

EXPANDING OUR INFLUENCE

2014 INSTITUTE ANNUAL REPORT



MESSAGE FROM THE PRESIDENT

EXPANDING OUR INFLUENCE



G.P. "BUD" PETERSON

This is a tremendously exciting time to be at the Georgia Institute of Technology, and the reason is simple: momentum. In every aspect of what we do to further our mission, and by every meaningful barometer of progress, Georgia Tech's influence and reputation continue to grow at a rapid pace.

Our students continue a long tradition of ranking among the finest in the world. Each year our incoming freshman class surpasses its classmates from the previous year in terms of academic qualifications and diversity. Among this year's student body, we have a Rhodes Scholar, a Marshall Scholar, two Goldwater Scholars, and a Whitaker Undergraduate Research Fellow.

In addition to their classroom studies, students play an active and vital role in advancing Georgia Tech's research agenda. The Institute has become a renowned leader in furthering an array of life sciences research projects aimed at improving and saving lives, as well as projects that stimulate economic activity and job growth. For example, we continue to partner with the federal government to transform U.S. manufacturing for competitiveness and success in the 21st century.

Success for almost any industry requires a global approach and perspective, an integral aspect of the Institute for decades. Last spring we launched the Lafayette Institute adjacent to our Georgia Tech-Lorraine campus in Metz, France. The new facility will provide licensing, commercialization, and technology transfer services to faculty and industry in technology areas related to new materials for photonics and electronics. The Lafayette Institute represents a unique partnership between industry, academia, and government, and serves as a catalyst for international economic collaborations between Georgia and Lorraine, and the U.S. and France.

All these activities around global engagement, economic development, leading-edge research, and educational excellence support the vision outlined in our 25-year strategic plan, *Designing the Future*. We continue to make strong progress on implementing the plan this year, with our Strategic Plan Advisory Group delivering its initial report.

As the work of our students, faculty, staff, and partners continues to expand Georgia Tech's influence and reputation — both nationally and globally — we are increasingly grateful to all those whose ongoing support and advocacy make our endeavors possible.

G.P. "BUD" PETERSON
PRESIDENT, GEORGIA INSTITUTE OF TECHNOLOGY

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Cover image: *Cinch*, by Adam Garey, was part of the 2013-14 "Engineered Art" sculpture exhibition. It is now part of the Institute's permanent art collection.



MAKING OUR STRATEGIC PLAN A REALITY

The past year saw substantial progress in implementation of the Institute's 25-year strategic plan, published in 2010.



DAVID FROST

Early data show strong support

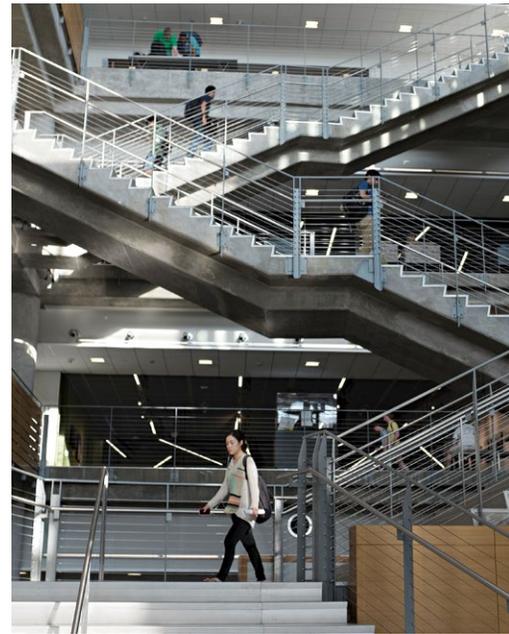
President Peterson created the Strategic Planning Advisory Group in spring 2013, and that group released some of its initial feedback on the plan's implementation last fall.

"We set out to meet with campus academic leaders, administrative leaders, and project champions to assess the activity and enthusiasm for implementing the goals outlined in Tech's strategic plan," said David Frost, professor in the School of Civil and Environmental Engineering and chair of the advisory group. "What we heard was that the document continues to be the foundation for a lot of unit-level planning and new initiative development."

In the initial report, the vision, mission, and overall goals of the strategic plan remain unchanged. However, the report recommended that some of the objectives be revised to better reflect the Institute's priorities and future goals.

"The advisory group's assessment was a good indication that the main ideas articulated in the strategic plan developed by the Georgia Tech community are still sound," Peterson said. "In 2010 we developed a very forward-looking plan. Our task now is to see that we continue our momentum toward achieving those very ambitious goals."

Among the advisory group's remaining priorities are improving the process by which new projects are identified and funded and determining how to effectively inform the campus of progress on the plan's five goals.



→ Kara Yogan, a chemical engineering major interested in tribology, is an ideal candidate for the X Degree. Because Georgia Tech doesn't offer a major in tribology, the X Degree has the potential to meet Yogan's unique goals.

X DEGREE GATEWAY COURSE IS PILOTED

One idea that emerged from the initial strategic planning process came to be known as the "X Degree," and progress on that front has come from the X Degree Committee's piloting of a gateway course.

"While existing majors are, and will continue to be, the core of our educational mission, some students and employers are looking for the particular skills that come from managing one's own curriculum and designing an interdisciplinary program of study," said Richard Barke, chair of the X Degree

Committee. "Most of Tech's peer institutions offer some version of an X Degree, although our version would be uniquely Georgia Tech."

One such student is Kara Yogan, a chemical engineering major who is interested in tribology (the study of lubrication, friction, and wear); the problem for Yogan is that Georgia Tech doesn't offer tribology as a major.

"There is a single upper-level mechanical engineering (ME) class focused on tribology. But since my interest lies in the chemical and physical properties of these lubricants, pursuing an ME track would not be right

for me," said Yogan. "My interest is actually a mix of three majors — chemical engineering, ME, and materials science and engineering."

To address the needs of students like Yogan, the X Degree Committee offered a pilot version of the gateway course that introduces students to the program. Nine students from Tech's Honors Program — including Yogan — enrolled in the course, which met once a week for three hours.

"I enrolled because I have an interest in space policy and regulations," said Anna Woodmansee, an aerospace engineering major. "I liked the idea of being →



Anna Woodmansee, an aerospace engineering major, has a strong interest in the potential of the X Degree program. She likes the idea of combining the study of aerospace engineering with public policy, particularly at the undergraduate level.

» able to combine aerospace engineering and public policy, especially in a course taught by faculty from both areas and before graduate school.”

“The X Degree is a great example of the Georgia Tech strategic planning ecosystem in progress,” said Frost. “The X Degree will not necessarily be for everyone, but for some, it will be the key step on a path that leads to transformative ideas and solutions.”

THE YEAR AT TECH

Georgia Tech was one of six University System of Georgia units to receive the Award of Distinction for Excellent Financial Reporting in Fiscal Year 2013.

ARTS@TECH INITIATIVE IS LAUNCHED

Another aspiration of the strategic plan is to provide a more holistic educational experience for students, and that includes consistent and high-quality interactions with the arts.

In pursuit of this goal, the Arts@Tech initiative was launched last fall. The effort aims to enhance the Tech community by fostering programs and events spanning the arts spectrum at the intersection of technological innovation and creative expression.

To celebrate the launch of Arts@Tech, a 15-piece outdoor sculpture exhibit, titled “Engineered Art,” was installed on campus. Internationally acclaimed, Chattanooga-based sculptor John Henry served as curator for the exhibition. One of his works, “La Tour,” a 50-foot-tall steel piece located on the Instructional Center lawn near Boggs Chemistry Building, was also included in the exhibit.

“Artistic endeavors allow students to have a well-rounded experience that includes self-realization, teamwork, creativity, leadership, and fun,” said Provost Rafael Bras. “Exploring the arts helps prepare Georgia Tech students for leadership, collaborative thinking, problem solving, and success in a world where art, science, and technology intersect to touch every aspect of the human experience.”

Georgia Tech has purchased the eight sculptures listed below, and they will remain on campus permanently.

- 1 *Oh'd* by Bret Price, Van Leer Building (Tech Green Lawn)
- 2 *Squirt* by John Clement, Tech Walkway Triangle
- 3 *Tux* by Isaac Duncan III, Van Leer Building (Tech Green North)
- 4 *Big Red Turnipkin* by Verina Baxter, Noonan Courtyard (west of Klaus Advanced Computing Building)
- 5 *Cinch* by Adam Garey, Whitehead Building Lawn
- 6 *Mercury Venus Mars* by Peter Lundberg, Boggs Building (Student Center Parking Deck)
- 7 *Untitled* by Terrance Karpowicz, Tech Walkway Triangle
- 8 *Crown* by Doug Schatz, Campus Recreation Center (Entrance)





CATHERINE MURRAY-RUST

LIBRARY RENEWAL PROJECT MOVES FORWARD

Providing superior library services to support students and faculty is a must for any world-class university, and Tech's aging Library facilities are set to undergo an extensive transformation.

Two nationally renowned architecture and design firms will partner to renew the Library's Dorothy M. Crosland and S. Price Gilbert towers. LP3, an Atlanta-based multidisciplinary design firm, and BNIM, a Kansas-based designer of high-performance environments, are creating a cohesive design solution for the Library Renewal Project.

"We're excited to see what innovative solutions come from this partnership," said Catherine Murray-Rust, vice provost for Learning Excellence and dean of Libraries. "Both firms have experience with mid-century buildings and bring distinctive strengths to the Library Renewal Project."

Construction is tentatively set to begin in 2015. Until then, both firms are collaborating with Library staff to integrate feedback from campus stakeholders into the overall building design. The project is being supported by a \$1.7 million allocation from the State of Georgia for planning and design.

Development of the Quality Enhancement Plan

None of Georgia Tech's strategic goals can be realized without accreditation from the Southern Association of Colleges and Schools (SACS), and the 10-year reaffirmation of Georgia Tech's accreditation is in full swing.

This past year saw the development of a major component of the reaffirmation process, the selection of a Quality Enhancement Plan (QEP) for Student Learning. Five QEP concept papers were presented to the QEP Advisory Committee last winter, and the selection process continued through the spring and summer months.



COLIN POTTS

The purpose of the QEP is to enhance the quality of student learning outcomes and the learning environment. The QEP also should be directly related to the Institute's strategic plan. More than 80 percent of the onsite review — scheduled for March 2015 — will focus on the QEP.

"For an idea to succeed as a QEP, it requires widespread buy-in from the campus community," said Colin Potts, vice provost for Undergraduate Education. "We went about the task by inviting concept papers last year from teams representing at least three colleges. Nearly 100 authors were actively involved in the crafting of responses (that's about 10 percent of faculty). And the concepts all traced directly back to the strategic plan."

The Student Government Association and other student constituencies have been consulted and continue to be fully involved in the refinement and definition of the QEP.

"There are already obvious tie-ins to many student societies, majors, and labs, as well as outreach to external organizations," Potts added. "I'm confident that the QEP that emerges will reflect the 'One Georgia Tech' message."



STUDENT ACHIEVEMENT AND SUPPORT

Georgia Tech students take the concept of challenge to a whole new level; their achievements and honors are simply phenomenal.

Georgia Tech's President's Scholars have a long history of adding considerable prestige to the Institute's academic reputation.

PRESTIGIOUS HONORS

Melissa McCoy, Rhodes Scholar

A 2012 chemical and biomolecular engineering graduate, McCoy grew up traveling the world with two engineer parents who challenged her to not simply take in other cultures at face value. Now an engineer herself, McCoy's young career has taken her to Chile, Zambia, Australia, Canada, Mexico, and the United Kingdom, where she is now pursuing her Rhodes studies. Her resume is astounding for someone so young:

- Georgia Tech President's Scholar.
- Founder of Enterprise to Empower (En2Em).
- Co-founder of Tubing Operations for



→ STUDENT ACHIEVEMENT AND SUPPORT

RESEARCH MILESTONES

ECONOMIC DEVELOPMENT

GLOBAL ENGAGEMENT

FACULTY/STAFF ACCOLADES

COMMUNITY CONNECTIONS

PHILANTHROPY AT WORK



Melissa McCoy (left), a 2012 chemical and biomolecular engineering graduate, is the fifth Rhodes Scholar in Georgia Tech history. Nicholas Picon (right), a 2014 aerospace engineering graduate, is studying in the United Kingdom as a Marshall Scholar.

