

**GEORGIA TECH**

# ENGINEERS

Vol. IV, Issue I

Fall 2016



## THE IMPACT ISSUE



**How giving time, expertise and (yes) money to CoE  
fuels innovation at CREATE-X**



### **Mission Statement**

*Georgia Tech Engineers strengthens the bonds between CoE's students, faculty, staff, alumni and friends by sharing the stories that link them. CoE is Georgia Tech's largest college, and Georgia Tech Engineers promotes a sense of community among its diverse members. While the magazine showcases research and study, it also focuses on the people behind those endeavors, reminding everyone in the College what makes it exemplary.*



BEN WRIGHT

Dear Friends of the College of Engineering,

Several months ago, Georgia Tech wrapped up its largest fundraising campaign to date, bringing in over \$1.8 billion. The College of Engineering was pleased to finish the campaign with over \$540 million in donations. Those funds will allow us to hire exceptional faculty, support students, boost research facilities, and start new initiatives to help ensure our position as one of the world's top engineering programs.

What was really remarkable about the gifts we received were the stories behind many of them. For example, Intel provided funds so that we can help create a diverse pipeline of engineers to address future workforce concerns. Texas Instrument supported a new maker space for students to use as we devote more time and talents to hands-on learning.

But it may be the gifts from individuals that are most intriguing. From current students to alumni to friends of the

College, many gave knowing that every gift had the ability to be transformational. I know that might sound contrived, but it's true. Think about it — the student scholarship given, research supported or faculty member hired may ultimately lead to solutions to some of the greatest challenges facing us today. And it would have started with one gift.

I hope you will take a moment to read this issue and get a glimpse of the impact that our supporters make within the College. Greatness rests on the shoulders of many, and I am honored to have such a loyal base of supporters who step up to keep us there.

Gary S. May

DEAN &amp; SOUTHERN COMPANY CHAIR

**P**hilanthropy is a backbone of Georgia Tech, but not always in obvious ways. Yes, many private gifts support new scholarships and upgraded facilities, and the names of Tech's most famous benefactors are enshrined in buildings around the campus. But not everyone gives enough to earn a namesake building, and while smaller donors aren't as recognizable to the Tech community, even the most modest gifts make an impact.

And so while this magazine issue deals heavily with philanthropy in the College of Engineering, its theme is impact. We want to remind readers of the many ways to make a difference in CoE, whether through small gifts, larger gifts, or something else entirely: volunteering time to help student entrepreneurs, perhaps, or sponsoring a Capstone team. (One student interviewed for this issue participated in a Capstone project that went so well it eventually landed her a job in Rome.) This issue will also update you on CoE philanthropy you've heard about before, like \$5 million Intel gave in a partnership to diversify engineering in the tech industry.

There are so many people trying to make CoE a better place, and we hope this issue honors that spirit. At Georgia Tech, it's easy to help out in one way or another — even if you don't work for a company with \$5 million to give.

**Lyndsey Lewis**  
editor@coe.gatech.edu

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**DEAN**  
Gary S. May

**DIRECTOR OF COMMUNICATIONS**  
Kay Kinard

**EDITOR**  
Lyndsey Lewis

**CONTRIBUTING WRITERS**  
Alyssa Barnes, Michael Baxter, Ben Brumfield, Ashlee Gardner, Jerry Grillo, Candler Hobbs, Kathleen Moore, Camille Pendley, Joshua Stewart, Ben Wright, Shelley Wunder-Smith

**CONTRIBUTING PHOTOGRAPHERS**  
Alyssa Barnes, Rob Felt, Fitrah Hamid, Candler Hobbs, Jess Hunt-Ralston, Gary Meek, Kathleen Moore, Camille Pendley, Ben Wright

**CONTRIBUTING EDITOR**  
Ansley Thomas

**GRAPHIC DESIGNER**  
Sarah Collins

**ASSOCIATE DEANS**  
Rob Butera  
*Interim Associate Dean for Research and Innovation*

Laurence Jacobs  
*Associate Dean for Academic Affairs*

Kimberly Kurtis  
*Associate Dean for Faculty Development and Scholarship*

Doug Williams  
*Associate Dean for Administration and Finance*

**ADDRESS**  
225 North Avenue  
Atlanta, Georgia 30332-0360

**PHONE**  
404.894.3350

**WEBSITE**  
www.coe.gatech.edu

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## DEPARTMENT GUIDE

Here's a look at some of the sections you'll see in this issue of Georgia Tech Engineers and others:

### BRIGHT IDEAS

Learn about the innovations that define engineering at Georgia Tech.

### OUTLIERS

Engineers are more than just their work, and some of them have interests or hobbies you might never expect.

### MAKING IT HAPPEN

We look at how CoE alumni turn their lofty ambitions into reality.

### GOING GLOBAL

Our engineers work around the world, and we chronicle their successes here and abroad.

### LAST WORD

Just one more thing...

## ➔ MSE's Fred Cook Retires After Four Decades

Fred Cook, materials science and engineering professor and associate chair of undergraduate programs, has retired after 41 years on the faculty at Georgia Tech. An event in his honor, attended by former faculty, students, and colleagues, was held earlier this year. After graduating from Tech, Cook was briefly employed as a research chemist at the E.I. DuPont Experimental Station in Delaware. He returned to Tech as an assistant professor and worked in the fields of textile and polymer chemistry, later becoming the youngest director of the former Schools of Textile Engineering and Polymer Textile and Fiber Engineering. Cook has been described as an embodiment of an educator and leader, as well as an ambassador for textile manufacturing, research and education. Cook plans on continuing as an emeritus faculty member in MSE.



ALYSSA BARNES

– ALYSSA BARNES



GEORGIA TECH

## ➔ ECE Student Takes Top Award for Graduating Seniors

Electrical engineering major Jonathan Tuck recently accepted Georgia Tech's highest award for a graduating senior: the Love Family Foundation Scholarship. Awarded each year to a member of the graduating class who has the most outstanding scholastic record, the \$10,000 scholarship is provided by the Gay and Erskine Love Foundation. Students in all six of the Institute's colleges are considered for the award.

Tuck's academic record, which includes a 4.0 GPA, has been marked by his passion for research. He participated in two Opportunity Research Scholars (ORS) projects. His first project with ORS was on an interdisciplinary team comprised of chemical and electrical engineering students. The group investigated the effects of molecular weight and crosslinker functionality on dielectric films and was advised by Professor Paul Kohl.

At the end of his sophomore year, he applied for the intensive ECE Research Option program that recognizes undergraduate students who have participated in a concentrated research effort that results in an undergraduate thesis. During his junior and senior year, he joined Professor Ayanna Howard's ORS team and worked in the Human-Automation Systems Laboratory on assistive rehabilitative technology for the disabled.

To date, Tuck has three publications, an invited talk, and a patent to his name. He credits much of his success to getting involved in research early in his academic career.

– ASHLEE GARDNER



JESS HUNT-RALSTON

## ➔ 800-Pound Robot Is an “AWSM” Gift to CEE

For people of a certain generation, the new robot occasionally roaming the halls of the School of Civil and Environmental Engineering might look a little familiar.

The latest addition to Associate Professor’s Yong Cho’s bevy of robotic tools is this 7-foot-tall, 800-pound behemoth that looks just a little like Johnny 5 from the ‘80s movie franchise “Short Circuit.” But this robot — his creator calls him AWSM, “Awesome” or Autonomous Working Smart Machine — will offer Cho and his research team the chance to open new veins of construction engineering research.

The possibilities are enormous, he said, thanks to the machine’s creator, Dimitri Seneca Snowden. Snowden donated the robot to Cho’s Robotics and Construction Automation Lab this spring.

“I have found [Georgia Tech] to be a very progressive school, very advanced, and the thing I like about this school is it teaches you how to problem-solve,” Snowden said. “That is what I appreciate. I had to problem-solve the hell out of this thing. So, what better place to put him?”

Cho said a robot like this, with good mobility and the ability to grasp and control items, could help construction workers lift materials or do site inspections and identify safety issues.

“There are so many different applications,” Cho said. “This can interact with workers. We want it to work with people, and we can study how people react: Do they fear the robot? Do they prefer not to work with it? They can work together, so we can identify how to make the robot work comfortably with people.”

– JOSHUA STEWART

## ➔ The MILL Is MSE’s Answer to the Invention Studio

The School of Materials Science and Engineering is gearing up to open the MILL — MSE Maker and Measure Space in fall. The MILL will complement the renowned Invention Studio, the student-run makerspace in the Woodruff School of Mechanical Engineering, by being the “measure space” with equipment for analysis, creation, characterization, and testing of materials to encourage discovery and hands-on learning of materials science concepts by students from across the Institute. Based in the J. Erskine Love Building, the MILL will feature a new benchtop scanning electron microscope (SEM), along with other equipment procured from various MSE labs. The MILL will be staffed by undergraduate and graduate students, with Professors Mark Losego and Paul Russo as primary faculty advisors.

– ALYSSA BARNES



## ➔ Paulino's Origami Research Wins Award for Originality

A paper detailing a type of origami tube that is strong and reconfigurable was recognized recently as one of the best studies published in the Proceedings of the National Academy of Sciences in 2015.

