“We have been blessed in so many ways, and we feel a desire and an obligation to give back.”

— Eva L. and Lynn C. Maddox, EE 1963

A quality education, a fulfilling undergraduate experience, and a fraternity connection that would lead him to his wife of 45 years—this is what Lynn C. Maddox, EE 1963, will celebrate in his role as Reunion Fund Committee co-chair of his 50th Class Reunion at Georgia Tech this fall.

Maddox, a College of Engineering Distinguished Alumnus, was born and raised in Shreveport, Louisiana. He was the first in his family to attend Georgia Tech. As a member of Beta Theta Pi Fraternity and Eta Kappa Nu Electrical Engineering honor society, a distinguished military student, and managing editor of the Georgia Tech Engineer Magazine, Maddox truly made the most of his undergraduate years.

Following graduation, he served as a U.S. Army officer and later worked as a plant manager for Procter & Gamble. In 1971, he earned an MBA in finance from Indiana University, and then went on to a successful 39-year career at Stein Roe & Farnham Investment Counsel (now known as Atlantic Trust Private Wealth Management). He retired in 2010 as senior vice president.

Today, Maddox lives in Chicago with his wife, Eva L. Maddox, an award-winning interior designer and principal at Perkins + Will Architects. In recognition of the transformative impact of a first-rate education, the Maddoxes have established endowments at their respective alma maters (Eva Maddox is a graduate of the University of Cincinnati), which will be supplemented through their estate plans. “We both feel we got high-quality academic training, as well as training about life and values, while in college. We happily make annual gifts to our alma maters, have established endowments and charitable [gift] annuities, and have arranged for estate gifts as well. We encourage our fellow graduates to do the same.”

In addition to their philanthropic support of Georgia Tech, the Maddoxes are proud supporters of the Contemporary Arts Council of Chicago, Chicago State University, and Beta Theta Pi fraternity—three institutions for which Lynn Maddox also serves as treasurer and board member.
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features

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Rick Cavallaro, AE 84, has revolutionized broadcast sports and out-sailed the wind—but only by mastering the mea culpa.

ART OF INVENTION  p52
Professor Nancy Nersessian is hunting for the wellspring of creativity on Tech’s innovation-happy campus, and beyond.

THINK LITTLE  p60
Some of the Institute’s biggest high tech innovations come in very (very, very) small packages.
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BACK PAGE 106
Progress can be viewed in many ways. It can be seen in economic development, social change and technological advancements. It’s a fitting guide-word for this great Institute, as Tech plays a role in all of those areas. But chief among them is technological progress.

Innovation is Tech’s life-blood. In this issue, you’ll read about some amazing advancements being made on campus, and you’ll meet alumni who are driving progress in their fields.

On page 60, you’ll read about the smallest advancements happening at Georgia Tech, nanoscale innovation that includes rapid developments with graphene and potential treatments for cancer.

But that’s just the tip of the iceberg. Tech researchers recently created synthetic platelets that could speed up blood-clotting on the battlefield, potentially saving soldiers’ lives. Meanwhile, Tech’s Center for Innovative Fuel Cell and Battery Technologies is studying how fuel cells erode, which could result in significant durability increases and lower costs. The list goes on and on.

And there’s one common theme that might not be obvious but is hugely important in Georgia Tech’s rise in the world of research and higher education: cross-disciplinary work.

Georgia Tech boasts world leaders in a wide number of disciplines: biology, computer science, physics, every branch of engineering and many more. Following a central imperative of Tech’s strategic plan, the Institute has encouraged these leaders to collaborate with those outside their fields, and those partnerships have led to more and greater breakthroughs. This is at the heart of work by Tech professor Nancy Nersesyan, who seeks to learn where creativity comes from (pg. 52).

We also have valuable external partnerships with Emory University, Children’s Healthcare of Atlanta, private industry, and state and federal government. By reaching out into the world, Georgia Tech reinforces its commitment to addressing real-world challenges.

From humble beginnings as a trade school, Georgia Tech has grown into an institution that has a remarkable impact in Atlanta, in the state of Georgia and in the world, and the Institute is ranked 25th in the world in the latest Times Higher Education World University Rankings.

Now that’s progress.
This organization receives financial support for allowing Liberty Mutual to offer this auto and home insurance program.

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Just wanted to send a note to commend your team on producing such an excellent magazine. The style, format, graphics, and especially the content are top notch. Keep it up.”

Preston Heard, IE 06, Atlanta

Give the Wreck Some Love
As a Georgia Tech alum and the only two-time driver of the Ramblin’ Wreck—1989 and 1990—your magazine [Vol. 89, No. 1] brought a smile to my face. I especially enjoyed the Publisher’s Letter by Joseph Irwin and the feature article by Calvin Kim and Josh Meister. Rarely has the Wreck been as properly discussed.