Humanitarian Logistics (TOHL).

- Consultant to Partners in Performance and Zamrize.

In Oxford this fall as a Rhodes Scholar, McCoy is working on a research project focused on problems with water management and purification, with the goal of removing heavy metals from water. She hopes to expand the scope to include additional mechanical and electrical engineering themes, finally combining many of her passions in one project.

“I’ve felt for so long that I’ve been torn between classes and work, and entrepreneurial and tech creation projects, and now I can combine them,” she said. “I’m blessed that I’m coming into this program with enhanced perspective on the world and what I can do to change it.”

Nicholas Picon, Marshall Scholar

The aerospace engineering major — a spring 2014 graduate — will pursue his passion of aerospace defense through studies in the United Kingdom.

“The degrees I’ll be pursuing are exactly what I want to do,” Picon said. “King’s College has a great War Studies department, and I’ve been really excited since the first time I looked it up.”

Picon has long held interests in both aerospace and international affairs.

At Tech, he complemented his major with undergraduate research

and work experience at Rolls-Royce and Boeing. He spent six weeks studying in Oxford, England, and he also participated in an international fraternity conference in Greece and an Engineers Without Borders project in Honduras.

His desire to apply aerospace skills on an international level led him to pursue opportunities in the policy arena.

Long-term, Picon plans to focus on international conflict and the prevention of war, aspiring to Winston Churchill’s challenge to “make this muddled world a better place for those who will live in it after we are gone.”

Thomas Kieffer and Mohamad Najia, Goldwater Scholars

“I make use of high-performance computing to capture the interplay of universal processes such as gravity, fluid dynamics, thermodynamics, and radiation,” said Kieffer, a double major in physics and mathematics whose academic focus is computational astrophysics. “A better understanding of these processes in an astrophysical context can, in turn, yield results that strengthen the understanding of these processes in other branches of physics.”

Kieffer’s goal is to pursue a Ph.D. in theoretical physics and become a professor. He wants to

continue doing research to aid in the growth and development of fundamental science.

“Even before I was awarded the Goldwater, I wanted to go to graduate school to earn a Ph.D. in biomedical engineering,” said Najia, a biomedical engineering major who was first drawn to this area of study in high school as he learned about the potential of stem cells and their role in curing disease.

Throughout his undergraduate career, Najia has focused on his dream of generating fully functional tissues for implantation into patients, with the goal of curbing a nationwide allograft shortage, improving patient recovery, and saving lives.

“The Goldwater is an initial step toward building a career in the biomedical engineering field and performing impactful research,” said Najia, who hopes to become a professor with a lab focused on genome engineering.

Other Prestigious Award Winners

Divya Natarajan, Biomedical Engineering, Whitaker Undergraduate Research Fellow

Caroline Massaro, Biomedical Engineering, and **Nicholas Barker**, International Affairs, U.S. Department of State Critical Language Scholarships

Omid Nabipour, Aerospace Engineering, Campus Movie Fest winner for “Tears of the Innocent”

Goldwater Scholars
Thomas Kieffer (left) and
Mohamad Najia.



Startup Lab prepares students to succeed

Even the brightest and most motivated students need a superior infrastructure to help them turn visions such as ideas for startup companies into reality. A new course called Startup Lab is striving to do just that.

During the inaugural offering of the course last winter, renowned Tech alumnus Chris Klaus stood in a room in his namesake building to talk with 30-plus students about what it takes to build a startup.

Klaus talked about his experience founding his first company, Internet Security Systems, from his dorm room in Smith Hall. IBM eventually bought ISS for \$1.3 billion. Klaus went on to start Kaneva, a social gaming company based in Atlanta.

The focus of Startup Lab is on better equipping students to pursue startup creation. The course begins with students hearing from a different guest each week about his or her experience in a startup or entrepreneurial environment. Students then team up to develop a business model for a startup idea of their own.

During his visit, Klaus echoed the need for collaboration, advising students to seek partners at neighboring universities. He dismissed the notion that students are too young to start companies or that age bias in the marketplace should stop them.

"The reason to do a startup is to change the world and create value," Klaus said.

MENTAL HEALTH TASK FORCE DELIVERS REPORT

No matter how much financial and academic support a student receives, the rigors of the Georgia Tech curriculum can induce high levels of stress. A Mental Health Task Force appointed by President Bud Peterson in



LYNN DURHAM

spring 2013 released its report and recommendations last fall, with an eye toward addressing this issue.

Chaired by Assistant Vice President Lynn Durham, the 13-person group composed of students, faculty, and staff discussed mental health issues, support, and needs in Tech's student body.

"Our students see mental health issues in others, but not necessarily in themselves," Durham said. "They are under a great deal of pressure and don't see the stress points, or the concerning behaviors such as staying up all night multiple nights in a row. They feel

invincible and often don't reach out for the help they need."

The report reviews current mental health offerings as well as proposed offerings currently under consideration across campus, including an online resource portal, peer counseling program, enhanced orientation for international and transfer students, and programming for students in recovery. The report also makes 11 recommendations spanning issues related to data gathering, program accessibility, dissemination of information, campus spirit, financial aid, graduate student funding, and positive faculty-student interaction.

An underlying theme in task force discussions was the impact of Tech's challenging and competitive academic environment. In a 2011 National College Health Assessment, nearly 90 percent of Tech students reported being "very stressed" compared to a national average of around 53 percent.

Peterson will task members of his cabinet with drafting implementation plans for different recommendations of the report that pertain to their areas.

THE YEAR AT TECH

New GT 1000 sections tailored to special interest populations

Four new sections of the freshman seminar course were created to better serve the needs of:

- Military veterans
- First-generation students
- Women students
- College of Architecture students





Student Brandie Banner helped found Campus Closet.

The Yellow Jackets tied for the second highest APR score for football in the Atlantic Coast Conference.



CAMPUS CLOSET HELPS JOB-HUNTING STUDENTS

For students who choose to begin their careers with a job at a prestigious company or government agency, “suing up” for a job interview can be tough — but not because they lack an eye for fashion.

Dressing to impress can be expensive, and many students cannot afford to purchase a new suit when they’ve yet to be hired for a job. With the success of

their peers in mind, a group of students has established Campus Closet.

“Some companies will not even consider you for a position if they find your attire inappropriate or too casual,” said Brandie Banner, one of the student organizers. “Being underdressed for an interview adds another level of unneeded stress and insecurity to the process.”

Campus Closet organizers had previously observed students attending

campus career and internship fairs dressed inappropriately and realized that, for some, it was simply because they could not afford a suit.

Through Campus Closet, students are able to borrow a suit for up to a week at a time to wear for their job search activities. They are responsible for returning the suit with proof of dry cleaning and will also receive a Georgia Tech pin to adorn the lapel.

ATHLETES’ ACADEMIC PERFORMANCE CONTINUES IMPROVEMENT

Fourteen of Georgia Tech’s 17 varsity sports improved or equaled their Academic Progress Report (APR) scores from the previous year, including three Yellow Jacket teams that posted perfect scores, according to data released by the NCAA. Four Georgia Tech teams — football, golf, women’s tennis, and men’s swimming — rank in the top 10 percent nationally within their sport when it comes to APR.

The APR numbers are based on a multiyear rate that averages scores from the 2009-10 through the 2012-13 academic years. APR is calculated by assessing each scholarship student-athlete’s retention and eligibility each semester. To receive a perfect score of 1000, each team’s student-athletes must meet the NCAA retention and eligibility guidelines.

The football program, which saw its APR score rise in each of the previous four years under Head Coach Paul Johnson, equaled its 983 score from a year ago. The Yellow Jackets tied for the second-highest APR score for football in the Atlantic Coast Conference.

The men’s basketball team has made remarkable APR strides under Head Coach Brian Gregory. Three years ago the Yellow Jackets were saddled with APR-related penalties. However, after three consecutive single-year APR scores of 1000, Tech (989) is tied for the fifth-best APR in the ACC and just six points shy of the league-high score of 995.

Every Georgia Tech team is in good APR standing, meaning no team is at risk of falling below a score of 930, the minimum to avoid sanctions.

“Our vision is to create a top-tier athletic program that achieves excellence on both the playing fields and in the classroom,” said Athletics Director Mike Bobinski. “This year’s APR results are evidence of solid academic progress.”

Tech embraces Greater College Affordability Initiative

Finances are a major concern long before students start job hunting. That’s why President Bud Peterson joined other leaders in higher education in Washington, D.C., last year for a White House summit to discuss methods for ensuring greater access and affordability for students across the country.

Each representative was asked to articulate how his or her institution intends to help more low-income students prepare for college, as well as enroll in and graduate from quality institutions. Georgia Tech’s plans are:

- To expand participation in the G. Wayne Clough Georgia Tech Promise program by 10 percent.
- To deliver technology-assisted, college-level calculus courses to low-income high school students.
- To provide opportunities for first-generation students to participate in off-campus programs of travel, education, and research.
- To underwrite the full cost of attendance for students from the most underserved regions of Georgia, through the support of community partners and an investment from the university.

“We are committed,” Peterson said, “to making a Georgia Tech education within reach of every qualified Georgia resident, regardless of family income.”



RESEARCH MILESTONES

Georgia Tech's extensive innovation ecosystem brings together education, research, government, and industry in ways that maximize the impact of our research on society.

The Georgia Tech approach to research

For researchers at Tech, success is defined through the expansion of fundamental knowledge and the transition of research results from the lab to the real world. Our researchers understand that solving complex problems requires the input of diverse groups — whether that research is related to a new biomedical health care solution, a manufacturing system that needs maximizing, or a new sustainable energy source. Georgia Tech's interdisciplinary, highly collaborative environment inspires game-changing ideas and new technologies that help drive economic growth while improving human life on a global scale.

CARBON NEUTRAL ENERGY SOLUTIONS LAB IS DEDICATED

Georgia Tech researchers are striving to devise more ways of producing highly efficient energy with low environmental impact, and solar energy is a critical aspect of these efforts.

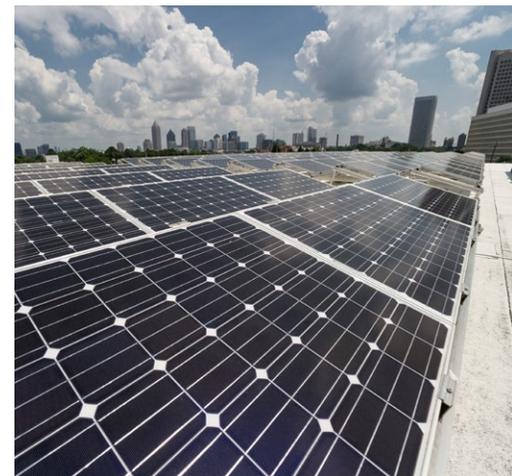
In the past two years, the price of solar panels has dropped about 80 percent. Yet electricity from solar panels is still too expensive to compete with power from fossil fuels because the cost of all the other components and activities involved in installation — hardware, labor, permitting, and inspection — hasn't seen a comparable decline. This problem is among those being addressed at Georgia Tech's Carbon Neutral Energy Solutions (CNES) Laboratory, which opened last fall.

All the items involved in solar installations are collectively known as the "balance of systems" in industry terminology. In 2011, Georgia Tech and

the Georgia Tech Research Institute (GTRI) were awarded a U.S. Department of Energy grant to achieve extreme cost reduction in balance of systems. A handful of industry partners are collaborating with students and faculty. The goal is to slash the cost of solar to \$1 per watt on a utility scale, which would make the price of solar power-generated electricity competitive with coal or fossil fuels.