The editors of the journal selected the research for the Cozzarelli Prize, an annual award for scientific excellence and originality. The paper by School of Civil and Environmental Engineering Professor Glaucio Paulino, Raymond Allen Jones Chair, quickly attracted international attention when it was published.

Paulino, along with collaborators Evgueni Filipov and Tomohiro Tachi, described a “zippered tube” configuration using origami principles that could find uses everywhere from disaster areas to space.

Origami structures could be useful as a robotic arm that could reach out and scrunch up, a construction crane that could fold to pick up or deliver a load, or pop-up furniture. Paulino said he sees particular potential for quick-assembling emergency shelters, bridges and other infrastructure in the wake of a natural disaster.

– JOSHUA STEWART



## ➔ Hearing Snap, Crackle, Pop May Help Heal Your Knee

Research engineers at Georgia Tech are developing a knee band with microphones and vibration sensors to listen to and measure the sounds inside the joint. It could lead to a future device to help orthopedic specialists assess damage after an injury and track the progress of recovery.

Omer Inan has suffered knee pain himself and had been thinking about developing such a device for some time. An assistant professor in the School of Electrical and Computer Engineering since 2013, Inan is a former discus thrower who was a three-time NCAA All-American at Stanford University and the school record holder.

He spent years whirling like a tornado, which knees aren't meant to do. Add to that the stress and strain of weight training that included squats with 500-pound loads.

Inan's group has published a paper on the latest state of development in the journal *IEEE Transactions in Biomedical Engineering* online, with official print publication pending. Inan is leading this research, sponsored by the DARPA Biological Technologies Office, and is working with Georgia Tech faculty and graduate students from ECE and Applied Physiology.

If paired with medical research, Inan's acoustic device could lead to inexpensive, wearable monitors, which could benefit athletes who have overburdened their knees, and elderly patients who have slipped and fallen, but DARPA's interest is cutting down on repeat battlefield knee injuries to help get soldiers back to duty safely.

— BEN BRUMFIELD



RESEARCH HORIZONS

## ➔ Macy's Turns to ISyE's Sebastian Pokutta for Supply-Chain Improvements

Associate Professor Sebastian Pokutta is working with Macy's on a project evaluating its supply chain and ways to make delivery more efficient.

It's up to Pokutta and his student collaborator, Jeff Pavelka, to figure out which items should be prepackaged (and when).

Pokutta has been working with Macy's on various aspects of its e-commerce business since coming to the Stewart School of Industrial & Systems Engineering (ISyE) in 2012.



GARY MEEK

The current project is more complicated than it may sound. One reason is that prepackaged items take up more space. Another consideration is that much of what Macy's sells is seasonal, and the items have a very short shelf life.

Because of this short shelf life, getting enough data to make functional demand-related decisions for Macy's is a challenge.

"You cannot use prediction or forecast types of technologies to predict how much demand there will be, because you don't have enough data," said Pokutta, the David M. McKenney Family Associate Professor. "By the time you have enough data, no one wants the items anymore."

Instead, auxiliary data is used: any data that is not intrinsic to the actual demand data. It gives a better demand forecast and functions as a proxy.

Macy's incorporates the results of these projects as quickly as possible, largely because the outcomes affect the chain's e-commerce profits. This particular phase was implemented earlier this summer.

— SHELLEY WUNDER-SMITH

# A Nontraditional Donor Supports Nontraditional Students

Former Georgia Tech employee Marilyn Marks gave an unusual gift to BME.

by JERRY GRILLO

**ONCE UPON A TIME**, Marilyn Marks worked at Georgia Tech, within the Economic Development Institute. Eventually, she left that job and went to work somewhere else, a typical career arc — things change, we move on, we work.

That was more than 20 years ago. But in many ways, she never really left Georgia Tech, and the university never lost its grip on her heart and soul.

Inspired by the work of researchers in Tech's bio-community, especially those affiliated with the Coulter Department of Biomedical Engineering (BME), she gave what she could to the university through the years. Her \$25 gifts became \$100 gifts, and so on. And recently, Marks solidified her lasting relationship with Tech, establishing a scholarship that will support nontraditional BME students.

"BME is doing work that will benefit you personally or someone you know," Marks said. "Basically, they're doing work that will let loved ones remain vital, and stay alive as long as they live."

That has become a theme for her life, that notion of being fully alive. In fact, Marks wants the evidence of that on her tombstone (in some far-off future): "While alive, she lived."

"Of course, that isn't original with me, but my goodness, what a thought," she said. "Georgia Tech and BME will last well past my lifetime, and it could have a lasting impact on my children and grandchildren. It's that important to me."

Marks came to her realization through hard and heartfelt personal experience. She lost her husband, Ron, to lung cancer almost 10 years ago. Her sister also lost a battle with

cancer. Both Marilyn and Ron provided care to their parents late in life, and to Marilyn's sister. So, she's seen the toll that an illness can take.

Together with Ron, she made a commitment "to support areas that can impact a person's health, quality of life, and longevity. Whether we're talking about a child with a brain tumor or an octogenarian, you deserve a wonderful quality of life. And whether that means better ways of prevention, intervention, or even treatment of a terminal illness, I want to support that. It's ingrained in me."

She'd been collecting articles about research at Georgia Tech and was particularly interested in what was happening in the bio-community. She started giving, a little here, a little there, whatever she could afford. That's a message she'd like to spread.

“Georgia Tech and BME will last well past my lifetime, and it could have a lasting impact on my children and grandchildren. It’s that important to me.”

– Marilyn Marks

"It's a journey," she said. "Give what you can while you're alive, while you can decide what is important to you."

One of the things that has always been important to Marks is the concept of "lifelong learning," the idea that there isn't, or shouldn't be, a strict timeline to learning. This also was culled from personal experience.

Her parents moved to this country from Poland in the 1920s, first to New York, then to Atlanta, where they operated a grocery store. Her parents never stopped learning. Her mother knew six languages.

Later on, after Ron retired from a career in advertising, he took college courses for the sheer joy of learning. And Marilyn Marks refers to herself as "a recycled student. I didn't get my graduate degree until I'd started working full-time. I understand the concept of having to work to go to



GARY MEEK

Ravi Bellamkonda, who led the Coulter Department of Biomedical Engineering when Marks made her gift, said the scholarship will “have a great impact.”

school. Some students have to help support their parents, or simply can't afford college right after high school, and some just aren't ready for college at 17 or 18.”

So, her gift of \$150,000 will support BME undergraduate students who aren't coming directly from high school, or students who are returning to college. In other words, Marks is helping to fill an important gap in the life of a potential world-changing researcher.

“We are fortunate to count Marilyn Marks amongst our friends,” said Ravi Bellamkonda, who chaired the Coulter Department when Marks made the gift. “She has an

infectious enthusiasm, and the gift of being a generous of spirit, lifting up everything she touches. Her gift will have a great impact in making BME more accessible to our students.”

Bellamkonda believes that Marks' generosity helps the department take a big step toward attracting the best students regardless of their financial situations.

“These are often the forgotten students,” Marks said. “They should not be overlooked. Just think of the lost potential! These are students who someday could make a huge difference in the lives of others.” ■



KATHLEEN MOORE

A 7,000-pound Olympus 593 turbojet engine that once powered a Concorde jet was donated to the School of Aerospace Engineering by Rolls-Royce.

## The In-Kindness of Partners

Rarely wrapped but always valued, gifts of material goods support learning in many ways.

by MICHAEL BAXTER

**CHARLIE HOTCHKISS LOVED OUTER SPACE.** His sister Michelle recalls how, as a high school student back in 1966, Charlie eagerly anticipated the first televised episode of “Star Trek.” He owned telescopes and photographed the heavens. And his fascination with space travel led him to earn an aerospace engineering degree at Georgia Tech in 1971.

But nothing exemplified Charlie’s passion for space more than his collection of meteorites. “He bought and traded them with other collectors, and whenever he got a new one, he wanted to tell you all about it,” Michelle said.

Finding a future home for his prized meteorites after he died was a concern of Charlie’s later in life. So he asked

his sister to donate the collection to his alma mater. After Charlie passed away in 2015, Michelle honored those wishes, and Georgia Tech became owner of two Rubbermaid tubs filled with meteorites, many of them encased in museum-quality acrylic.

“They were under the bed in his apartment,” Michelle says. “Dr. [Vigor] Yang, head of Aerospace Engineering, came over and took them away.”

Charlie’s gifts from outer space are part of a larger story in the College of Engineering and elsewhere at Georgia Tech, one that is seldom told and not often seen. It’s the story of in-kind donations, the contribution of tangible goods to advance education in some way. If cash is king to a

university, in-kind donations are its queen. Large and small, they make an impact on learning. They matter.

Just ask the materials engineering students using the X-ray diffraction machines to analyze the structures of crystals. Those diffractometers are in excellent working order because every year, the scientific instrumentation firm PANalytical makes repairs and donates replacement parts for free.

“Some years, that contribution is worth more than \$60,000,” said Hamid Garmestani, a professor in the School of Materials Science and Engineering. The relationship, he says, goes back more than a decade, when former school Chair Robert Snyder struck an agreement with PANalytical: If the company waived its maintenance fee and kept up the equipment, the school would conduct a couple of yearly workshops and occasional corporate tours of the X-ray diffraction lab.