I hope the rest of the Georgia Tech publishing and marketing community will take notice. As Mr. Irwin states, “The Wreck represents Tech’s history and traditions as well as our fascination with cars and mechanics and engineering.” Unfortunately, the Wreck is rarely recognized or promoted alongside Georgia Tech’s strong and growing brand. It has been seven years since I have found a polo shirt in our bookstore with the Ramblin’ Wreck on it. Our ignorance of our beloved Wreck received a national slap as the final Jeopardy question on March 4 read, “One of its mascots is a restored 1930 sport coupe that’s been in use at the school since 1961,” and no one came close to the answer.

I love Georgia Tech, the Yellow Jackets and Buzz. You are awesome and deserve to represent this great institution. But give the Ramblin’ Wreck some love! It represents our history, our traditions, our foundations. It still excites the mind of a young engineer and those of us older ones who had the joy of the Georgia Tech experience.

I am a Ramblin’ Wreck from Georgia Tech and a Helluva Engineer!

Phil Kelby Jr., IE 90, MS IE 97
Advance, NC.

Simple and Dependable
Thanks a million for the new issue of the Alumni Magazine with the great pictures of the Ramblin’ Wreck.

I grew up in Atlanta and graduated from Tech High in 1945 and Georgia Tech in 1954 after two tours of duty with the Army in World War II and the Korean War. Following my discharge in 1947, I bought my first car for $100—a 1931 Ford Model A two-door with the battery mounted under the wooden floorboard.

We were at the Varsity one evening, and a short circuit caused the floorboard to catch on fire. Luckily, we were able to control the blaze and put it out in short order. It was still running good when I sold it years later. It was very simple, but very dependable.

Milton B. “Mac” McCoy, IM 54
Taylors, S.C.

Automatic Wreck?
I enjoyed the story and pictures [of the Ramblin’ Wreck]. Question: Does it have a clutch and gear shift as it did when new, or has an automatic transmission been installed?

Dennis Pryor, IM 51
Jefferson City, Tenn.

Editor’s Note: Stephen Webber, last year’s Wreck driver and a fourth-year business major, reports: “Completely manual, like it was when it came off the lot!”

What About an Engine Photo?
Tease! All that talk about the engine and its complicated simplicity—complicated to operate for a modern driver, no computer, etc. And not one picture of the engine. I’m a computer geek and I feel teased, I can only imagine how the Mech E’s feel.

Peter Sanders, ICS 88
Posted at gtalumnimag.com

Whither Art Thou, Engine?
I always enjoy the magazine online and on paper—keep up the good work! But an article on the Ramblin’ Wreck with no pictures under the hood? C’mon folks, did someone forget that it’s an engineering school?

Michael Yount, ME 81
Charlotte, N.C.

Editor’s Note: It was an oversight on our part. To make up for it, here is the Wreck’s engine in all its glory.

Wither Art Thou, Spark Advance?
This is with regard to the article entitled
“Sparked to Life” by Doug Chandler, IE 68, which appeared in Vol. 89, No. 1. I enjoyed the article, but I feel the need to point out that Doug Chandler’s memory is faulty. He refers to a lever on the right side of the steering column as a spark advance. In fact, the spark lever was on the left of the steering column on all Model A Fords from serial No. 1 manufactured in October 1927 to serial No. 4849340 manufactured in March 1932. In all cases, the lever on the right side of the steering column is a hand throttle. Again, I enjoyed the article. You do good work.

T. Wainwright Miller, CE’52
North Fort Myers, Fla.

Wither Art Thou, Centennial Wreck?
Loved the article on the Ramblin’ Wreck. I recall hearing of a second Model A donated by Ford to the Institute in 1985 to commemorate the Centennial. Any validity to this story?

Coy Thomas, Phys’66
Posted at gtalumnimag.com

Editor’s Note: George P. Burdell shined a light on the secret history of the Centennial Wreck in Vol. 88, No. 2. Read more at gtalumnimag.com/2012/05/ask-george-p/.

What Does the Wreck Run On?
Great article. Never knew the mechanical details. I wonder, what kind of gas does it use? Does it run on unleaded?

Larry Russell, EE’78
Posted at gtalumnimag.com

Editor’s Note: George P. Burdell shined a light on the secret history of the Centennial Wreck in Vol. 88, No. 2. Read more at gtalumnimag.com/2012/05/ask-george-p/.

