Dear Colleagues and Friends of the Woodruff School:

It was another good year for the Woodruff School. There were no particular heights of great achievement, nor fortunately, no lows of disappointment. We had lots of very solid progress in our school.

We have been on the semester calendar and under a new undergraduate program for about three years. We are beginning to explore ways to improve those programs. With an ABET visit scheduled for late October 2002, we have thoroughly reviewed and assessed our undergraduate programs and are looking forward to an external critique of them. Our graduate program continues to grow, particularly in the distance learning component. The Internet offerings seem to have been well accepted. During the year, we completed putting 23 courses on the Internet, as we committed to do three years ago to the Georgia Tech administration, the Board of Regents, and the Sloan Foundation (all of whom funded the effort). It was a lot more work than we expected; however, we learned a great deal and are doing well with it now. In fall 2002, we expect distance learning enrollment to reach 150 students. During the past year, we also introduced the Five-Year BS/MS program to encourage our top undergraduates to continue for the master’s degree, which is becoming the sought after degree for entry level in many mechanical engineering industries.

During the past year, the Nuclear and Radiological Engineering and Health Physics faculty undertook a strategic planning exercise. We lost an outstanding young faculty member, John Valentine, who moved to Lawrence Livermore Laboratory in California for personal reasons. Between his leaving and the clear upturn in undergraduate enrollment in nuclear engineering, it was time to take a look at where we should be going with our program. As a result of the strategic plan, we are looking to hire one or two new faculty in the coming year, and we have reorganized the Nuclear and Radiological Engineering and Health Physics program into an autonomous group within the School of Mechanical Engineering, with Farzad Rahnema operating as Chair of the program. With the increase in enrollment at the undergraduate level, we are optimistic for the future of this program.

Last year, we converted the Tin Building into a student competition center. This effort has been a success, although the building has not been renovated in the manner that I had hoped. We are still looking for funds to complete this project. However, we have managed to make the building functional and a very successful home for a number of student competition groups. Thanks to a lot of people, students, faculty and staff, but especially to David Sanborn who is in charge of the facility. Working with the club presidents and faculty advisors, David has managed to install a good machine shop and to house at least seven student groups. These groups are doing very well in the competitions that they enter. Some of you may remember David Sanborn as a faculty member in the 1970s. He left Georgia Tech, was involved in several start-up companies in the Atlanta area, retired from industry this past year, and agreed to come back as a Senior Academic Professional to teach our Capstone Design class and oversee the Student Competition Center.

As you will note in other articles in this publication, the *gt motorsports* team, under the mentorship of Professor Ken Cunefare, has become a real powerhouse, both nationally and internationally in formula competitions. In addition, GT Off-Road, also under Ken’s tutelage, has become a solid national competitor. Professors Imme Ebert-Uphoff and Wayne Book have guided several robotics groups and a FIRST high school team to strong competitions. A team of students in Professor Robert Fulton’s CAE class also won national recognition from PTC/Motorola. Although these faculty members have done a great job of mentoring the groups, it is clearly the excellent students who do the work and deserve the credit. In fact, some of the student groups do well without faculty support. Somewhat after the fact and to our surprise, we learned of two Woodruff School student groups who entered national competitions on their own and won. One of these groups designed and built a sailboat out of paper—yes, paper—and successfully sailed it to win a Department of Energy design competition. A second group entered a national competition known as Odyssey of the Mind and won the college division.
We have clear proof that we have great students!

Once again, our two major lectures were great successes. In fall 2001, Dr. Leo Beranek, father of the anechoic chamber and co-founder of Bolt, Beranek and Newman, gave the Gegenheimer Lecture on Innovation. He presented an excellent lecture on the acoustics of symphony halls around the world. A large crowd attended, including a dozen people from the Atlanta Symphony Orchestra organization. In the spring, Dr. John Sununu, of White House, New Hampshire and Crossfire fame, gave the Woodruff Distinguished Lecture before an overflow crowd in the Van Leer Auditorium on the role of engineers in the political scene.

As I mentioned, I believe we have the finest mechanical engineering facilities in the world. Yet, their appearance has improved greatly during this past year with the excellent landscaping of the plaza between our three major buildings (the J. Erskine Love Jr. Manufacturing Building, the Manufacturing Research Center, and the Manufacturing Related Disciplines Complex), thanks to the Georgia Tech Class of 1976, who made it possible through the generosity of their reunion gift. At their request, the area is known as the George P. Burdell Plaza, and is one of the nicest outdoor spaces on campus. If you have not seen it, you should stop by when you are in the area.

A few other things are worthy of note: Last spring, Ralph Pries, ME 1940, was our Woodruff Distinguished Alumnus. I think it is fair to say that Ralph was literally dumbstruck when he came to campus and saw the changes in the programs, the facilities and the quality of our activities compared with when he was here as a student. We thank Ralph for taking the time to join us. In the fall, we dedicated the Harold Gegenheimer Patent Wall in MRDC, which makes the students aware of the importance of innovation in engineering. The Patent Wall honors Harold and tells about his patent contributions and honors current faculty members who hold patents. Much to our surprise when we started this project, there were nearly 140 patents held by our current faculty. Other faculty recognitions this past year included Professor Bob Fulton being designated the Jack Zeigler Outstanding Educator for 2001, Professors Bert Bras and David Rosen were named Woodruff Faculty Fellows, and Professor Ken Cunefare is the first Joseph Anderer Faculty Fellow. The three new fellows are outstanding young faculty members who we want to recognize and help build their careers in Mechanical Engineering at Georgia Tech.

Once again, I want to thank everyone for their support and interest in our programs. I hope you enjoy and learn from reading this annual report.

Ward O. Winer, Ph.D.

Eugene C. Gwaltney, Jr. Chair of the

Woodruff School of Mechanical Engineering

September 2002

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This report is published each year in the fall by the George W. Woodruff School of Mechanical Engineering at Georgia Tech. For more information about undergraduate and graduate programs in the School, please contact us by any of the following methods:

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The Gegenheimer Lecture on Innovation

The Harold W. Gegenheimer Lecture on Innovation was established in 1995 through an endowment from Mr. Harold W. Gegenheimer (Class of 1933) to support student programs that encourage creativity, innovation, and design. Through the lecture series and support of capstone design projects, students are exposed to processes that stimulate creativity and lead to inventions and patents.

The lecture was delivered by Dr. Leo Beranek on November 1, 2001 to a packed house in the Howey Physics Building. In *Concert Halls of the World and Their Design*, Dr. Beranek reported on a series of interviews with conductors, music critics, and classical-music aficionados that led to a ranking of fifty well-known halls in the world according to their acoustical quality. He showed a series of photographs and drawings of good and bad designs to demonstrate where concert hall design stands today.

Dr. Beranek was co-founder, in 1948, of Bolt Beranek & Newman (BBN) of Cambridge, Massachusetts, and was its president for sixteen years from 1953 to 1969. He changed the business from principally architectural acoustics and noise control, to an equal emphasis on acoustics and computer software. A lifelong interest in music led Dr. Beranek to specialize in concert hall and opera house acoustics in recent years. Following trips to more than one hundred of the world's leading halls and interviews of several hundred conductors and music critics, he wrote *Concert and Opera Halls: How They Sound* (Acoustical Society of America, 1996).

Patent Display Dedicated

Just before the Gegenheimer Lecture, the display of the Patents of the Woodruff School Faculty was dedicated by Dr. Ward O. Winer, Chair of the School and Mr. Harold Gegenheimer. The display, which we believe is a unique exhibit for an academic institution, is endowed by the Harold W. Gegenheimer (Class of 1933) Endowment for Innovation, and features plaques of the first page of each U. S. patent held by current academic and research
faculty members of the Woodruff School. The display was installed on July 17, 2001 with 130 plaques; by the dedication we had added seven more.

In addition, the twenty patents from Harold Gegenheimer’s innovative career in the printing industry are shown, including the convertible offset perfecting press. His inventions were key to the great growth of the offset printing process after World War II.

Patents holders in the Woodruff School are noted by an asterisk in the faculty listing that appears later in this report. Note that as of September 2002, we have twenty-one more plaques to add to the display.

**Atlanta ARCS Lunch and Tour**

Ten graduate students earned $5,000 scholarships from the Atlanta Chapter of the ARCS Foundation (Achievement Rewards for College Scientists). ARCS, founded as an all-female organization in 1958, has a total of 1,500 members in 12 chapters nationwide. Since its inception, the organization has given more than $37 million to almost 8,000 students in the fields of science and engineering at 43 colleges and universities. Sally Hinkle announced that Atlanta ARCS has awarded $721,000 to 146 students since 1999. Atlanta ARCS members visited campus in October to tour the facilities and to see how the students are using their ARCS awards.

Woodruff School ARCS scholars are Brent Bailey, Rebecca Covert, Chad Duty, Peter Kottke, Susan Stewart, Shannon Stott, and Michael Swinson. In addition, ARCS gives scholarships to five students in the School of Industrial and Systems Engineering.

**The Woodruff Distinguished Lecture**

The Woodruff School’s Annual Distinguished Lecture was established in 1990 to honor an engineer who has made an outstanding contribution to society and to provide a forum for that person to address the Georgia Tech community. This year’s lecturer, Dr. John H. Sununu, was no exception to that rule. He spent the day at the Woodruff School, highlighted by his lecture on the role of The Engineer in the Public Policy Arena.

He said that while engineers continue to drive real progress and improvements to the quality of life, they generally have been reluctant to get involved in the process of developing public policy. If the problem solvers of the world don’t participate in making public policy, then policies will be developed by those who don’t know how to solve problems.

Dr. Sununu is President of JHS Associates, Ltd. From 1992 until 1998, he co-hosted CNN’s nightly Crossfire program. He was appointed Chief of Staff to the President of the United States in 1989, and served in the White House until 1992. Prior, Dr. Sununu served three terms as Governor of New Hampshire.

Dr. Sununu attended MIT at both the undergraduate and graduate levels, and earned his Ph.D. in 1966 in mechanical engineering. From 1968 until 1973, he was Associate Dean of the College of Engineering at Tufts University and Associate Professor of Mechanical Engineering.

**The Annual Spring Banquet**
The Annual Spring Banquet is planned and organized by the Woodruff School Student Advisory Committee (WSSAC) and sponsored by the Woodruff School. Approximately 200 people attended the event to honor graduating seniors. After the buffet dinner, Dr. Ward Winer introduced Mr. Ralph W. Pries, the 2002 Distinguished Alumnus, and Dr. Robert Fulton, the Jack M. Zeigler Outstanding Educator.

The 2002 Spring Banquet Executive Committee (Jacob Brand, Brett Jenner, Adrienne Prysock, Stewart Scully, Greg Thibeaux, Chris Tsigalas, and Justin Weaver) entertained us with The ME Awards, featuring movie clips for each faculty award. The awards were: *Escape from Alcatraz* (professor whose class seems to be an endless cavern of surprises): John Papastravidas; *Braveheart* (professor who inspires you to reach your goals): Marc Levenston; *The Godfather* (professor who is willing to make you an offer you can’t refuse): Raymond Vito; *As Good as it Gets* (professor whose quirks have taken over the classroom): Ye-Hwa Chen; *Something About Mary* (most wanted professor): Jeffrey Streator; *Finding Forrester* (professor who is most helpful): Ivona Jasiuk; *History of the World* (professor who covers an excessively large amount of material): Itzhak Green; *Titanic* (professor whose class lasts longer than necessary): Nader Sadegh; *Speed* (professor who erases the board faster than the students can write the notes): Minami Yoda; *James Bond* (best dressed professor): William Singhose; and *Joe's Apartment* (professor whose office resembles your dorm room): Harvey Lipkin.

**The Distinguished Alumnus Award**

Mr. Ralph W. Pries (BSME 1940) was named the 2002 Woodruff School Distinguished Alumnus. As is our tradition, Mr. Pries spoke to the assembled students about his career and Georgia Tech at the Spring Banquet. Mr. Pries attributes his very successful career to Georgia Tech.

Ralph Pries received a bachelor’s degree in mechanical engineering from Georgia Tech in 1940. Upon graduation, he joined National Theatre Supply Company in San Francisco, a motion picture equipment company. He left National Theatre Supply for a position as vice president of ABC Consolidated Corporation, a national food services firm. When ABC merged with the Ogden Corporation, Mr. Pries was named president of the new Ogden Foodservice Corporation. After retiring, he became president of MEDIQ/PRN Life Support Services, Inc., a national medical equipment company that rents ventilators and other life-support equipment to hospitals.

Mr. Pries is very active in philanthropic organizations, and he has been honored for his charitable and humanitarian endeavors. He has also been a consistent contributor to Georgia Tech’s annual giving campaigns for more than forty years. He was president of the Georgia Tech Club of Philadelphia, and during the Capital Campaign he made a substantial contribution to Georgia Tech.

**The Jack M. Zeigler Outstanding Educator Award**

The Jack M. Zeigler (ME 1948) Outstanding Educator Award was given to Professor Robert E. Fulton, who was recognized for nurturing the Woodruff School research and education program in computer-aided engineering and design; the initiation and development of the undergraduate program in computer-aided design and the graduate program in computer-aided engineering and information technology; and leadership in the expansion of information technology education within the College of Engineering.
Dr. Fulton came to Georgia Tech in fall 1985 as a professor; prior he was a senior staff scientist at George Washington University. His research at Georgia Tech includes the development of methods and tools associated with the application of new and evolving information technology concepts to improve the analysis, design, manufacturing, and life-cycle support of complex engineering products.

Dr. Fulton is a life member of the American Society of Civil Engineers and a Fellow of the American Society of Mechanical Engineers. He is a registered professional engineer in Illinois.

**LECTURES AND CONFERENCES**

**Woodruff School Colloquia**

The Woodruff Colloquium Series was established in 1985 to bring eminent speakers to the Georgia Tech campus. The colloquia highlight new developments in Mechanical Engineering and Nuclear and Radiological Engineering. As such, the seminars are intended to be of interest to the entire school, rather than a specific research group. Each year, several distinguished scholars from academia, industry, and government are selected by the individual research areas in the Woodruff School. The Woodruff School Colloquia given during the past academic year were:

- **Dr. Ram Sriram**, National Institute of Standards and Technology  
  *Research Opportunities in Distributed and Collaborative Design*
- **Dr. Peter Cummings**, University of Tennessee  
  *Molecular Simulation of the Rheology of Lubricant Components: Bulk Systems and Fluids Confined in Nanoscale Gaps*
- **Dr. Masayoshi Tomizuka**, University of California, Berkeley  
  *Servo Controls for Hard Disk Drives with Higher Storage Densities and Shorter Seek-Times*
- **Mr. Jerry Yelverton**, Entergy, Inc.  
  *Nuclear: An Exciting Future in The Clean-Air Energy*
- **Dr. Don Lucca**, Oklahoma State University  
  *Energy Dissipation in Ultraprecision Machining*
- **Dr. Forbes Dewey**, MIT  
  *The Unsteady Endothelial Cell in Steady Flow: A Story of Actin Dynamics*
- **Dr. Steven Senturia**, MIT  
  *EMS-Based Polychromator Design and Applications*
- **Dr. Alan Wineman**, University of Michigan  
  *Thermo-Mechanical Response of Elastomers Undergoing Scission and Cross-Linking at High Temperatures*
- **Dr. Mark Hamilton**, University of Texas  
  *Nonlinear Effects in Thermoacoustic Engines*
- **Dr. Van Carey**, University of California, Berkeley  
  *Interfacial Region Thermophysics and Boiling Phenomena in Pure Fluids and Binary Mixtures*
- **Dr. Mory Gharib**, California Institute of Technology  
  *The Dilemma of the Optimum Vortex*

**The ASME Congress and Exposition**

Though we were all still recovering from the aftermath of September 11th, the ASME Congress and Exposition went on as scheduled in New York City in November. This meeting was the sixth one at which the Woodruff School had a booth on the exposition floor. This provides us with a wonderful opportunity to speak with potential graduate students, meet our alumni, and discuss mechanical engineering education with conference attendees from academia and industry. Eighteen ASME
student chapter members from the Woodruff School attended the conference.

**STUDENT ACTIVITIES**

**Undergraduate Research Fair**

The Woodruff School Student Advisory Committee (WSSAC) hosted the yearly Undergraduate Research Fair, which provides a forum for undergraduate students interested in doing research with a faculty member to learn about the opportunities available in the School. A representative from each of the research area groups presents the highlights of work going on and the possibilities open to undergraduate students.

**Annual Cookout**

The annual Woodruff School cookout is held at the start of the fall semester so that new graduate students can meet returning graduate students, faculty, and staff in an informal atmosphere. Our new tee-shirt featuring a CAD-design of Buzz and titled *Drawing the Best*, which describes our typical students, was handed out. Because it was a very warm afternoon the most popular feature at the cookout was the ice cream bar. This event was attended by almost 500 people and is organized by the Woodruff School Graduate Office.

**Family Weekend**

Family Weekend is a chance for friends and family members to visit campus and attend a football game. We again hosted an open house so that visitors could tour our facilities, listen to a program about undergraduate mechanical engineering education in the Woodruff School given by Professor Ray Vito, Associate Chair for Undergraduate Studies, meet and ask questions of Ms. Kimberly Blue, Undergraduate Academic Advisor, see displays by some of our student competition groups, and meet other student leaders. A few weeks later we held another open house for Homecoming Weekend.
Woodruff School Rankings

For the first time, *U.S. News & World Report* ranked the Woodruff School of Mechanical Engineering number five for its undergraduate program. The College of Engineering was six overall, and number three among state universities. These are the best-ever rankings for Georgia Tech's undergraduate programs. The Woodruff School's graduate program in mechanical engineering was again ranked number six.

The Cooperative Program

Since 1912, Georgia Tech has offered a five-year cooperative program to those students who wish to combine career-related experience with classroom studies. The program is the fourth oldest of its kind in the world and the largest optional co-op program in the country. Students who enroll in the program alternate between industrial assignments and classroom studies on a semester basis, completing the same course work in five years that is completed by regular four-year students. In 2001, there were 528 ME students enrolled in the co-op program, the largest group in the program. In addition, 17 NRE students participated in the program. The graduate cooperative program was established in December 1983 and is currently the largest such program in the United States for science and engineering. Forty-nine ME graduate students and two NRE/HP students were enrolled in the program in 2001.