Step onto the roof of CNES and you'll see that the building is a demonstration project of solar power. The roof is covered with a crystalline photovoltaic array that generates 388,000 kilowatt-hours per year of electricity, helping offset the building's energy needs.

"The idea for CNES was to have a building bringing together people working on low carbon energy. Added on top of that was to make the building itself a demonstrator for low carbon," said Tim Lieuwen, director of Georgia Tech's Strategic Energy Institute. The building was funded by a grant from



The roof of CNES serves as a laboratory for researchers who are striving to make solar energy more financially viable.

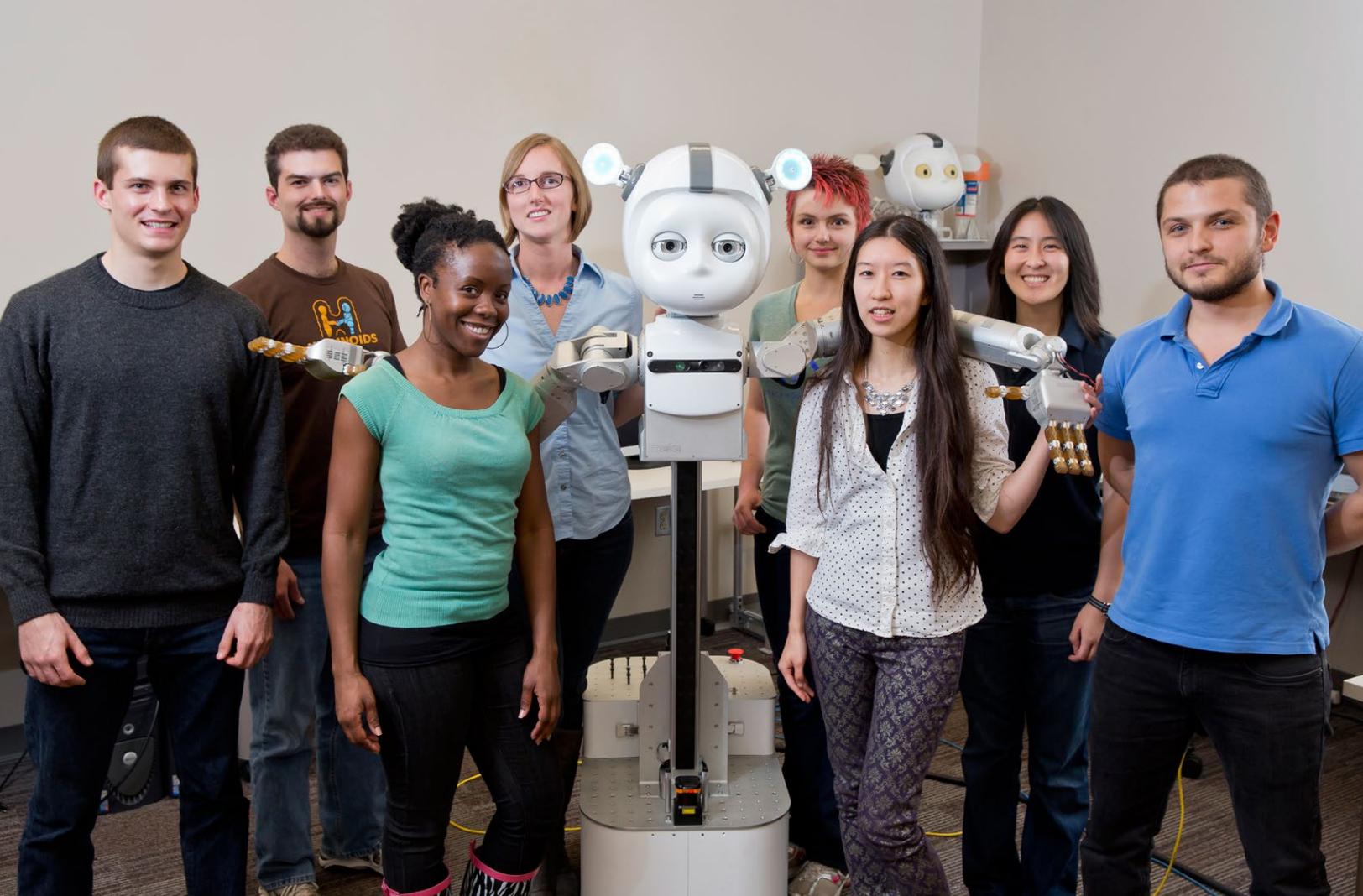
the National Institutes of Standards and Technology.

CNES' mission is to bring clean energy technologies to a 90-percent commercialization level, enabling industries to license the technologies and bring them to market.



Visit www.news.gatech.edu/2013/10/18/carbon-neutral-energy-solutions-lab-unlocks-potential-clean-energy to learn more about CNES.

➔ Professor Tim Lieuwen, director of the Strategic Energy Institute, is leading Georgia Tech's efforts to develop innovative methods of low-carbon energy production. The Carbon Neutral Energy Solutions building is the campus hub for these activities.



Georgia Tech is one of the nation's premier robotics research universities.



GARY MAY

ADVANCES IN ROBOTICS

Last fall Georgia Tech launched the Institute for Robotics and Intelligent Machines (IRIM). This newest of Tech's 10 Interdisciplinary Research Institutes (IRIs) brings together robotics researchers from across campus to support and connect research initiatives, enhance educational programs, and foster advances for the National Robotics Initiative (NRI), first announced by President Obama in 2011 and officially established in 2012.

Georgia Tech is one of the nation's premier robotics research universities, with more than 60 faculty members and researchers developing innovative solutions for manufacturing, health care, and first responder security, as well as for a variety of other critical areas including defense and service applications. Georgia Tech also offers the first fully integrated multidisciplinary Ph.D. program in robotics.

The creation of IRIM followed the National Science Foundation's awarding of more than \$2 million to fund projects led by Georgia Tech researchers as part

of the NRI program. IRIM is creating new collaborative opportunities for faculty, strengthening partnerships with industry and government, and maximizing the societal impact of the transformative robotics research being conducted at Tech.

"Georgia Tech has been making breakthrough discoveries in robotics for more than a decade, and our early successes may be attributed to the grassroots efforts of our dynamic faculty and researchers," said KUKA Chair of Robotics Henrik Christensen, a Distinguished Professor in the College of Computing and the founding executive director of IRIM. "As an Interdisciplinary Research Institute, robotics research at Georgia Tech will be invigorated and supported through our continued work as a unified group of robotics leaders."

Through collaborations with faculty across campus and industry partnerships, IRIM leverages Georgia Tech's resources to address evolving societal needs. The NRI identifies many of these needs as critical, including increasing

manufacturing productivity and improving food safety.

"An interdisciplinary focus and innovative approach are necessary to create solutions for these and other needs facing society today and in the future," said College of Engineering Dean Gary May. "Our engineering faculty members are some of the best in the world. They are making important advances in health care, manufacturing, and personal robotics, to name a few. I am confident their contributions to IRIM will help secure Georgia Tech's reputation as a leader in this critical technological domain."

Robots and intelligent machines also are playing increasingly pivotal roles in research programs in the sciences, including harnessing mechanisms of animal locomotion, empowering the mobility of injured people, and exploring the oceans and planets. "This research is of great interest in many spheres," said College of Sciences Dean Paul Goldbart, "and we are confident that increased support for it from industry will result from our partnership with IRIM."



Robot trading cards 2.0

IRIM played a key role at this year's National Robotics Week, hosted by Georgia Tech. The 2013 event featured Georgia Tech robot trading cards, which were immensely popular with attendees. This year, IRIM brought back the robot "all-stars" for Game 2 of the series.

IRIM researchers designed a fresh pack of Georgia Tech Team Cards highlighting a new lineup of innovative automatons. In addition, IRIM partnered with IEEE Spectrum and iRobot to create a National Team featuring famous robots from around the country — including IRIM's own Simon, created by Associate Professor Andrea Thomaz of the School of Interactive Computing.

"We were thrilled not only to put out our second lineup of robotic All-Stars, but also to work with iRobot and IEEE to promote a National Team of automated heavy hitters from around the country," said Henrik Christensen, founding executive director of IRIM, KUKA Chair of Robotics, and Distinguished Professor in the College of Computing. "This is a terrific way to help future roboticists learn about and appreciate all the fascinating work going on in U.S. robotics. Perhaps, 50 years from now, scientists will point back to their vintage Curi rookie cards as the spark for a lifetime of creative discovery in this critical, wide-ranging field."

ROBOTIC PROSTHESIS TRANSFORMS DRUMMER'S ABILITY

Professor Gil Weinberg has created a robot that can be attached to amputees, allowing its technology to be embedded into humans. The robotic drumming prosthesis has motors that power two drumsticks. The first stick is controlled both physically by the musician's arms and electronically using electromyography (EMG) muscle sensors. The other stick "listens" to the music being played and improvises.

"The second drumstick has a mind of its own," said Weinberg, founding director of the Georgia Tech Center for Music Technology. "The drummer essentially becomes a cyborg. It's interesting to see him playing and improvising with part of his arm that he doesn't totally control."

The prosthesis was created for Jason Barnes, a drummer who was severely shocked two years ago and lost his right arm below the elbow. The Atlanta Institute of Music and Media student built his own prosthetic device shortly after the accident. It wasn't very flexible. He could bang the drums by moving his elbow up and down but couldn't control the speed or bounce of the stick without a wrist or fingers. That's when Weinberg stepped in to create a single-stick device with sensors that respond to Barnes' bicep muscles.

"Now I can flex and send signals to a computer that tightens or loosens the stick and controls the rebound," said Barnes.



GIL WEINBERG

Jason Barnes' robotic prosthesis gives him an unprecedented level of control over his drumsticks.



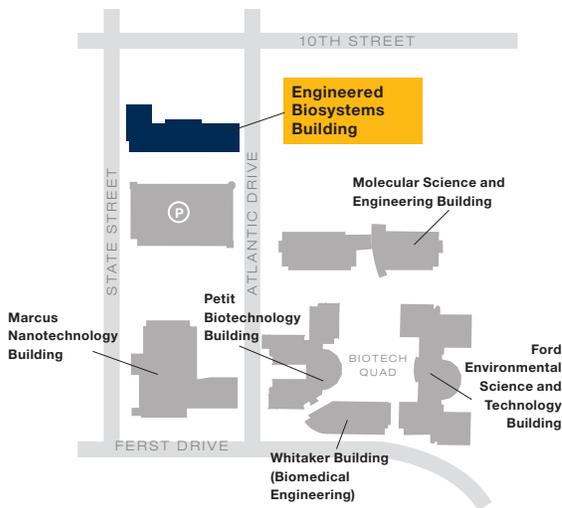
Weinberg, who also has built a robotic percussionist and a robotic marimba player that use computer algorithms to improvise with human musicians, took the prosthesis a step further. He added the second stick and gave it a "musical brain."

"Jason can pull the robotic stick away from the drum when he wants to be fully in control," said Weinberg. "Or he can allow it to play on its own and be surprised and inspired by his own arm responding to his drumming."

Weinberg says such robotic synchronization technology could potentially be used in the future by fully abled humans to control an embedded, mechanical third arm during time-sensitive operations. For example, Weinberg's anticipation algorithms could be used to help astronauts or surgeons perform complex, physical tasks in synchronization with robotic devices.



Visit www.news.gatech.edu/2014/03/05/robotic-prosthesis-turns-drummer-three-armed-cyborg to learn more about the technology that helped Jason Barnes.



The Engineered Biosystems Building will be located on 10th Street near the Biotechnology Complex.



RESEARCHERS 'HIJACK' CANCER MIGRATION MECHANISM

Advancing human health is another high priority on Georgia Tech's research agenda, and a recent breakthrough in cancer treatment will help to do just that.