Not the First Wreck?
I appreciate the recent Alumni Magazine with Calvin Kim’s article about the Ramblin’ Wreck. It shows a beautifully restored car. But for some reason I feel it was not the first [Wreck]. I graduated in 1943, a co-op student from Florence, Ala. If I remember correctly, Otho Perritt, ME 41, also from Florence, had a Model A that was gold and white with a rumble seat. The cheerleaders used to enter the field [with it] at football games. I have been unable to find pictures, and there are few of us left from the class of 1943 for me to check with. It’s amazing that, at 92, I’m over twice the age of average alumni.

B.M. Ingram, ME’43
Florence, Ala.

Editor’s Note: If any of our readers send in memories of a precious Ramblin’ Wreck, we’ll include them in the next issue.

Awesome Graphic Novelty
I just had a chance to see the piece on Roger Krone [“Roger Krone Is a Man in Motion,” Vol. 89, No. 1]. It was awesome to run across a bit of graphic “novelry” in the Alumni Magazine. You did a nice job of turning a typical article into something far more dynamic—his kids must be blown away! I’d certainly be interested in seeing more things like this.

Drew Duncan, Arch’91
Atlanta

Castleberry Interview Did Happen
I would like to address William Savell’s letter printed under the heading “UPI Didn’t Interview Castleberry” in the last edition of the Alumni Magazine [Vol. 89, No. 1]. Mr. Savell called attention to attribution made in the book I authored, Jackrabbit: The Story of Clint Castleberry and the Improbable 1942 Georgia Tech Football Season. I referenced an interview with Castleberry as having been conducted by United Press International. Mr. Savell correctly pointed out that UPI did not exist until 1958, adding to his comments: “14 years after Castleberry died.” That remark created the inference that an interview did not take place. United Press actually conducted the interview. So yes, a mistake was made due to the assumption that United Press had been an abbreviation for United Press International, but the referenced interview did in fact take place.

I would also like to thank Tech people everywhere for supporting the book. Doing the research and trying to string together those facts to write a narrative brought many challenges, but only the best kind. I am pleased to no end that the book has been so well received.

Bill Chaustain, IM’79
Tampa, Fla.

A quick update from the South Pole—I am here as part of the ARA and Ice Cube neutrino experiments. I’m just completing about five weeks of work at the Pole. Returning to Madison, Wisc., this weekend. This is my third season on the ice.

Mike DuVernois, Phys’91
Antarctica

Corrections: In the Out & About section of Vol. 89, No. 1, we failed to include Katie Genter’s degree (CS ’09). In the Jacket Copy section of Vol. 89, No. 1, we listed the wrong degree for Anthony Hyllick. His correct degree is CmpE 05. In the Innovate section of Vol. 89, No. 1, we listed the wrong degree for Christopher Le Dantec. His correct degree is PhD HCC 11. In the In Memoriam section of Vol. 89, No. 1, we listed the wrong degree for the deceased Joseph E. Brown; the correct degree is Cls 47. Meanwhile, Joseph E. Brown, IM’74, is alive and well. We regret the errors.

Want to get in touch? Send letters to: Editor, Georgia Tech Alumni Magazine, 190 North Ave. NW, Atlanta, GA 30313, or editor@alumni.gatech.edu. Comment at gtalumnimag.com or at facebook.com/georgiatechalumni. View our letters to the editor policy at gtalumnimag.com/letters-policy.
Freshman students in Tech’s Grand Challenges program go horizontal during a dance workshop on the Ferst Center stage. Choreographer Sean Curran, a 2012-13 ARTech resident, led the workshop.
The Noon Basketball Association

For more than 50 years, Tech’s most devoted ballers have gathered for lunchtime hoops.

When I first joined the staff of the Georgia Tech Alumni Association in 2008, I quickly set out in search of pickup basketball. I’ve played hoops for years, and I figured a college campus would be an easy place to find a game.

One day around noon, I climbed up to the fourth floor the Campus Recreation Center where, on a far court, I found a group in the midst of a hard-fought game. The players were a mix of faculty, staff and students, with more than five decades separating the oldest from the youngest.

One player in particular stood out, a shorter man well beyond retirement age. He might have lost a step over the years, but he made up for it with an uncanny sense of how to move without the ball and an unerring jump shot.

Over the next few years, he stopped showing up. But I kept playing, off and on, in what I came to know as “the noon game.” Other guys mentioned that the game had been played on campus for several years, but no one knew just how long.

Then, this March, I received a phone call from John Cerny, ME 51, MS IM 56. Cerny called to ask about a story that had appeared years ago in the Alumni Magazine, but he also casually mentioned a lunch he was planning for veterans of what he called the “Noon Basketball Association.”

“Is that the game played at the CRC on Mondays, Wednesdays and Fridays?” I asked.