The United Technologies Teaching Interns Program

The United Technologies Teaching Interns Program is funded by the United Technologies Corporation and supports up to seven junior and senior mechanical engineering students for two semesters (fall and spring). Students are invited into the program based on their academic achievement: a 3.5 GPA is required for participation and recommendations by the faculty. The program is intended to give students the opportunity to work with a faculty member in teaching an undergraduate course in mechanical engineering; encourage our best students to consider going to graduate school; help develop communication and interpersonal skills; and provide a way for practicing engineers and managers at United Technologies to interact with Woodruff School students. The interns for the past academic year (fall 2001 and spring 2002) were Saniya Ahsan, Ryan Ahearn, Vanessa Chial, Karen Deen, Garth Frederick, Jerald Gaines, Javier Garcia-Rivera, Tamela McClam, Shantisa Norman, Patrick Opdenbosch, Matt Reed, Elizabeth Richter, Stuart Scully, and Matt Spetzler.

The Five-Year BS/MS Degree Program

In fall 2001, outstanding freshmen and sophomore students in the Woodruff School were invited to apply to the new Five-Year BS/MS Degree Program. Students can earn two degrees in a five-year period, which will provide a tremendous advantage when entering the job market. It might also be an impetus to continue for the doctorate. The program is individualized with numerous opportunities for faculty and students to interact, including mentoring and undergraduate research. Graduate course work begins in the senior year. Dr. Tom Kurfess is the Program Director. In the first year of the program, 27 students were admitted.

Frank Webb Program in Professional Communications

The program was created in 1990 and is one of the few writing programs of its kind in an engineering department. The program, which teaches clear writing and effective composition, is coordinated by Dr. Jeffrey Donnell (Ph.D. in English, Emory University). During the past academic year, Dr. Donnell taught the Little Red Schoolhouse program, reviewed manuscripts and thesis proposals for some Woodruff School graduate and undergraduate students, and assisted students as they drafted graduate school applications. He reviewed written and oral reports for student teams in Capstone Design, provided feedback on projects for student teams in ME 4053 (Mechanical Engineering Systems Laboratory), and gave feedback on oral presentations and on the teams' written project reports in ME 2110.

The Graduate Program: Women and Minorities
The Woodruff School continues to be a leading producer of graduate degrees to women and minorities. In the 2001-2002 academic year, seven women earned their doctoral degrees (4 ME, 3 NRE/HP). Twenty-two women earned the master's degree (20 ME, 2 NRE/HP). The first Ph.D. in the Woodruff School was awarded to Denise Noonan in Health Physics in 1984. In 1987, Mardi Hastings earned her Ph.D. in mechanical engineering. To date 64 women have earned the Ph.D. from the Woodruff School.

The Woodruff School granted its first doctoral degree to a minority student in 1978. Since then, 56 minority students have received the Ph.D. Two minority students earned a Ph.D. in the past academic year, both in ME. In addition, nineteen master's degrees were awarded to minorities (16 ME, 3 NRE/HP).

Georgia Tech Lorraine (GTL)

GTL celebrated its tenth anniversary in December 2001. Our program focuses on a master of science in mechanical engineering. Students complete the degree by combining courses taken at GTL, on-campus in Atlanta, or through video and on-line course offerings. The courses at GTL are taught in English by professors from Georgia Tech who go to France on a rotating basis. In fall 2001, Rick Neu and Damir Juric went to Metz and Rick Neu stayed through the spring 2002 semester. Professor Sam Shelton spent summer 2001 in Metz. The fall 2001 group consisted of nine Woodruff School graduate students and 26 students from ENSAM and other schools in France.

There is a terrific opportunity at GTL for mechanical engineering student collaboration through the PFE program -- the Projet de Fin d’Etude (the final project). The PFE involves two students, usually one French and one American, doing intense project work for one semester. The pair works on two different aspects of a research problem under the direct supervision of an ENSAM professor in France and a Woodruff School faculty member who may be resident in the United States.

There is also a GTL summer program for undergraduates. It combines mechanical engineering courses taught by Woodruff School faculty with humanities and social sciences courses taught by faculty from other units of the Georgia University System. Approximately forty-three Woodruff School students attended classes in Metz in summer 2001.

Distance-Learning Program

The Woodruff School offers both the MSME degree and the MSHP degree as part of its distance-learning program. Most of the students are working engineers who typically enroll in one course per term. Off-campus students may elect to take video classes, Internet courses, or classes in a combination of the two formats. In fall 1999, Georgia Tech became the first university
in the nation to offer its master's degree in mechanical engineering entirely online. Twenty-three courses in CD-ROM format are now on the web.

We offer approximately a dozen courses each semester, except during the summer when a small number of mathematics and industrial engineering courses are available. In the past academic year, there were 110 (93 ME, 17 HP) Woodruff School students involved in distance-learning classes.

**Academic Tutoring Program**

The Academic Tutoring Program in the Woodruff School is organized by Pi Tau Sigma, an honorary society in mechanical engineering. Woodruff School Student Advisory Committee (WSSAC) students, the United Technology Teaching Interns, and members of the Mechanical Engineering Graduate Student Association (MEGA) also serve as tutors. During the past academic year, most of the tutoring was for thermodynamics classes. This year the students are working to increase the availability of tutors and broaden the number of courses to include more of the core mechanical engineering courses. An area in the MRDC Building on the 2nd floor (near the elevator) has been reserved for this program, which runs Monday through Thursday. This program is sponsored by United Technologies, Proctor & Gamble, and the Woodruff School.

**Technology Fee Awards Program**

The Woodruff School received some allocations as part of Georgia Tech's Technology Fee Funds award program, the purpose of which is to enhance computing, laboratory and classroom technology. We received $88,000 to update the computer cluster in MRDC, Rooms 2104 and 2105 and the undergraduate instructional laboratories. This impacts 153 graduate students and 1395 undergraduate students. In addition, we received $9628 for LDC classroom projector systems in MRDC, Rooms 2104 and 2105 and $120,000 for upgrading undergraduate laboratory equipment for ME 3056, ME 4053, and ME 4055. Professor Imme Ebert-Uphoff received $66,000 to purchase four PUMA robots for the Robotics Lab.

**Creative Decisions and Design**

In the spring 2002 session of ME 2110 (Creative Decisions and Design), the design contest was based on the movie, “The Lord of the Rings.” Each team had to defeat the Wraiths, gather the rings, and place them in Mount Doom located in the heart of Mordor by scoring more points than the other teams. The source of power was five mousetraps and two 6 Volt gel cell batteries that were supplied to each team and energy from gravity. Each team was provided a set of actuators, which could be powered by the batteries. No group could spend more than $50 on the machine, but materials such as paint were not included in that amount. To complicate things, six teams competed at the same time. After a number of eliminations the top three winners were determined. Prior to the competition a design review was held. Systems were judged by the sponsors of ME 2110 and folks from the School. Kimberly-Clark, Schlumberger, ExxonMobil, Harold W. Gegenheimer Endowment for Innovation, United Technologies, GE Power Systems, and Procter & Gamble sponsor the course.

**Interactive Computer Graphics**

In ME 4041 (Interactive Computer Graphics and Computer-Aided Design) students are taught the principles of geometric modeling, finite-element methods, and interactive computer graphics hardware and software. They use CAD and CAE
applications in thermal and mechanical design problems. The class is taught by Professor Robert Fulton and Tord Dennis.

In the spring 2002 semester, Brad Durham and Greg Mitchell were one of the three teams entered into the Parametric Technology Corporation (PTC) Motorola Flip for Design Contest from ME 4041. Brad and Greg made the semifinals, competing against Carnegie Mellon University, Monroe County Community College, Notre Dame, and University of Massachusetts at Amherst. The project was to develop a design improvement for a cell phone using the PTC CAD system. The device must be a clamshell shape with an innovative hinge, pocket-sized, small, and easy to carry.

Anish Buch and Neil Saunders were one of the four winning teams in the contest. The team designed a cell phone with a helical torsion spring that allows the phone to be opened with one hand to improve the convenience and safety of cell phone use. They won the Benefits for Motorola category.

Capstone Design

The focus of Dr. David Sanborn's sections of Capstone Design (ME 4182) during the past year has been to make the design projects more challenging and to use projects from actual industrial applications and from current public interest events. Design teams composed of four-five graduating seniors worked on projects for the entire semester. The most notable of these projects were a fail-safe scaffolding system for high-rise window washing; a pneumatic nail gun that can distinguish between lumber and the user; a hybrid vehicle optimized for performance using a continuously variable transmission; a safety shutoff valve suitable for high pressure oxygen pipelines; and a drive train to test jet engine compressors at up to 30,000 hp and 30,000 rpm. The hybrid vehicle design won the most recent Georgia Engineering Foundation Senior Design Award.

In Professor Harvey Lipkin's sections of senior design, the objective was to apply the design process to solve an engineering problem that includes interdisciplinary parameters such as human factors, engineering economy, and safety. Each team produces detailed drawings, detailed specifications, a presentation, and a prototype of the proposed design.

Undergraduate Mechatronics

In spring 2002, students in ME 4447 (Microprocessor Control of Manufacturing Systems) did their final group projects in groups of three. Professor I. Charles Ume teaches the course. The lectures address the fundamental aspects of manufacturing elements and microprocessors and their applications. Hands-on application of machine and machine tool control are stressed. The projects were a bubble clock; an automatic fish feeder; a solar panel array that tracks the sun; a multipurpose sorter; a conveyor belt; and an automated system that measures and monitors the power output of an engine.

Graduate Mechatronics

In ME 6405 (Introduction to Mechatronics) graduate students
design and build electromechanical systems and products, which might have industrial applications. Fall 2001 projects included AMPS (Automated Mirror Position System), which automates the position of all three car mirrors to adapt to a driver's changing position. HoverBall is a fast-paced game where the goal is to score as many baskets as possible before time runs out. Other projects were WISE: Where Is the Stinger Bus Exactly, IC Engine Control, Automated Parking Attendant, and Genpichong.

Robotics

The first eight weeks of ME 4451 (Robotics) consists of eight laboratory exercises, where the students learn to model and program robots and to use a vision system. Then the students form teams and define their own mini-projects. They have to combine individual components to make a more complex project. The students had four weeks to work on the project.

The guidelines for the projects were to use Robix Robot Construction kits to build a robot. Most groups chose a task that involved a DVT vision system coupled with a simple hobby robot arm. All action, such as robot kinematics and camera communication had to be done from Matlab. The class is team-taught by Professors Harvey Lipkin and Imme Ebert-Uphoff.

STUDENT GROUPS

ASME Student Chapter

ASME had its annual spring picnic on the new Burdell Plaza behind the Love Building at the end of March. As usual, it was an extremely popular event; tee-shirts were available and students were able to join the chapter. Sponsors of the picnic were BASF and Kimberly Clark.

A few weeks later, the Georgia Tech chapters of ASME and IEEE sponsored a demonstration of the Segway H.T. Bart Thompson, from Michelin, one of the developers of the Segway, gave a design presentation and demonstrated how the device balances itself after falling from a 12 inch curb. Many people attending the demonstration got a chance to use the Segway. Popular events such as these are one reason the chapter was voted Organization of the Year out of 220 organizations at Georgia Tech.

Other activities in the past academic year included corporate meetings with Shaw Industries, Michelin, MicroCoating Technologies, Inc., Kimberly Clark, Schlumberger, Hewlett Packard, DuPont, BASF, Siemens, and General Electric. There was a plant trip to Kimberly Clark, and
eighteen members went to the ASME International Congress in New York City. In April 2002, twenty-six members went to the Regional Student Conference in Jackson, Mississippi, where they received a number of awards.

gt motorsports Wins Second International Race in England

The Georgia Tech motorsports team drove its single-seat race car to overall victory for the second consecutive year at the Formula Student competition held July 1-3 in Birmingham, England. The competition, sponsored by the Society of Automotive Engineers, requires college students to design, build, and race an open-wheel formula race car in selected categories. The Birmingham meet pitted 44 university teams against each other. The majority of the teams represented European universities, including the Netherlands, Germany, Slovenia, Portugal, Italy, Finland, Sweden and the United Kingdom. Four teams were from the United States and one was from Canada.

gt motorsports placed first in the presentation, design and skid pad categories, according to faculty advisor Ken Cunefare. They finished second in cost, acceleration, autocross events and the combined endurance and fuel economy event. The team finished first or second in all events. Even so, second place was taken by the University of Toronto, trailing by just 17 points (the margin of victory last year was 14 points).

In the Detroit meet, the team turned in what is arguably their best performance. They placed 3rd overall, out of a field of 134 collegiate teams from around the world. Over 120 vehicles passed inspection and were therefore eligible to race. The competition comprises a blend of static and dynamic events, intended to challenge both the student's knowledge of their car's design, and to challenge the performance and ruggedness of the car itself. In the static events, gt motorsports placed 19th in presentation, 18th in design, and 7th in cost (one of their best showings in this event). In the dynamic events, the team placed 15th in skid pad, 29th in acceleration, 19th in autocross, and 2nd in the all-important endurance event (40% of the total points are at stake in this event).

GT Off-Road Competes with Two Cars

GT Off-Road, Georgia Tech's Mini Baja Team, completed their 3rd year in competition with a long list of accomplishments. The three SAE sponsored events involved more than 200 teams from countries such as Canada, Mexico, Brazil, South Korea, and Argentina. Georgia Tech was one of only four teams to compete at all three locations. This was also the first year that the team entered multiple cars into competition. In addition to fabricating a brand new car, the team rebuilt the 2001 car.

The Mini Baja West four-hour endurance race involves terrain that is so
rigorous most cars break down before the completion of the race. This was the first endurance race ever completed by the team; car 85 crossed the finish line in 21st place. Other accomplishments included 19th in design and 17th in maneuverability.

The East competition requires a deep water crossing. There is a water maneuverability event and all cars are required to pass a 30-degree tilt test to prove that they can safely cross a lake. Out of a field of 53, the cars finished 14th and 16th in the endurance race and 7th and 8th in safety.

Midwest Mini Baja is the largest competition of the season. The cars secured 25th in maneuverability and 16th in the sled pull. After an unfortunate incident where the team’s newest car ran out of fuel during the endurance race, the car finished 13th in the race, just three laps out of a top 3 finish. The team had an overall placing of 23rd in Wisconsin.

GT Off-Road was awarded third place in the Mini Baja Iron Team Competition. The award is given to the top three teams with the highest cumulative scores from the three competitions.

**Robojackets: The FIRST Competition**

Students from Roswell High School and Georgia Tech engineering students, who serve as their mentors, built a remote-controlled, sporting robot that slam-dunks soccer balls. The robot took the students six weeks to design and build. It competed with robots built by students from Canada, Brazil, United Kingdom, and almost every state in the U.S. in regional and national competitions in Florida during the 2002 FIRST Robotics Competition. Seventeen regional competitions hosted 600 teams of more than 20,000 students. The Georgia Tech/Roswell High School team was the only team from Georgia competing in the games.

The competitions are sponsored by FIRST (For Inspiration and Recognition of Science and Technology), a nonprofit organization devoted to increasing interest in science and technology among youth. Ninth through 12th graders pair up with college engineering students or engineering companies to design and build a robot.

At this year’s regional competition there were nine rookie teams out of the 48 competing teams. The Georgia Tech team, which consisted of ten students from Roswell High School and one from Milton High School, took the Rookie All-Star Award. In the finals, the team won the National Rookie Award out of 200 teams. Professor Wayne Book is faculty advisor to GT FIRST.

**Lego Robot Challenge**

Robojackets sponsored the first Lego Robot Challenge in March 2002. Students from six area Georgia high schools learned about robotics by building remote-controlled robots made from special Lego kits. The robots were engineered to perform relay-type activities that involve capturing balls and placing them into nine different goals. Participating schools were Wheeler, North Springs, Tri-Cities, Athens Academy, Chattahoochee, and Fulton County Charter School. Judging was based on the difficulty of the goals made and how many goals were made during a five-minute period. Professor Imme Ebert-Uphoff is the faculty advisor to the Robojackets club.
Energy Challenge Competition

A team of three mechanical engineering students, Gonzalo Stabile, Yianni Ellis, and Philip Timm, took top honors in the Energy Challenge Competition. Seven college teams built sailboards from paper products and raced on Lake Lanier in April. The base of the paper sailboard was made from paperboard, similar to paper grocery bags and cardboard box. Inside the board was cardboard tubes that are usually used for mailing. Commonly used paper chemicals were used for finishing and bonding. The base of the vessel was made entirely from paper products.

Odyssey of the Mind

Odyssey of the Mind is a worldwide creative problem solving competition. Teams of students are challenged to solve divergent problems, that is, problems with no single solution. The competition fosters creativity and problem solving skills, as well as teamwork and an appreciation for the ideas of others.

A team of Georgia Tech students received 1st place in the World Finals Competition for Odyssey of the Mind at the University of Colorado at Boulder. Thomas Frosell, a senior in mechanical engineering, was a team member. Other team members came from aerospace engineering, biology, computer engineering, and physics. Whitney Morlock and Amar Chanani, both seniors in mechanical engineering, served as coaches to the team.

The students were required to present a short skit on environmental preservation. They also designed and built three devices that would help to preserve the environment.

Future Truck

A team of Georgia Tech engineering students was among 15 teams from top engineering schools competing to re-engineer a sport-utility vehicle to improve gas mileage and reduce emissions. Future Truck is a joint government-industry project created by the DOE to explore alternative propulsion systems and fuels through student competition. The team modified the existing powertrain of a Chevrolet Suburban SUV to increase the fuel economy.

The team received the following awards: Best Dynamic Handling; Best Acceleration; Best Consumer Acceptability; 2nd Place Innovations in Aluminum; and 3rd Place MathWorks Vehicle Modeling and $6,750 in prize money. The team placed 9th overall.
The Woodruff School continues to get excellent students as shown by the class profiles of the new undergraduate and graduate students in fall 2002.