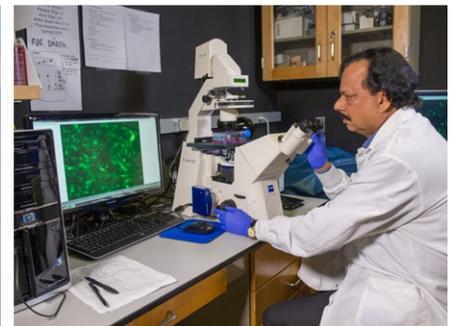
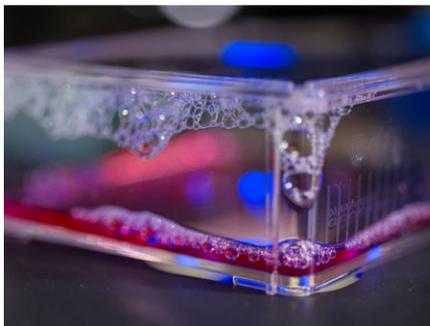
Glioblastoma cancers are among the most difficult to treat because malignant cells from the tumors spread throughout the brain by following nerve fibers and blood vessels to invade new locations. Now, Tech researchers have learned to hijack this migratory mechanism, turning it against the cancer by using a film of nanofibers thinner than human hair to lure tumor cells away.

Instead of invading new areas, the migrating cells latch onto the specially designed nanofibers and follow them to a location — potentially outside the brain — where they can be captured and killed. Using this technique, researchers can partially move tumors from inoperable locations to more accessible ones. Though it won't eliminate the cancer, the new technique reduced the size of brain tumors in animal models, suggesting that this form of brain cancer might one day be treated more like a chronic disease.



RAVI BELLAMKONDA

"We have designed a polymer thin film nanofiber that mimics the structure of nerves and blood vessels that brain tumor cells normally use to invade other parts of the brain," explained Ravi Bellamkonda, lead investigator and chair of the



Wallace H. Coulter Department of Biomedical Engineering. "The cancer cells normally latch onto these natural structures and ride them like a monorail to other parts of the brain. By providing an attractive alternative fiber, we can efficiently move the tumors along a different path to a destination that we choose."



A new technique developed by Georgia Tech researchers can partially move tumors from inoperable locations to more accessible ones.



Visit [www.news.gatech.edu/2014/02/15/researchers-hijack-cancer-migration-mechanism-\"move\"-brain-tumors](http://www.news.gatech.edu/2014/02/15/researchers-hijack-cancer-migration-mechanism-\) to learn more about the potential of this life-saving research.



THE INCREASINGLY VITAL ROLE OF THE LIFE SCIENCES

Georgia Tech's health-related research agenda will take a significant step forward next year with the opening of the Engineered Biosystems Building (EBB), currently under construction on the north side of campus.

EBB was conceptualized and designed, and is being constructed, according to one fundamental tenet — that understanding and fighting multifaceted disease requires a new way of doing things; that new insights emerge not from the solitary confines of one laboratory or one discipline, but from shared resources, spaces, and expertise.

The five-story, 200,000-square-foot EBB facility will house faculty members and other researchers in three research neighborhoods: chemical biology, cell and developmental bioengineering, and systems biology. Within each neighborhood, scientists and engineers from many different disciplines will share lab, office, and communal spaces, making it possible for them to share ideas, perspectives, and resources in an entirely new way.



EBB will emphasize the critical role of research collaboration.

A 1.4-millimeter silicon chip could revolutionize treatment of clogged blood vessels.



IMPROVING TREATMENT OF HEART DISEASE

A Tech research team has developed the technology for a catheter-based device that would provide forward-looking, real-time, three-dimensional imaging from inside the heart, coronary arteries, and peripheral blood vessels. With its volumetric imaging, the new device could

better guide surgeons working in the heart, and potentially allow more clogged arteries to be cleared without major surgery.

The device integrates ultrasound transducers with processing electronics on a single 1.4-millimeter silicon chip. On-chip processing of signals allows data from more than 100 elements on the device to be transmitted using just 13 tiny cables, permitting it to easily travel through circuitous blood vessels. The forward-looking images produced by the device would provide significantly more information than existing cross-sectional ultrasound.

"Our device will allow doctors to see the whole volume that is in front of them within a blood vessel," said F. Levent Degertekin, a professor in the Woodruff School of Mechanical Engineering. "This will give cardiologists the equivalent of a flashlight so they can see blockages ahead of them in occluded arteries. It has the potential for reducing the amount of surgery that must be done to clear these vessels."

For the future, Degertekin hopes to develop a version of the device that could guide interventions in the heart under magnetic resonance imaging. Other plans include further reducing the size of the device to place it on a 400-micron-diameter guide wire.



F. LEVENT DEGERTEKIN

Tech Starter offers new research funding solution

Georgia Tech Starter is a university-based, peer-reviewed crowd-funding platform for science and engineering research projects.

Georgia Tech Research Institute (GTRI) researcher Allison Mercer began the process of founding the site a year ago, after learning that faculty and researchers from other universities were using crowd-source funding websites.

"I thought we could make Georgia Tech Starter a way to be more aboveboard



ALLISON MERCER

in regards to funding," Mercer said. "Everything is peer-reviewed, so donors know the money will be used exactly as described."

The site is perfect for gener-

ating seed funding (typically amounts up to \$5,000) or helping to gather data for a larger project, Mercer said.

Once researchers begin the application process on the Georgia Tech Starter site, a series of questions helps ensure compliance with requirements. Researchers receive a review of their projects as well as feedback on how to better craft the project's message for posting on Georgia Tech Starter. Projects are posted on the site for 60 days, and donors will only be charged if the funding goals are reached.

"The success of projects on other popular crowd-source funding sites is roughly 43 percent, which is much better than the odds on receiving funding from more conventional funding sources," Mercer said. "And Georgia Tech Starter can help support projects in ways other than monetarily. Supporters who don't donate can instead spread the word about projects via social media sites, which can lead to more exposure and funding."

ECONOMIC DEVELOPMENT

Using research discoveries to help economies thrive has been part of Georgia Tech's DNA for more than a century.

The AT&T Foundry in Technology Square augments a thriving ecosystem that fosters innovation.

INNOVATION ECOSYSTEM

The already-thriving innovation ecosystem in Georgia Tech's Technology Square complex received a significant boost in August 2013 when AT&T officially opened its Foundry product development center there.

In its new location in Tech Square's Centry building, the AT&T Foundry connects to the Institute's students, research programs, and dozens of early-stage technology companies being incubated through Georgia Tech's Advanced Technology Development Center (ATDC), VentureLab, and Flashpoint initiatives. Tech's incubation/ >>





Georgia Tech and AT&T leaders celebrate the opening of the AT&T Foundry in Tech Square.

» acceleration services are rated among the top such efforts worldwide by observers such as *Forbes* magazine and Stockholm-based UBI Index.

Moreover, AT&T's new location places it close to Georgia Tech's many faculty-student research teams, as well as a variety of business and startup-support groups located in Midtown. And the Foundry is just a few floors away from other major multinational companies; its Centergy building neighbors include the Panasonic Innovation Center and the ThyssenKrupp (TK) Elevator Americas innovation facility, while NCR Corp.'s Hosted Solutions Group is headquartered a block away at the Biltmore on West Peachtree Street.

"When we locate a Foundry facility, our number one criterion is to be part of an ecosystem that fosters innovation — which usually occurs at the intersection of premier education, high technology, and an entrepreneurial mindset — and those are all things that we found at Technology Square," said Ralph de la Vega, president and CEO of AT&T Mobility. "When I saw the startup company incubators there, and the entrepreneurs and the high-quality technical people from Georgia Tech who are driving them, I knew this is where we needed to be."

Collaborative environments

In addition to working with Georgia Tech, the Foundry is collaborating extensively with networking leader Cisco Systems Inc., which employs nearly 2,000 people in the metro area. Working with Cisco, AT&T will concentrate on developing products for Digital Life, AT&T's home security and automation service.

The team will also create new applications and services related to such focus areas as the connected car, mobility, emerging devices, and AT&T U-verse. Cisco will collaborate with AT&T on projects and will also help identify key third-party

developers, startups, investors, inventors, and other entrepreneurs to bring into the facility.

The \$3 million total Foundry investment stems from the joint efforts of AT&T, Cisco, and Georgia Tech, along with state and local involvement. The Foundry in Atlanta is only the fourth such venture for AT&T — the company has similar centers in Palo Alto, California; Plano, Texas; and Tel Aviv, Israel.

Other companies that have been drawn to Tech Square by its collaborative environment are:

- Panasonic Automotive Systems Company of America, which opened

an innovation center in the Centergy building focusing on information systems, sensors, switches, power systems, and other products for vehicles. Panasonic also sponsored the Convergence Innovation Competition for students and plans to sponsor other student efforts such as senior capstone projects.

- NCR, which opened an R&D center in the Centergy building three years ago to hire Georgia Tech students and work on mobile applications and cloud computing technologies. That effort was

successful — so much so that the center soon moved to a larger space in the nearby Biltmore, which became home to the NCR Hosted Solutions Group.

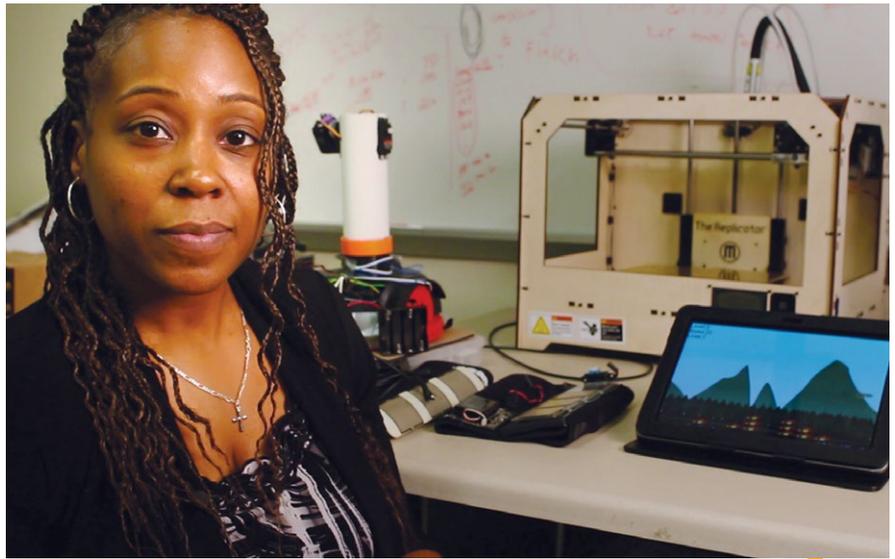
- ThyssenKrupp Elevator Americas, which opened the ThyssenKrupp Elevator Innovation Center in Tech Square in January 2013. The center is working with Georgia Tech startup companies to develop human interface improvements that could enhance elevator technology.

Staff members at the ThyssenKrupp Elevator Americas innovation facility in the Centergy building include (left to right) Dat Le, Thomas Felis, Michael Bray, Dawn Davis-Couture, and Shawn Park.





Visit www.news.gatech.edu/features/nsf-i-corps-turning-research-discoveries-companies to learn more about Ayanna Howard's powerful research.



I-Corps innovation

A dozen Georgia Tech teams — each composed of a faculty member, entrepreneurial lead, and industry mentor — have now gone through the six-week I-Corps program. About a third of them have, like Electrical and Computer Engineering Professor Ayanna Howard, revised their plans and decided to move forward with forming a company and creating a product based on the results of NSF-supported research. The program is part of a national effort to turn research discoveries into new companies and new products, supporting economic development and building understanding of what it means to be an entrepreneur.

“Through the Innovation Corps, NSF seeks to accelerate the development of new technologies, products, and processes that arise from fundamental research,” said Rathindra (Babu) DasGupta, the NSF’s program director for I-Corps. “The goals of I-Corps are to spur translation of fundamental research, to encourage collaboration between academia and industry, and to train students to understand innovation and entrepreneurship.”