How donors of in-kind gifts define their version of win-win can vary, of course. Take Dassault Systemes, for instance. The European software multinational is an ardent supporter of the School of Aerospace Engineering’s TEAM Summer Camp, which teaches high school students how to work together in product development. Dassault’s donation of 5,000 licenses for computer-aided design software provides students with the same CAD firepower enjoyed by professionals. The company’s gift extends to Tech students using the Integrated Product Lifecycle Engineering Lab in Aerospace – and collectively, the licenses have a value of more than \$1 million.

Dassault’s contribution is one of several that help power the TEAM camps. Stratasys, an additive manufacturing company, loans 3D printers and donates the materials needed to use them. And early in the camp’s days, AgustaWestland contributed 40 helicopter models to advance aerospace study – along with a pair of remote-controlled choppers to be awarded as raffle prizes.

On a much larger scale of flying machines, Rolls-Royce donated an Olympus 593 turbojet engine that once powered the supersonic jet Concorde. “Georgia Tech and Rolls-Royce have had a relationship for many, many years,” said Dimitri Mavris, director of the Aerospace Systems Design Laboratory (ASDL). “This engine was in their museum, but they thought Georgia Tech would be a good home for it, so they made the offer.”

The 7,000-pound engine was installed with fanfare last February inside the foyer of the ASDL. “You

would not believe how many visitors stop and look at it and comment on the history,” Mavris said. “They take pictures in front of it and read the specifications. And they ask, ‘how did it get here?’”

Gifts like the Olympus engine and Charlie Hotchkiss’ meteorites are relics from another time and place, and their very presence imparts lessons of the world. Other gifts play a more active role in student learning. One example: The two-post vehicle lift donated by Snap-On Tools to CoE students competing in the EcoCAR3 Challenge, a national contest to see which students can engineer the greatest fuel efficiency out of an existing Chevrolet Camaro.

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If cash is king to a university, in-kind donations are its queen. Large and small, they make an impact on learning. They matter.

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“We had a four-post lift, but for what we were doing, it was a nightmare because it required us to keep the wheels on the vehicle,” said Tom Fuller, director of the Center for Innovative Fuel Cell and Battery Technologies and an advisor to the student team. “But thanks to Snap-On’s donation, we could take the wheels off our vehicle to work on it.”

Fuller pointed out that other companies also made important contributions to support Georgia Tech’s EcoCAR team. Siemens donated millions of dollars in NX CAD software; likewise, the electronic design automation company Mentor Graphics contributed specialty software to help students design the wire harnesses that connect functional areas of the car.

While not every material gift is epic in size or dollar value, all are appreciated. Last year, EZ-Go donated two golf carts to the Woodruff School of Mechanical Engineering, “and we put them to use within hours,” said director of development Tom Lawley. There’s no telling how many people the carts will zip to campus destinations or shield from rain showers in the years ahead. But it’s clear that the School will be grateful for the help of an in-kind friend. ■

# Montgomery Machining Mall Opens for Business

Larry Montgomery III was inspired by his own time as a Georgia Tech student.

by CANDLER HOBBS

**WHEN PEOPLE ENTER** the second floor entrance of the Manufacturing Related Disciplines Complex, they see the heart of the Woodruff School of Mechanical Engineering and its latest pride and joy: the newly opened Montgomery Machining Mall.

Considered the largest machining facility on campus, the Montgomery Machining Mall has been in full operation, cranking out parts for Capstone senior design projects, faculty research, and everything in between, since its official opening in March.

The creation of the Montgomery Machining Mall is the largest renovation project the MRDC has undergone since its opening in 1995. It represents a major step for the Woodruff School in tackling one of its biggest issues: the absence of much needed space.

It seems only fitting that the largest mechanical engineering program in the U.S. would have one of the best machine shops around. But this wasn't the case until Larry Montgomery III visited the Woodruff School last fall.

Montgomery graduated from Georgia Tech with a bachelor's degree in mechanical engineering in 1978. He continued on to Emory University, earning an MBA in 1981, and began a long career at Kimberly-Clark Corporation that same year.

Looking back, Montgomery recalled wanting to go to Georgia Tech to acquire a hands-on engineering education. He earned his ME degree with hard work and dedication, but admits that he was surprised and disappointed as an incoming freshman when he saw the campus machine shop for the first time.

"I searched for a machine shop and finally found one on the first floor of the Coon Building. The machines appeared to be government surplus. I was sure they were state-of-the-art when they were surplused after the war — that would



CANDLER HOBBS

be the First World War. In the five years it took me to earn my four-year degree, I never saw anyone use that shop," he said.

In the fall of 2015, nearly 40 years after he graduated from Tech, Montgomery found himself touring the Woodruff School facilities with school chair Bill Wepfer. He was delighted to discover that the school had redesigned its undergraduate curriculum, which now allows for a more hands-on education.

Today, both ME graduate and undergraduate students can use machine tools for projects. During any given semester, the Woodruff School's machine shop is busy with students manufacturing parts — often for senior Capstone design projects.

Although the machine shop was bustling with students and a talented staff, improvements were still needed. The tools no longer were out of date this time (the surplus WWI equipment has long been gone); instead, more space was needed. The shop was bursting at its seams.



CANDLER HOBBS

The Machining Mall, featuring equipment such as lathes, drill presses, and CNC milling machines, gives students the opportunity for hands-on experience.

Some of the equipment had to be placed in labs farther down the hall. Naturally, this was a safety concern, because the shop staff could not monitor the entire facility at one time. In addition, the shop needed to be a more inviting, up-to-date facility to which students would be more easily drawn.

After his visit, Montgomery said that his Montgomery Family Foundation could assist the Woodruff School in its need for an improved machining facility. The school administration teamed with Georgia Tech's architect Bill Oswell and developed a plan to repurpose an existing hallway and adjoining rooms to create one large, open machining facility.

Construction began before the conclusion of the 2015 fall semester. Many interior walls were knocked out, the large corridor space was integrated into the overall design, and a 6,717 square foot workspace began to take form. A heavy-duty non-skid floor was poured and new LED lighting was installed.

With a Georgia Tech-themed paint scheme, the renovated facility now has the look and feel of a NASCAR shop. Equipment such as lathes, drill presses and CNC milling machines were then moved back in; however, this time the additional space allowed for the tools to be strategically placed for more efficient workflow.

The Woodruff School named this state-of-the-art facility the Montgomery Machining Mall in honor, of course, of the Montgomery family. Students now have more opportunity than ever to get hands-on experience with these machines and build their designs. This supports the Woodruff School's mission to develop well-balanced engineers who have technical know-how but can build things too.

Whether for a course project, to support their involvement in competition teams, or even just to have fun, students use these machine tools to stretch their creativity and to better appreciate the manufacturing processes. ■



KATHLEEN MOORE

## Couple Teams Up for Big Gift to Aerospace Engineering

The Ollikainens want to give “a little something for someone else’s future.”

---

by KATHLEEN MOORE

**THE ROAD THAT TOOK ANDREW OLLIKAINEN** from working construction to earning three engineering degrees and a career at Northrop Grumman starts and ends in the same place: hard work.

Along the way, he learned that finding the right work (not to mention a good partner) could make that road a whole lot easier to travel. That part of the lesson he got while at Georgia Tech.

“Coming to Georgia Tech changed our lives forever,” said Ollikainen, B.S. AE ’07. “Opened doors. Made things possible for us...”

Andrew’s wife, Stephanie, continued her husband’s thought: “I would say we were struggling before, but, really, we were just working hard. That’s what we do. And when Andrew decided he wanted to be an engineer, we worked really hard to get into Georgia Tech.”

Almost on cue, the couple erupted into laughter.

“And we worked really hard to get out of Tech, too.”

Their shared sense of purpose — and gratitude — recently prompted the Ollikainens to make an estate donation to the School of Aerospace Engineering. Their relatively young age belies their mutual commitment to a legacy.



“We do not plan to have children, but we want our lives to have meant something to someone else,” said Stephanie, a medical aesthetician and firearms instructor.

“And if we leave it to Aerospace, it will really be there forever, a little something for someone else’s future.”

She smiled as Andrew continued: “Georgia Tech extracted everything I could give it. It was the best experience I could have had. Now, I didn’t graduate cum laude or anything like that, but my grades were good enough to get into graduate school. They were good enough to get me into a profession that I love.”

“Good enough” might be an understatement.

After leaving Tech, Andrew Ollikainen was scooped up by an Air Force contractor, MacAulay-Brown, to support the Special Operations Command in electronic warfare. From there, he transferred into the Air Force Civilian Service to work as a structural engineer on C-130s and C-17s at Robins Air Force Base.

While with the Air Force, Ollikainen completed a master’s degree in mechanical engineering and another in military operational arts and sciences in joint warfare.

“That’s one that the Air Force usually reserves for captains and majors, but they opened it up to Air Force civilians, and I was interested, so they let me in.”

Even then, Andrew’s aspirations were set on yet another target.

“Since graduating from Tech, I’ve become something of a perpetual dreamer — drives Stephanie crazy sometimes — but I just don’t feel like I’m done. I knew I wanted to keep going in school and I had to find a way to do it.”

That “way” materialized at Northrop Grumman, where Andrew now works as a senior structural integrity engineer. The position meant the couple had to move to Florida. It also meant Andrew would be supported in pursuing a doctorate, which he began this year.

Andrew and Stephanie Ollikainen rolled their eyes in unison. Laughter ensued.