### Freshman Class Profile

<table>
<thead>
<tr>
<th>Category</th>
<th>Mechanical Engineering</th>
<th>Nuclear and Radiological Engineering</th>
<th>Georgia Tech</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average SAT Score (out of 1600)</td>
<td>1343</td>
<td>1376</td>
<td>1333</td>
</tr>
<tr>
<td>High School Grade Point Average</td>
<td>3.71</td>
<td>3.81</td>
<td>3.75</td>
</tr>
<tr>
<td>Number of Freshmen</td>
<td>214</td>
<td>43</td>
<td>2,223</td>
</tr>
</tbody>
</table>

### Incoming Graduate Class Profile

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Students</td>
<td>233</td>
</tr>
<tr>
<td>Applicants</td>
<td>847</td>
</tr>
<tr>
<td>Accepted (43% of applicants)</td>
<td>356</td>
</tr>
<tr>
<td>Matriculated (64% of those accepted)</td>
<td>233</td>
</tr>
<tr>
<td>Average Grade Point Average</td>
<td>3.52</td>
</tr>
<tr>
<td>Average Score on Graduate Record Exam (out of 2400)</td>
<td>1924</td>
</tr>
<tr>
<td>Demographics (ME &amp; NRE/HP)</td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>203</td>
</tr>
<tr>
<td>Females</td>
<td>30</td>
</tr>
<tr>
<td>Minority (U.S. Citizens)</td>
<td>32</td>
</tr>
<tr>
<td>International</td>
<td>56</td>
</tr>
<tr>
<td>Geographical Breakdown by Undergraduate School</td>
<td></td>
</tr>
<tr>
<td>U.S. East/Northeast</td>
<td>36 (16%)</td>
</tr>
<tr>
<td>U.S. South/Southeast</td>
<td>81 (35%)</td>
</tr>
<tr>
<td>U.S. Midwest</td>
<td>30 (13%)</td>
</tr>
<tr>
<td>U.S. West/Southwest</td>
<td>34 (15%)</td>
</tr>
<tr>
<td>International</td>
<td>50 (21%)</td>
</tr>
</tbody>
</table>
Student Body Makeup

In fall 2001, there were 1,016 males (83%) and 201 females (17%) for a total of 1,217 undergraduate students. Of these, 265 (22%) were minorities (note that minority includes only U. S. citizens and permanent residents: Asians, Blacks, Hispanics, American Indian, and Multiracial) and 33 were internationals. On the graduate side, there were 519 males (85%) and 95 females (15%) for a total of 614 students. Of these, 87 (14%) were minorities and 198 (32%) were internationals.

Enrollment

There was a total of 1217 undergraduate students in the Woodruff School in fall 2001, excluding the co-op students at work. Of these, 1,161 were in Mechanical Engineering and 56 in Nuclear and Radiological Engineering. On the graduate side, we had a total of 614 students. Of these, 352 were master's students (326 in ME, 23 in NRE/HP, and 3 in BIOE), and 244 were doctoral students (214 in ME, 22 in NRE/HP, and 8 in BIOE). There were also 18 special students.

### ENROLLMENT IN THE COLLEGE OF ENGINEERING

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerospace Engineering</td>
<td>445</td>
<td>523</td>
<td>260</td>
<td>264</td>
</tr>
<tr>
<td>Bioengineering</td>
<td>---</td>
<td>0</td>
<td>53</td>
<td>64</td>
</tr>
<tr>
<td>Biomedical Engineering</td>
<td>---</td>
<td>40</td>
<td>9</td>
<td>24</td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>591</td>
<td>526</td>
<td>123</td>
<td>123</td>
</tr>
<tr>
<td>Civil and Environmental Engineering</td>
<td>441</td>
<td>440</td>
<td>311</td>
<td>340</td>
</tr>
<tr>
<td>Electrical and Computer Engineering</td>
<td>1,867</td>
<td>1,885</td>
<td>792</td>
<td>899</td>
</tr>
<tr>
<td>GTREP</td>
<td>24</td>
<td>52</td>
<td>---</td>
<td>0</td>
</tr>
<tr>
<td>Industrial &amp; Systems Engineering</td>
<td>1,062</td>
<td>1,038</td>
<td>335</td>
<td>409</td>
</tr>
<tr>
<td>Materials Science and Engineering</td>
<td>42</td>
<td>51</td>
<td>68</td>
<td>85</td>
</tr>
<tr>
<td>Mechanical Engineering (includes NRE/HP)</td>
<td>1,262</td>
<td>1,217</td>
<td>535</td>
<td>614</td>
</tr>
<tr>
<td>Textile &amp; Fiber Engineering</td>
<td>114</td>
<td>95</td>
<td>45</td>
<td>27</td>
</tr>
<tr>
<td>Undeclared</td>
<td>253</td>
<td>291</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6,101</strong></td>
<td><strong>6,158</strong></td>
<td><strong>2,531</strong></td>
<td><strong>2,849</strong></td>
</tr>
</tbody>
</table>

Honors and Awards

Sanya Ahsan and Ericka Onsager won James G. and Mary G. Wohlford Scholarships. These scholarships recognize outstanding senior co-ops who have excelled academically and on their co-op jobs and who have made significant contributions to the community.
Paul Bosscher received a 2002-2003 National Defense Science and Engineering Graduate (NDSEG) Fellowship. The award is sponsored by the Office of the Deputy Under Secretary of Defense for Science and Technology and the Army Research Office. More than 2,000 applications were received this year.

Vanessa Chial won the Samuel P. Eschenbach Memorial Award in Mechanical Engineering. This award is based on academic performance, leadership capability as demonstrated through involvement in the campus community, and promise as a mechanical engineer.

Larissa Ann Cottrill was one of the five winners of the Henry Ford II Scholar Awards made to the engineering students with the best academic record at the end of the third year of undergraduate study.

Rebecca Covert, Ph.D. student in mechanical engineering, received an ARCS (Achievement Reward for College Scientists) fellowship.

Melanie Currin received the Pi Tau Sigma Outstanding Junior Award, presented to the junior student in mechanical engineering who demonstrates outstanding scholarship, service to the School and to student activities.

Joel Fortgang was named the Woodruff School's Outstanding graduate teaching assistant.

R. Jason Fowler, David Harper, Michael Landis, Shane Lawlor, and David Wakiwaka won the Georgia Engineering Foundation Senior Design Award, which is presented to the design team producing the most outstanding senior design project in the College of Engineering. The group won for their ME 4182 project titled, Hybrid Vehicle System Design. The class was taught by Dr. David Sanborn.

Amelia Leichliter won the Pi Tau Sigma Outstanding Senior Award given to the graduating senior who has demonstrated outstanding scholarship in addition to service to the School, the Institute, and student activities.

Maxime LeMemestrel, a French GTL student, won the Prix Lothaire of the Lorraine Region to pursue graduate studies outside France.

Christyn Magill won the 2002 Georgia Tech Engineering Student of the Year Award. The award was presented at the Metro Atlanta Engineering Awards Banquet which celebrates National Engineering Week. Christyn is an undergraduate student in mechanical engineering doing research for Professor Marc Levenston in biomedical engineering. She designed and built a bioreactor system that mimics the effect of a knee joint on cartilage.

Ericka Onsager and Anna Fencher received the Georgia Tech Alumni Association Student Leadership Award for International Study. These awards recognize outstanding student leaders and provide them with the opportunity to broaden their educational experience through travel abroad. They must also have demonstrated significant potential for future alumni leadership.

Gena Poe and Michael Swinson, Woodruff School graduate students, received the 2002-2003 Southern
Matt Reed won the School Chair’s Award from the Woodruff School of Mechanical Engineering, which is given to a graduating senior for outstanding scholarship and contributions to the School.

Ramiro L. Rivera received an award from the NASA/Harriett G. Jenkins Predoctoral Fellowship Program. The mission of this program is to increase the number of women, minorities, and people with disabilities participating in math, science, engineering, and technology. Ramiro was one of two students to be selected by NASA for the fellowship, which is for graduate education leading to doctoral degrees in NASA-related disciplines.

Carolyn Conner Seepersad participated in the Engineering Education Scholars Summer 2001 Workshop held at the Xerox Document University in Leesburg, Virginia. This workshop is for advanced graduate students and new faculty members.

Jonathan Smith received the Woodruff School of Mechanical Engineering Outstanding Scholar Award, which recognizes a graduating senior who has achieved an exceptional scholastic record.

Alice Snedeker won the Pi Tau Sigma Outstanding Sophomore Award presented to the sophomore student in mechanical engineering who demonstrates outstanding scholarship and service to the School and student activities.

Douglas Spearot received the American Electroplaters and Surface Finishers Society (ASEF) Fellowship. The award is to encourage students to consider the surface finishing field.

Matt Spetzler received the Richard K. Whitehead Jr. Memorial Award, which is given to an outstanding mechanical engineering senior who exemplifies high standards of scholarship and service.

Shannon Stott, Ph.D. student in bioengineering, received a fellowship from the Atlanta Chapter of the ARCS Foundation. Shannon also received a 2002 Teaching Fellowship from the American Society of Mechanical Engineers.

Jelena Vukasinovic’s paper on “An Active Radial Countercurrent Heat Sink Driven by a Synthetic Jet Actuator,” received an award in the Georgia Tech Student paper competition sponsored by Science Applications International Corporation. Ari Glezer is her advisor.

Jamal Wilson won a Packard Doctoral Fellowship.

Omar Wooten was an award winner in the technical paper area at the Los Alamos National Laboratory’s 2001 Symposium for his paper titled, "Calculation of Dose Conversion Factors for Inhalation and Ingestion from Radioisotopes Produced in Spallation Neutron Sources." Nolan Hertel is his advisor.

National Science Foundation Awards

Since 1990, Woodruff School graduate students have won 105 NSF fellowships and 120 honorable mentions. Once again, the Woodruff School did extremely well in the National Science Foundation (NSF) graduate research fellowship competition. Only 45 awards were made in mechanical engineering. The winners are:

Matt Allen (Jerry Ginsberg, advisor)
Aimee Beargle (Wayne Book, advisor)
Josette Broiles (Robert Nerem, advisor)
Matt Chamberlain (Farrokh Mistree, advisor)
Crystal Hsu (John Ranieri, advisor)
Vanessa Chial (undergraduate student)
Megan Oest (Bob Guldberg, advisor) BioMed student

In addition, Craig Forest (BSME 2001 and now a graduate student at MIT) won an award and new graduate student Andrea Lay brings another NSF award to the Woodruff School. This year's honorable mentions are: Ted Akiskalos (BSME 2001), Michael Carone, John Slanina, Jonathan Smith (BSME 2002), Chris Williams, and John Connelly (new graduate student).

Mentions in Who’s Who

The 2002 edition of Who’s Who Among Students in American Universities and Colleges includes the names of 61 graduate students from the Woodruff School. Selection is based on academic achievement, service to the community, leadership in extracurricular activities, and potential for continued success. This year's students are Matthew Abercrombie, Anne Marie Albanese, Melissa Bargmann, Jonathan Barletta, Kyle Berkowitz, Scott Bondi, Andrea Burgess, Jonathan Butcher, Maria-Isabel Carnasciali, Matthew Chamberlain, Robert Chedester, Matthew Christopher, Rhima Coleman, Christopher Conrad, Nathan Cook, Brian Corbett, Matthew Cornwell, Marnico Deladisma, Benjamin Dempsey, Beth Douglas, Scott Duncan, Douglas Fenneman, Joel Fortgang, Scott Froom, Michael Haberman, Timothy Hartigan, Jorge Hernandez, Mihaly Horvath, Turner Howard, Richard Howe, Ryan Johnson, Susan Knueven, Michael Kohl, Peter Kottke, Kris Kozak, Jason Lawrence, John Malluck, Courtney Marrett, Jeffrey McLean, Michael Mears, Kristin Michael, Srinidhi Nagaraja, James Nicholas, William Oates, Cynthia Phillips, Katherine Praus, Anand Raghu, John Reap, Catherine Reyes, Erick Rios, Katharine Shilling, Chris Shumway, John Slanina, Daniel Stinemates, Priya Vallabh, Philip Voglewede, Paul Wickersham, Christopher Williams, Omar Wooten, Bassem Zaki, and Tracie Zoeller.

Careers

The job market has remained strong for graduates of the Woodruff School. The Office of Career Services reports that more than 800 employer visits occurred on campus during the last year. These employers represent a substantial number of the Fortune 500 corporations, as well as many state and regional organizations. The number of companies visiting Georgia Tech that wish to recruit Woodruff School students is very high.

The average reported starting salary for those with a degree from the Woodruff School is shown below. The numbers reflect only those students who reported salary information to Career Services, which is not a high percentage of our graduates.
### Reported Starting Annual Salary by Major and Degree

<table>
<thead>
<tr>
<th>Major</th>
<th>Degree</th>
<th>2000</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical Engineering</td>
<td>Bachelor's</td>
<td>$46,795</td>
<td>$47,529</td>
</tr>
<tr>
<td></td>
<td>Master's</td>
<td>$53,600</td>
<td>$61,944</td>
</tr>
<tr>
<td></td>
<td>Doctoral</td>
<td>$58,700</td>
<td>$76,888</td>
</tr>
<tr>
<td>Nuclear Engineering</td>
<td>Bachelor's</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Doctoral</td>
<td>N/A</td>
<td>39,600</td>
</tr>
<tr>
<td>Health Physics</td>
<td>Master's</td>
<td>$49,500</td>
<td>$49,500</td>
</tr>
<tr>
<td>College of Engineering</td>
<td>Bachelor's</td>
<td>$46,513</td>
<td>$48,978</td>
</tr>
<tr>
<td></td>
<td>Master's</td>
<td>$58,169</td>
<td>$58,787</td>
</tr>
<tr>
<td></td>
<td>Doctoral</td>
<td>$64,679</td>
<td>$81,950</td>
</tr>
</tbody>
</table>
From July 1, 2001 to June 30, 2002, Woodruff School students were awarded 2.77 million dollars in fellowships for graduate study; in 2000-2001 that amount was $2.5 million dollars and in the previous period, $2.47 million. The impressive quality of our graduate students is demonstrated by the presence of 122 Georgia Tech President’s Fellows and 105 winners since 1990 of the prestigious National Science Foundation Graduate Research Fellowship.

**ARCS (Achievement Rewards for College Scientists) Foundation Atlanta Chapter Scholars**

Brett Bailey  
Rebeccah Covert  
Chad Duty  
Peter Kottke  
Susan Stewart  
Shannon Stott  
Michael Swinson

**ASHRAE (American Society of Heating, Refrigeration, and Air Conditioning Engineers) Grant-in-Aid**

Hany Al-Ansary

**ASME (American Society of Mechanical Engineers) Graduate Teaching Fellowship**

Wayne Johnson  
Stephanie Kladakis

**ALCOA/GTL Fellowship**

Jessica Bigas  
Diane Craig

**Department of Education Graduate Assistance in Areas of National Need (GAANN) Fellowship**

Cornelius Ejimofoor  
Ali Pourmohamadian

**Department of Energy Fusion Fellowship**

Samuel Durbin
Department of Energy Integrated Manufacturing Fellowship
Anh Dang
Ty Dawson
Chad Duty
Dathan Erdahl
Andrew Scholand

Department of Energy Nuclear Engineering Fellowship
Scott Mosher

Ford Motor Company Fellowship
Kwame Ofori

Fulbright Fellowship
Oscar Soto-Valdez

General Electric Faculty for the Future Doctoral Fellowship
Kellie Murphy

GEM (Graduate Education for Minorities' Fellowship
Ajamu Baker (MS)
JoSette Broiles (MS)
Brian Davis (MS)
Mawuli Dzirasa (MS)
Kwaku Eason (MS)
Gaylon Hollis (MS)
Sundiata Jangha (Ph.D.)
Kareem Muhammad (MS)
Kwame Ofori (MS)
Michael Robertson (Ph.D.)
Felipe Roman-Mirales (MS)
Annica Wayman (Ph.D.)

