MS Math ’82, PhD EE ’84, is the dean of the faculty of engineering at the University of Blida in Algeria.

James C. McElvaney, BEE ’88, is the director of Aircraft Engineering for Delta Air Lines, Inc., responsible for all modifications and repairs to Delta aircraft.

Brian T. Singleton, P.E., BEE ’88, is an electrical engineer leader/facilitator with the property development division of U.S. General Services Administration in Atlanta. He lives in Newnan, GA, with his wife Crissie and sons Mark and Matthew.

Doug Turner, BEE ’88, was recently promoted to Power Industry Director for Control Southern, Inc. of Suwanee, GA, a representative of Emerson Electric’s Fisher-Rosemount Automation Division. He and his wife Julie, BIE ’87, have two daughters and live in Marietta, GA.

Michael W. Burnette, BEE ’98, was recently promoted to Director of Information Technology for Rogers & Hardin, a corporate law firm in Atlanta, GA.

Gabriel Rincon-Mora (PhD ’96, MSEE ’94) received the National Hispanic in Technology Award at the Society of Hispanic Professional Engineers National Technical and Career Conference on January 28, 2000.

A senior design engineer at Texas Instruments in Dallas since 1997, Dr. Rincon-Mora also serves as an ECE adjunct professor. In addition to authoring several technical design manuals in analog integrated circuit (IC) design, he is the inventor, author, and designer of numerous analog IC patents, publications, and products.

We Want to Know! Share your news with your ECE classmates and friends. Just complete this form, clip, and mail. Please print legibly or type.

Name_________________________Degree/Year_____________________

Information for ECE News________________________________________

New Address_____________________________________________________

Daytime Phone______________Email_______________________________

Mail to Suzy Briggs or Harry Vann at the address listed on the back or visit our web page at http://www.ece.gatech.edu/alumni and tell us online!
S-PAC Focuses on Career Development

The Georgia Tech branch of the IEEE held the Student Professional Awareness Conference (S-PAC) on February 23. S-PACs are held across the country and are sponsored by IEEE National. The theme for the conference this year was “Career Development”.

The following speakers helped students explore the non-technical subjects that affect engineers’ careers: Dr. Aaron Collins discussed the benefits of graduate school, Jim Watson presented the importance of networking with people, Alan Triggs focused on what to expect in the workplace, and Tom Maiwald provided information on financial planning for the future.

The conference was a success with 167 students attending. Students from all levels were represented, with 75 percent coming from ECE.

The Georgia Tech Student Foundation and Advanced Micro Devices funded the S-PAC, and Hewlett-Packard and Intel donated raffle prizes. Kinko’s also donated pads of graph paper bearing the IEEE logo for all students.

With over 600 members, the Georgia Tech IEEE is currently the second largest student branch in the world. The branch is run by students to broaden the backgrounds of students in the fields of electrical and computer engineering. Activities include weekly presentations from representatives of companies across the nation and professors discussing recent research and groundbreaking technology. The IEEE also funds the SECON robotics competition. Contributions are welcome to continue the effort to offer these and many more activities. For additional information, please contact (404) 894-4729 or visit the web page at http://cyberbuzz.gatech.edu/ieee.

ECE Students Celebrate National Engineers Week

National Engineers Week, which was held February 20-26, 2000, brought together engineers, educators, and students for a week of activities to increase public awareness of the engineering profession. Events included two outreach programs for area high school students, the annual IEEE Student-Professional Awareness Conference, an engineering carnival, and a Quiz Bowl Trivia Tournament. Georgia Tech students also participated in engineering externships throughout Atlanta.

Homecoming Events

THURSDAY October 12, 2000 3:30
James R. Carrecker Distinguished Lecture: Thomas Engibous, Chairman, President and CEO, Texas Instruments, Inc.
Van Leer Auditorium
Reception to follow

FRIDAY October 13, 2000 4:00-6:00
ECE Open House
Van Leer Lobby

SATURDAY October 14, 2000 TBA
Homecoming Game!
Georgia Tech vs. Wake Forest

GO JACKETS!

School of Electrical and Computer Engineering
Georgia Institute of Technology
Atlanta, Georgia 30332-0250 USA