“I remember when he got accepted to Georgia Tech, we knew our lives were going to change. Forever,” said Stephanie. “And the adventure continues.” ▪



KATHLEEN MOORE

# From Capstone to Rome

A senior project led an ISyE graduate to a job abroad.

INTERVIEW *by* BEN WRIGHT

**THE CAPSTONE DESIGN EXPO** is a rite of passage for many College of Engineering graduates, and while some projects turn into viable prototypes or business plans, lots of students expect to finish their involvement with their projects when they leave Georgia Tech. That wasn't quite the case for industrial and systems engineering major Sangeeta Gadepalli and her team, who made such an impression on their project sponsor that they heard back from them almost two years later. We spoke to Gadepalli about what happened next.

## WHERE ARE YOU FROM AND WHY DID YOU CHOOSE GEORGIA TECH?

I am from Atlanta. I have lived here for about 10 years, and before that I lived in India. I chose Georgia Tech because it had one of the top-ranked engineering programs in the world, and they also had a very reputable co-op program, both of which were very important to my academic career.

## WHY DID YOU CHOOSE ISYE AS A MAJOR?

I chose ISyE because I have always been drawn towards management science, but I also wanted an engineering degree, and I believe ISyE does a fantastic job of combining the two. I enjoyed every aspect of ISyE, because what you learn is very practical and can be implemented in a day-to-day situation. My favorite classes that I took included Manufacturing & Warehousing, Stochastics, Logistics, and Supply Chain Economics.

## WHAT WAS YOUR CAPSTONE EXPERIENCE LIKE? WHAT KIND OF RESEARCH DID YOU DO FOR THE PROJECT AND WHAT KIND OF CONTACTS DID YOU MAKE?

My Capstone project was a roller coaster ride. We had our ups and downs because as any Techie would know, Senior Design is a strenuous course. My research was more in terms of what kind of company would we want to work with and what kind of problems do we want to tackle. The summer before my senior year, I started to ask classmates if they were interested in being in a team or if they had a

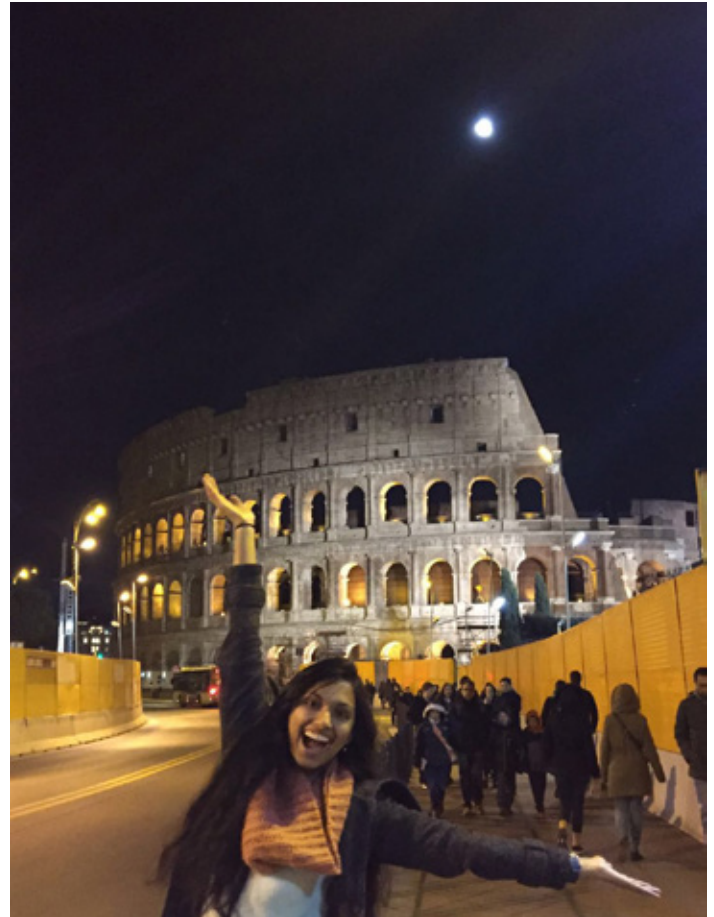


PHOTO COURTESY SANGEETA GADEPALLI

team. Luckily, everything fell right into place and I had a wonderful team (Maria Ayers, Ashfaque Kachwala, Tahsin Munir, Cane Punma, Gabriel Rodriguez, and Yuvraj Singh). We all got along great and we all had something to contribute. Later in the fall semester, we started to make an Excel sheet of companies that we wanted to work with, and we cold-called and emailed anyone and everyone we could. Among those contacts was the World Food Programme (WFP). We sat down with our main contact at WFP and discussed the project and how we would be helping. After a few days, we got an email saying that they would like to work with us.

We spent the rest of the semester working with our senior design advisor, Dr. Ozlem Ergun, and a Ph.D. student who worked with WFP, Mallory Soldner. We devised an algorithm that would make supply chain decisions simultaneously increasing visibility across the supply chain. In other words, this tool would look at all possible combinations of commodities, suppliers, and routing options together. This approach would increase visibility among various departments, thus producing an optimal food basket. With this tool, we estimated WFP to potentially save 12.91% of their total supply chain costs, which translates to about \$34 million.

**WHAT HAVE YOU BEEN DOING SINCE GRADUATION?**

After graduation, I took up a full-time position with a technology consulting firm as a business analyst. I worked with various clients in the IT industry, and my roles have mostly been centered around project management. I worked on resource budgeting and forecasting, time reporting, and managing project tasks and deadlines for Fortune 500 companies.

**HOW DID YOUR OPPORTUNITY IN ROME COME ABOUT?**

Not long ago, our team got an email from our contact at WFP. He shared the news of how our algorithm was doing and what has changed since we have handed it over. He also mentioned that they are planning to expand some operations, and as such would like to expand their Supply Chain Development team. So if any of us were interested, we would have to email back with our resumes and they would call us for an interview.

I dropped a note with my resume and heard back from the client fairly quickly. Over a span of a two weeks, all the formalities were completed and I was offered a contract-

based full-time position as a Supply Chain Consultant for six months!

**WHY IS FOOD DISTRIBUTION A PROBLEM AND HOW IS THE UNITED NATIONS TACKLING IT?**

Imagine providing food to a household of four. You buy groceries and you cook the food that the family will eat. But imagine if it were a household of 40 instead of four. At this point, planning becomes essential. Food distribution on a global-scale is a difficult task to accomplish when considering population, nutrition, and preferences.

**HOW DID YOUR TIME AT TECH PREPARE YOU FOR THIS JOB?**

Time and time again, we've all heard about Tech's level of difficulty. At Tech, I have noticed that students are always working and not just on academics. Georgia Tech instills an attitude of persistence and resourcefulness, both of which have prepared me well for the working world. The quality of education we receive at this institution is of course world-class, but the character it builds is invaluable. ▪

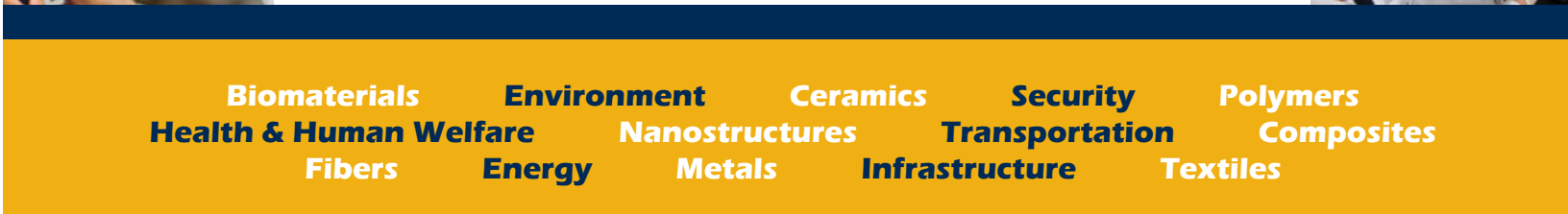


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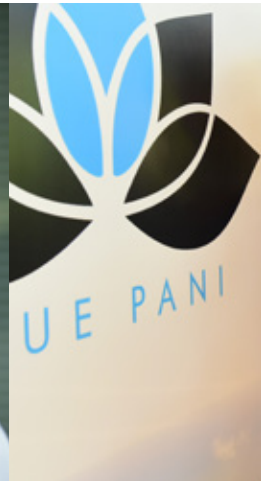




# The Gift *of* Investment

People inside and outside Georgia Tech give back through the CREATE-X initiative.

Story by Michael Baxter | Photos by Gary Meek



## At first look, the feasting larvae of the black soldier fly hardly seem the picture of innovation.

Writhing and wriggling within the confines of a shallow plastic container, they incessantly devour the kitchen scraps served by their caretakers. It is not a pretty sight.

But these fly larvae are more than a marvel of nature; they're a business model in action. The larvae will turn that food waste into marketable fertilizer before paying the ultimate sacrifice of becoming a snack for backyard chickens.

The business model is the brainchild of Sean Warner and Patrick Pittaluga, recently minted Georgia Tech graduates who launched a company, Grubbly Farms, early in 2015. While theirs is a brave and independent venture, the co-founders had abundant help from Georgia Tech's CREATE-X program, which prepares students to embark on self-started business ventures.