Georgia Research Alliance Environmental Technology Chair Fellowship
Niko Murrell
Alexander Valle

Georgia Tech Institute Fellowship
Paul Bosscher
Robert MacMeccan
Nathan Masters
Anna Pavlova
Catherine Reyes
Philip Voglewede
Charlotte Walker

Georgia Tech President's Fellowships
Anne Marie Albanese
Adya Ali
Matthew Allen
Jeffrey Badertscher
Brett Bailey
Douglas Bakkum
Melissa Bargman
Jonathan Barletta
Kathryn Baxter
Brad Beadle
Erika Biediger
Scott Bondi
JoSette Broiles
Jonathan Butcher
David Butts
Benjamin Byers
Maria-Isabel Carnasciali
Michael Carone
Joseph Ceremuga
Matthew Chamberlain
Robert Chedester
Matthew Christopher
John Clayton
Michael Colella
Rhima Coleman
Matthew Cornwell
Adam Coutee
Rebeccah Covert
Frederick Cowan
Thomas Crittenden
Anh Dang
Ty Dawson
Joseph DeKroon
Marnico Deladisma
Benjamin Dempsey
Mary Elizabeth Douglas
Scott Duncan
Samuel Durbin
James Nichols
John Pape
Matthew Pavlick
Andrew Perkins
Blaise Porter
Zachary Priest
Frank Pyrtle
Anand Raghu
John Reap
Christopher Rinehart
Ramiro Rivera-Rivera
Felipe Morales Roman
Laura Rowe
Brian Schroeter
Jevin Scrivens
Carolyn Seepersad
Christopher Shumway
Shane Siebenaler
John Slanina
Douglas Spearot
Susan Stewart
Michael Still
Wesley Stone
Shannon Stott
Dana Swalla
Davin Swanson
Michael Swinson
David Tamburello
Eric Vanderploeg
Benjamin Wagner
Andrew Watt
Annica Wayman
Brian Wayman
Nathan Weiland
Paul Wickersham
Christopher Williams
Thomas Wilson
Wesley Wolf
Michael Woodmansee
Hasani Wooten
Nicole Zirkelback

Glenn Fellowship
Melissa Bargman
Turner Howard
Christopher Rinehart
Eric Vanderploeg
Nathan Weiland

Hertz Fellowship
Carolyn Seepersad

Luce Fellowship
Stacy Imler

Medtronic Fellowship
Christopher Conrad

NASA Graduate Fellowship
Brett Bailey
Maria-Isabel Carnasciali
Ramiro Rivera-Rivera
Nicole Zirkelback

National Defense Science & Engineering Graduate Fellowship
Sundiata Jangha
Peter Kottke
Kris Kozak
Michael Swinson

NIH Traineeship
Stephanie Kladakis

NPSC (National Physical Science Consortium) Fellowship
Michael Woodmansee
Tracie Zoeller

NSF FACES Fellowship
JoSette Broiles
Cornelius Ejimofor
Ali Gordon
Christopher Green
Sundiata Jangha
Wayne Johnson
Gena Poe
Frank Pyrtle
Jevin Scrivens
Annica Wayman
Brian Wayman
Hasani Wooten

NSF Graduate Research Fellowship
Anna Marie Albanese
Melissa Bargman
Erika Biediger
David Butts
Adam Coutee
Rebeccah Covert
Mary Elizabeth Douglas
Timothy Ferguson
Marco Fernandez
Turner Howard
Richard Howe
John Huey
Stacy Imler
Susan Knueven
Angela Lin
Robert MacMeccan
Casey McIntosh
Kristin Michael
Carolyn Seepersad
Susan Stewart
Eric Vanderploeg
Charlotte Walker
Annica Wayman
Hasani Wooten

NSF Georgia Tech STEP (Student and Teach Enhanced Partnership) Fellowships
Al-Khalique Hamilton
Gena Poe
Katharine Shilling
Wesley Wolf

Packard Fellowship
Christopher Green
Desiree Jangha

Parker Petit Fellowship
Stephanie Kladakis

**Raytheon Fellowship**
Jeremy Harvey

**Sloan Foundation Doctoral Fellowship**
Ali Gordon
Wayne Johnson
Gena Poe

**U.S. Air Force Palace Knight Fellowship**
Ryan Morrissey
Mark Tudela

**U.S. Air Force Traineeship**
Lynnane George

**U.S. Army Traineeship**
Dawson Plummer

**U.S. Navy Traineeship**
William Wolf

**Whitaker Fellowship**
Rhima Coleman
Bryan Marshall
Catherine Reyes
Brian Wayman

**Woodruff Fellowship**
Anne Marie Albanese
Adya Ali
Matthew Allen
Ulf Andresen
Jeff Badertscher
Brett Bailey
Douglas Bakkum
Melissa Bargman
Jonathan Barletta
Julien Bassett
Kathryn Baxter
Brad Beadle
Scott Bondi
JoSette Broiles
Jonathan Butcher
Benjamin Byers
Maria-Isabel Carnasciali
Peter Carnell
Michael Carone
Joe Ceremuga
Matthew Chamberlain
Robert Chedester
Matthew Christopher
John Clayton
Michael Coletta
Brian Corbett
Matthew Cornwell
Rebeccah Covert
Frederick Cowan
Thomas Crittenden
Joseph DeKroon
Marnico Deladisma
Benjamin Dempsey
Michael DeSalvo
Mary Elizabeth Douglas
Katherine Dres
Scott Duncan
Brian English
Douglas Fenneman
Nathan Gallant
Brian Gardner
Heather Gepford
Donavon Gerty
Ali Gordon
Jeffrey Gould
Christopher Green
Michael Haberman
Neal Hall
Gavin Ho
Edward Hoffman
Mark Holdhusen
Andrew Honohan
Mihaly Horvath
Hsingching Crystal Hsu
Desiree Jangha
Daniel Jean
Ryan Johnson
Wayne Johnson
Junhyck Kim
Susan Knueven
Michael Kohl
Travis Laker
Jason Lawrence
Brian Lemon
David Longenbach
Lori Lowder
Courtney Marrett
Lisa Mauck
Jeffrey McLean
Ryan Melcher
Kristin Michael
Mitul Modi
Brent Moffitt
Janna Mouw
Jennifer Muncy
Kellie Murphy
Srinidhi Nagaraja
James Nichols
John Pape
Matthew Pavlick
Andrew Perkins
Cynthia Phillips
Blaise Porter
Zachary Priest
Frank Pyrtle
Anand Raghu
Sharad Rantham
John Reap
Christopher Rinehart
Ramiro Rivera-Rivera
Felipe Morales-Roman
Laura Rowe
Brian Schroeter
Jefin Scrivens
Carolyn Seepersad
Katharine Shilling
Christopher Shumway
Shane Siebenaler
John Slanina
Charlotte Song
Douglas Spearot
Michael Still
Daniel Stinemates
Wesley Stone
Shannon Stoff
Dana Swalla
Davin Swanson
David Tamburello
Eric Vanderploeg
Benjamin Wagner
Russell Watts
Nathan Weiland
Paul Wickersham
Christopher Williams
Thomas Wilson
Wesley Wolf
William Wolf
Michael Woodmansee
Claudia Zettner
Nicole Zirkelback
Tracie Zoeller

Woodruff School GTL Fellowship
Jessica Bigas
Francois Coursaget
Diane Craig
Yoann Crepet
Vincent Fort
Cryil Garcia
Marc Gergaud
Olivier Guerin
Adam Liberatore
Lucas Loriot
Alexander Muller
Niko Murrell
Florent Peteri
Romary Valdenaire
Alexander Valle
Guillaume Voiriot
Jean-Francois Weibel
Woodruff Teaching Internship
Michael Kohl
Bojan Vukasinovic

Woodruff School High Score on Ph.D. Qualifying Exams
Fahd Abdelall (Fall)
Dalong Gao (Fall)
Sira Gurrum (Spring)
Andrew Perkins (Fall)
Vikas Tomar (Spring)
Jie Yang (Spring)

World Student Fund Fellowship
Hans Ahrholdt
Sebantien Ebert
Ingo Pfannkuchen

Yopp Fellowship
Neal Hall
Angela Lin
Katharine Shilling
Many undergraduate students in the Woodruff School receive some type of scholarship. Half of our in-state students receive HOPE Scholarships, the program financed through the Georgia State Lottery. In addition, we list below some of the merit-based awards currently held by Woodruff School students.

President's Scholars

The President's Scholar Program, which began in 1981, identifies students who have excelled in academia and leadership. Financial awards are for four academic years, and students are expected to maintain honors-level academic performance and to be involved in campus or community activities. The program is funded entirely by endowments and annual contributions from Georgia Tech's generous alumni, industry supporters, and other friends through the Roll Call annual giving program.

In fall 2002, eighty-three new President's Scholars entered the Institute. Of these, eight are Woodruff School students: Chris Clarke, Hillary Davis, Eric Deutsch, David Harman, Joseph Malek, Sarah Oravetz, Andy Powell, and Schenck Wiley. Other Woodruff School students currently enrolled as President's Scholars are Saniya Ahsan, Joshua Bagwell, Emily Beck, Adam Bierce, Robert Carroll, Michael Clements, Michael DeNicola, Michael Gootman, Justin Hargrove, Lyndsey Heine, Nathan Liddell, Christyn Magill, John Malek, David Moeller, Melissa Murray, Daniel Muxie, Shawn O'Connor, Erica Onsager, Matthew Prohaska, Adam Reich, Ryan Reynolds, Nathan Scripps, Marc Thomes, Jennifer Watson, and Christina Weise.

Scholarships in Nuclear Engineering

The 2001 scholarship awards reception for nuclear and radiological engineering undergraduate students was held on October 4, 2001. Dr. Winer introduced the sponsors and Dr. John Valentine, coordinator of the NRE Scholarship Program, welcomed the participants. Scholarship sponsors are: NAC International, Duke Power Company, McCallum-Turner, Southern Nuclear Operating Company, Department of Energy/Industry Matching Grant, CH2M-Hill, National Academy for Nuclear Training, Women in NRE Scholarships, and Woodruff School NRE Scholarships. Students receiving scholarships are: Anthony Achudume, Teresa Canty, Jesse Chestham, Dale Cotton, Larissa Cottrill, Stefanye DeMarcus, Jesse Dukes, Justin Edwards, Christopher Fong, Justin Garrison, Nicholas Giglio, Lindsay Goree, Thomas Goree, Jesson Hutchinson, Adam Jones, Robert Jones, Robert Kelm, Gregory Kessler, Chris Lafakis, David Lassiter, Ryan Lorio, Michael Mason, William Murphy, Joshua Parker, Victor Popp, Justin Pounders, Jessica Rooney, Horace Smith, Matthew Terry, John Williams, and Brian White.
In 1888 when Georgia Tech opened, mechanical engineering was the only degree-granting program. Today, the Woodruff School offers two undergraduate degrees and nine graduate degrees. In addition, the master's degree can be completed off-campus through the distance-learning program.

### Degrees Awarded in the College of Engineering from Summer 2001 to Spring 2002

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Bachelor's Degrees</th>
<th>Master's Degrees</th>
<th>Doctoral Degrees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerospace Engineering</td>
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<td>68</td>
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<tr>
<td>Biomedical Engineering</td>
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<tr>
<td>Chemical Engineering</td>
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<td>4</td>
<td>18</td>
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<tr>
<td>Civil and Environmental Engineering</td>
<td>138</td>
<td>97</td>
<td>27</td>
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<tr>
<td>Electrical and Computer Engineering</td>
<td>333</td>
<td>221</td>
<td>53</td>
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<tr>
<td>Industrial and Systems Engineering</td>
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<td>141</td>
<td>14</td>
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<tr>
<td>Materials Science Engineering</td>
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<td>17</td>
<td>6</td>
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<tr>
<td><strong>Mechanical Engineering (and NRE)</strong></td>
<td><strong>250</strong></td>
<td><strong>152</strong></td>
<td><strong>23</strong></td>
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<tr>
<td>Textile and Fiber Engineering</td>
<td>12</td>
<td>5</td>
<td>5</td>
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<tr>
<td><strong>Totals for COE</strong></td>
<td><strong>1232</strong></td>
<td><strong>708</strong></td>
<td><strong>172</strong></td>
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### Degrees Awarded in the Woodruff School by Discipline and Gender from Summer 2000 to Spring 2001

<table>
<thead>
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<th>Discipline</th>
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<th>Ph.D. Degree</th>
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<td>Female Male</td>
<td>Female Male</td>
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<tr>
<td>ME</td>
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<td>20 121</td>
<td>4 15</td>
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<tr>
<td>NRE</td>
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<td>0 0</td>
<td>3 1</td>
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<tr>
<td>HP</td>
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<td>2 9</td>
<td>0 0</td>
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<tr>
<td><strong>Totals</strong></td>
<td><strong>44 206</strong></td>
<td><strong>22 130</strong></td>
<td><strong>7 16</strong></td>
</tr>
<tr>
<td></td>
<td><strong>250 152</strong></td>
<td><strong>23</strong></td>
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Degrees Awarded in the Woodruff School by Ethnicity from Summer 2001 to Spring 2002

<table>
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<th>Ethnicity</th>
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<th>Master's Degree</th>
<th>Doctoral Degree</th>
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<tbody>
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<td>NRE</td>
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<td>Blacks</td>
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<tr>
<td>Hispanics</td>
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<td>Native Americans</td>
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<td>Whites</td>
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<td>Multiracial</td>
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<tr>
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<td>0</td>
<td>46</td>
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<tr>
<td><strong>Totals</strong></td>
<td><strong>245</strong></td>
<td><strong>5</strong></td>
<td><strong>141</strong></td>
</tr>
<tr>
<td></td>
<td>250</td>
<td>152</td>
<td>4</td>
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</tbody>
</table>

During the past academic year, 250 undergraduate degrees were awarded: 64 degrees in summer 2001, 66 in fall 2001, and 120 in spring 2002.

**Summer 2001**
- Alajbegovic, Vahidin
- Alexa, Heidi Rose
- Anderson, Patrick
- Andresen, Ulf
- Baker, Ajamu
- Boles, Carrie
- Bowin, Jeffrey
- Boyer, Christopher
- Brown, Robert
- Burgos, Luis
- Chen, Austin
- Clark, Cyla
- David, Bradford
- Davis, Brent
- Dieterich, Adam
- Diptee, Vinosh
- Draisen, Howard
- Finch, John Presley
- Gaudry, Damien
Pletcher, Steven
Praser, James
Ramey, Sharon
Sachs, Benjamin
Scarborough, Matthew
Schofield, John
Sides, Steven
Siebenaler, Shane
Simon, George
Spencer, Amanda
Steele, Randall
Tataseo, Nicholas
Taylor, Marcus
Wakiwaka, Eisuke
Walcott, Troy Carey
Wills, Wesley Clark
Workman, Nathan
Zauderer, Brock

Spring 2002
Ahearn, Ryan
Albanese, Brian
Allison, Benjamin
Austin, Corey
Ayanaba, Claudette
Baker, Jason David
Balacki, Katherine
Barb, Michael Richard
Barnwell, Ramee
Bentley, Darrell
Bhakta, Jigneshkumar
Biggers, Christopher
Boutwell, Kevin
Bowden, Gregory
Brooks, Jonathan
Browder, Royce
Bucklen, Brandon
Bunyasaranand, Adam
Calhoun, Kevin
Carmona, Christopher
Carroll, Thad
Chang, Chih-Hao
Chang, Erwin
Chapman, Kelli
Chial, Vanessa
Clayman, Amy
Cole, GeJuan
### Summer 2001 Graduates

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Advisor</th>
<th>Thesis Title</th>
<th>Previous School Attended</th>
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<tbody>
<tr>
<td>Ahmad, Mudasir</td>
<td>MSME</td>
<td>Suresh Sitaraman</td>
<td>Structural Thermal-Electric Modeling and Analysis of Micro-Springs for Microelectronic Probing and Packaging Applicants</td>
<td>Ohio University-Athens</td>
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<tr>
<td>Alteirac, Laurent</td>
<td>MSME</td>
<td>Peter Rogers</td>
<td>Clinical Trial of Hydro-Acoustic Therapy and Conception of a Second-Generation Hydro-Acoustic Chamber</td>
<td>ENSAM-Aix, France</td>
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<tr>
<td>Batel, Mehdi</td>
<td>MSME*</td>
<td>David Trivett &amp;</td>
<td>Acoustic Determination of Adhesive Bond Delaminations</td>
<td>ENSIM-LeMans, France</td>
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<td>Peter Rogers</td>
<td>Design of an Active Acceleration Compensation Robot</td>
<td>Georgia Tech</td>
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<td>Bush, Robert</td>
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<td>Development of a System for the Measurement of the Static Bulk Modulus of Fluids</td>
<td>U. S. Military Academy</td>
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<tr>
<td>Common, David</td>
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<td>Injection Failure of Stereolithography Molds</td>
<td>U. S. Military Academy</td>
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<td>Georgia Tech</td>
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<td>Sam Shelton</td>
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<td>Development of a Real-Time Vision Based Absolute Orientation Sensor</td>
<td>Berry College</td>
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<tr>
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<td>Rodney Ice &amp; John</td>
<td>Performance Evaluation of the Dosicard Electronic Personal Dosimeter</td>
<td>Univ. Nacional Autonama de Mexico</td>
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<tr>
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<td>Farrokh Mistree</td>
<td>Platform Design for Customizable Products as a Problem of Access in a Geometric Space</td>
<td>University of Maryland</td>
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<td>Jack Lackey</td>
<td>Design and Operation of an Advanced Laser Chemical Vapor Deposition System with On-Line Control</td>
<td>Georgia Tech</td>
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<td>Hernandez, Gabriel</td>
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<td>Daniel Jean</td>
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<td>Chris Lynch</td>
<td>Piezoelectric Hydraulic Pump System and Model</td>
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<td></td>
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<td>Paul Neitzel</td>
<td>Numerical Simulation of the Fluid Mechanics of a Spinner Flask Bioreactor</td>
<td>Universidad del Zulia, Venezuela</td>
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<td>Tool Life and Failure Mechanisms of Stereolithography Molds</td>
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<td>McCarron, Sean</td>
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<td>Strain Accumulation and Shakedown in Fatigue of Ti-6Al-4V</td>
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<td>Murray, Bryon</td>
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<td>Determination of Eye Dose from Personnel Monitoring Devices in Medical Institutions</td>
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<td>A Quantitative Approach for Determining Product Platform Extent for Evolving Families of Products</td>
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<td>Evaluation of DETA as a Surface Treatment to Enhance Neuronal Attachment to a Silicone-Based Substrate</td>
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<td>Optimization of Plate-Fin-and-Tube Condenser Performance and Design for Refrigerant R-410a Air-Conditioner</td>
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<td>Determination of the Bending Stiffness of Copy Paper and its Dependence on Temperature and Moisture Using Laser Ultrasonic Lamb Waves</td>
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<td>Peter Hesketh</td>
<td>Development of a U-Fabrication Laboratory Section for a Graduate-Level Microelectromechanical Systems Course Based On U-Cantilever Array Fabrication and Experiments</td>
<td>University of Arizona</td>
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<td>Experimental Validation of the Inverse Structural Filter Force Estimation Technique</td>
<td>University of Alabama</td>
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<td>University of Idaho</td>
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<td>Kamel, Mohamed F.</td>
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<td>Kozak, Kris</td>
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<td>A Dynamic Analysis of Parallel Manipulators and Digital Input Shaper Computation Using Linear Optimization</td>
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<td>Kulkarni, Rahul</td>
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<td>Designing Open Engineering Systems in a Distributed Environment</td>
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<td>Lelos, Vasileios</td>
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<td>Lentz, Toby</td>
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<td>Design and Testing of a Low Frequency, Water-Filled Sound Exposure Chamber</td>
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<td>Leo, Hwa-Liang</td>
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<td>Multiscale Representation of Polycrystalline Inelasticity</td>
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<td>Mehdi, Mohamed</td>
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<td>Aldo Ferri</td>
<td>An Aeroelastic Study of the Conversion Maneuver of Tiltrotor Aircraft</td>
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<td>Nichols, James</td>
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<td>Two-Dimensional Analysis of Turbine Blades and Nozzles</td>
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<td>Park, Ji Eun</td>
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<td>Iwona Jasiuk</td>
<td>Micromechanics-Based Interfacial Stress Analysis and Fracture in Electronic Packaging Assemblies with Heterogeneous Underfill</td>
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<td>Pena-Diaz, Heman</td>
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<td>Experimental Validation of an Atomization Model for Fluids Used in the Grinding Process</td>
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<td>Rocker, Austin</td>
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<td>John Valentine</td>
<td>Modeling Atmospheric Radon Removal Rate by Naphthenic Oil</td>
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<td>Rosen, Charles</td>
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<td>Demonstration: Integrated Diagnostics/Prognostics for Condition-Based Maintenance</td>
<td>University of Alabama</td>
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<td>Sambu, Shiva</td>
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<td>A Design for Manufacture Method for Rapid Prototyping and Rapid Tooling</td>
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<td>Satyanarayana, Srinath</td>
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<td>Shreyes Melkote</td>
<td>Fixture-Workplace Contact Modeling for a Compliant Workpiece</td>
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<td>Scarcella, Meredith</td>
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<td>Verification of TLD/MCNP Depth Dose Distribution of a 103Pd 1VBT Source Using Radiocromic Film</td>
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**SPRING 2002 Graduates**