“Oh,” Cerny said. “So you’re one of the new guys.”

A few days later, I ventured over to the Ferst Place restaurant in the Student Center and joined 30 or so veterans of the game for a reunion.

When I saw Cerny, I realized he was the older player with the accurate jump shot from when I first joined the game. Without knowing it, I had shared the court with a then-76-year-old who had...
helped found the league decades earlier. Cerny shared the group’s origin story. One day in either 1959 or 1960—nobody remembers which—a handful of Tech faculty and staff members lamented that the wind and rain prevented them playing their usual noon paddleball game in Peters Park. Someone suggested that the group go to the Old Gym, where they could play basketball in the Naval Armory.

That initial group included Cerny; John Burson, ChE 56, MS Met 63, PhD ChE 64; Dick Johnson, Phys 53, MS Phys 58, PhD Phys 61; Allen Ivey, ME 56; and Byron Gilbreth, Whack Hyder’s assistant coach. They came to call it the Noon Basketball Association—NBA for short.

In the nearly five decades since, the players, rules and even the court have changed, but one thing has remained constant: Basketball is played, and it’s played at noon.

Over plates of fried chicken, old-timers and “youngsters” (in their 40s and 50s) shared stories. “Early on, it wasn’t easy getting enough players to show up and sometimes it was only two against one, two against three half-court, or full-court three on three, two against one, two against three, which proved pretty exhausting,” Cerny said.

Ivey recalled epic battles against Allen Ecker, EE 57, MS EE 58, who had played football in college. And he reflected on Johnson’s unconventional style. “I miss old Dick Johnson,” Ivey said. “He would shoot a two-handed set shot. He didn’t make many, but if he made the first one, you’d better guard him, or he’d make them all day.”

Jim Cofer, EE 67, MS EE 69, joined the NBA a few years into its run. He worked at the Georgia Tech Research Institute under Johnson and Ecker, who would walk down the hall and roust coworkers to play. “It was a great equalizer,” Cofer said. “On the court, you’re all on the same level.”

When the Armory was closed, the group would play in the Old Gym. Or they would gather in Peters Park, where the outdoor concrete courts made for plenty of scrapes and bruises.

Veterans discussed their various injuries: sprained ankles, broken fingers, balky knees and slipped disks. Several recalled instances of lining up against teams of students who assumed they would run the geezers out of the gym. But—in these memories at least—the old guys always triumphed with a blend of smart ball-movement and good communication on defense.

The game later moved to the practice gym beside Alexander Memorial Coliseum (and sometimes even inside the coliseum), and to the Student Athletic Center once it was built in 1977. When the SAC closed for renovations, the game continued, moving to courts at Georgia State University or even to an outdoor court at the home of one player.

John Barry, a player and a professor of electrical and computer engineering, recalled being forced out of the SAC and finding a court at O’Keefe Gym that had a volleyball net stretched across it. Undaunted, the players went on with the game, taking care to duck every time they crossed midcourt.

One player forgot, though, and ran full-steam into the net, bounced back and hit the ground. “He was out for a minute,” Barry said, prompting laughter from the group.

For several years now the NBA has had a steady home at the CRC, which allows the group an exception to its rule requiring shirts be worn at all times. The NBA has always been “shirts and skins.”

Most of the group gathered for lunch had retired from the game, but as they relived past victories, several said they would try to make it back out on the courts.

“Some of my favorite memories at Tech are of noon basketball,” said Sudhakar Yalamanchili, a professor of electrical and computer engineering. “I stopped playing about seven years ago. The mind is willing, but the body is weak.”

---

**Take a Seat:** “I certainly cover more than chairs in the course,” Medina says of the course’s campus-wide nickname. “But I guess because chairs so appeal to students, maybe they focus on learning them as a way of managing their studying.”

**Syllabus says:** “This course surveys the history of design from the Industrial Revolution to our contemporary times. It focuses on general design principles, historical data, the rise of industrial design as a profession, principles of mass production, the role of design programs and schools, and contemporary issues in design.”

**Names to know:** Mies van der Rohe, Le Corbusier, Frank Lloyd Wright.
Clues in the Coral

Jeff Haws

At long last, undersea fossils reveal new details of climate history.

There were plenty of tedious moments over the many years Kim Cobb spent studying what fossil coral data can reveal about the Earth’s climate. And her graduate adviser, Miriam Kastner, was never shy about rubbing it in.

“[She] was famous for saying that a monkey could do my thesis, by which she meant that it was quite repetitive work,” said Cobb, now an associate professor in Georgia Tech’s School of Atmospheric Sciences. “I would retort that it would require a very dedicated monkey.”