"When we first pitched the idea to CREATE-X, we were breeding flies in our laundry room," Warner says. "The mentorship we received through the program was tremendously helpful. And the [financial] investment helped us set up our first mini facility in my parents' greenhouse."

**The program is itself a startup. Many people donate their time to it. We have 40 different mentors, we have faculty teaching classes pro bono and we have volunteers come and talk to the students all the time.**

**– Raghupathy “Siva” Sivakumar, CREATE-X director**

CREATE-X is the product of people inside and outside Georgia Tech who have given a lot to make it happen. It was conceived as a what-if idea by a small cadre of leaders across the Institute. It found life as a cohesive program thanks to the generosity of a Georgia Tech alumnus. And for now, it is sustained largely by the selfless involvement of faculty, alumni and others in Atlanta’s startup community who are motivated by seeing Georgia Tech students discover and develop the confidence to be entrepreneurs.

“The program is itself a startup,” says Raghupathy “Siva” Sivakumar, CREATE-X director and a professor who holds the Wayne J. Holman Chair in the School of Electrical and Computer Engineering. “Many people donate their time to it. We have 40 different mentors, we have faculty teaching classes pro bono and we have volunteers come and talk to the students all the time.”

CREATE-X is an experience of three sequential action verbs — learn, make and launch. The “learn” component is a fall semester course called Startup Lab, which provides a foundational introduction to starting a company before turning students loose to conduct exhaustive customer research. A second course, Idea 2 Prototype, follows in spring semester to give students the opportunity to make and iterate a prototype of their invention. Students then apply for the crowning “launch” component, the 12-week Startup Summer. In 2016, 120 teams applied to Startup Summer; only 20 were selected to participate.

“The intellectual aspect of the program is much higher than starting a business,” says Ray Vito, Professor Emeritus of the Woodruff School of Mechanical Engineering and a man

who was instrumental in shaping CREATE-X. “We wanted to give students the experience, knowledge, skills and confidence to be thought leaders and innovators. We don’t expect all of our students to do startups. But all of the students who participate learn the importance of taking the lead and being self-sufficient.”

## An angel investor arrives

The core elements of CREATE-X arrived at different points in the last few years, but they came together in a dramatic way in the spring of 2015, when Georgia Tech alumnus Chris Klaus donated \$2 million to the program. The gift made it possible to hire a small staff and support three years of operations as well as provide \$20,000 in convertible debt to each student team participating in Startup Summer.

“Chris is, of course, one of the most entrepreneurial students ever to come out of Georgia Tech,” Sivakumar says about Klaus, who launched Internet Security Solutions and later sold it to IBM for \$1.3 billion. “We first invited him to talk to a class in Startup Lab. He has an excellent back story about starting a company out of his dorm room, and the students could relate to it.”

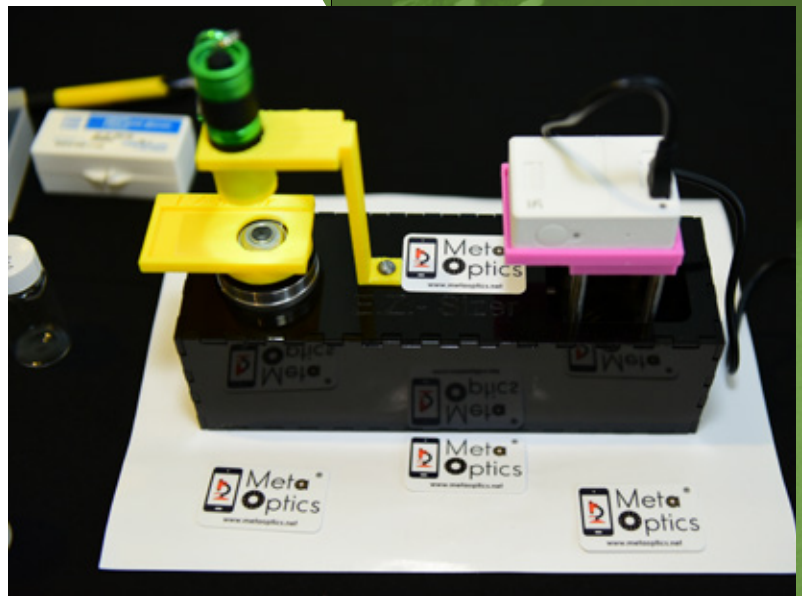
“My success was based a lot on the leadership alumni in the Georgia Tech community,” Klaus says. “If you look at the list of startups done by college-age kids — Zuckerberg at Facebook or Gates at Microsoft — you can see that undergraduates are fertile ground for us to reach out to. The mindset at Georgia Tech today is if you know how to build it, don’t stop at the prototype. Build a company.”



In Klaus' view, it took a while for that mindset to be established. "Georgia Tech was always great at creating awesome engineers, but it didn't always have the culture to get students to think about how they could build a company to help thousands or millions of customers," he says. "But a shift has occurred. Two years ago, I spoke at a startup class, and afterward we had five or 10 students asking questions. This past year, that same class had 500 students attend – and at least 50 of them came up afterward to talk."

Klaus saw that he could help develop that culture further. "This program is something I would've wanted as a student at Georgia Tech," he says. "I was very fortunate that I was able and willing to take a risk, and once I started getting checks in my dorm room, it became less of a risk. As an alumnus, you want to give back and make things better."

The contribution of another Georgia Tech graduate provided a different kind of boost to student-



The images on these pages are from Startup Summer's 2016 Product Day, in which participating teams showed off their work.



launched companies — namely, helping them get their legal house in order. John Lanza (B.S. EE, M.S. EE) is national IP operations partner for the Atlanta-based law firm Foley & Lardner, which counts emerging technology companies as one of its focus areas. When he learned about CREATE-X, Lanza had an idea: Provide the student startups with legal services, but hold off on collecting fees until the company has had a successful round of funding.

“We already offer the fee deferral program to other startups, but they have to complete a fairly rigorous application process and then be accepted,” Lanza says. “I told my colleagues at the firm that Georgia Tech has one of the top engineering schools in the country. So if the folks running CREATE-X are going to allow a company into the program, that should be good enough for us.”

The services Foley & Lardner provides through the program range from the simple filing for incorporation to the complex protection of intellectual property. But Lanza himself goes further. He meets and Skypes regularly with his student clients, advising them on a range of matters and connecting them with professionals in the legal and startup worlds.

“My personal iron in the fire is that I believe in the next generation and their abilities, period,” he says. “Whenever I’m talking to these young people, I’m constantly amazed by what they’re able to do and how much they get accomplished. If I can help them deliver their technology into the world, well, that makes a better world.”

## Wisdom from the startup sages

Other Georgia Tech alumni and established entrepreneurs share their guidance as well. MailChimp founder Ben Chestnut is a perennial guest speaker, and serial entrepreneurs Jim Stratigos and Paul Judge make themselves available well.

The advice of these seasoned professionals can be invaluable, as John Gattuso attests. The 24-year-old co-founder of FIXD, a startup marketing a sensor and mobile app that diagnose car engine problems, recalls when CREATE-X connected him and his partners with Mike Tinskey (M.S. EE), Ford Motor Company’s global director of vehicle electrification.

“The first time we met him, we were kind of nervous — I mean, he’s a pretty big deal at Ford, and he has his pulse on the industry,” Gattuso



**My personal iron in the fire is that I believe in the next generation and their abilities, period. Whenever I'm talking to these young people, I'm constantly amazed by what they're able to do and how much they get accomplished.**

— John Lanza, CoE alumnus and CREATE-X supporter

says. “So he shows up and says, ‘You guys want to get some wings and beer?’ We said, uh sure, and that put us at ease.”

Gattuso says Tinskey has provided a wealth of ideas and counsel since that introduction, especially when it came to differentiating their product. “In the beginning, it was a consumer product, but there were other similar devices out there, so Mike emphasized that we needed to innovate on the model or the distribution or something,” Gattuso says. “That caused us to look into auto repair shops and dealership service centers as distribution channels.” Today, both are major components of the FIXD business model.

Gattuso and other students are just as enthusiastic about the instruction they received inside Georgia Tech from faculty and staff — many of whom donate their time or earn only nominal compensation.

“I remember [VentureLab Director] Keith McGreggor telling us that the worst thing we can hear from a prospective customer in the discovery phase is, ‘Wow, that’s really cool,’” says Alex Weiss, who co-founded the kitchen gardening system Replantable. “You don’t want to hear that. You want to hear, ‘When can I get this?’ or ‘Where can I buy this?’ If your customers aren’t begging for the product, you have to find a new customer base or come up with a new product.”

CREATE-X Director Sivakumar says several faculty contribute their time to all three segments of the program. James Rains (B.S. EE) is one example. A 13-year veteran of the medical products industry, he now teaches design and capstone classes in biomedical engineering — but contributes 15 hours a week to Startup Summer, providing feedback on student presentations and connecting students with people in industry.

“Ever since I was 18, I wanted to create a startup,” Rains says. While a student at Georgia Tech, he got as far developing “an awesome prototype” and software for a smart home electronics system

— but he lacked the know-how and support to commercialize it. “So I’m trying to pay it forward now,” Rains says. “I get to work with these student teams, and this stuff is exciting. It’s a labor of love, really.”