The program provides mentoring and funding designed to move the results of NSF-supported research through the early stages of company formation. “NSF investments strategically strengthen the nation’s innovation ecosystem by addressing the challenges inherent in the early stages of the innovation process,” DasGupta added.

I-CORPS TURNS RESEARCH DISCOVERIES INTO COMPANIES, JOBS

Professor Ayanna Howard exemplifies the market-driven orientation of Georgia Tech’s faculty and researchers. Howard has a heart for children with disabilities, so when a National Science Foundation (NSF) grant led to development of an input device that would allow kids with disabilities to operate tablet computers, she wanted to commercialize the technology to get it into the hands of the children.

After talking with more than 100 potential users of the device, she learned the real need was for a generic interface system able to connect a wide range of input devices — big button switches, joysticks, sip-and-puff straws, and others — to the tablet computers. And it turned out that the market was much larger than Howard imagined, extending to adults with disabilities and potentially even persons with Alzheimer’s.

A professor in the School of Electrical and Computer Engineering, Howard has now launched a company to commercialize the device, and a prototype has already been developed. The company, run by a former graduate student, won’t be the next IBM, but it will help disabled children do what all kids want to do: play video games and interact with computers.

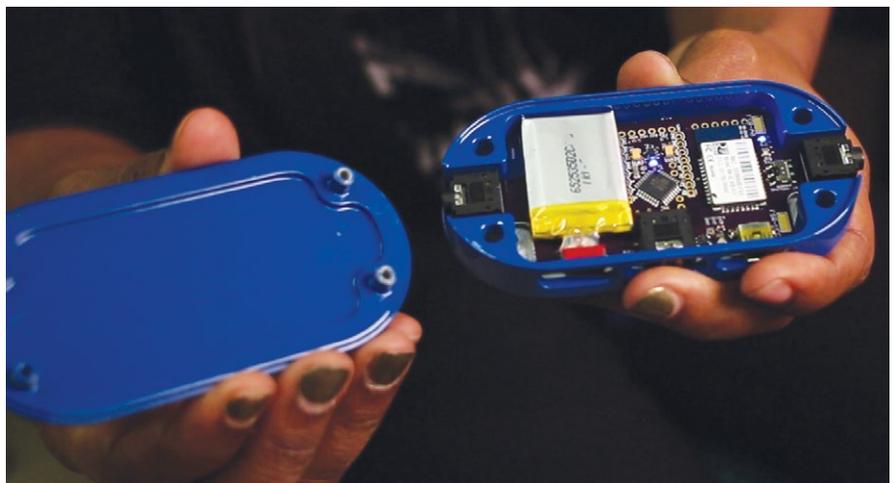
Assistance with refining the device came through the Innovation Corps (I-Corps™) — a National Science Foundation program that helps NSF-funded researchers learn about starting up a company — and by talking to potential customers.

“Without I-Corps, I wouldn’t have thought to pursue this,” said Howard. “They showed us how to talk about the technology in terms that the general public could understand. And I-Corps made us take a step back and ask if what we had developed was really of value to potential customers.”



Ayanna Howard combined her passion for helping children with disabilities with a market-driven perspective.

Zyrobotics, a company launched by Georgia Tech Professor Ayanna Howard, is commercializing a system for connecting tablet computers to interface devices used by children with disabilities.



SUPPORT FOR MANUFACTURING

Georgia Tech continues to play a leading role in strengthening the nation's and the region's manufacturing infrastructure. In support of this strategic priority, the Institute hosted a daylong event for leaders in the manufacturing industry from across the Southeast region. The event was part of the second phase of the Advanced Manufacturing Partnership, or AMP 2.0, announced by the White House last fall.

The purpose of AMP 2.0 is to build on a renewed national focus on U.S. leadership in the emerging technologies that will fuel job creation and boost global competitiveness. President Bud Peterson is serving on the steering committee for AMP 2.0, and the Georgia Tech event was the first AMP 2.0 regional meeting.

"We have more than 9,100 small or medium-sized enterprises (SMEs) here in Georgia, and tens of thousands in the Southeast," said Peterson. "Because of their size, they typically don't have the resources to purchase and install the latest technological advances or invest in workforce development like larger

corporations do. To facilitate their growth, however, Georgia Tech is working with them to ensure that the Southeast is at the forefront of the emerging U.S. manufacturing renaissance."

The goal of the meeting was to gain input from thought leaders in industry, government, and universities throughout the Southeast and to forge new partnerships among these stakeholders that will result in a stronger manufacturing industry. Thought leaders discussed workforce challenges, leadership, and culture within SMEs; SME involvement and access to collaborative technology and America Makes (the national additive manufacturing innovation institute); as well as technology adoption limitations for SMEs.

In addition to hosting the regional meeting, Georgia Tech's support of AMP 2.0 includes Peterson's membership on the AMP 2.0 Steering Committee. The new committee includes leaders in industry, academia, and labor and will build on progress made by the inaugural Advanced Manufacturing Partnership Steering Committee, of which Peterson was a member.

Professor Ben Wang, executive director of the Georgia Tech Manufacturing Institute, is a renowned expert in applying emerging technologies to improve manufacturing competitiveness.



As a member of the Advanced Manufacturing Partnership 2.0, Georgia Tech hosted an event for leaders in manufacturing from across the Southeast.



Federal grant supports state flooring industry

One of the state's primary manufacturers is the flooring and carpet industry, anchored in northwest Georgia. Business there has thrived for more than half a century; and while there was job loss during the recession, companies are hiring once again. These jobs require new skills and training as employees will be called on to use different equipment and advanced know-how.

Beyond the issue of a skilled workforce, companies must prepare for what the scene will be like in five, 10, and even 20 years. These issues vary from new markets to advanced innovation to recycling technology, said Leigh Hopkins, a project manager with Georgia Tech's Enterprise Innovation Institute (EI²).

To accelerate the resurgence of manufacturing and create jobs in Georgia's flooring and carpet industry, EI² is working with industry and community leaders through

a federal grant — part of the "Investing in Manufacturing Communities Partnership" awards — from the U.S. Economic Development Administration. IVC US, Shaw



LEIGH HOPKINS

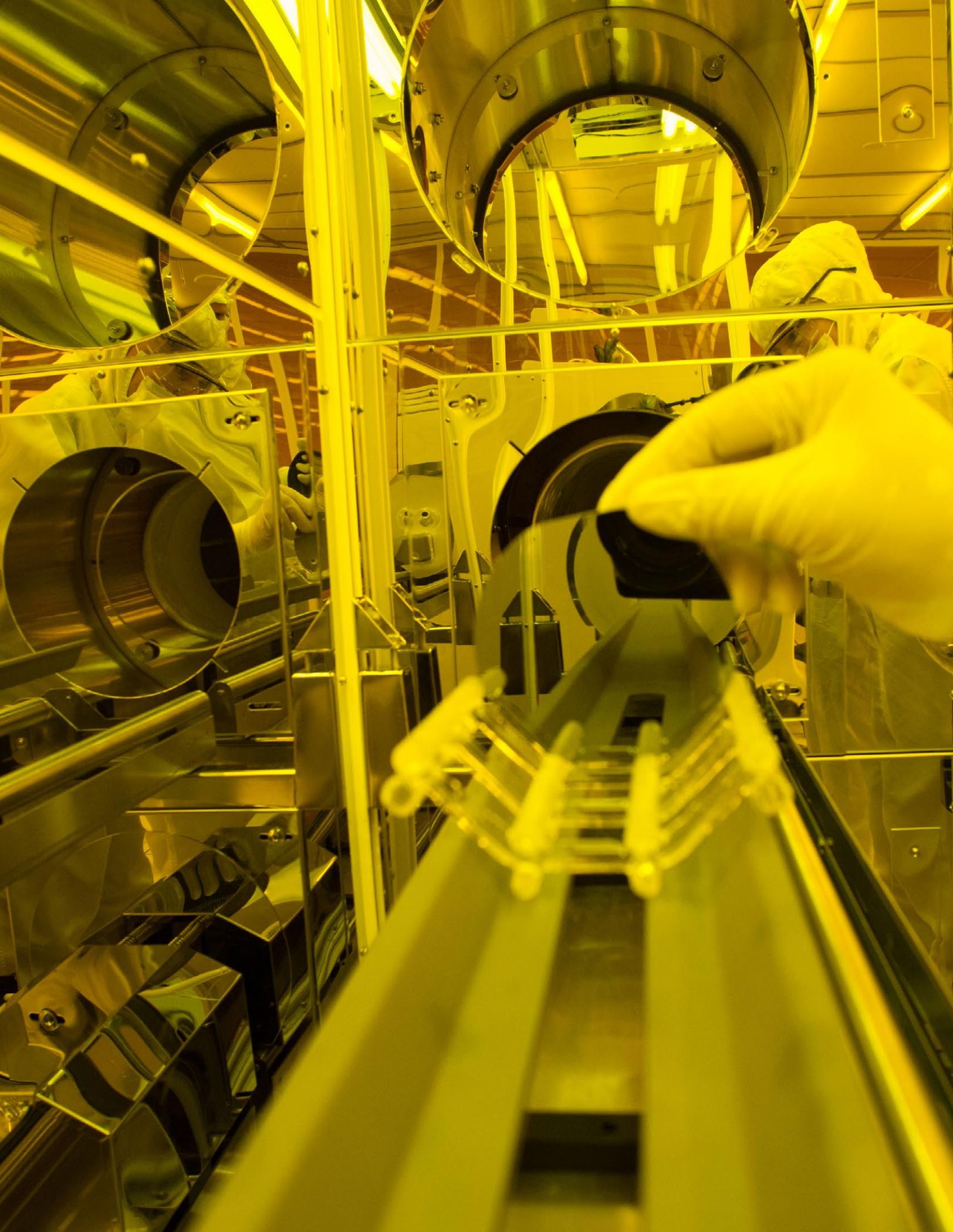
Industries Group, and other manufacturers have announced plans to expand operations by creating new jobs, building new plants, or expanding existing ones.

Peter Sigmon, vice president of innovation for Shaw Industries, is part of the partnership group established under the grant. Their work represents a coordinated effort by industry, academia, and government.

"We hope for an agreed-upon, long-term plan that integrates targeted investments in workforce training, infrastructure, research, and other key assets that will help the industry continue to thrive in northwest Georgia," Sigmon said.

Brian Anderson, president of the Greater Dalton Chamber of Commerce, said the partnership group is approaching the issues from a regional perspective, which will allow them to be more successful.

"We are thinking bigger than we normally would if we were all working by ourselves," Anderson said. "This is an opportunity for us to leverage all our resources and look at our workforce and industry needs in a transformative way."



GLOBAL ENGAGEMENT

One of Georgia Tech's highest strategic priorities is expanding the Institute's global footprint for the benefit of our students, our faculty, and our stakeholders.



→ The creation of the Lafayette Institute in Metz, France, opens a new chapter in French-American relations in the Lorraine region. The facility includes 5,000 square feet of state-of-the-art clean room technology to support the development of innovations in optoelectronics and advanced materials research.

LAFAYETTE INSTITUTE LAUNCHED IN FRANCE

Georgia Tech's global engagement efforts took a significant step forward last spring with the launch of the Lafayette Institute in Metz, France.

Adjacent to the Georgia Tech-Lorraine campus, the Lafayette Institute provides state-of-the-art nanofabrication facilities for innovations in organic and inorganic optoelectronics and advanced materials research. The 20,000-square-foot facility has a 5,000-square-foot clean room and more than \$12 million in scientific equipment.