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<tr>
<th>Name</th>
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<th>Advisor</th>
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<td>Ahrholdt, Hans Ulrich</td>
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<td>Bailey, Brent Carlton</td>
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<td>Ballesteros, Mauricio</td>
<td>MSME</td>
<td>Wayne Book</td>
<td>Implementation Alternative for Dual Rate Control Systems with Command Shaping</td>
<td>Florida State University</td>
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<td>Barletta, Jonathan</td>
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<td>Baxter, Kathryn</td>
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<td>Berkowitz, Charles</td>
<td>MSME</td>
<td>Steven Johnson</td>
<td>Characterization of the Debonding of Graphite/Epoxy–Nomex Honeycomb Sandwich Structure</td>
<td>Georgia Tech</td>
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<td>Blancher, Roman</td>
<td>MSME</td>
<td>Yves Berthelot</td>
<td>Numerical Simulations of High-Speed Droplet Collision</td>
<td>ENSAM-Metz, France</td>
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<td>Christopher, Matthew</td>
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<td>Ben Zinn</td>
<td>Real Time Control of Combustor and Engine Processes</td>
<td>Virginia Tech</td>
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<td>Conklin, Brian</td>
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<td>Raymond Vito</td>
<td>The Effects of Fluids Shear Stress on Endothelial Cell Barrier Function</td>
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<td>Cook, Nathan</td>
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<td>Investigation of Vibration Control of Hypotrochoidally Driven Machinery</td>
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<td>Copeland, David</td>
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<td>Measurement of the Complex Shear Modulus and Its Frequency Dependence for Viscoelastic Materials</td>
<td>Binghamton University</td>
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<td>Design and Fabrication of a Magnetic Bistable Valve</td>
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<td>Response of Neurons Cultured in 2-D and 3-D to Dynamic Shear Deformation</td>
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<td>Davis, Brian</td>
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<td>Characterization and Calibration of Stereolithography Products and Processes</td>
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<td>Experimental Investigation of Dither Control for the Suppression of Brake Squeal</td>
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<td>Design and Operation of a Dual-Entry Laser Chemical Vapor Deposition Rapid Prototyping System</td>
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<td>Elzey, Karen</td>
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<td>Feasibility Study of the Chemical Vapor Infiltration of Rhenium</td>
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<td>Short Horizon Optimal Control of Non-linear Systems Via Discrete State Space Realization</td>
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<td>Concurrent Design of Input Shaping and Vibration Absorbers</td>
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Gepford, Heather Ph.D. HP Nolan Hertel Development and Implementation of a System for Reading Nuclear Etched Tracks in PADC (CR-39) Using Coherent Light Scattering University of Texas

Guggisberg, Timothy MSME Thomas Kurfess Nonthesis Purdue University

Hall, Don-Mark MSME Andrés Garcia Nonthesis Georgia Tech

Hamilton, Al-Khalique MS Min Zhou Nonthesis Georgia Tech

Hass, Rebecca MSME Richard Neu Nonthesis Georgia Tech

Hawkins, Mikhail MSME* Nader Sadegh High-Speed Target Tracking Using Kalman Filtering and Partial Window Imaging Georgia Tech

Hight, James MSME Steven Danyluk Interfacial Fluid Pressure and Pad Viscoelasticity During Chemical Mechanical Polishing Georgia Tech

Howe, Richard MSME Damir Juric Direct Numerical Simulations of Two Phase Flow in a Simple Micro Heat Pipe Auburn University

Ilas, Germina Ph.D. NRE Farzad Rahnema Monte Carlo Based Diffusion Theory for Criticality Analysis University of Bucharest

Jangha, Sundiata MSME+ Nolan Hertel An Ejection Mechanism Design Method for Rapid Injection Molding Tools North Carolina A & T University

Jankens, John MSHP* David Rosen Nonthesis North Carolina Wesleyan College

Karolyi, Daniel MS/BME Don Giddens Nonthesis Georgia Tech

Le Menestrel, Maxime MSME* Yves Berthelot Development of a 3D FEM of Lateral Controlled Cortical Impact Injury in the Rat with Geometry from MRI Ensarn–Aix, France

Lewis, Nicholas MSBIOE William Wepfer Experimental Characterization of the Reorientation Process in Piezoelectric Ceramics University of Miami

Mardon, Cлемet MSME* Christopher Lynch & Yves Berthelot Probing the P-Selectin/PSGL-1 Interaction with an Atomic Force Microscope ENSIM-Le Mans, France

Miller, Douglas Ph.D. ME Cheng Zhu Stress Intensity Factors for Part-Through Cracks from Holes in Hollow Cylinders Subjected to Tension and Bending Loads Washington University

Moores, Matthew MSME Peter Hesketh A Novel, Micro-Contact Potential Difference Probe Kalamazoo College

Murryack, Roberta MSME* Michelle LaPlaca & Marc Levenston Development of a 3D FEM of Lateral Controlled Cortical Impact Injury in the Rat with Geometry from MRI University of Toledo

Pape, John Ph.D. ME Richard Neu Fretting Fatigue Damage Accumulation and Crack Nucleation in High Strength Steel Hartwick College

Peabody, Joshua MSME Nader Sadegh Nonthesis Stanford University

Pfannkuchen, Ingo MSME Imme Ebert-Uphoff Nonthesis University of Karlsruhe

Pincon, Herve MSME* David Trivett Investigation of a Medium with a Negative Coefficient of Nonlinearity ENSIM-Le Mans, France

Plummer, Dawson MSME William Wepfer Finite-Element Analysis of Conduction Heat Loss from a Multi-Channel Heat Exchanger Tuskegee University

Praise, Katherine L MSME* Yves Berthelot Nonthesis Michigan Technological University

Priest, Zachary MSME Andrés Garcia & Nonthesis Michigan State University

Pyland, James MSME Suresh Sitaraman Damage Metric-Based Thermal Cycling Guidelines for Area-Array Packages Used in Harsh Thermal Conditions University of Missouri

Roesslinger, Lionel MSME* Steven Liang Design of an Online Trained Neural Network to Control an Unknown Plant ENSIM-Metz, France

Rose, Stephen MSME* Nader Sadegh Adaptive Sequential Optimization of Unknown Functions through Reinforcement Back-Propagation University of California, Berkeley

Rubin, Matthew MSME Iwona Jasiuk Multiscale Characterization of the Ultrastructure of Trabecular Bone in Osteoporotic and Normal Humans and in Two Inbred Strains of Mice Binghamton University

Rumigny, Nicolas MSME Ari Glezer Nonthesis Université de Technologie, Compègne, France

Slanina, John MSME* Levent Degertekin & Cheng Zhu Nonthesis Youngstown State University

Sosseh, Raye Ph.D. ME Kok-Meng Lee Finite Element Torque Modeling and Backstepping Control of a Spherical Motor New Jersey Institute of Technology

Soto-Valdez, Oscar MSME Wayne Book Semi-Automated Installation and Control of Brushless DC Motors Institute of Technology, Durango, Mexico

Sullivan, Michael MSHP* Nolan Hertel Nonthesis Louisiana State University

Summer, Matthew MSME Kok-Meng Lee Design Algorithm of a Novel Computer-Controlled Gripper for Live Bird Transfer System University of Tennessee

Summer, Michael MSME Stephen Dickerson Vision Based Automated Fabric Placement University of Tennessee

Sweeney, Jeremy Ph.D. NRE Nolan Hertel Development of a Boron-Neutron-Capture Enhanced Fast-Neutron Therapy Beam California Tech

Szleperi, Michele MSME Samuel Shelton Converging Nozzle Design for a Subsonic Wind Tunnel to Test Heat Sinks Under Impinging and Parallel Airflows California State Polytechnic University

Tays, Jeffrey MSHP Nolan Hertel Shielding Effectiveness of a Medical Accelerator Room’s Hanging Door University of Tennessee

Toldeo, Gustavo MSME Thomas Kurfess High Temperature Compression Testing of Hard Steels for Plastic Behavior Modeling University of Puerto Rico

Tse, Laam MSME Peter Hesketh MEMS Packaging with Stereolithography University of Buffalo

Valle, Alexander MSME* Jianmin Qu Nonthesis University of Texas
<table>
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<td>Vinamata, Xavier</td>
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<td>Development of a Cardiodid Sensor for Conformal Hull Arrays</td>
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<td>Calculation of Internal Dose Conversion Factors for Selected Spallation Products</td>
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<td>Wollie, Meron</td>
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* This denotes a degree received through Georgia Tech’s Distance Learning Program
+ This denotes a degree received through Georgia Tech Lorraine
The Woodruff School maintains a standard of excellence in all the core, traditional areas of mechanical engineering, and has expanded into other interdisciplinary areas and applications such as acoustics, bioengineering, materials, microelectromechanical (MEMS), nanotechnology, and tribology. The School also encompasses complete programs in Nuclear and Radiological Engineering and Health Physics.

DEMOGRAPHICS

The Woodruff School has 69 tenure-track faculty. In addition, five faculty members have joint appointments in the Woodruff School. Of this total, thirteen have endowed chairs or distinguished professorships. We also have nineteen research faculty, four academic professionals, and a support staff of forty-seven. We average twenty postdoctoral fellows and fifteen visiting scholars each semester.

The Faculty By Primary Research Areas

ACOUSTICS AND DYNAMICS

Yves H. Berthelot, *Professor
Ph.D., University of Texas at Austin, 1985
Started at GT in 1985
Acoustics, structural dynamics, and nonlinear dynamics and control
Fellow of ASA

Kenneth A. Cunefare, Associate Professor
Ph.D., Pennsylvania State University, 1990
Started at GT in 1990
Active/passive control, modeling and control of brake squeal, fluid-structure interaction, and optimal acoustic design

Aldo A. Ferri, Associate Professor
Ph.D., Princeton University, 1985
Started at GT in 1985
Acoustics, structural dynamics, and nonlinear dynamics and control

Jerry H. Ginsberg, George W. Woodruff Chair in Mechanical Systems and Professor of Mechanical Engineering
E.Sc.D., Columbia University, 1970
Started at GT in 1980
Vibrations, acoustics, dynamics, and fluid-structure interaction
Fellow of ASA and ASME

Thomas E. Michaels, Associate Professor (Joint Appointment)
Ph.D., Physics, Washington State University, 1972
Started at GT in 2002
Measurement technology, ultrasonics, systems and controls

Peter H. Rogers,* Rae and Frank H. Neely Chair in Mechanical Engineering
Ph.D., Brown University, 1970
Started at GT in 1983
Underwater acoustics and bioacoustics
Fellow of ASA

AUTOMATION AND MECHATRONICS

Wayne J. Book,* HUSCO/Ramirez Distinguished Chair in Fluid Power and Motion Control and Professor of Mechanical Engineering
Ph.D., Massachusetts Institute of Technology, 1974
Started at GT in 1974
Robotics, automation, modeling, fluid power, and motion control
Fellow of ASME and IEEE
Ye-Hwa Chen, Associate Professor
Ph.D., University of California, Berkeley, 1985
Started at GT in 1988
Controls, manufacturing systems, neural networks, and fuzzy engineering

Imme Ebert-Uphoff, Assistant Professor
Ph.D., Johns Hopkins University, 1997
Started at GT in 1998
Robotics, theoretical kinematics, dynamics, parallel manipulators, and digital clay

Kok-Meng Lee,* Professor
Ph.D., Massachusetts Institute of Technology, 1985
Started at GT in 1986
System dynamics, control, automation, and optomechatronics

Harvey Lipkin,* Associate Professor
Ph.D., University of Florida, 1985
Started at GT in 1985
Design and analysis of mechanical systems, robotics, and spatial mechanisms

John G. Papastavridis, Associate Professor
Ph.D., Purdue University, 1976
Started at GT in 1979
Analytical, structural and nonlinear mechanics, vibrations, and stability

Nader Sadegh,* Associate Professor
Ph.D., University of California, Berkeley, 1987
Started at GT in 1988
Controls, vibrations, and design

William E. Singhose,* Assistant Professor
Ph.D., Massachusetts Institute of Technology, 1997
Started at GT in 1998
Vibration, flexible dynamics, and command generation

BIOENGINEERING

Andres J. Garcia, Assistant Professor
Ph.D., University of Pennsylvania, 1996
Robert E. Guldberg, Associate Professor
Ph.D., The University of Michigan, 1995
Started at GT in 1996
Biomechanics, microCT imaging, and tissue engineering

Jens O. M. Karlsson, Associate Professor
Ph.D., Massachusetts Institute of Technology, 1994
Started at GT in 2002
Thermodynamics and transport in biological systems, nonequilibrium solidification, tissue engineering, and bioMEMS

David N. Ku,* Lawrence P. Huang Endowed Chair in Engineering and Entrepreneurship and Regents' Professor
Ph.D., Georgia Institute of Technology, 1983
M.D., Emory University, 1984
Started at GT in 1986
Thrombosis, biomaterials, and tissue engineering
Fellow of AIMBE

Marc E. Levenston, Assistant Professor
Ph.D., Stanford University, 1995
Started at GT in 1998
Orthopedic biomechanics, soft tissue mechanics, and tissue engineering

Robert M. Nerem, Parker H. Petit Distinguished Chair for Engineering in Medicine and Institute Professor
Ph.D., The Ohio State University, 1964
Started at GT in 1987
Biomedical engineering, cellular and tissue engineering
Fellow of AAAS, AIMBE, APS, ASME, and IME
Member NAE and IOM

Raymond P. Vito,* Professor and Associate Chair for Undergraduate Studies
Ph.D., Cornell University, 1971
Started at GT in 1974
Biomechanics, tissue mechanics, and design
Fellow of ASME

Timothy M. Wick, Associate Professor of Chemical Engineering (Joint Appointment)
Ph.D., Rice University, 1988
Started at GT in 1988
Tissue engineering, bioprocess engineering, bioreactor design, cell adhesion, and blood rheology

Ajit P. Yoganathan, Regents' Professor of Biomedical Engineering (Joint Appointment)
Ph.D., California Institute of Technology, 1978
Started at GT in 1979
Cardiovascular fluid dynamics, rheology, Doppler ultrasound, and MRI
Fellow of AIMBE

Cheng Zhu, Professor
Ph.D., Columbia University, 1988
Started at GT in 1990
Biomechanics of single cells and single molecules, cell adhesion kinetics, and bio-MEMS

COMPUTER-AIDED ENGINEERING AND DESIGN

Bert A. Bras, Associate Professor
Ph.D., University of Houston, 1992
Robert E. Fulton, Professor
Ph.D., University of Illinois at Urbana-Champaign, 1960
Started at GT in 1985
Finite-element methods, structural mechanics, integrated CAD/CAM, information management, and electronic commerce
Fellow of ASME

Farrokh Mistree, Professor
Ph.D., University of California, Berkeley, 1974
Started at GT in 1992
Strategic design, design of product families, and distributed design and manufacture
Fellow of ASME and Associate Fellow of AIAA

Christiaan J. J. Paredis, Assistant Professor
Ph.D., Carnegie Mellon University, 1996
Started at GT in 2002
Simulation-based design, information technology for design, mechatronics, and evolutionary algorithms

David W. Rosen, Associate Professor
Ph.D., University of Massachusetts, 1992
Started at GT in 1992
Virtual and rapid prototyping and intelligent CAD/CAM/CAE

Suresh Sitaraman, Associate Professor
Started at GT in 1995
Ph.D., The Ohio State University, 1989
CAD/CAE, electronic packaging, thermomechanics and reliability, and FEM

FLUID MECHANICS

Ari Glezer,* George W. Woodruff Chair in Thermal Systems and Professor of Mechanical Engineering
Ph.D., California Institute of Technology, 1981
Started at GT in 1992
Fluid mechanics, turbulent shear flows, flow control, and diagnostics

G. Paul Neitzel, Professor
Ph.D., Johns Hopkins University, 1979
Started at GT in 1990
Hydrodynamic stability, surface-tension-driven and rotating flows, non-coalescence, and non-wetting and bioreactor fluid dynamics
Fellow of APS and ASME

Marc K. Smith,* Associate Professor
Ph.D., Northwestern University, 1982
Started at GT in 1991
Hydrodynamic stability, liquid films, and droplet atomization

Minami Yoda, Associate Professor
Ph.D., Stanford University, 1993
Started at GT in 1995
Experimental fluid mechanics, suspension flows, nano- and microfluids, and optical diagnostics

HEAT TRANSFER, COMBUSTION, AND ENERGY SYSTEMS
Said I. Abdel-Khalik, *Southern Nuclear Distinguished Professor and Professor of Nuclear Engineering*
Ph.D., University of Wisconsin, 1973
Started at GT in 1987
Microscale, heat transfer, reactor safety, and thermal-hydraulics
Fellow of ANS and ASME

J. Narl Davidson, *Associate Dean of Engineering and Professor*
Ph.D., The University of Michigan, 1969
Academic administration, engineering education, plasma physics, and power plant operation