Cobb’s dedication finally has paid off. Her research findings could have a major impact on the understanding of the El Niño-Southern Oscillation (ENSO), a Pacific Ocean climate cycle that affects climates worldwide.

What Cobb and her team discovered fits with many climatologists’ expectations of ENSO activity from thousands of years in the past, but the more recent indications are what have surprised many.

“There was a very large segment of climate scientists who expected us to find a significant reduction in El Niño activity 6,000 years ago,” Cobb said. “On the other hand, I was shocked—as were most of my colleagues—to see that our new coral dataset reflects much weaker El Niño activity than that documented during the 20th century. This is a statistically significant difference and suggests that current climate change caused by rising atmospheric carbon dioxide levels may be associated with an increase in El Niño activity.”

Now that Cobb has her own team of graduate students, she uses her experience to show them that all of the tedium and hard work can lead to a significant real-world impact.

“Students love it when I bring my research into the classroom,” Cobb said. “I usually start with some exciting field stories, complete with incredible photos, and then use our data to talk about climate change and its uncertainties. What do we know about past climate change? How are past climate changes different than today?”

Let’s see a monkey, dedicated or otherwise, pull that off.
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Beans of Production

A brief history of coffee at Tech.

It’s 2:45 p.m. on a Thursday, and the Starbucks at Tech’s Clough Undergraduate Learning Commons is packed with students jostling for their afternoon caffeine fix. A green-shirted employee with a notepad and a headset relays orders from the snaking line to the counter with the precision of an air-traffic controller; all around, students knock back lattes and slurp Frappucinos, studying and gossiping as the scent of espresso hangs heavy in the air.

At the edge of the chaos sits Rich Steele, ChE 85, Tech’s senior director of auxiliary services, who oversees everything from laundry facilities to dining halls, as well as the Institute’s many cafes. And even though Tech campus without coffee seems like a night without stars, he remembers a time before this current java-fueled frenzy.

“Coffee’s been a relatively recent evolution,” Steele says. “When I was in college, it certainly wasn’t a lifestyle—[the coffee shop] wasn’t a ‘third place’ like it is now.”

Instead, study groups often conferred over pizza and beer, and night owls chugged Mountain Dew for emergency pick-me-ups. On-campus coffee options were limited to dismal coin-operated machines in classroom buildings, the library and the Student Center.

All that changed in the late 1990s as Starbucks began to sweep the nation. Tech’s first foray into coffee-centric foodservice was the Cyber Cafe, which opened in the Student Center in 1997. In 2003, Tech Square became home to the first fully licensed Starbucks in a Barnes & Noble college bookstore; it’s been the busiest cafe in any Barnes & Noble campus outpost since it opened.

These days, students have upward of a dozen coffee choices on campus, from the multiple Starbucks locations to the student center’s Dunkin Donuts to the Lab Cafe in the lobby of the Petit Bioengineering & Bioscience building.

Coin-op coffee machines are even making a comeback, their menus expanded to suit more discerning modern palates. And this spring, Highland Bakery became the newest buzz-pusher on campus. Snacks and beverages from the popular Atlanta eatery have been available on campus food stands for a while now, but the new spot, housed in the old Junior’s Grill location, offers full breakfast, brunch and lunch menus, plus a coffee bar featuring beans from Atlanta-based Batdorf and Bronson Coffee Roasters.

Of course, this wouldn’t be a story about Georgia Tech without some cutting-edge innovation on the horizon. Amidst Clough Commons’ afternoon hubbub, Steele says his team is looking into ways to make coffee even more accessible to hard-working Wrecks, including a smartphone app to let students pre-order their Starbuck’s on the way to class.

“I wish we could find a way to just email their coffee to them. Sounds a little Star Trek-ish—‘I’m going to beam you up a soy chai latte,’” he says. “But that might get a little messy.”

Campus Coffee: A Student Speaks

Eric Hamilton, a second-year computational media major and Alumni Magazine student assistant, dishes on the coffee at Tech.

Coffee machine, Library
The quickest and cheapest option, but your taste buds will regret it long after the caffeine wears off.

Starbucks, Clough Undergraduate Learning Commons
One of the better and most popular choices on campus, it packs a punch in flavor and on your wallet.

Starbucks, Tech Square Barnes & Noble
Great for management students, boasting shorter lines and an overall better brew.

The Lab, Petit Bioengineering & Bioscience Building
A well-kept secret on campus, it’s frequented by BioMed students looking for a great-tasting pick-me-up.

Dunkin Donuts, Stamps Student Center
Proof that a delicious cup of coffee doesn’t have to break the bank.