"The creation of the Lafayette Institute can be considered a new chapter in French-American relations in Lorraine," said President Bud Peterson at the opening of the facility last May. "By providing access to critically needed and complex technology infrastructure, by sharing expertise in science and technology, and by simultaneously offering business validation and commercialization tools, the Lafayette Institute will showcase and validate Georgia Tech's effectiveness in creating a full ecosystem to generate economic development and value for our international partners. At the same time, it will serve as a pilot program to create and adapt future initiatives to support innovation on other international hubs and help create a real Georgia Tech global international network for excellence in innovation and entrepreneurship."

Located in the "European Valley of Energy and Materials" and leveraging Georgia Tech's expertise in technology transfer and >>

Peterson receives French Legion of Honor Medal

President Bud Peterson received the Legion of Honor Medal, in the rank of Knight, at the French Embassy in Washington, D.C.

"Dr. Bud Peterson is a visionary leader who has tremendously contributed to French-American relations in the U.S. Southeast," said French Consul General Denis Barbet. "Not only has he demonstrated enthusiastic support for the Georgia Tech-Lorraine campus and the creation of the Lafayette Institute in Metz, France — a technology transfer platform that will benefit both American and French researchers — but he has also personally invested himself and his university in reinforcing transatlantic cooperation through the France-Atlanta initiative."

Created by Napoleon Bonaparte in 1802, the National Order of the Legion of Honor recognizes extraordinary accomplishments and outstanding services rendered to France.



French Consul General Denis Barbet (left) presents the French Legion of Honor Medal to President Bud Peterson (right).



- » commercialization, the Lafayette Institute serves as a catalyst for open innovation and economic development, including:
- Licensing, commercialization, and technology transfer services to faculty and industry in technology areas related to new materials for photonics and electronics.
 - Technology transfer to industry to develop and exploit technologies into new products, processes, applications, materials, and services.
 - Enhancing the technology-driven education and training of the future workforce of this industry.
 - Access to the Georgia Tech Institute for Electronics and Nanotechnology (IEN), an interdisciplinary research institute designed to enhance support for rapidly growing research programs spanning biomedicine, materials, electronics, and nanotechnology.

Tech co-sponsors France-Atlanta celebration

Last fall, the Georgia Tech community got a taste of French culture and experienced innovative examples of Franco-American collaboration in business, scientific, cultural, and humanitarian endeavors.

The Consulate General of France in Atlanta and Georgia Tech hosted a two-week event, France-Atlanta: Together Toward Innovation 2013. It was the Institute's fourth consecutive France-Atlanta celebration.

"It is gratifying to see how France-Atlanta has stimulated dialogue, idea exchange, and collaborative actions between France and the United States," said Denis Barbet, consul general of France.

Nine France-Atlanta events took place on campus, including:

- Invest in France/Invest in Georgia: Opportunities in Growing Markets — Aerospace and Health Sciences.
- France and the United States Join Forces to Help Francophone Refugees in Atlanta — Refugee Resettlement Forum.
- Sonic Generator and the Orchestre national de Lorraine Concert.
- Political and Cultural Expression in the Public Spaces of Paris (and Atlanta).



SUMMER PROGRAM FOCUSES ON MANUFACTURING

From the Atlanta Braves to manufacturing, 24 students from the Nanjing University of Aeronautics and Astronautics (China) and the Tunghai University (Taiwan) got the full Georgia Tech experience in summer 2013 thanks to a joint effort between the university's manufacturing and language institutes. The three-week Language, Culture, and Advanced Manufacturing Summer Immersion Program offered the students an opportunity to improve their English skills, experience American culture, and learn more about advanced manufacturing research at Georgia Tech.

"Not only did the program expand on the Georgia Tech Manufacturing Institute's education efforts," said GTMI's John Morehouse, coordinator for Education and Workforce Development, "but it will also help increase matriculation of talented undergraduates from partnering universities into manufacturing-related graduate research at GTMI. At the same time, a key goal of the program was to establish the foundation for the development of similar manufacturing-related exchange programs in which Georgia Tech students will travel to international universities, learn a new culture, form collegial relationships with students from around the world, and gain a crucial global manufacturing perspective."

The program included a non-credit English language course, a technical training program that provided an overview of manufacturing-related research at Georgia Tech, and research experience for those participating in the research track. The technical training program included nine seminars relating to a variety of manufacturing topics, as well as tours of various Tech research labs.



An Atlanta Braves game was part of the "Tech Experience" for a group of students from China and Taiwan participating in a manufacturing-themed summer program.

WORLD'S FIRST MASSIVE ONLINE DEGREE PROGRAM BEGINS

A different form of global engagement was initiated last January when approximately 375 students began coursework in Georgia Tech's online Master of Science in Computer Science (OMS CS) program, the first and only degree program from an accredited university that operates entirely on the "massive online" platform for course delivery.

Offered in collaboration with Udacity and AT&T, the program marks one of the most significant innovations to date in the area of online learning. Most students will pay less than \$7,000 for a graduate degree from Georgia Tech's top 10-ranked College of Computing. The traditional master's program can cost nearly \$45,000 for on-campus students.

"The United States and the world need more computing professionals, and I'm proud that Georgia Tech and our college are leading the way to help educate them," said College

of Computing Dean Zvi Galil. "We will treat all of our OMS CS students, and especially this first cohort, as partners in helping to optimize the courses and infrastructure required to support them."

Of the approximately 375 students who enrolled for spring 2014, about 330 were U.S. citizens or permanent residents, in contrast to Georgia Tech's on-campus MS CS students, about 90 percent of whom are international. OMS CS students' average age is 34.8, about 11 years older than their on-campus counterparts.

The five initial OMS CS courses were developed according to the Udacity model for massive online courses. They include courses on Advanced Operating Systems, Computer Networks, Software Development Process, Machine Learning, and AI for Robotics.

"Today, every industry, from health care and commerce to automotive and agriculture, is transforming and creating a huge unfulfilled demand for technical skills," said Sebastian Thrun, founder and CEO of Udacity. "At Udacity, our mission is to set up students for success. This announcement is historic and sets the foundation for a new way to approach and deliver education to students across the globe."



ZVI GALIL



UNITED NATIONS' INTERNATIONAL TELECOMMUNICATION UNION

Georgia Tech has joined only two other U.S. universities as members of the International Telecommunications Union (ITU). This specialized agency of the United Nations allocates radio spectra and satellite orbits, develops technical standards ensuring that networks and technologies seamlessly interconnect, and helps underserved communities across the globe improve their access to information and communication technologies.

Georgia Tech will participate in ITU's Telecommunication Standardization Sector, which focuses on developing international standards, also known as ITU-T recommendations. These standards act as defining elements in the global infrastructure of ICT.

As an ITU member, Georgia Tech will focus on developing international telecommunication standards.



AFRICA ATLANTA 2014 IS LAUNCHED

Following the successful lead of France-Atlanta, a Georgia Tech-led initiative pursued ambitious goals to recast narrow and negative perceptions about the continent of Africa and highlight Atlanta as a center for action.

The idea for Africa Atlanta 2014 grew out of a conversation over lunch one day when Ivan Allen College of Liberal Arts Dean Jacqueline Royster learned that the Royal Museum of Central Africa in Tervuren, Belgium, was closing for renovation and was willing to have pieces from its renowned collection tour outside of Belgium.

Royster immediately set about finding partners and funding to bring to Atlanta an exhibition that was being curated for a U.S. tour, *KONGO across the WATERS*.

"From our start in 2012, we've found tremendous enthusiasm for this project," Royster said. "The arts became our pebble in the pond."

The ripple spread across universities, visual and performing arts organizations, African Diaspora heritage communities, governmental organizations and agencies (local, state, national, and international), nongovernmental organizations, business, and industry.

Taking a cue from the highly successful model for France-Atlanta, Royster chose a holistic approach and included activities spanning not only arts and culture, but also education, business and innovation, and global affairs.

"The idea is to see the arts as a lens for understanding cultures more robustly within a global context," she said. "We were thrilled to have one of the world's foremost collections of African art to anchor this initiative."

FACULTY/STAFF ACCOLADES

Without the talent, drive, and collaborative spirit of Georgia Tech's faculty and staff, the Institute would never be able to achieve its mission; their accomplishments and honors are numerous and impressive.

Faculty are the heart of Georgia Tech, and their drive and ingenuity propel the university to new heights.

ALAVI NAMED SCHELLER COLLEGE DEAN

Maryam Alavi, former interim dean of Emory University's Goizueta Business School, became dean of the Scheller College of Business on July 1.

An expert in information technology innovations and strategic applications, Alavi served in multiple leadership positions at Emory, where she provided strategic direction for several academic programs and assembled a world-class faculty with a leading-edge research and teaching portfolio. Her research and thought leadership in technology-mediated learning were the guiding forces behind the development of Goizueta Business School's Modular Executive MBA format. >>



» “I am delighted and honored to join the Scheller College of Business as dean,” said Alavi. “In taking on this role, I am particularly excited by the synergistic possibilities presented by the fusion of Georgia Tech’s



Maryam Alavi is a renowned expert in information technology innovation and strategic applications.

brand and intellectual assets with Scheller College’s capabilities and resources. Our current era of technology growth and technology-driven innovation, coupled with the dynamic Atlanta business environment, uniquely positions the Scheller College to excel rapidly and contribute significantly to business and society.”

Alavi previously held faculty positions at the University of Houston, University of Maryland at College Park, and Harvard Business School. A two-time gubernatorial appointee to the board of the Georgia Technology Authority, Alavi earned a master’s degree in computer and information science and a doctoral degree in information systems from the Ohio State University. She holds an undergraduate degree in mathematics and computer science from the State University of New York-Buffalo.

Steve Salbu, who had led the College since 2006, resumed his faculty role as the Cecil B. Day Chair in Business Ethics and director of the Cecil B. Day Program in Business Ethics.



RAFAEL BRAS

BRAS NAMED TO DOE ADVISORY BOARD

Provost Rafael Bras has been appointed to the Secretary of Energy Advisory Board. The 19-member panel, comprising scientists, business executives, academics, and former government officials, serves as an independent advisory committee to U.S. Energy Secretary Ernest Moniz.

“It is an honor to be named to serve on this committee,” Bras said. “Georgia Tech’s motto is Progress and Service. I am thrilled to have the opportunity to live up to that ideal and use my own experiences and the strengths of Georgia Tech — from policy assessments, to science, to technologies — for the good of the nation.”

The board is charged with providing advice and recommendations to the secretary on the DOE’s four major mission areas: science, energy, nuclear security, and environmental stewardship.



Braun elected to National Academy of Engineering

Robert “Bobby” Braun, David and Andrew Lewis Professor of Space Technology and co-director of the Space Systems Design Laboratory in the Guggenheim School of Aerospace Engineering, has been elected to the National Academy of Engineering (NAE) for contributions to space exploration and technologies for entering planetary atmospheres from space.

Braun has more than 25 years’ experience performing design and analysis of planetary exploration systems as a member of the technical staff of the NASA Langley Research Center and as a Georgia Tech faculty member. His research has focused on systems aspects of planetary exploration, where he contributed to the design, development, test, and operation of several robotic space flight systems.

He also has served as a leader and senior manager for a number of large, diverse engineering organizations at NASA. In 2010-2011, he served as the first NASA chief technologist in more than a decade. In this capacity, he served as the senior agency executive for technology and innovation policy and programs. He created and led the initial implementation of a spectrum of broadly applicable technology programs designed to build the capabilities required for the nation’s future space missions.

Hanchao Lu studied the pattern of state and society relations in China through the lens of everyday life in Shanghai during the first 30 years of communist rule.



Resources for postdocs, faculty mentors

Since opening last fall, Tech's Office of Postdoctoral Services has been connecting the dots among postdoctoral fellows, faculty mentors, and the administration by hosting networking events, orientation sessions, and workshops.

Last winter the office launched a website featuring resources for postdoctoral fellows and faculty mentors.