Andrei G. Fedorov, *Assistant Professor*
Ph.D., Purdue University, 1997
Started at GT in 2000
Catalysis and fuel cells, chemical and electrochemical sensors, atomic force microscopy, and thermal radiation

S. Mostafa Ghiaasiaan, *Professor*
Ph.D., University of California, Los Angeles, 1983
Started at GT in 1991
Multiphase flow, aerosol and particle transport, microscale heat transfer, and nuclear reactor thermal-hydraulics

James G. Hartley, *Professor*
Ph.D., Georgia Institute of Technology, 1977
Started at GT in 1977
Heat transfer, thermodynamics, and fluid mechanics

Sheldon M. Jeter,* *Associate Professor*
Ph.D., Georgia Institute of Technology, 1979
Started at GT in 1978
Thermodynamics, energy systems, and heat transfer

Yogendra K. Joshi, *Professor*
Ph.D., University of Pennsylvania, 1984
Started at GT in 2001
Thermo-fluid issues in emerging technologies and microthermal systems
Fellow of ASME

Sam V. Shelton,* *Associate Professor*
Ph.D., Georgia Institute of Technology, 1969
Started at GT in 1969
Energy systems, HVAC systems, absorption, and refrigeration
Fellow of ASHRAE

William J. Wepfer, *Professor and Associate Chair for Graduate Studies*
Ph.D., University of Wisconsin, 1979
Started at GT in 1980
Heat transfer and thermodynamics
Fellow of ASHRAE and ASME

Zhuomin Zhang, *Associate Professor*
Ph.D., Massachusetts Institute of Technology, 1992
Started at GT in 2002
Microscale heat transfer, thermophysical properties, and radiation thermometry

Ben T. Zinn,* *David S. Lewis Chair of Aerospace Engineering and Regents’ Professor (Joint Appointment)*
Ph.D., Princeton University, 1965
Started at GT in 1965
Combustion instability, active control, microscale combustion, propulsion, and acoustics
Fellow of AIAA and ASME; Member NAE
MANUFACTURING

Daniel F. Baldwin, *Associate Professor  
Ph.D., Massachusetts Institute of Technology, 1994  
Started at GT in 1995  
Manufacturing systems design, electronics manufacturing and packaging, and polymer processing

Jonathan S. Colton, *Professor  
Ph.D., Massachusetts Institute of Technology, 1986  
Started at GT in 1985  
Manufacturing, polymer/composites processing, rapid prototyping, and nano/microfabrication  
Fellow of ASME

Steven Danylyk, *Morris M. Bryan, Jr. Chair in Mechanical Engineering for Advanced Manufacturing Systems and Professor of Mechanical Engineering  
Ph.D., Cornell University, 1974  
Started at GT in 1993  
Semiconductor processing, lubricant-surface interaction, polishing, and sensors

Thomas R. Kurfess, Professor  
Ph.D., Massachusetts Institute of Technology, 1989  
Started at GT in 1994  
System dynamics, control, metrology, CAD/CAM/CAE, and precision system design

Steven Y. Liang, *Professor  
Ph.D., University of California, Berkeley, 1987  
Started at GT in 1990  
Automated manufacturing, control systems, and digital signal processing

Shreyes N. Melkote, Associate Professor  
Ph.D., Michigan Technological University, 1993  
Started at GT in 1995  
machining processes, surfaces, intelligent fixturing, and CAM/CAPP

I. Charles Ume, *Professor  
Ph.D., University of South Carolina, 1985  
Started at GT in 1985  
Electronic packaging, mechatronics, and laser moiré and laser ultrasonics

MECHANICS OF MATERIALS

Iwona M. Jasiuk, Professor  
Ph.D., Northwestern University, 1986  
Started at GT in 1996  
micromechanics, elasticity, fracture, composite materials, nano and biomaterials

W. Steven Johnson, Professor of Materials Science and Engineering (Joint Appointment)  
Ph.D., Duke University, 1979  
Started at GT in 1994  
Fatigues, fracture mechanics, and durability of materials and structures  
Fellow of ASM and ASTM

W. Jack Lackey, *Professor  
Ph.D., North Carolina State University, 1970  
Started at GT in 1986  
Ceramic and metallic coatings, composites, and rapid prototyping
Fellow of ACS
Christopher S. Lynch, Associate Professor and Associate Chair for Administration
Ph.D., University of California, Santa Barbara, 1992
Started at GT in 1995
Experimental mechanics and smart materials

David L. McDowell, Carter N. Paden Distinguished Chair in Metals Processing and Regents' Professor
Ph.D., University of Illinois at Urbana-Champaign, 1983
Started at GT in 1983
Material deformation and damage, constitutive laws, and metals processing
Fellow of ASME

Richard W. Neu, Associate Professor
Ph.D., University of Illinois at Urbana-Champaign, 1991
Started at GT in 1995
Fatigue, deformation, and degradation of materials

Jianmin Qu, Professor
Ph.D., Northwestern University, 1987
Started at GT in 1989
Fracture, composite materials, wave propagation, and microelectronic packaging

Min Zhou, Associate Professor
Ph.D., Brown University, 1993
Started at GT in 1995
Micro- and nano-scale behavior, continuum and molecular dynamics modeling, experimental/computational mechanics, dynamic behavior, and fracture

MICROELECTROMECHANICAL SYSTEMS

F. Levent Degertekin, *Assistant Professor
Ph.D., Stanford University, 1997
Started at GT in 2000
Micromachined sensors and actuators, ultrasonics, atomic force microscopy, and nondestructive evaluation

Peter J. Hesketh, *Professor
Ph.D., University of Pennsylvania, 1987
Started at GT in 2000
Microfabrication, micromachining, sensors, actuators, biosensors, and microfluids

William P. King, Assistant Professor
Ph.D., Stanford University, 2002
Started at GT in 2002
Microscale heat transfer, microfluidics, MEMS, atomic force microscopy, polymers and advanced materials processing for micro/nanofabrication

Wenjing Ye, Assistant Professor
Ph.D., Cornell University, 1998
Started at GT in 1999
CAD design of MEMS, microfabrication, and numerical analysis

NUCLEAR AND RADIOLICAL ENGINEERING/HEALTH PHYSICS

Nolan E. Hertel, Professor
Ph.D., University of Illinois at Urbana-Champaign, 1979
Started at GT in 1993
Radiation shielding, neutron dosimetry, radiological assessment, radioactive waste management, accelerator sources and applications, high-energy particle transport, dry storage of spent fuel, and radiation skyshine

**Farzad Rahnema**, *Professor and Associate Chair of the Woodruff School, Chair of the Nuclear and Radiological Engineering and Health Physics Program*
Ph.D., University of California, Los Angeles, 1981
Started at GT in 1992
Reactor physics, perturbation and variational methods, computational transport theory, and criticality safety

**Weston M. Stacey, Jr., Fuller E. Callaway Professor in Nuclear Engineering and Regents' Professor*
Ph.D., Massachusetts Institute of Technology, 1966
Started at GT in 1977
Fusion engineering, plasma physics, and reactor physics
Fellow of ANS and APS

**C.-K. Chris Wang**, *Associate Professor*
Ph.D., The Ohio State University, 1989
Started at GT in 1991
Radiation detection, radiation dosimetry, medical and industrial applications of ionizing radiations, and spent nuclear fuel measurements

**TRIBOLOGY**

**Itzhak Green,** *Professor*
Sc.D., Technion-Israel Institute of Technology, 1984
Started at GT in 1985
Hydrodynamic lubrication, vibrations, rotordynamics, fluid sealing, tribology, design, and diagnostics
Fellow of ASME and STLE

**Richard F. Salant,** *Georgia Power Distinguished Professor in Mechanical Engineering*
Sc.D., Massachusetts Institute of Technology, 1967
Started at GT in 1987
Fluid mechanics, fluid sealing, lubrication, and tribology
Fellow of ASME and STLE

**Jeffrey L. Streator**, *Associate Professor*
Ph.D., University of California, Berkeley, 1990
Started at GT in 1990
Computer-disk tribology, thin-film lubrication, capillarity, and contact mechanics

**Ward O. Winer**, *Eugene C. Gwaltney, Jr. Chair of the George W. Woodruff School of Mechanical Engineering and Regents’ Professor*
Ph.D., Cambridge University, 1964
Ph.D., The University of Michigan, 1961
Started at GT in 1969
High-pressure rheology, lubrication, tribology, thermomechanics, and mechanical systems diagnostics
Fellow of AAAS, ASME, and STLE; Member NAE

**Academic Professionals**

**Jeffrey A. Donnell**
Ph.D., Emory, 1990
Started at GT in 1992
Coordinator of the Frank K. Webb Program in Professional Communications
David Sanborn  
Ph.D., The University of Michigan, 1969  
Started at GT in 2000  
Thermodynamics, design, and combustion

Michael D. Stewart  
M.S., Wayne State College, 1983  
Started at GT in 2001  
Engineering design graphics, computer-aided design, advanced feature-based parametric solid modeling, and rapid prototyping

James Michael Wileman  
Ph.D., Georgia Institute of Technology, 1994  
Associate Director of Georgia Tech Lorraine

Adjunct Professors and Part-Time Appointments

Cyrus K. Aidun,* Adjunct Professor, Institute of Paper Science and Technology (Joint Appointment)  
Ph.D., Clarkson University, 1985  
Hydrodynamic stability, liquid coating, and suspended particle hydrodynamics

L. Dennis Ballou, Instructor  
J.D. Law, University of Georgia, 1977  
Started at GT in 1991  
Elastic instability of cylindrical shells, and availability analysis

Rodney D. Ice, Adjunct Professor, Neely Nuclear Research Center  
Ph.D., Purdue University, 1967  
Radiopharmaceuticals, radioprotectants, boron neutron capture theory, radionuclide methodology, and hospital health physics

Barbara McCord, Instructor  
Ph.D., Georgia Institute of Technology, 1992  
Started at GT in 2000  
Two-phase heat transfer, and bioengineering

J. Ernest Wilkins, Jr., Adjunct Professor, Clark-Atlanta University  
Ph.D., University of Chicago

Research Faculty

Janet Allen, Senior Research Scientist  
Ph.D., University of California, Berkeley, 1973  
Started at GT in 1992  
Design evolution over time, modeling uncertainty, decision- based design, and design pedagogy

Scott S. Bair,* Principal Research Engineer  
Ph.D., Georgia Institute of Technology, 1990  
Started at GT in 1985  
Tribology, rheology, properties of liquids at high pressure, and machine design

Van B. Biesel, Research Engineer II  
M.S., Georgia Institute of Technology, 1993  
Started at GT in 1994  
Acoustics, vibrations, noise control, numerical modeling, transducers, and piezoelectric materials

John R. Bogle, Research Engineer II  
M.S., Georgia Institute of Technology, 1987
Started at GT in 1990
Structural acoustics, finite/boundary element modeling interaction of underwater sound and structures, and vibrations

Richard S. Cowan, Research Engineer II
  Ph.D., Georgia Institute of Technology, 2002
  Started at GT in 1996
  Mechanical system maintenance and modeling, technology management, and public policy

John R. Culp, Research Engineer I
  B.S., Georgia Institute of Technology, 2000
  Started at GT in 2001
  Fluidic actuators and technologies, computer-based data acquisition, fluid flow fields, and electronic components

François M. Guillot, Research Engineer II
  Ph.D., Georgia Institute of Technology, 2000
  Started at GT in 2001
  Acoustic material characterization, measurement methodology, laser Doppler vibrometry, electromechanical transduction, and structural acoustics

Steven R. Hahn, * Research Engineer II
  M.S., Georgia Institute of Technology, 1988
  Started at GT in 1992
  Structural acoustics, vibrations and control, and finite- and boundary element techniques

Haichao Han, Research Engineer II
  Ph.D., Xi’an Jiaotong University, China, 1991
  Started at GT in 1999
  Cardiovascular biomechanics, mechanical model of heart, vascular remodeling and grafts, and tissue engineering.

Sam Heffington, Research Engineer II
  Ph.D., Georgia Institute of Technology, 2001
  Started at Georgia Tech in 2001
  Thermal management of electronic packages, spray cooling, boiling enhancement, two-phase flows

Gregg D. Larson, * Research Engineer II
  Ph.D., Georgia Institute of Technology, 1996
  Started at GT in 1997
  Transduction, acoustics, vibrations, and piezoelectric ceramics

Raghav Mahalingam, Research Engineer II
  Ph.D., Georgia Institute of Technology, 1999
  Started at GT in 2001
  Thermal management in microelectronics, vortex dynamics, unsteady aerodynamics, rotorcraft aeromechanics and active flow control

James S. Martin, Senior Research Engineer
  M.S., Georgia Institute of Technology, 1994
  Started at GT in 1991
  Shallow water sound propagation, internal gravity waves, structural acoustics, bioacoustics/biomimetics, nondestructive testing, and nonlinear bubble dynamics

Dennis L. Sadowski, * Research Engineer II
  M.S., University of Illinois, 1986
  Started at GT in 1997
  Thermal sciences and design and construction of experimental equipment

Reza Sadr, Research Engineer II
  Ph.D., University of Utah, 2002
Started at GT in 2002
Two-phase flows and boundary layer flow

Dave Trivett, Principal Research Scientist
M.S., University of Wisconsin, 1976
Started at GT in 1999
Structural acoustics, measurement methodology, transduction mechanisms, acoustic materials, and sonar systems

Jelena Vukasinovic, Research Engineer II
M.S., Georgia Institute of Technology, 2000
Started at GT in 2002

Xuezhen Zhang, Research Scientist II
M.S., Nanjing University, 1963
Started at GT in 1994
Computational and shallow water acoustics

Ji-Xun Zhou, Principal Research Scientist
Ph.D., Graduate School of Chinese Academy of Sciences, 1967
Started at GT in 1992
Shallow water acoustics, sound propagation and reverberation, acoustic interactions with internal waves, seafloor acoustics, and acoustic remote sensing

Honors and Awards


Bert Bras and Imme Ebert-Uphoff were elected from the Woodruff School to serve in the General Faculty Assembly and the Academic Senate from 2002 to 2005.

Ye-Hwa Chen (with J. Joh and R. Langari) received the Fuzzy Systems Outstanding Paper Award for 2001 from the IEEE Neural Networks Council for a paper titled “On the Stability of Issues of Linear Tagaki-Suygeno Fuzzy Models.”

Ken Cunefare received the Carroll Smith Mentor’s Cup, which recognizes the important role played by faculty advisors in support of an SAE team (gt motorsports). The award is sponsored by the Sports Car Club of America.

Levent Degertekin (with B. T. Khuri-Yakub) received U.S. patent 6,295,247, dated September 25, 2001, for Micromachined Rayleigh Plate and Bulk Wave Ultrasonic Transducers and U.S. patent 6,430,109 on August 6, 2002 for Array of Capacitive Micromachined Ultrasonic Transducer Elements with Through Wafer Via Connections. B. T. Khuri-Yakub, S. Calmes, and Z-C. Jin are also named on the patent.

Andres Garcia won a Georgia Tech CETL/BP Junior Faculty Teaching Excellence Award and was awarded, along with D. Boettiger and P. Ducheyne, U.S. patent 6,413,538 for Bioactive Glass or Ceramic Substrates Having Bound Cell Adhesion Molecules.

Jerry Ginsberg gave the 2001 Rayleigh Lecture at the ASME Congress and Exposition in New York. He was invited to lecture for his pioneering contributions to science and applications of acoustics by the Noise Control and Acoustics Division of American Society of Mechanical Engineers.

Ari Glezer was awarded U.S. patent 6,412732 on July 2, 2002 for Apparatus and Method
for Enhancement of Aerodynamic Performance by Using Pulse Excitation Control. Michael Amitay is also named on the patent.

**Nolan Hertel** became the chair of the Nuclear Engineering Division of the American Society for Engineering Education.

**Steve Johnson** was elected to the grade of Fellow in the American Society for Materials International. He will also serve on the NASA Aerospace Technology, Advanced Space Transportation Subcommittee.

**Tom Kurfess** was the recipient of the 2002 ASME/Pi Tau Sigma Gustus L. Larson Award. This award was established in 1973 to honor engineering graduates who have demonstrated outstanding achievement in mechanical engineering within ten to twenty years following graduation. He also won the 2002 Georgia Tech Outstanding Faculty Leadership for the Development of Graduate Research Assistants Award.

**Steven Liang** was elected Director of the North American Manufacturing Research Institution for a two-year term beginning in January 2002.

**Farrokh Mistree** presented the 2002 Jack Ziegler Outstanding Educator Lecture titled, *Cinderella, Professors and Change in the Wal-Marting of Higher Education*. He was also appointed to the International Advisory Council of the Design Technology Institute of Singapore, which is a joint program between the National University of Singapore and the Technical University of Eindhoven, The Netherlands.

**Shreyes Melkote** was selected by the Georgia Society of Professional Engineers as the GSPE Engineer of the Year in Education.

**Robert Nerem** was the third recipient of the Pierre Galletti Award of the AIMBE. The award is given in recognition of contributions to public awareness of medical and biological engineering, and to the promotion of the national interest in science, engineering, and education.

**Jianmin Qu** was named a Fellow of the ASME.

**Richard Salant**, along with Professor Emeritus Jacek Jarzynski and Bill Anderson (ME Ph.D. 2001), were awarded U.S. patent 6,360,610 on March 26, 2002 for Condition Monitoring System and Method for an Interface.

**Suresh Sitaraman** received the 2001 Best Paper Award from the Editors of the *IEEE CPMT Transactions on Components and Packaging Technologies* for the paper, "Interfacial Fracture Toughness for Delamination Growth Prediction in a Novel Peripheral Array Package," coauthored with V. Sundararaman. This is the second year in a row that Dr. Sitaraman has received this award.

**William Singhose** won a Georgia Tech CETL/BP Junior Faculty Teaching Excellence Award.
Bill Stacey received the 2001 Glenn T. Seaborg Medal from the American Nuclear Society. The medal honors excellence in research achievements on the part of an individual which have been especially beneficial to the development of the peaceful uses of nuclear energy.