The challenge for CREATE-X now is how to build on its strong internal and external support to grow the program. Sivakumar says the goal is to move from engaging 300 students annually today to 3,000 five years from now, and “to scale different aspects of what CREATE-X does without compromising quality.” Since the program is now in the second year of its three-year financial commitment from Chris Klaus, efforts are underway to build broader and deeper support.

Steve McLaughlin plays a key role in those efforts. The Steve W. Chaddick Chair of the School of Electrical and Computer Engineering, McLaughlin is one of the leading champions of CREATE-X, and he describes an “all-out approach” to raise the funds necessary to ensure the future viability of the program.

“Almost everyone we talk to sees the benefit of being able to jump-start entrepreneurship earlier in students’ careers,” McLaughlin says. “They connect with what we’re trying to accomplish, and they want to help.”

To emphasize the point, he cites a metaphor favored by Ravi Bellamkonda, the previous chair of the Coulter Department of Biomedical Engineering. “Many at Georgia Tech remember the drownproofing course that all freshmen used to take,” McLaughlin says. “Ravi calls CREATE-X ‘Drownproofing 2.0.’ It’s the ability to survive by creating a job for yourself in the future.”

Thanks to the legion of people behind them, Georgia Tech students are discovering their capacity to invent their future. ■

# The State of the Gifts

## Catching up on what's become of some high-profile gifts and programs in the College of Engineering.

Story by Ben Wright

### CENTER FOR ENGINEERING EDUCATION AND DIVERSITY/INTEL CORPORATION GIFT

The College of Engineering's Center for Engineering Education and Diversity (CEED) is committed to increasing the pipeline of students who are traditionally underrepresented in STEM majors. In summer 2015, the Intel Corporation made a \$5.5 million gift to CEED in order to support its efforts to recruit, retain and graduate underrepresented students in engineering and science fields for the subsequent five years.

Since then, Intel's gift has enabled CEED to increase the scope of its programs and reach more students. For example, the Summer Engineering Institute (SEI), a three-week residential summer program for rising junior and senior high school students, has increased its enrollment by 33 percent, expanded its staff, and doubled its budget in order to enhance its program. Ten SEI alumni will be enrolling at Georgia Tech in fall 2016 and will be eligible for other CEED programs.

Intel's support also led to a 126 percent increase in Peer 2 Peer mentoring program awards, twice as many funded scholars in the Retaining Inspirational Students in Technology and Engineering (RISE) program (who also saw their scholarships grow from \$7,500 to \$20,000), a 90 percent increase in the number of students participating in Summer Undergraduate Research Experience (SURE), and twice as much funding for the FOCUS program.

FOCUS is one of the longest running recruitment programs for underrepresented minority students who are interested in attending graduate school at Georgia Tech and is instrumental in recruiting talented graduate

students. This year Rosalind Hudnell, the chief diversity officer and global director of education and external relations for the Intel Corporation, gave the keynote address at the FOCUS banquet.

With Intel's support, CEED has been able to reach and support more underrepresented students than ever before. "Intel invested \$5 million in its partnership with Georgia Tech to help build the pipeline of diverse engineers in the tech industry. We anticipate this will benefit more than 1,000 students over five years through mentoring, access to meaningful research opportunities and scholarships," says Barbara Whye, executive director for strategy and external alliances at Intel. "We believe Georgia Tech's SEI, SURE, and peer-to-peer mentoring programs make a tremendous difference in strengthening engineering and computer science students' commitment to their education. This will deepen the pipeline of technical talent for Intel and the industry at large."

### GEORGE INTERNATIONAL STUDY ABROAD SCHOLARSHIP

Industrial engineering graduate William W. "Bill" George ('64) didn't study abroad at Georgia Tech, but he wants to make sure that current students have the opportunity to do so in order to gain an understanding of what it means to be a global citizen.

Students can apply for funding before committing to a study abroad program, making an invaluable international experience attainable for students who may not otherwise have the means to travel. Recipients receive up to \$5,000 to be applied toward a Georgia Tech study- or intern-abroad program.

## EXXONMOBIL SUCCESS PROGRAM

The ExxonMobil Success Program, which is run out of the School of Chemical & Biomolecular Engineering, provides mentoring, study help, and professional development assistance to minority students. The program also sponsors guest speakers from academia and business. Geared toward ChBE majors, the program also gives participants the chance to hear from industry representatives and tour local facilities in order to see large-scale chemical engineering in action.

Dozens of undergraduates participate in the program each year and are mentored by graduate students, who gain valuable leadership experience. The ExxonMobil Success Program also provides networking opportunities with Georgia Tech alumni who serve as guest speakers at program events.

## JOE S. MUNDY GLOBAL LEARNING ENDOWMENT

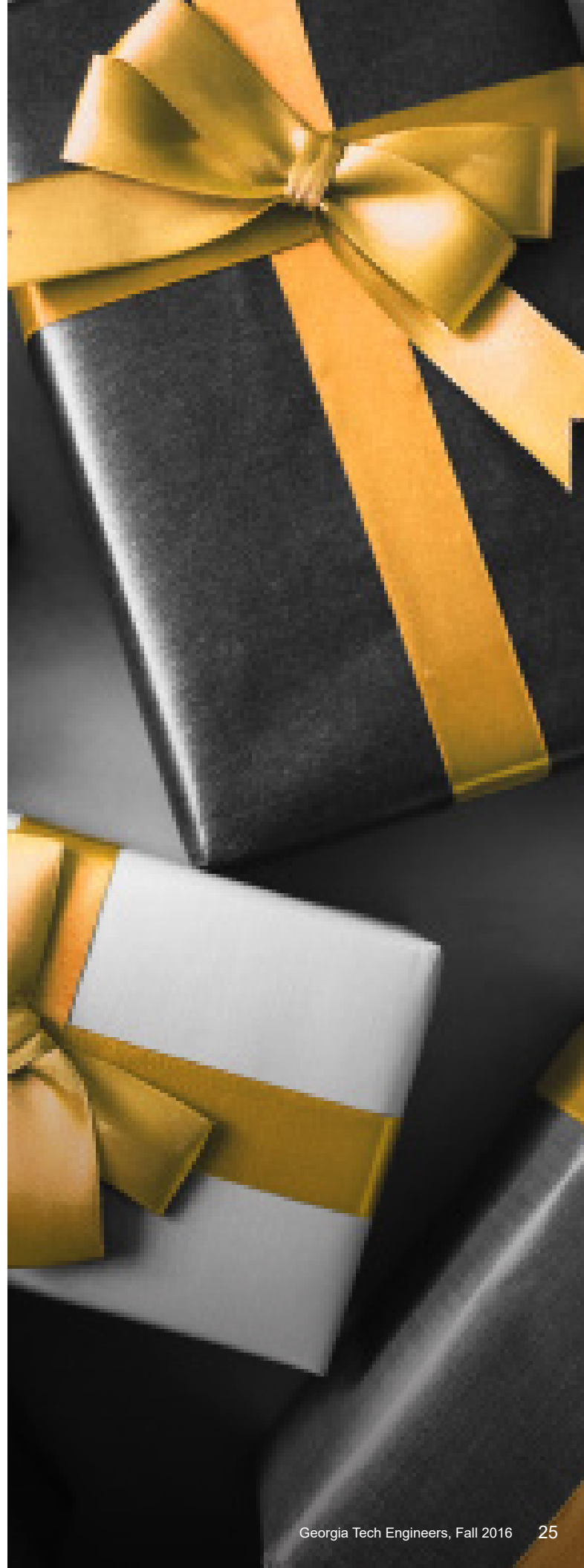
The Joe S. Mundy Global Learning Endowment gives students in the School of Civil and Environmental Engineering the opportunity to participate in an international learning experience. Joe Mundy (CE '65) served on the Georgia Tech advisory board, and his family foundation has supported the Institute for decades.

Established in 2009, the Global Learning Endowment has supported international travel for 161 civil and environmental engineering students, who have traveled to more than 60 countries. The program allows students to engage in a wide variety of educational and cultural experiences — from international research to a summer-long study abroad — that help them develop as leaders in the global community. The program also adds value to the degrees students earn at Georgia Tech, giving them a more well-rounded perspective of the world.

## GODBOLD FAMILY FOUNDATION SCHOLARSHIP

Francis S. “Bo” Godbold graduated from Georgia Tech with a bachelor’s degree in industrial engineering in 1965 and went on to have a successful career in the financial services industry. In 1999, the Godbold Family Foundation created an undergraduate scholarship program to help academically qualified students who face financial challenges meet their educational goals.