Galloway Café, College of Architecture
A central location on campus and moderate prices make this a great stop for a cup of Joe between classes.
An Atlanta favorite, Highland Bakery opened a location on campus serving up coffee, breakfast, brunch and lunch daily.
Wrecks of Art

Van Jensen

Clough Art Crawl celebrates student creativity.

On a sunny February afternoon, the Institute's technological prowess took a backseat to the artistic bent of its undergraduate students, when the interior of the Clough Undergraduate Learning Commons was converted into a massive art gallery and performance space.

As part of the second annual Clough Art Crawl, paintings, drawings and photographs stood on easels and hung from walls. Display cases revealed sculptures and craftwork. And video screens played student-made films. The works varied widely in style, but, for an institution with no fine arts program, Tech features a student body with unmistakable talent. Nearly 150 students submitted 360 pieces, which remained on display into March.

Dozens of onlookers gathered in the second-floor atrium to watch a film featuring a stuffed bear dressed in an Iron Man costume as it ventured on what seemed to be an existential quest. Others moved slowly down the building's long hallways, discussing in hushed tones the artistic merits of the pieces on display.

This year’s crawl featured a jury of faculty, alumni and Atlanta artists who awarded cash prizes to the top artists in each medium.

On the third floor, a crowd of faculty and students had gathered around a temporary stage, where Brent Hornilla, a third-year computer engineering student and editor of Erato, the on-campus literature and arts magazine, set out to introduce the evening’s first poetry reading. But when Hornilla called out the reader's name, no one stepped up to the stage. No matter—the host pulled out a notebook and began to read one of his own poems.

At the back of the audience, next to a case displaying a piece of jewelry labeled “Pretty Little Wolf Girl,” a group of students sat nervously, waiting for their turn to take the stage. Meanwhile, students, faculty and staff milled about the building, deciding which piece would receive their vote for the People’s Choice award.

Each attendee received a ballot, deliberated over their favorite pieces of art and deposited their ballots in boxes scattered around the building.

Later, the ballots were tallied and the winner announced: Erin Hennessy, a human-computer interaction master's student, whose lifelike replica of the alien E.T. had spent the Art Crawl waving to visitors from atop the information desk.
Cracking the Brain’s Code

John Toon

Despite many discoveries in the field of neuroscience over the past several decades, researchers haven’t been able to fully crack the brain's "neural code," which explains how the brain’s roughly 100 billion neurons turn raw sensory inputs into information we can use.

But in an article in *Nature Neuroscience*, biomedical engineering professor Garrett Stanley has detailed his progress toward the elusive goal. He has observed the spiking activity of neurons in response to outside stimuli and made clear predictions about what is being seen, heard or felt.

“The recent development of improved tools for measuring and activating neuronal circuits has finally put us in a position to start writing the neural code and controlling neuronal circuits in a physiological and meaningful way,” he says.

His work dovetails with the BRAIN Initiative, announced by President Obama in April, which seeks to map brain activity. Tech faculty members Robert Guldberg, executive director of the Petit Institute for Bioengineering and Bioscience, and Craig Forest, assistant professor of mechanical engineering, attended a White House ceremony to announce the initiative.

The potential rewards for cracking the neural code are immense. In addition to understanding how brains generate and manage information, neuroscientists may be able to control neurons in individuals with epilepsy and Parkinson’s disease or restore lost function following a brain injury. Researchers also may be able to supply artificial brain signals that provide tactile sensation to amputees wearing a prosthetic device.

A longstanding debate exists over whether the neural code is a "rate code," where neurons simply spike faster than their background spiking rate when they are coding for something, or a "timing code," where the pattern of the spikes matters.

Stanley suggested the neural code is a “synchrony code,” where the synchronization of spiking across neurons is important. “Eavesdropping on neurons in the brain is like listening to a bunch of people talk,” Stanley says. “A lot of the noise is just filler, but you still have to determine what the important messages are.”

New research sheds light on how neurons communicate.

- Tech professor Garrett Stanley suggests neurons use a “synchrony code” to communicate.
Hitting the GPA ‘Reboot’ Button

Program helps struggling undergrads get back on track.

As everyone who remembers “getting out” knows, there’s no reset button for a low GPA. But Tech’s Reboot Academic Recovery Program offers some help for students looking to improve their academic standing.

Reboot automatically invites all students on academic probation (those with a 2.2 or lower GPA) to apply and encourages applications from any first- or second-year student with a GPA of 2.29 or lower. The program involves weekly 50-minute meetings and provides students with a variety of resources to help them achieve their academic goals.

“Reboot doesn’t tell you exactly what you need to do but will guide you into the proper thinking and mentality to make changes that are best for you,” said Steven Goss, a third-year mechanical engineering major who participated in Reboot last spring. “I needed to change what I was doing to set myself up to succeed and wasn’t sure how to do that, but Reboot taught me how to do exactly that.”