Mike Stewart, Academic Professional for ME 1770 (Engineering Graphics and Visualization), is chair of the Engineering Design Graphics Division of the ASEE.

I. Charles Ume received the Donald P. Eckman Education Award from The Instrumentation, Systems, and Automation Society in recognition of outstanding contributions in the pioneering and education of mechatronics throughout the world. In addition, he received the Georgia Tech Outstanding Interdisciplinary Award for 2002.

Raymond Vito was awarded U.S. patent 6,322,553 on November 27, 2001 for Autologous Vascular Grafts Created by Vessel Distension.

Minami Yoda and Cyrus Aidun received the TAPPI (Technical Association of Pulp and Paper Institute) Editorial Board's 2001 Best Research Paper Award for work they did under the GT/IPST Seed Grant Program. Dr. Yoda also received the 2002 Outstanding Faculty Award from the Women in Engineering program at the College of Engineering.

Glezer Named to the George W. Woodruff Chair in Thermal Systems

Dr. Ari Glezer is the first holder of the George W. Woodruff Chair in Thermal Systems. He came to Georgia Tech in 1992 as Associate Professor and in 1995 he was promoted to Professor. Prior, he was Assistant Professor and Associate Professor at the University of Arizona. He received his B.S. at Tel Aviv University in 1974, and both his M.S. and his Ph.D. from the California Institute of Technology in 1975 and 1981, respectively.

Professor Glezer’s research focuses on the manipulation and control of shear flows in a broad range of applications, including reacting and nonreacting mixing processes, enhancement of the aerodynamic performance of airborne and underwater vehicles, small-scale combustion-driven power systems, jet noise reduction, fluidic-driven heat transfer processes with emphasis on thermal management of electronic hardware, and the development of novel fluidic actuator technologies.

Professor Glezer holds twelve U.S. patents and is an Associate Fellow of AIAA. In 2000 he shared the Georgia Tech College of Engineering Research Award. He has also received an Alexander von Humboldt Research Fellowship.

About the Woodruff Chairs

George W. Woodruff (Class of 1917) was an alumnus and influential Atlanta businessman, civic leader, and philanthropist. In September 1985, at the age of 90, Mr. Woodruff attended the ceremonies to rename the School of Mechanical Engineering in his honor. Today, the Woodruff benevolence continues to benefit Georgia Tech through the support of two major scholarship funds and a significant, unrestricted endowment. The Woodruff bequest to the School of Mechanical Engineering underwrites two faculty chairs Ñ the George W. Woodruff Chair in Mechanical Systems, held by Dr. Jerry Ginsberg, and the George W. Woodruff Chair in Thermal Systems, held by Dr. Ari Glezer --
and activities such as the Woodruff Faculty Fellows Program, the Woodruff Graduate Fellowship Program, the Woodruff Teaching Intern Program, and research and teaching assistantships for graduate students.

**New Faculty Fellows Named**

Dr. Ward O. Winer announced the appointment of two new Woodruff Faculty Fellows (Bert Bras and David Rosen) and the first Joseph H. Anderer Endowed Faculty Fellow (Ken Cunefare). Current Woodruff Faculty Fellows (1997-2002) are Steven Liang, Jianmin Qu, and Cheng Zhu. The new appointments span the 2002-2007 academic years.

The Woodruff Faculty Fellows program began in June 1991 to recognize outstanding faculty in the middle years of their professional careers. The Anderer Faculty Fellow recognizes the same period of development. The Fellows receive $15,000 a year in discretionary support for each of the five years of the appointment. The fellows are associate professors who began their careers at Georgia Tech. The total number of faculty fellows in the Woodruff School will be no more than one-third the current number of associate professors on the faculty.

*Bert Bras* came to Georgia Tech in fall 1992 as an assistant professor after receiving his Ph.D. from the University of Houston. Dr. Bras' research focuses on environmentally conscious design and manufacturing, design for de- and remanufacture, life-cycle assessment, sustainable development, and robust design.

*Ken Cunefare* received his Ph.D. from Pennsylvania State University in 1990 and began his career at Georgia Tech as an assistant professor in fall 1990. His research has been directed toward controlling and tailoring the sound produced by engineered structures. Dr. Cunefare directs the Integrated Acoustics Lab (anechoic chamber) and is the faculty advisor to *gt motorsports* and GT Off-Road.

*David Rosen* received his Ph.D. in 1992 from the University of Massachusetts and began his career at Georgia Tech in fall 1992 as an assistant professor. Dr. Rosen's research deals with configuration design, virtual prototyping, and rapid prototyping.

**Promotions**
Iwona Jasiuk and Kok-Meng Lee were promoted to full professor;

Robert Guldberg was promoted to associate professor with tenure;

Jack Lackey was granted tenure.

Retirements

Two faculty members retired in May 2002 after long and distinguished careers at Georgia Tech. Professor Prateen Desai retired after 36 years at Georgia Tech, while Professor Alan Larson spent 28 years in the Woodruff School.

Changes

Daniel Baldwin, Associate Professor, is on a two-year leave of absence at Siemens Corporation in Atlanta.

John Ranieri, Associate Professor, left the Woodruff School for a position as Vice-President at DuPont Corporation.

John Valentine, Associate Professor of Nuclear Engineering, left the Woodruff School for a position at the Lawrence Livermore Laboratory in California.

Passing the Torch, Again
The Salt Lake City Olympic Games marked the second time mechanical engineering Professor Sam Shelton has built an Olympic Torch. He built the torch for the 1996 Atlanta Games, and on December 4, 2001 in Atlanta's Centennial Olympic Park, the new torch began its 13,500-mile journey across the United States with more than 11,500 runners passing it along to Salt Lake City for the 2002 Winter Olympics. The three-pound torch was constructed to withstand weather ranging from minus 40 degrees to 80 degrees, including gusty winds and heavy rain. The Olympic Torch Relay, which traveled more than 400 miles a day and visited eighty cities, came to Georgia Tech, going down Ferst Drive past the Love Building and SAC, and then up Hemphill toward 10th Street.

**In Memorium**

**Regents’ Professor Emeritus, Mario J. Goglia**

Professor Mario J. Goglia passed away on October 16th after a long illness. He is survived by his wife of more than fifty years, Juanita, children, and grandchildren.

In June 1998, Regents’ Professor Emeritus and life-long educator, Mario J. Goglia celebrated the 50th anniversary of the signing of his first contract to teach at Georgia Tech. He came to campus in September 1948 to become a professor of mechanical engineering. In 1955, he was named one of the Institute's first three Regents' Professors.

Over the years, he taught thermodynamics, fluid flow, automatic controls, heat transfer, and other mechanical engineering undergraduate and graduate courses. He was always regarded by students as an outstanding educator. Although he retired from full-time teaching and research in 1981, he was still teaching courses in the Woodruff School, usually thermodynamics, until the mid-1990’s.

Professor Goglia received a B.S. degree in 1937 and an M.S. degree in 1941, both in mechanical engineering, from the Stevens Institute of Technology. In 1948, he graduated from Purdue University with a Ph.D. and came directly to Georgia Tech to join the faculty. He was born and raised in Hoboken, New Jersey.

In Dr. Goglia's honor, we have established the Mario Goglia Memorial Fund, which will be used for student support.
<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Started at GT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trudy Allen</td>
<td>Academic Assistant II</td>
<td>July 1998</td>
</tr>
<tr>
<td>Melissa Baker</td>
<td>Administrative Assistant II</td>
<td>November 1999</td>
</tr>
<tr>
<td>Shauna Bennett-Boyd</td>
<td>Administrative Assistant I</td>
<td>January 2000</td>
</tr>
<tr>
<td>Kimberly Blue</td>
<td>Undergraduate Academic Advisor</td>
<td>August 1999</td>
</tr>
<tr>
<td>Vladimir Bortkevich</td>
<td>Electrical Engineer III</td>
<td>August 1999</td>
</tr>
<tr>
<td>Donald F. (Butch) Cabe</td>
<td>Manager of Facilities</td>
<td>September 1968</td>
</tr>
<tr>
<td>Robert Cooper</td>
<td>Mechanical Technician III</td>
<td>April 1999</td>
</tr>
<tr>
<td>Phillip R. Coulson</td>
<td>Financial Specialist</td>
<td>November 1986</td>
</tr>
<tr>
<td>Carla Crippins</td>
<td>Administrative Assistant II</td>
<td>May 2001</td>
</tr>
<tr>
<td>Andrew G. (Drew) Davis</td>
<td>Electronics Technician III</td>
<td>August 1986</td>
</tr>
<tr>
<td>Judith E. Diamond</td>
<td>Administrative Assistant II</td>
<td>March 1994</td>
</tr>
<tr>
<td>Kenneth Dollar</td>
<td>Director of Support and Technical</td>
<td>December 1996</td>
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<td></td>
<td>Services</td>
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<tr>
<td>Richard Duplessis</td>
<td>Computer Services Specialist III</td>
<td>October 1992</td>
</tr>
<tr>
<td>Melody Foster</td>
<td>Administrative Manager I</td>
<td>November 1997</td>
</tr>
<tr>
<td>Norma L. Frank</td>
<td>Academic Advisor I</td>
<td>February 1973</td>
</tr>
<tr>
<td>Kyle French</td>
<td>Electrical Engineer II</td>
<td>July 2002</td>
</tr>
<tr>
<td>Phyllis Frost</td>
<td>Administrative Supervisor II</td>
<td>August 1959</td>
</tr>
<tr>
<td>Rona A. Ginsberg</td>
<td>Director of Communications</td>
<td>December 1996</td>
</tr>
<tr>
<td>John W. Graham</td>
<td>Machine Shop Manager</td>
<td>May 1986</td>
</tr>
<tr>
<td>Rebecca Hembree</td>
<td>Administrative Assistant I</td>
<td>March 1994</td>
</tr>
<tr>
<td>Angela L. Hicks</td>
<td>Financial Manager I</td>
<td>October 1995</td>
</tr>
<tr>
<td>Nancy Hutton</td>
<td>Accountant II</td>
<td>August 2001</td>
</tr>
<tr>
<td>Wanda Joefield</td>
<td>Administrative Assistant II</td>
<td>July 1995</td>
</tr>
<tr>
<td>Glenda Johnson</td>
<td>Senior Administrative Secretary</td>
<td>October 2000</td>
</tr>
<tr>
<td>Vivian Johnson</td>
<td>Administrative Assistant I</td>
<td>March 1992</td>
</tr>
<tr>
<td>Cecelia Jones</td>
<td>Administrative Assistant I</td>
<td>August 1999</td>
</tr>
<tr>
<td>Theresa S. Keita</td>
<td>Administrative Assistant I</td>
<td>August 2000</td>
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<tr>
<td>Mary Jo Kleine</td>
<td>Administrative Assistant II</td>
<td>October 1990</td>
</tr>
<tr>
<td>Lorrie Lay</td>
<td>Web Assistant</td>
<td>June 1995</td>
</tr>
<tr>
<td>Sherron Lazarus</td>
<td>Administrative Manager I</td>
<td>October 1990</td>
</tr>
<tr>
<td>Donald E. Long</td>
<td>Mechanical Technician III</td>
<td>March 1980</td>
</tr>
<tr>
<td>Joyce Lowe</td>
<td>Administrative Assistant II</td>
<td>August 1999</td>
</tr>
<tr>
<td>Lisa Manning</td>
<td>Administrative Assistant II</td>
<td>August 1994</td>
</tr>
<tr>
<td>John P. McCullough, II</td>
<td>Manager of Computing, Networking &amp;</td>
<td>December 1995</td>
</tr>
<tr>
<td></td>
<td>Electronics</td>
<td></td>
</tr>
<tr>
<td>Bill Miller</td>
<td>Systems Analyst III</td>
<td>November 2000</td>
</tr>
<tr>
<td>Jefforey Murphy</td>
<td>Systems Analyst III</td>
<td>January 1998</td>
</tr>
<tr>
<td>Michael L. Murphy</td>
<td>Administrative Assistant II</td>
<td>June 1986</td>
</tr>
<tr>
<td>Regina Neequaye</td>
<td>Administrative Assistant I</td>
<td>September 2000</td>
</tr>
<tr>
<td>Claudine Nickens</td>
<td>Administrative Assistant II</td>
<td>September 1988</td>
</tr>
<tr>
<td>Gail Payne</td>
<td>Administrative Coordinator</td>
<td>September 1997</td>
</tr>
<tr>
<td>Verna Phillips</td>
<td>Administrative Assistant II</td>
<td>August 1999</td>
</tr>
<tr>
<td>Amina Sadiq</td>
<td>Accountant III</td>
<td>December 1995</td>
</tr>
</tbody>
</table>
Promotions

Vladimir Bortkevich was promoted to Electrical Engineer III.

Glenda Johnson was promoted to Senior Administrative Secretary in the Administrative Office.

Gail Payne was promoted to Administrative Coordinator and is working in the MARC Building.

Honors

The Outstanding Classified Employee Achievement Award is awarded each semester and at the end of the calendar year. At the end of a semester, nominations are received for any staff person who has performed in an exceptional manner during that term. A volunteer committee of staff members selects the winner from nominations received from any employee of the Woodruff School. Judy Diamond was the recipient of the 2001 Woodruff School Outstanding Achievement Award for Classified Staff. She, along with Trudy Allen and Vivian Johnson were the recipients of the individual semester awards in 2001.

Mike Murphy received a Georgia Tech ten-year service pin at the Faculty-Staff Honors luncheon.
Joseph H. Anderer endowed the faculty fellow program as part of the Georgia Tech Capital Campaign. He is the retired Chairman and CEO of Warren Corporation in New Canaan, Connecticut. Mr. Anderer earned a BME from Georgia Tech in 1947 and a BIE from another institution in 1948. He then began his career with the Atlanta Refining Corporation. In 1956, Mr. Anderer joined the American Viscose Corporation as head of textile development laboratories. In 1964, he joined Celanese Corporation and became executive vice president of textile marketing in 1966. In 1969, Mr. Anderer joined Revlon Corporation as president of cosmetics and fragrances. In 1972, he became president, Chief Operating Officer, and a director of M. Lowenstein. In 1978, Mr. Anderer formed the Grendel Corporation of Greenwood, South Carolina and the Warren Corporation of Stafford Springs, Connecticut. He served as chairman and CEO of both textile corporations until his retirement.

Mr. Anderer was in the U. S. Marine Corps in World War II. He has served as a director of numerous public and private corporations as well as several nonprofit foundations.

Mr. Anderer served on the Georgia Tech Advisory Board for six years and was chairman in 1982. He was a member of the Woodruff School Advisory Board in 1983 and 1984 and has been an active member of the New York Georgia Tech Club for many years.

In Memorium: Michael Isenhour

Woodruff School alumnus and Georgia Tech basketball player, Michael Isenhour died on June 14, 2002 after a nine-month fight against acute lymphoblastic leukemia. Michael was 23 when he died, nine days after undergoing a bone marrow transplant. He was diagnosed last October and graduated from Georgia Tech in December 2001 with a degree in mechanical engineering. At the 2002 Student Honors Day in April, Michael was presented the CETL/Dow Foundation Perseverance Award, which is given to a student who has overcome extreme hardship in completing a degree
Building Named for Pete Petit

Georgia Tech alum and prominent Atlantan Parker H. “Pete” Petit, CEO of Matria Healthcare, made a $3.3 million gift toward the development of a complex of buildings on the Georgia Tech campus devoted to biomedical, environmental, and molecular engineering research. As a result, Georgia Tech will name the building that currently houses its bioengineering and bioscience programs the Parker H. Petit Building.

The building, which opened in 1999, is a $30 million, 150,000 square-foot facility configured to facilitate interdisciplinary research programs of faculty and their research groups, including both graduate and undergraduate students, mirroring Tech’s commitment to biorelated research. More than 500 students, staff, and faculty are housed in the interdisciplinary building and are actively engaged in biorelated research.

Petit received a bachelor’s degree in mechanical engineering in 1962 and a master’s in engineering mechanics in 1964 from Georgia Tech.
Honors

Four alumni were selected for the Georgia Tech Council of Outstanding Young Engineering Alumni. Membership in the Council is reserved for alumni under 40 years of age who have demonstrated outstanding professional achievements. They are Bruce Antolovich (BME 1988, MSME 1990, Ph. D. MSE 1993), Manager, Numeric Process Modeling, Special Metals Corporation of New Hartford, New York; John Kluber (BME 1984, PE), Vice President of Kluber Engineering & Architecture, Inc. in Willowbrook, Illinois; Ronald P. Roth (MSME 1990, Ph.D. ME 1992), Vice President of Engineering at HV Technologies in Trenton, Georgia; and John M. Siegel, Jr. (BME 1990, MSME 1992, Ph.D. ME 1994), Director of Commercial Bioinformatics at Research Genetics, Inc. in Huntsville, Alabama.

The Academy of Distinguished Engineering Alumni recognizes alumni who have made significant contributions to their profession, the Institute, or society-at-large. Individuals receiving this award are widely respected, recognized for their professional and personal services, and actively involved in engineering or management. They bring distinction to Georgia Tech. They are Dolan P. Falconer, Jr. (BME 1979), Executive Vice President and Co-Founder Parallax, Inc. of Atlanta, Georgia; Juan Antonio Michelena (BME 1962), Chairman of the Board of Mantex S.A. of Key Biscayne, Florida; and John G. Voeller (BME 1971), Senior Vice President, Chief Knowledge Officer, and Chief Technology Officer of Black & Veatch in Kansas City, Kansas.

The highest honor that can be bestowed on alumni in the College of Engineering is the Hall of Fame. Membership is reserved for alumni who have made sustained and meritorious engineering and/or managerial contributions during their careers. Joseph T. Hamrick (BME 1946. MSME 1948), President, Aerospace Research Corporation of Roanoke, Virginia was the new inductee into the
Hall of Fame.

**Deborah Kilpatrick** (Ph.D. ME 1996) was Guidant Corporation's nominee to the Healthcare Businesswomen's Association National "Rising Star" Awards for 2002. The recognition is given to those who exemplify outstanding qualities, such as leadership, drive, team-building, innovation, work/family balance and who serve as a role model for others to emulate. In addition, Deborah is the first woman named to the Woodruff School's Advisory Board.