The scholarship is open to entering freshmen from specific counties in South Carolina, North Carolina, Florida, and Tennessee. Godbold Scholars receive 100 percent of their financial needs met through scholarships, institute gift aid, and work-study opportunities. ▪



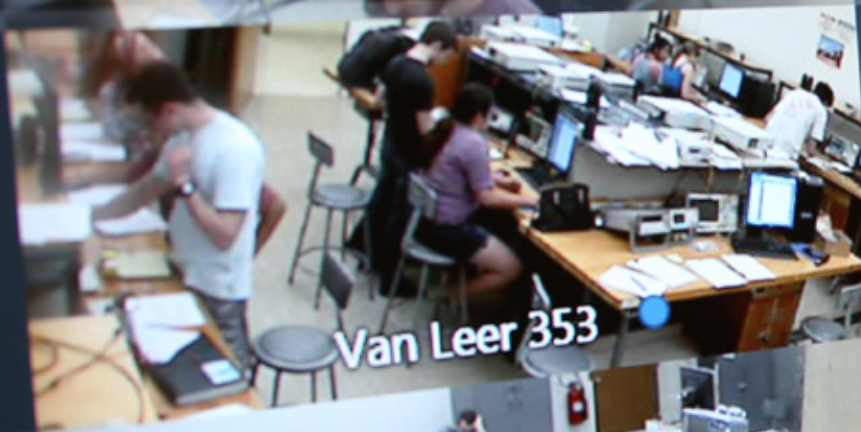
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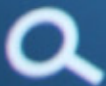


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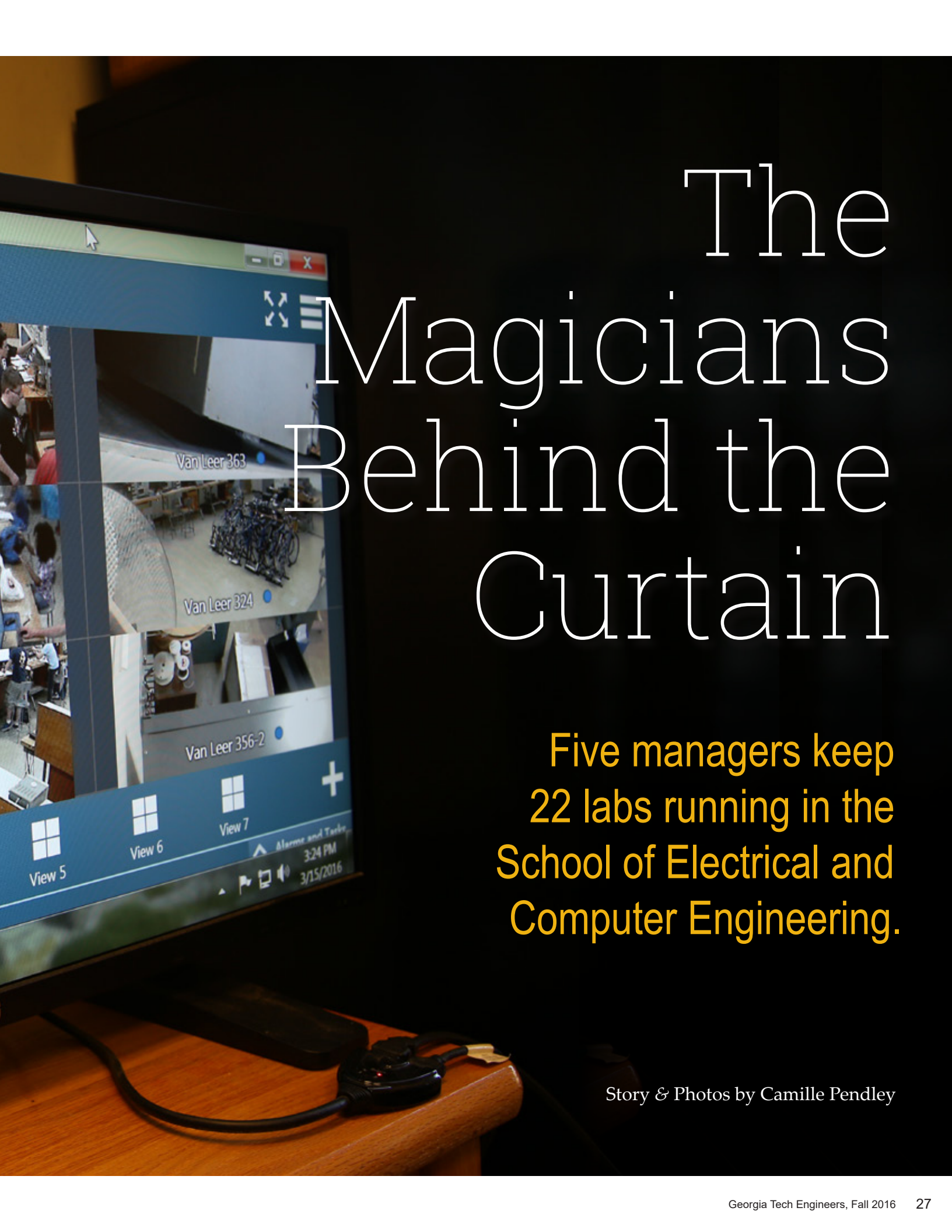


View 4

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# The Magicians Behind the Curtain

Five managers keep  
22 labs running in the  
School of Electrical and  
Computer Engineering.

Story & Photos by Camille Pendley

In the Blake R. Van Leer building, electrical and computer engineering students toil away, tasked with seemingly unsolvable problems in instructional labs. These labs make up a core element of the curriculum at the School of Electrical and Computer Engineering (ECE), the largest producer of such graduates in the country. Without it, the lecture-based classes on concepts fundamental to the degree – such as signal processing, circuit analysis, and hardware and software system programming – would be nearly impossible to grasp in practical terms.

Or, as one graduate teaching assistant put it: “We’re seeing all these equations and wondering, ‘Where’s the benefit in that?’” Jamell Morell works in an electrical and electronic circuits laboratory as a graduate teaching assistant. He says such labs “bridge the theoretical to the experimental” in a way that gives his students a deeper comprehension of the lessons learned in a classroom.

But if electrical and computer engineering students truly are the “tinkerers, creators, and magic makers,” then the five men who help keep the school’s 22 labs running are the magicians behind the curtain.

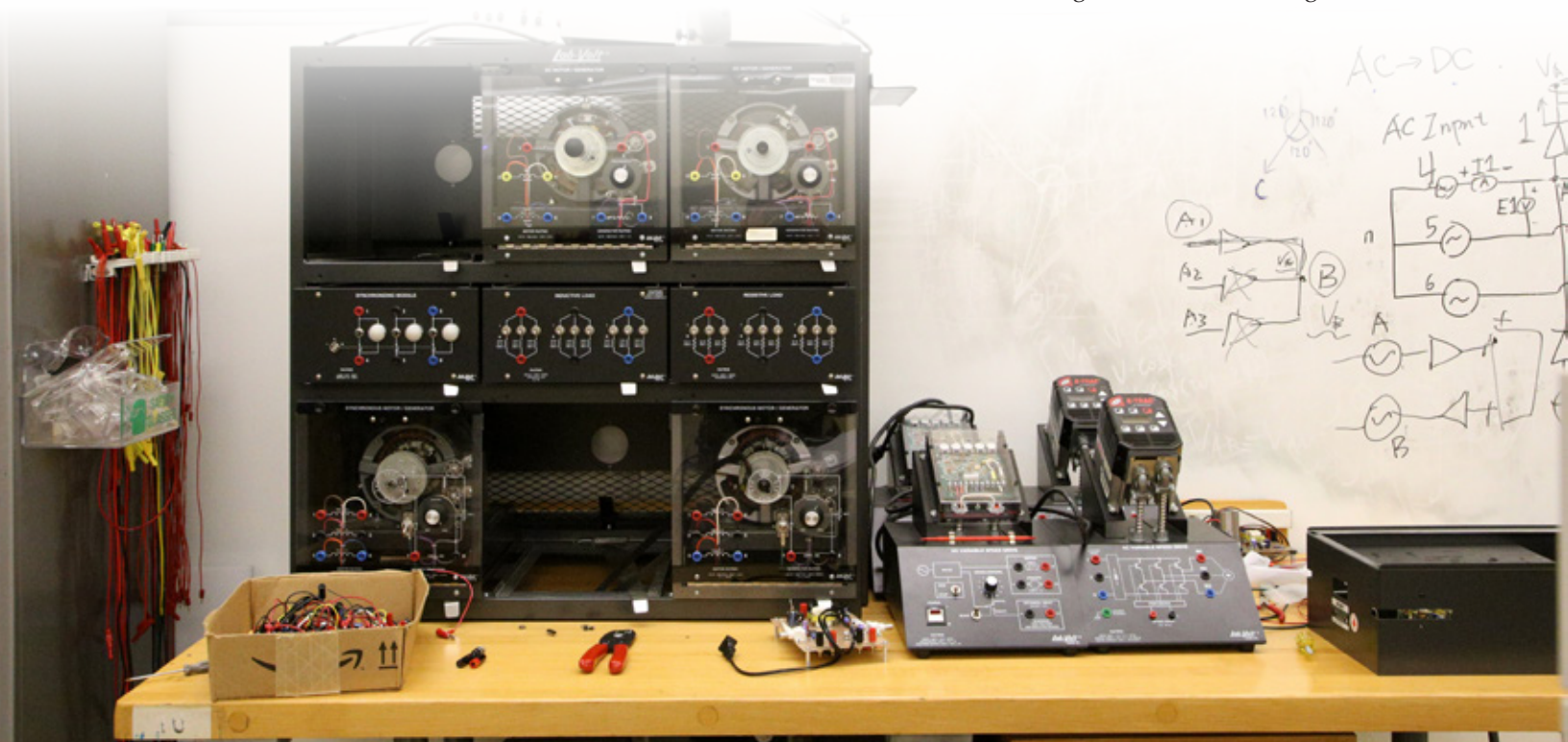
Tom Brewer oversees ECE labs’ management or, as he affectionately explains, “if something goes wrong they’ll blame me.” But his devotion to the school is clear — if not through the creativity and humor he applies to his teaching, then through the sheer longevity of his tenure, nearly half a century long.