"The website is a one-stop-shop for information regarding policies, career development resources, benefits, grants and fellowships, and mentoring," said Jana Stone, manager of the Office of Postdoctoral Services. "We want the website — and the Office of Postdoctoral Services — to be a resource for postdoctoral fellows and faculty. Incoming postdocs can learn about what to expect at Georgia Tech, current postdocs can learn about career opportunities and how to apply for grants and fellowships, and faculty mentors can review best practices."

The Office of Postdoctoral Services is charged by the Office of the Provost to invest in the culture of postdoctoral fellows — also known as postdocs — to help build their skills so that they can move on to rewarding permanent positions. A postdoc holds a doctoral degree, is in a temporary position pursuing research with a faculty mentor, and is acquiring the professional skills needed for career advancement.

LU NAMED RADCLIFFE INSTITUTE FELLOW

Hanchao Lu, professor in the School of History, Technology, and Society in the Ivan Allen College of Liberal Arts, served as a fellow of the Radcliffe Institute for Advanced Study at Harvard University.

Lu is among 49 artists and scholars from Harvard and around the world who, during the 2013-2014 academic year, pursued projects across the arts, humanities, sciences, and social sciences. He studied the pattern of state and society relations in the People's Republic of China through the lens of everyday life in Shanghai during the first 30 years of communist rule.

Lu says his project is historical by discipline but also fundamentally interdisciplinary.

"This social and cultural history of Shanghai will have robust connections with sociology, anthropology, political science, literature, economics, and, to some extent, women's studies," Lu said. "In that regard, Radcliffe's multidisciplinary environment was of great benefit to my research."

FOUR FACULTY NAMED AAAS FELLOWS

The American Association for the Advancement of Science (AAAS) named four Georgia Tech faculty members — in biology, computing, and engineering — to its 2013 class of fellows.

New fellows include:

- Interactive Computing Professor Henrik Christensen, cited "for contributions to applied estimation methods in mapping, robot localization, visual tracking and recognition, as well as national-level leadership of the robotics community."
- Biology Professor Mark Hay, cited "for distinguished contributions in ecology, particularly for developing marine chemical ecology and for

elucidating how chemical cues and signals structure populations, communities, and ecosystems."

- Chemical and Biomolecular Engineering Professor Hang Lu, cited "for distinguished contributions to the field of engineering systems for high-throughput quantitative and systems biology, particularly for microfluidics, automation, image-based science, and phenomics."
- Aerospace Engineering Professor Suresh Menon, cited "for distinguished and innovative contributions to the field of multi-scale computational simulation and modeling of turbulent combustion in power and propulsion systems."

Election as a fellow of AAAS, the world's largest general scientific society, is an honor bestowed upon members by their peers.



HENRIK CHRISTENSEN



MARK HAY



HANG LU



SURESH MENON



Stephanie Jackson in the Sam Nunn School of International Affairs traveled to the United Kingdom on a Fulbright award.

JACKSON, KING RECEIVE FULBRIGHT AWARDS

Stephanie Jackson, assistant director of Undergraduate Advising and Professional Development in the Sam Nunn School of International Affairs, received a Fulbright International Education Administrator Award to the United Kingdom (U.K.).

Jackson is among the initial cohort of 20 U.S. international education and senior-level university administrators awarded a grant to the U.K.

In addition to Jackson, Greg King, a Macon-based strategic partners officer in the Enterprise Innovation Institute, received a Fulbright IEA to attend seminars in Germany.

The Fulbright program is the flagship international educational exchange program sponsored by the U.S. Department of State and is designed to increase mutual understanding between the people of the United States and the people of other countries.



EMPLOYEE RESOURCE GROUPS ARE LAUNCHED

In keeping with Georgia Tech's commitment to fostering an environment where all employees feel supported, valued, and respected, the Institute launched six Employee Resource Groups (ERGs) last fall.

Organized around a common dimension of diversity, ERGs offer safe spaces where employees can gather and build relationships. These groups also create unique opportunities for mentorship, professional development, networking, and outreach to the greater campus community.

ERGs are inclusive and open to anyone interested in joining (e.g., men are welcome to join the women's group, nonveterans are welcome to join the veterans' group).

The six groups are:

- African Heritage (GRIOT): Facilitates visible commitment to the inclusion and valuing of staff and faculty members who self-identify

as Black, African, African-American, West Indian, or who are of African descent.

- Hispanics/Latinos (HOLA): Enables the recognition, visible inclusion, and retention of Hispanic/Latino staff and faculty.
- Lesbian, Gay, Bisexual, Transgendered, Questioning, and Allies (PRIDE): Raises awareness about the needs of LGBTQA employees.
- Veterans on Campus (VOC): Builds awareness about the importance of service to our country and helps integrate the experience, knowledge, and values of former and current military service members into the Tech culture.
- Web of Brilliance: Provides a safe space for introverts to explore their gifts.
- Women of Georgia Tech (WOT): Offers networking and mentoring resources for female staff and faculty.

ERG meetings tackle topics such as recruiting and retaining top talent, engaging the workforce, and developing employee talent.

Nagel selected for National Press Club

Matt Nagel, director of media relations and issues management in Institute Communications, was selected for membership in the National Press Club.

A private club for journalists and communications professionals, the National Press Club has been a Washington, D.C., institution for more than a century. It is a social and

business organization dedicated to supporting the ongoing improvement of the profession of journalism.



MATT NAGEL

Nagel, who joined the Georgia Tech staff in 2004,

holds the Accredited in Public Relations (APR) credential, which recognizes public relations practitioners who have mastered the knowledge, skills, and abilities needed to develop and deliver strategic communications.

Somers cited for alumni relations excellence

Marilyn Somers, director of the Alumni Association's Living History Program, received the 2013 Award for Excellence in

Alumni Relations from the Georgia Education Advancement Council (GEAC).



MARILYN SOMERS

GEAC is a statewide organization for those at public and private colleges

and universities who work in educational advancement including the areas of alumni, development, public relations/public affairs, and communications.

Somers was named an honorary alumna of Georgia Tech in 2008.



THANK YOU SUPPORTER

COMMUNITY CONNECTIONS

Playing a leadership role in helping our local communities thrive is a revered Tech tradition for students, faculty, staff, and alumni.

TECH4GOOD SHOWCASES STUDENT-DRIVEN EFFORTS

True to the Institute motto of “Progress and Service,” students across campus worked throughout the semester last fall on projects that benefited nonprofits and community partners. They showed off their work at Tech’s inaugural Tech4Good service learning expo last December.

“Students do great things that can be quite invisible,” said Ellen Zegura, a professor in the School of Computer Science who taught a Computing for Good (C4G) course last fall. Many of the projects highlighted at the expo included participants in the C4G courses.

Andy Pruett, a master’s student in human-computer interaction, was at the expo with his team, which created Food Mapper, an open and accessible platform that lets users map food sources in places where they are scarce (sometimes called “food deserts”). Tackling the project from a service learning perspective served as a motivating factor in several ways.

“When the project hits challenging spots, knowing that you are working to serve and volunteer can be a source of pride and drive,” Pruett said. “The clients for these service learning projects can be emotionally dedicated to their work, and it’s rewarding to know simple solutions can often make a significant difference for nonprofits and service providers.”

The expo was the first event organized by the newly formed Service Learning and Community Engagement Council (SLCE), a group convened as part of the Strategic Plan Service Learning and Legacy Project, for which Zegura is a co-chair. It aims to build on current service learning activities on campus and to promote social entrepreneurship and civic engagement in the Tech curriculum.

In addition to the expo, the SLCE is working on a concept paper as part of the Quality Enhancement Plan (QEP) for Georgia Tech’s Southern Association of Colleges and Schools (SACS) reaccreditation (see the “Making Our Strategic Plan a Reality” section).



ELLEN ZEGURA

→ A team of students led by Andy Pruett undertook a service learning project that resulted in the creation of Food Mapper, an open and accessible platform that lets users map food sources in “food deserts,” places where such sources are consistently scarce.

Campus Kitchen fulfills vital need

Meeting the most basic of human needs is the focus of a \$5,000 grant Georgia Tech received from the Campus Kitchens Project. The project provides a way for the Institute to use leftovers from campus dining halls — which serve thousands of meals every day — to fulfill a pressing community need.

“This is food that’s perfectly safe to eat but that, because of certain Sodexo guidelines, we would not be able to serve in the dining halls again,” said Grant Grimes, student promotions coordinator for Dining Services. Sodexo is Georgia Tech’s dining services vendor.

The Campus Kitchens grant — one of five awarded to universities — helped bring the project to Brittain Dining Hall. A portion of the Brittain kitchen is now devoted to Campus Kitchen activities, with supplies clearly separated and marked from regular dining supplies; there will be no alterations to Brittain’s service hours or procedures for students. While Dining Services staff initially worked closely with students in the kitchen to get the program up and running, the kitchen ultimately will be run entirely by a partnering student organization.

Campus Kitchen is partnering initially with the Atlanta Community Food Bank to distribute meals to those in need, with plans to add local shelters and other organizations to that list.



Visit www.news.gatech.edu/2014/01/30/tech-wins-5k-grant-campus-kitchen-project to learn more about Campus Kitchen.

Internationally renowned soccer player Qiana Martin (second from right) hosted WCA's first Pop Up + Play event, where neighborhood youth learned soccer skills. With Martin at the event were (from left) Christi Jackson, executive director of the Conservancy at Historic Washington Park; Makeda Johnson, Westside TAD Advisory Board member; Sheri Davis-Faulkner, director of community engagement in the Ivan Allen College of Liberal Arts and WCA assistant coordinator; Mackenzie Madden, soccer player; Qiana Martin; and Katrina Modera, Spelman College student.



“This year, the WCA has stepped up to become a true resource for the entire Historic Washington Park District.”

— CHRISTI JACKSON
Executive Director of the Conservancy
at Historic Washington Park

WESTSIDE COMMUNITIES ALLIANCE HONORED BY WASHINGTON PARK

Last fall the Conservancy at Historic Washington Park (a neighborhood located west of the Tech campus) presented its inaugural “Excellence in Leadership” award to the Westside Communities Alliance (WCA), an initiative conceived in the Ivan Allen College of Liberal Arts.

“This year, the WCA has stepped up to become a true resource for the entire Historic Washington Park District,” said Christi Jackson, executive director of the Conservancy. “Whether it is providing technical assistance or volunteers, we rely on the expertise provided by our growing association with the WCA. Ultimately, the Westside Communities Alliance helps us be successful as an organization.”

The brainchild of Ivan Allen College Dean Jacqueline Royster, WCA fosters coordination and communication among communities. WCA has connected Washington Park leadership with other neighborhood organizations and resources. The result has been more robust participation and impact for Washington Park initiatives. For example, at the Jody Brooks Memorial Movie in the Park, international athlete Qiana Martin hosted the first Pop Up + Play event, where neighborhood youth learned soccer skills. This collaboration came about through introductions by the WCA.

Sheri Davis-Faulkner, director of community engagement in the Ivan Allen College of Liberal Arts, is community liaison for the WCA. “This is what the WCA does,” said Davis-Faulkner. “We facilitate these kinds of connections and provide expertise and volunteers.”

Other Washington Park projects include:

- A design studio led by Herman Howard in the College of Architecture.
- A white paper on the reuse of the historic E.R. Carter school.
- A neighborhood canvassing project and a playground clean-up with Tech student volunteers.

“The WCA is excited about the next stages of the relationship with Washington Park as a full and active partner in the Alliance,” said Davis-Faulkner. “This kind of relationship is what we strive for, because this is how, together, we can do better as a community.”



SHERI
DAVIS-FAULKNER



Stephanie Greear learned first-hand what life is like in an Atlanta elementary school.

PRE-TEACHING INTERNSHIP LETS STUDENTS EXPLORE ELEMENTARY EDUCATION

For Georgia Tech students looking for experience in the field of K-12 education, Centennial Place Elementary School — across the street from the Tech Tower lawn — could hardly be a more convenient location.

Stephanie Greear, a fifth-year international affairs and Spanish major from Woodstock, Georgia, spent a summer at Centennial Place as its first pre-teaching intern from Tech.