Reboot encourages students to make simple changes, such as participating in tutoring sessions.

Goss said Reboot helped him develop more effective study habits, including how to take better notes, get more out of lectures and better manage his time.

“It made a drastic difference. I was a lot happier and I found more free time to do other things,” Goss said.

He did so well in a class that he became a teaching assistant the following semester. Nearly every student who has participated in Reboot raised his or her GPA.

“One student told me that she feels empowered when she leaves Reboot,” said Beth Bullock Spencer, interim associate director in the Center for Academic Success and manager of the program. “This is important because a student needs to believe that he or she can make changes and achieve goals.”

In the past, Reboot has served about 30 students per semester, taking on all who wish to participate. Spencer encourages participants to continue using the resources of the Center for Academic Success (open to all students) after their time in Reboot ends, especially since many will take more than a single semester to reach their goals.

“Turning one’s academic life around is a process,” she said. “There are no quick fixes, and persisting in new habits is not easy.”

Kristen Bailey

Steve Wacksman
“I was already taking advantage of the brand and reputation of my Georgia Tech undergraduate degree and the skills it provided me.

I knew by earning my Executive MBA at Tech, I would be even more prepared and competitive within my industry and in business as a whole.”

Elizabeth Fisher
EMBA in Global Business, 2013 Candidate
Senior Principal, Manhattan Associates
BS, Industrial & Systems Engineering, Georgia Institute of Technology

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* A portion of the proceeds collected from the transportation costs will be paid to the Georgia Tech Alumni Association.

Georgia Tech Alumni Association
Van Jensen

Georgia Tech students had more than schoolwork waiting for them when they returned from spring break. They also had a vote to choose which campus organization would receive the Student Alumni Association’s 2013 Gift to Tech.

Every SAA member pays an annual $10 membership fee, half of which goes to the Roll Call annual fund (through the Student Foundation) to support Tech’s academic mission. The other half goes to the Gift to Tech, which is given to a selected campus initiative.

This year, SAA’s about 3,400 members raised nearly $20,000 for the Gift to Tech. That amount was boosted to almost $30,000 by a matching $10,000 gift from Allen Ecker, EE 57, MS EE 58.

“Over the years, many Georgia Tech alumni have recognized the impact that their experience at Georgia Tech has made in their lives, and they have been motivated to give back to Tech,” Ecker said. “Now, through the Student Alumni Association, students are given the opportunity to expand their understanding of Georgia Tech and to begin their support of Tech. I believe that generating this support early in the careers of our students and alumni will instill the motivation for even broader alumni support of Georgia Tech.”

Each student received a single vote in choosing the Gift to Tech. During I <3 GT Week, SAA leaders and Ecker held a celebration on April 23 at the Kessler Campanile to present this year’s award. The Marching Band was announced as the winner. It will use the funds to buy vehicles for traveling to performances.

Nearly $30,000 raised to support the Georgia Tech Marching Band.

Want to support SAA? Alumni are needed to participate in and support SAA events. Learn more about SAA at gtsaa.com.
In Venture Prize Honors Undergrad Inventors

Now in its fifth year, the In Venture Prize competition serves as an annual celebration of innovation among Georgia Tech’s undergrads. From an initial pool of 500 applicants, six teams were selected to compete in the March 13 live finals, broadcast on Georgia Public Broadcasting. Here are the finalists.

**CHEWBOOTS**  
**What is it?** A line of fully automated robotic dog toys.  
**Who made it?** Mechanical engineering major Christopher Taylor.  
**What inspired it?** Taylor was watching his brother grow tired while throwing a ball for his dog, while the pup was still full of energy. “I realized that sometimes there is a disconnect between when the dog wants to play and when the owner is able to play, so I set out to solve the problem,” Taylor said.  
**Why is it game changing?** Taylor lamented a lack of innovation in the dog-toy industry beyond plush toys, rope toys and tennis balls. “The addition of movement makes my toys more interactive for dogs, and the autonomy makes it easy for owners to entertain their dogs,” he said.

1ST PLACE WINNER - RECEIVES $20,000 AND A PLACE IN THE SUMMER 2013 CLASS OF FLASHPOINT, A GEORGIA TECH STARTUP ACCELERATOR PROGRAM.