Brewer, who can be found listening to the Russian philharmonic orchestra in his office when not teaching, says the value of learning that takes place in ECE labs can ultimately be quantifiable come time for students’ graduation.

“The primary focus for most ECE students is getting a job and getting a career going,” he says. “I’ve been told that many of them, when they go out for interviews, are asked practical questions that they learned in the lab.”

Lab focuses range from digital design, where students combine analog and digital hardware programming skills, to senior design projects, in which students are asked to create something and make it work. That could mean a rocket-launching system, a robotic bartender, a sensor that controls the volume on a television by reading brain waves, and everything else in between.

Brewer is joined by four other staff members who help keep these labs operational. Kevin Pham and James Steinberg work in senior design labs, Allen



Robinson in audio engineering, and Kevin Johnson in digital design. For them, running their labs means purchasing equipment, helping with budget proposals, and, importantly, solving engineering problems that students and teaching assistants come across.

Problem-solving is arguably the most crucial component of the learning that takes place in ECE's instructional labs. Johnson calls this "the debugging process" in his digital design lab.

Johnson explains that in lecture classes, there generally isn't much of an iterative problem-solving process: A student is given a problem; they answer it, are told whether or not they were correct; and are then told the answer.

"So there isn't the sort of 'what did I do wrong, where did that occur, and how do I fix it?' process that really is a huge part of engineering," Johnson says.

When students first start a lab class, they often don't know where to begin when the inevitable first problem arises.

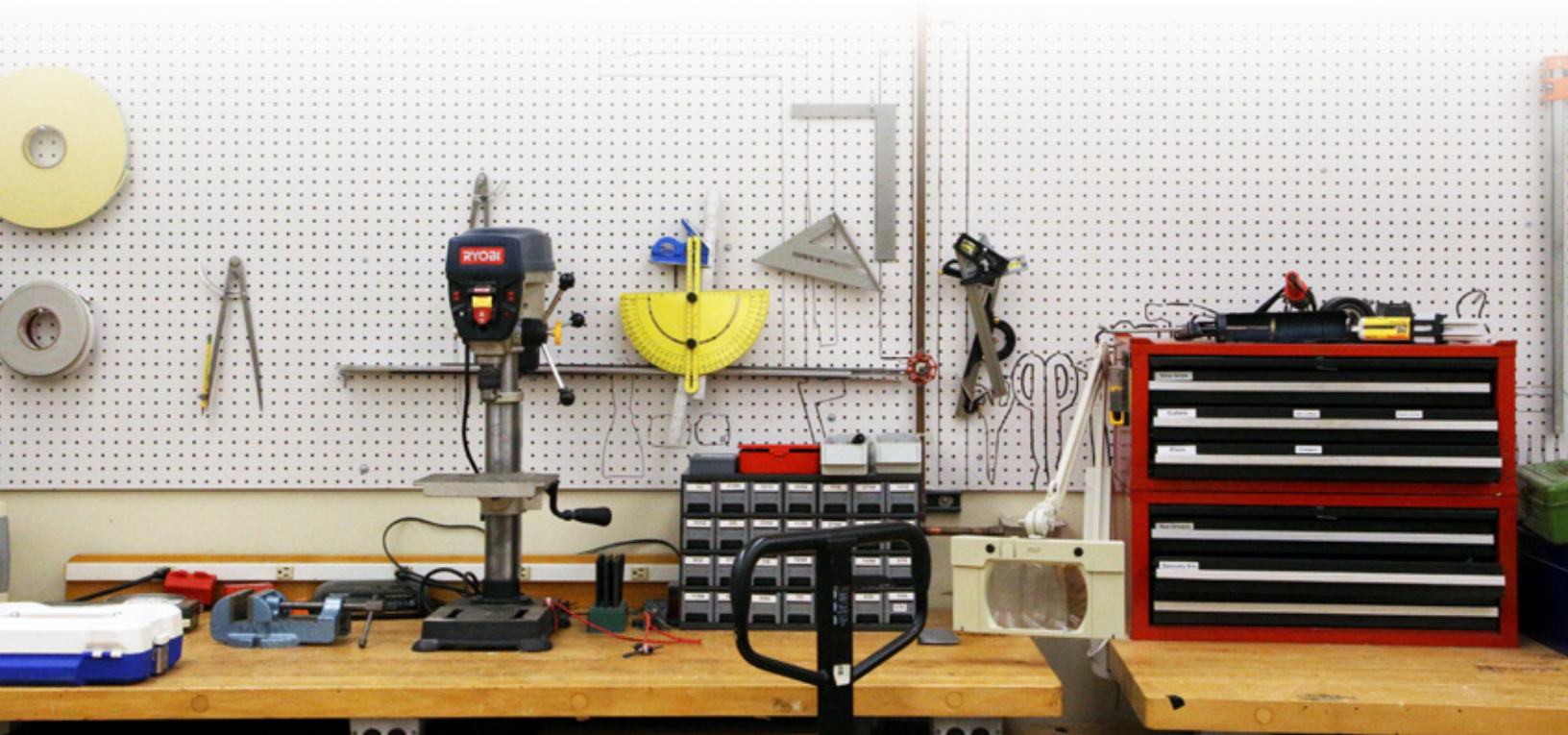
"There are so many things that can go wrong. When you're building this complicated system... and you're writing software for it, and it's interfacing with peripherals like switches and push-buttons, trying to figure out where something



is going wrong can be a pretty daunting task," says Johnson, who spends a fair amount of time repairing robots that break during final projects.

This kind of practical experience teaches students to solve problems by breaking them down into smaller parts of the whole. With the support of teaching assistants and staff members like Johnson, students learn to eliminate areas that are properly working and how best to find where exactly the breakdown lies.

"You actually use the equipment, and through measuring these circuits that we learn about in





class and by looking at them on the oscilloscope [an instrument with which one can observe varying signal voltages], we're able to see, 'OK, this is a high-pass filter... this is a square wave,'" says Morell.

Students' exposure to high-powered lab equipment is set to increase dramatically. A new maker space, made possible by a Texas Instruments gift, will

provide them with access to cutting-edge technologies and an exciting place to interact with equipment outside of class.

Sai Sathiesh Rajan, a third-year ECE student, says the maker space will be "a way to get practical

skills, like soldering, and exposure to components, like oscilloscopes, before their third year [of ECE classes]." Such skills are highly sought after, and useful earlier on in ECE studies than the current curriculum generally offers.

The senior design course is one reason that greater hands-on experience is valuable. Between the two, Steinberg and Pham oversee the senior design projects of roughly 250 students.

I learn more from the students than I did in school. I enjoy seeing them succeed; I like to see them grow.

—James Steinberg

Steinberg says their responsibilities run the gamut: helping undergraduates, professors, graduate and doctorate students to build circuits and inductors, populate printed circuit boards, and with research projects and proposals.

"It's an interesting job — fun! — but it keeps you busy," Steinberg says. "You have no downtime, you can be sure of that."

But for all their responsibilities, the staff expressed an admiration for working with the students and watching their projects evolve.

When asked about his favorite part of the job, James Steinberg laughed. "I learn more from the students than I did in school," he says. "I enjoy seeing them succeed; I like to see them grow."

Steinberg and his colleagues' support is integral to ECE students' growth.

"These students are just very, very creative," says Bonnie Ferri, associate chair for undergraduate affairs in the school.

"What we want to do is take that imagination and their ideas, and give them the skills, and the equipment, and the space for them to fly with that." ■





# An Intimate Evening WITH Chuck Leavell

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# Helping the Next Generation: CoE Alumni Giving Back

by KAY KINARD

EACH SPRING, THE COLLEGE OF ENGINEERING inducts some of its most accomplished alumni into the Engineering Alumni Hall of Fame. Like so many CoE alumni, many of this year's inductees give back to help current students and faculty members at Tech. Deborah Nash, B.S. IE '78, is one such example. She was honored following her retirement from Microsoft Corporation where she had been a senior vice president. Twice named to Fortune Magazine's 50 Most Powerful Women in Business, Nash now mentors current Georgia Tech students and helps steer the Institute by serving on the Georgia Tech Foundation Board of Trustees. For James Carreker, B.S. EE '69, engaging with Tech remains important even across the world. Carreker, an early Silicon Valley telecommunications leader, relocated to explore the hospitality industry in Australia in 2003. He has also received the Dean Griffin Community Service Award from Georgia Tech, which is given to people who are longtime volunteers and serve as a source of inspiration to others. ▀



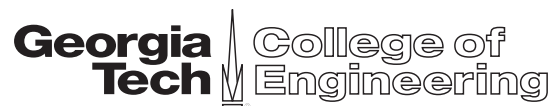
GARY MEEK



GARY MEEK



GARY MEEK



*The College of Engineering at Georgia Tech is the largest program of its kind in the country, with more than 13,000 undergraduate and graduate students enrolled. The college ranks among the top 10 programs in undergraduate and graduate engineering as determined by U.S. News and World Report.*

Shannon Yee, an assistant professor in the Woodruff School of Mechanical Engineering, is developing a technology that leverages the isothermal expansion of sodium and solar heat to directly generate electricity. This unique conversion engine has no moving parts.