“Life in an elementary school is always busy and hectic,” Greear said. “There is literally always something that needs to be done, and you’re never bored.”

Greear’s internship placement was

facilitated by the Center for the Enhancement of Teaching and Learning (CETL) and the Center for Career Discovery and Development, which are working together to broaden opportunities for the increasing number of Tech students interested in exploring careers in education.

“Because Tech doesn’t have a college of education, students who wanted to become teachers had volunteer opportunities and classes they could take, but no way to truly explore the experience of being a teacher,” said Pre-Teaching Advisor Susan

Belmonte, who collaborated with the principal at Centennial Place to create the internship.

Enabled by Centennial Place’s year-round schedule, Greear has been privy to the closeout of one academic year and the summer preparations for the next. She has observed in the classroom, helped conduct reading comprehension testing, and participated in interviewing new teachers, which gave her insight into preparing for her own future job search.

Belmonte hopes to grow the internship to place two students at Centennial Place, and eventually establish middle and high school internships as well.

Tech has collaborated with Centennial Place, a STEAM-themed (science, technology, engineering, arts, and

mathematics) school, in numerous ways in recent years. Among other activities, the Into the Streets freshman day of service has helped fill backpacks with supplies for students in need, an annual 5K race raises funds for students and teachers, and College of Architecture students have taught introductory architecture classes.

The collaboration between Tech and Centennial Place supports Tech’s larger goal of helping K-12 teachers develop and offer a relevant, 21st-century STEM curriculum to prepare students to compete in a global economy.

“Having students within walking distance who are a little younger than our teaching staff is a wonderful way to have a little mentorship for our students,” said Centennial Place Principal Alison Shelton. “Sharing what college life is like helps the students see Georgia Tech as their college, and we’ve had several of our students go on to attend Tech.”

For the elementary school with the highest homeless population in Atlanta, having Tech students lend their time goes a long way toward helping students and families visualize college in their future. For students interested in pursuing a career in K-12 education, the new Centennial Place internship is a chance to try their hand at a classroom experience before pursuing a master’s or alternate certification program.



State, City are key partners

Georgia Tech leaders such as President Bud Peterson (right) enjoy strong working relationships with Georgia Gov. Nathan Deal (center) and Atlanta Mayor Kasim Reed (left). The two men are passionate supporters of critical joint ventures with Tech that strengthen K-12 public schools, help a variety of businesses thrive in a globally competitive environment, provide redevelopment/revitalization options for aging facilities and neighborhoods, and much more. The Institute takes great pride in supporting the strategic priorities of our state and city.

PHILANTHROPY AT WORK

Fulfilling the aspirations set forth in Georgia Tech's 25-year strategic plan requires the unwavering philanthropic support of alumni, corporations, foundations, and a host of other friends of the Institute.

Private philanthropy is essential to Georgia Tech's current and long-term success.



Campaign
Georgia Tech
Our time. Our legacy.

Campaign Georgia Tech

A \$1.5 billion, comprehensive fundraising initiative, Campaign Georgia Tech entered its public phase in 2010. Since it began in July 2004, the Campaign has raised \$1.42 billion as of June 30, 2014, in support of:

- Endowment (student scholarships and fellowships, faculty chairs and professorships).
- Facilities (both renovation and new construction).
- Equipment.
- Current operations.





JOHN C. PORTMAN JR.

PROVIDING FACULTY SUPPORT IS KEY

Faculty support is a vital element of the Campaign, and the John Portman Dean's Chair exemplifies the impact of such giving.

Last winter, the College of Architecture became the fourth of Tech's colleges to create an endowed dean's chair — a move that recognizes one of the most prestigious levels of academic leadership and drives the College upward. The chair bears the name of one of the Institute's most distinguished alumni, renowned architect John C. Portman Jr.

"Atlanta is my town," said Portman. "Georgia Tech is a jewel in Atlanta's crown, and the College of Architecture played a pivotal role in the shaping of my life. I am honored to partner with the institution that means so much to me, while it aims to ensure generations of aspiring architects have a world-class educational foundation on which to build their dreams, contribute to the field, and improve the lives of people everywhere."



GENEROUS DONORS FULLY FUND TECH PROMISE

More than seven years after its launch, the G. Wayne Clough Georgia Tech Promise program is now fully endowed, thanks to the hundreds of generous donors who supported the scholarship. An anonymous donor's \$5 million challenge gift (later raised to

\$7.5 million) helped close the gap in the final months before fundraising for the program reached \$55 million, \$5 million beyond the original goal established in 2007.

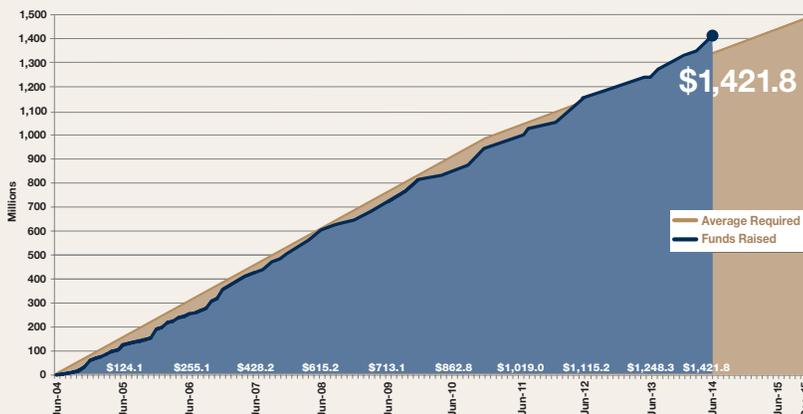
Sarah Banks, a 2013 business administration graduate, credits her Georgia Tech Promise Scholarship with making her Tech education possible. Her gratitude for that opportunity led her to serve as a Georgia Tech Promise program ambassador as a student.

The Coca-Cola Foundation gave \$1 million via the Tech Promise Challenge, doubling the grant's impact to \$2 million.

"The Tech Promise program ensures that eligible students from all economic backgrounds have the opportunity to attend Georgia Tech," said President Bud Peterson, who along with First Lady Val Peterson has established a Tech Promise endowment. "Through their hard work, the generosity of our alumni and friends, and Georgia Tech's commitment, their lives will be changed forever, as will those for generations to come."

Tech Promise provides a debt-free education to academically qualified residents of Georgia whose annual family income is \$33,000 or less.

CAMPAIGN PROGRESS: FUNDS RAISED V. REQUIRED AS OF JUNE 30, 2014





CHALLENGE GRANT ENABLES CHANDLER STADIUM RENOVATION

Athletic excellence is a cherished tradition at Georgia Tech, and our alumni are passionate about continuing that legacy of high quality.

An anonymous donor issued a \$2.5 million challenge grant to inspire upgrades to the Russ Chandler Baseball Stadium that will enhance recruitment efforts in the highly competitive

Atlantic Coast Conference. Tech donors rose to this challenge with characteristic enthusiasm and support.

“We are extremely grateful to this anonymous donor for showing such generosity and leadership,” said Athletics Director Mike Bobinski. “This is a huge step forward for Yellow Jacket baseball, and it just shows what a difference one person can make.”

First college/school campaign goals are reached

Last November, the College of Computing became the first of the Institute’s six colleges to reach its goal within Campaign Georgia Tech.

The \$40 million mark was quietly topped with a commitment from Google in support of faculty research within the School of Computer Science. Days later, the H. Milton Stewart School of Industrial and Systems Engineering followed suit, becoming the first school to reach its campaign goal. Thanks to a bequest from an alumnus, the Stewart School surpassed the \$60 million mark.



Marilyn and Robert Nerem

NEREM GIFT TO FUND IBB FACULTY POSITION

While Georgia Tech alumni have provided the lion’s share of funding for Campaign Georgia Tech, Institute faculty and staff giving has increased substantially over the course of the Campaign.

A prime example of the power of this type of giving is Robert M. Nerem, professor emeritus of mechanical engineering and considered by many on campus to be the father of bioengineering at Georgia Tech. Along with his wife, Marilyn, Nerem made an estate commitment that will one day establish the Marilyn R. and Robert M. Nerem faculty chair or professorship in the Parker H. Pettit Institute of Bioengineering and Bioscience.

“Georgia Tech has been a leader in pioneering biomedical techniques and devices that make a tremendous difference in people’s lives,” said Nerem. “Marilyn and I want to make sure that Tech continues its leadership role in this work far into the future, and that’s why we wanted to create this faculty position.”

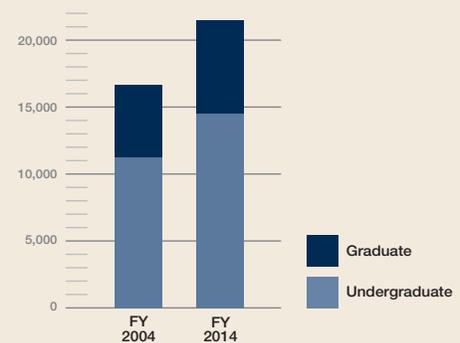
ENROLLMENT AND DEGREES

TOTAL HEADCOUNT ENROLLMENT

Enrollment	FY 2004	FY 2014	%Change
Undergraduate	11,257	14,558	29%
Graduate	5,386	6,913	28%
Total	16,643	21,471	29%
Full-time Equivalent (FTE) Enrollment	15,883	20,134	27%

Comparison of Headcount Enrollment by Level

FY 2004 & FY 2014



NEW DEGREES FROM 2004-2014

Bachelor's

Applied Languages & Intercultural Studies
 Biochemistry
 Biology*
 Business Administration*
 Chemical & Biomolecular Engineering*
 Computational Media
 Economics & International Affairs
 Environmental Engineering
 Global Economics & Modern Languages
 Materials Science & Engineering*

Master's

Biology*
 Biomedical Innovation & Development
 Business Administration*
 Computational Science & Engineering
 Digital Media*
 Enterprise Transformation
 Geographic Information Science & Technology
 History & Sociology of Technology & Science*
 Materials Science & Engineering*
 Mathematics*
 MBA-Global Business
 Medical Physics*
 Music Technology
 Paper Science & Engineering
 Professional Applied Systems Engineering
 Supply Chain Engineering
 Urban Design

Doctoral

Applied Physiology
 Biology*
 Biomedical Engineering (Joint Program)
 Building Construction
 City & Regional Planning
 Computational Science & Engineering
 Digital Media
 Economics
 History & Sociology of Technology & Science*
 Human-Centered Computing
 International Affairs, Science & Technology
 Mathematics*
 Music Technology
 Operations Research
 Paper Science & Engineering
 Polymer, Textile & Fiber Engineering*
 Robotics

Comparison of Degrees Awarded by Level

FY 2004 & FY 2014



New Degree Programs

FY 2004 - 2014



*Updated programs

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Page 9: Brandie Banner; Rujuta Apte. Page 15: Mercer; Gary W. Meek. Page 17: ThyssenKrupp; Gary W. Meek. Page 21: Lafayette Institute; Simon Gautier. Page 23: ITU/I.Wood; Africa: Yombe peoples, Mayombe, Lower Congo, DRC, Anthropomorphic power figure, nkisi nkondi, 19th century, collection RMCA Tervuren, EO.0.0.7777, Photo R. Asselberghs, RMCA Tervuren ©. Page 25: Braun; NASA/Carla Cioffi. Page 26: Shanghai; Francis Stafford photographs, Album B, Image #144, Hoover Institution Archives, Copyright: Stanford University, Courtesy of Hoover Institution Library & Archives, Stanford University.

“This is a tremendously exciting time to be at the Georgia Institute of Technology, and the reason is simple: momentum. In every aspect of what we do to further our mission, and by every meaningful barometer of progress, Georgia Tech’s influence and reputation continue to grow at a rapid pace.”

G.P. “Bud” Peterson
President, Georgia Institute of Technology



The Engineered Biosystems Building, opening 2015