**Calvin Mackie** (BS, MS, Ph.D. ME 1996) received tenure and was promoted to Associate Professor at Tulane University.

**Johné Parker** (Ph.D. ME 1996) was promoted to Associate Professor and received tenure at the University of Kentucky.
This list includes gifts designated to the Woodruff School of Mechanical Engineering between July 1, 2001 and June 30, 2002.

Alumni, Parents, and Friends

Captain William B. Abbott, USN(Ret.) (ME 1952)
Gerald J. Allen
Elizabeth K. Armsby
James R. Arnold (ME 1950)
G. Bingham Bache (ME 1961)
Debra J. Brook
Michael Bujold
Henry C. Buttery (ME 1945)
Ira Charak (ME 1957)
James C. S. Chou (Ph.D. ME 1949)
C. Michael Dempse (IE 1972)
Qimin Dong
H. Speer Ezzard (ME 1950)
George W. Fleming, Jr. (ME 1947)
Harold W. Gegenheimer (ME 1933)
Bradley D. Geving (ME 1998)
Ronald Gibbs, Parent
The Family of Mario Goglia
Arnold I. Goldberg (ME 1950)
Sheldon M. Jeter (Ph.D. ME 1979)
James F. Johnston, Jr. (P.E. ME 1950)
Michael F. Kemp
George W. Kurtz (ME 1950)
Mrs. Helen K. Maddox
Isaac E. Murray, Jr. (ME 1949)
Marilyn R. Nerem
Betty Ann Rhodes
Charley Scott (ME 1950)
Alan F. Sides (ME 1983)
Ronda R. Sides (IE 1983)
Mr. and Mrs. Bertram Spetzler, Parents
Weston M. Stacey (Ph.D. PHYS 1959)
Frank K. Webb (ME 1938)
Corporations, Foundations, and Associations

Advanced Tissue Sciences
AEM Technology
Air Products and Chemicals, Inc.
American Society of Mechanical Engineers
American Standard Foundation
Arpeggio Acoustic Consulting LLC
Arthritis Foundation
Bank of America Foundation
BASF Corporation
BP Amoco Foundation, Inc.
CACI International Inc.
Camotion, Inc.
Conoco, Inc.
Cummins Engine Company, Inc.
The Dow Chemical Company Foundation
Duke Energy Corporation Foundation
EKC Technology, Inc.
Engelhard Corporation
ExxonMobil Corporation
Fisher Controls International, Inc.
Fluid Power Educational Foundation
Ford Motor Company
GE Fund General Motors Powertrain
Georgia Power Company
Georgia Tech Alumni Association
Guidant Foundation
Herbert & Marian Haley Foundation
Honda of America Institute of Mechanical Engineering
John Deere Foundation
Kimberly-Clark Corporation
Levenson Foundation Inc.
Lord, Aeck & Sargent, Inc.
The Lubrizol Corporation
Lucent Technologies MCSi, Inc.
Milliken & Company, Inc.
Newcomb Distributors
Pi Tau Sigma
Porex Technologies Corp. of Georgia
Procter & Gamble Fund
Rockwell Automation
Rohm and Haas Company
Schlumberger Foundation, Inc.
Semiconductor Research Corporation
Shell Oil Company Foundation
Siemens AG
Siemens Energy & Automation, Inc.
Society of Automotive Engineers, Inc.
The Timken Company
Waring-Ahearn Insurance
The Whitaker Foundation
Xerox Corporation

Faculty and Staff

Janet K. Allen
Wayne J. Book
Gene T. Colwell
Kenneth A. Cunefare
Steven Danyluk
Royal F. Dawkins
Stephen L. Dickerson
Robert E. Fulton
Nolan E. Hertel
Sheldon M. Jeter (ME 1979)
Alan V. Larson
Lora L. Magnuson
David L. McDowell
William J. Miller
Farrokh Mistree
Robert M. Nerem
Jianmin Qu
Farzad Rahnema
Peter H. Rogers
Richard F. Salant
David M. Sanborn
Weston M. Stacey (PHYS 1959)
James R. Stevenson
John Valentine
Chris Wang
William J. Wepfer
Wendell M. Williams, Jr. (ME 1955)
Ward O. Winer
Caroline G. Wood
For fiscal year 2002 (July 1, 2001 to June 30, 2002), the Woodruff School’s finances were reflected in the number of grants and contracts received from external sources, the budget of the School (state support), and the revenue generated from the Woodruff Endowment. These categories break down as given below. Detailed information on any of these categories is available from the Woodruff School’s Director of Finance, David Stone, at (404) 894-7400.

### Grants and Contracts

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total new funds received on external/internal grants and contracts (includes endowment revenue)</td>
<td>$19,034,603</td>
</tr>
<tr>
<td>Endowment and externally funded grant and contract expenditures</td>
<td>$19,405,180</td>
</tr>
<tr>
<td>Internally funded grant expenditures</td>
<td>$1,782,287</td>
</tr>
<tr>
<td>Total grant, contract, and endowment expenditures</td>
<td>$21,187,467</td>
</tr>
</tbody>
</table>

### Number of Grants, Contracts, and Proposals

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of active (external/internal) grants and contracts (includes endowment accounts)</td>
<td>597</td>
</tr>
<tr>
<td>Number of proposals submitted to external agencies</td>
<td>130</td>
</tr>
<tr>
<td>Number of externally funded grants, contracts, and endowments receiving new funds</td>
<td>235</td>
</tr>
<tr>
<td>Number of internally funded grants receiving new funds</td>
<td>24</td>
</tr>
</tbody>
</table>

### School Budget

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>State support</td>
<td>$9,830,834</td>
</tr>
<tr>
<td>Total grant, contract, and endowment expenditures</td>
<td>$21,187,467</td>
</tr>
<tr>
<td>Total budget</td>
<td>$31,018,301</td>
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</tbody>
</table>

### Endowments (as of July 1, 2001)

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Woodruff School endowment (market value principal)</td>
<td>$78,677,463</td>
</tr>
<tr>
<td>Endowment-generated revenue available for expenditure</td>
<td>$4,088,823</td>
</tr>
</tbody>
</table>

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* In addition about 8,571,000 was received by our faculty through the college and interdisciplinary centers.

* Includes direct costs, fringe benefits, and overhead, if applicable.
Funds from the George W. Woodruff Trust continue to provide for the enhancement of School of Mechanical Engineering. George W. Woodruff received his degree in mechanical engineering in 1917. He served as a trustee and trustee emeritus of the Georgia Tech Foundation from 1941 until his death at the age of 91 in 1987, and he received the Alumni Distinguished Service Award in 1963. In addition to providing a significant endowment for the School of Mechanical Engineering, his contributions to Georgia Tech provide National Merit Scholarships and scholarships for student athletes in nonrevenue producing sports and are an ongoing source of unrestricted support for the Institute.

The market value of the Mechanical Engineering Woodruff Endowment on July 1, 2002 was $52,971,169. The endowment generated $2,955,468 that was available to the Woodruff School to update and enrich our programs during fiscal year 2002. The expenditures may be categorized as follows: faculty, students, facilities, lectures and seminars, staff, publications, and general projects and supplies. A breakdown of the use of these funds includes:

**Faculty**

- Funds from the Woodruff Trust are used to endow the George W. Woodruff Chair in Mechanical Systems and the George W. Woodruff Chair in Thermal Systems. Dr. Jerry H. Ginsberg, Professor of Mechanical Engineering, has held the Mechanical Systems Chair since 1989. Dr. Ari Glezer was appointed to the Thermal Systems Chair in 2002.
- Funds travel and equipment purchases for faculty.
- Funds the Woodruff Faculty Fellows Program, which encourages young professors to build their careers at Georgia Tech by providing seed money ($15,000 per year) for research projects and other discretionary activities. The award is given for a five-year period. In the past academic year, David Rosen and Bert Bras were named faculty fellows until 2007. Steven Liang, Jianmin Qu, and Cheng Zhu are other holders.
- Partially supports the School's participation in the Georgia Tech Lorraine Program in Metz, France.
- Partially supports the Frank Webb Program in Professional Communication and the hiring of academic professionals and part-time faculty to supplement the course offerings of the School.
- Funds faculty recruiting, travel and research equipment.
- Supplements faculty travel.
Students

- The largest single category of support is for students ($1,296,109) in the form of teaching assistantships, research assistantships and fellowships to outstanding students. Approximately 216 student-semesters of support.
- Provides funds, including travel, to recruit new ME, NRE, and HP graduate students to the Woodruff School. This includes four recruiting weekends in which potential graduate students are brought to campus for a full weekend of activities.
- Funds the Spring Banquet, a yearly gathering of students, staff, and faculty to recognize the accomplishments of Woodruff School students and to honor the Woodruff School's Annual Distinguished Alumnus and the Outstanding Educator.
- Partially funds student organizations such as the ASME Student Chapter, GT Motorsports, GT Off-Road (the Mini-Baja Team), Robojackets (including the FIRST team), Future Truck, and WSSAC.
- Provides partial financial support for student participants in the Georgia Tech Lorraine program.
- Provides funds for the Outstanding Seniors Dinner held each year in September. The purpose of this dinner is to encourage Woodruff School seniors with a grade point average of 3.5 and above to go to graduate school.
- Funds luncheon meetings between Woodruff School administration and graduate students and a sampling of graduating undergraduate students to obtain students' assessment of our programs.
- Funds an Open House and other activities in the Woodruff School during Family Weekend.
- Pays for the Woodruff School Annual Cookout, held at the beginning of the fall semester, whose purpose is for new graduate students to meet Woodruff School faculty, staff, and returning graduate students.
- Provides plaques and funds for students who receive an award at the annual Honor's Day Luncheon.
- Partial support for the Pi Tau Sigma National Office, the honorary mechanical engineering society that the school hosts.
- Funds recruiting efforts for undergraduate students in nuclear and radiological engineering.

Facilities

- Funds various research lab additions and renovations, labs in the Love Building including over $622,000 toward the
installation of the clean room for MEMS research and the Fluid Mechanics Lab, and partial renovation of the Tin Building as a Student Team Competition Center.

- Provides funds to improve and furnish School facilities, including computer cluster equipment and the seminar room.

Lectures and Seminars

- Funds activities associated with the Annual Woodruff Distinguished Lecture Series.
- Provides support for the Woodruff Colloquium Series. These funds allow the Woodruff School to bring in well-known scholars to present a seminar and interact with the faculty in small groups.
- Pays for receptions that accompany various seminars in the Woodruff School.

Publications and Public Relations

- Funds the design, production, and distribution of all Woodruff School publications.

Miscellaneous Projects

- Provides funds for the Woodruff School Advisory Board meetings.
- Purchase of gifts for lecturers, special guests, and retirees.
- Funds various retirement receptions for faculty and staff.

Special Projects

- Funds to improve office equipment.
- Funded a hospitality suite and an exhibition booth at the American Society of mechanical Engineers (ASME) International Meeting and Exposition in New York City.

Personnel

Provides funds for various personnel in the Woodruff School, including the Director of Communications, and four Academic Professionals (Director of the Frank K. Webb Program in Professional Communications, the instructor for ME 1770 (Engineering Graphics and Visualization), the Associate Director of Georgia Tech Lorraine in Metz, France, and the instructor with oversight for senior design
Courses). Training

- Funds for both off-site and on-site staff training programs.

OTHER ENDOWMENTS

In addition to the Woodruff Endowment, the Woodruff School has almost twenty million dollars in other endowment funds. Included here are some endowed chairs, such as the Morris Bryan and the Neely Chairs, the Frank K. Webb Program in Professional Communications, the Gegenheimer Endowment for Innovation, and the Love Family endowment. Most of these endowments are designated funds.
The Woodruff School Advisory Board held its yearly meeting on November 2, 2001 in the MRDC building on the Georgia Tech campus. Eight new members had been added to the board: Edward Davis, William Dean, Greg Foster, Deborah Kilpatrick, Robert Koski, James Lake, Jack Markley, and John Viera. There was a general discussion about the undergraduate program, the outcomes of the Capital Campaign and developmental goals for the future, and a presentation by Dr. Raymond Vito on the undergraduate curricula and the 2002 ABET assessment.

There was a student presentation by Mario Araya, President of Pi Tau Sigma (mechanical engineering honorary society) on Electronic Class Help Boards, and Professor Chris Lynch and graduate student teaching assistant, David Swanson, talked about ME 3056 and Internet Virtual Lab Student Preparation.

At lunch, Dr. Winer introduced new faculty members and acknowledged the service of those board members who were rotating off: G. B. Espy, James Hill, Robert Hill, Artis Jenkins, John Johnson, Robert Millikan, Parker Petit, Charles Ray, and Oliver Sale. The board met with representatives from ME undergraduate students, ME graduate students, and NRE/HP undergraduate and graduate students. Feedback on the conversations was given to Dr. Winer.

Members are invited to join the Advisory Board so that its composition reflects the various scope of mechanical engineering, nuclear engineering, and health physics in industry, the health-related
professions, and the academic community. The board recommends strategic directions to the Woodruff School, suggests broad-based curriculum revisions, and consults with the Chair and faculty on important issues.

Mr. Kerry E. Adams  
Executive Vice President  
Southern Company Services Inc.  
Birmingham, Alabama

Mr. T. A. Barrow, Jr. (BME 1948)  
Atlanta, Georgia

Dr. David B. Bogy  
University of California, Berkeley  
Dept. of Mechanical Engineering  
Berkeley, California

Mr. James R. Borders (BME 1983)  
President, Novare Group  
Atlanta, Georgia

Dr. James D. Brock (MSME 1963, Ph.D. ME 1965)  
Chairman & CEO  
ASTEC Industries  
Chattanooga, Tennessee

Mr. Michael H. Camp  
General Motors Vehicle Manufacturing  
Wentville, Michigan

Ms. Anne M. Cooney  
Vice President, Siemens Energy & Automation  
Alpharetta, Georgia

Mr. William W. Dean (BME 1977)  
Duluth, Georgia

Mr. Greg Foster (BME 1995)  
Atlanta, Georgia

Mr. William S. Johnson (MSCHEM 1949)  
Rio Rancho, New Mexico
Dr. Deborah B. Kilpatrick (BME 1989, BSMS 1994, Ph.D. ME 1997)
Guidant Corp.
Los Altos, California

Mr. Robert E. Koski
Highlands, North Carolina

Dr. James A. Lake (MSNE 1969, Ph.D. NE 1972)
Idaho Falls, Idaho

Mr. J. R. Markley (1956)
Sea Island, Georgia

Mr. Dennis L. Riddle
Business Manager, Milliken & Company
LaGrange, Georgia

Mr. Paul Schutt
CEO, Nuclear Fuel Services
Roswell, Georgia

Dr. Nam P. Suh
Department of Mechanical Engineering
Massachusetts Institute of Technology
Cambridge, Massachusetts

Mr. Joseph K. Tannehill (BME 1955)
Chairman & C.E.O.
Merrick Industries, Inc.
Lynn Haven, Florida

Mr. William L. Thacker, Jr. (BME 1967)
President & C.E.O., TEPPCO
Houston, Texas

Mr. Donald P. Traviss (BME 1968, MSME 1969)
Sewickley, Pennsylvania

Mr. Michael S. Tuckman (BEE 1965)
Executive Vice President
Duke Power Company
Charlotte, North Carolina

Mr. John J. Viera
Chief Engineer, Ranger Program
Ford Motor Company
Dearborn, Michigan

Professor J. Ernest Wilkins, Jr.
Clark Atlanta University
Atlanta, Georgia

Dr. Larry Ybarrondo (Ph.D. ME 1964)
Wilson, Wyoming

Table of Contents

Dr. Artis Jenkins (MSME 1980, Ph.D. ME 1984)
Technical Manager, Lucent Technologies
Norcross, Georgia

Mr. John G. Johnson (BME 1959)
Vice President, Harris Corporation
Melbourne, Florida

Mr. William S. Johnson (MSCHEM 1944)
Rio Rancho, New Mexico

Mr. Robert J. Millikan (BME 1959)
Vice President, Georgia-Pacific Corporation
Atlanta, Georgia

Mr. Parker H. Petit (BME 1962, MS EM 1964)
Chairman, Healthdyne Inc.
Marietta, Georgia

Mr. Charles L. Ray (BME 1950)
Marietta, Georgia

Mr. Dennis L. Riddle
Business Manager, Milliken & Company
LaGrange, Georgia
Mr. Oliver H. Sale, Jr. (BME 1956)
FESCO International
Norcross, Georgia

Mr. Paul Schutt
C.E.O., Nuclear Fuel Services, Inc.
Roswell, Georgia

Dr. Nam P. Suh
Department Head of Mechanical Engineering
Massachusetts Institute of Technology
Cambridge, Massachusetts

Mr. Joseph K. Tannehill (BME 1955)
Chairman & CEO Merrick Industries, Inc.
Lynn Haven, Florida

Mr. William L. Thacker, Jr. (BME 1967)
President & C.E.O., TEPPCO
Houston, Texas

Mr. Donald P. Traviss (BME 1968, MSME 1969)
Sewickley, Pennsylvania

Mr. Michael S. Tuckman (BEE 1965)
Executive Vice President, Duke Power Company
Charlotte, North Carolina

Professor J. Ernest Wilkins, Jr.
Department of Mathematical Science
Clark Atlanta University
Atlanta, Georgia

Dr. Larry Ybarrondo (Ph.D. ME 1964)
Idaho Falls, Idaho
Acknowledgment: This report is written and edited by Rona Ginsberg, Director of Communications for the Woodruff School. Craig Moonshower designed the document. Most of the photographs were taken by Gary Meek, Caroline Joe, and Rona Ginsberg. Additional photos are either from the Georgia Tech or the Woodruff School Archives. Thanks to Yves Berthelot, Kimberly Blue, Ken Cunefare, Jeff Donnell, Mary Jo Kleine, David Sanborn, David Stone, William Wepfer, Cosetta Williams, Ward Winer, and Caroline Wood for providing information for this report. We gratefully acknowledge the financial support of the Woodruff Endowment to the George W. Woodruff School of Mechanical Engineering.

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