**ANEMOCHECK**  
**What is it?** An at-home anemia diagnostic test.  
**Who made it?** Erika Tyburski, BME 12.  
**What inspired it?** Currently, anemia screenings only occur in the hospital through a venous blood draw. Tyburski set out to create a cheaper, easier, at-home alternative.  
**Why is it game changing?** AnemoCheck is a disposable test that would retail for only a couple of dollars per unit, and it uses a finger stick. It will allow the 15 million Americans with blood disorders to avoid regular hospital visits for tests. “For the first time, patients that need to test themselves for anemia can do so quickly, safely and accurately in the comfort of their own homes without any upfront cost for complex machinery,” Tyburski said.

2ND PLACE WINNER - RECEIVES $10,000 AND A PLACE IN THE SUMMER 2013 CLASS OF FLASHPOINT. ANEMOCHECK ALSO WON TECH’S IDEAS TO SERVE COMPETITION.
**BioPIN**

**What is it?** Software for touch-enabled devices that uses sensors to better protect PIN entry.

**Who made it?** Computer science major Steven Wojcio and electrical engineering major Scott Groveman.

**What inspired it?** “It was inspired by a program I wrote for computers that tries to figure out if you are a certain person based on how you type,” Wojcio said. “I came up with that idea when my boss let me use his username and password to get into his account. It occurred to me that knowing just that should not have been enough.”

**Why is it game changing?** BioPIN makes PIN entry significantly more secure by building a user profile based on pressure and touch patterns.

---

**SPARK**

**What is it?** A credit-card-sized cell phone wall charger that fits in a pocket.

**Who made it?** Electrical engineering major Sam Elia and business administration major Grant Heffley.

**What inspired it?** Elia and Heffley grew frustrated with carrying around large chargers and cords to make sure their phones didn’t run out of juice.

**Why is it game changing?** Rather than searching for a place to store their phone chargers, people will be able to just slip the Spark into their wallets and carry it with them.

---

**iSLEEP**

**What is it?** An in-home platform that replicates the movement and vibration of a car ride to lull babies to sleep.

**Who made it?** Mechanical engineering majors Zack Zalesky and Joseph Hickey.

**What inspired it?** Hickey was babysitting his 10-month-old niece and found that only being put into her car seat and moving would get her to nap. He teamed with Zalesky to see if they could replicate that effect without the hassle of loading a baby into a car seat and hitting the road.

**Why is it game changing?** Anything that can lull a fussy baby to sleep ranks as a near miracle. Plus, it’ll save on all the gas those weary parents would’ve burned while driving during the wee hours.

---

**HUE**

**What is it?** A toaster that uses color sensors to perfectly toast bread.

**Who made it?** Industrial design major Basheer Tome.

**What inspired it?** Like everyone else, Tome had grown sick of watching over a toaster to ensure it didn’t char his bread. “After a bit of brainstorming I ran into the idea of using color, since that’s normally how people work out how done their slice of toast is,” Tome said.

**Why is it game changing?** The Hue toaster ditches the timer and instead uses color-sensing technology to make sure bread reaches the desired state of toastiness.
Al Merrill was 10 years old when he decided to become a scientist. Now a professor of biology and Smithgall Institute Chair in molecular cell biology at Georgia Tech, with degrees from Virginia Tech and Cornell, he holds tight to the sense of wonder that first drove him to raise tadpoles and tinker with chemistry sets, and he relishes opportunities to spark similar awe in young minds. Whether he’s shaping the academic careers of Tech students or leading kids on outdoor adventures through the Sierra Club’s Atlanta Inner City Outings, he says, “My goal is to show that there are so many wonderful things in nature. Looking at it and wondering how it works is the first step toward becoming a scientist.”
these looking very emaciated in corners of the building and bring one to me in a jar. ... I’ll give it some water. It’s kind of touching, actually. You’ll see this spider drag itself over to the drop of water and drink it, and over the next few days it’ll fill out. I’ll bring it some crickets to eat and build itself back up again. ... Very few spiders are injurious to humans. They’re fascinating organisms for how they’re able to find their niche.”

Merrill’s research concerns a family of molecules called sphingolipids. He is particularly proud to have discovered, with a collaborator at the USDA labs in Athens, that sphingolipids are the target of fumonisins (mycotoxins that contaminate corn in many parts of the world and can cause cancer in humans, lung failure in pigs and a particularly gnarly horse disease called leukoencephalomalacia). In recent years, Merrill’s lab has spearheaded the use of mass spectrometry to study other aspects of sphingolipid metabolism and the roles they play in health and disease.

Merrill’s shelves are guarded by several sets of Great Sphinx of Giza bookends, and photos of the ancient monument hang on the walls. “The individual who first discovered sphingolipids, J.L.W. Thudichum, named them ‘sphingosines’ because they’re very enigmatic molecules. The enigmatic sphinx has been a symbol of that whole field for decades, and we are pleased to have helped solve some of the mysteries about these important biomolecules.”

A sense of wonder has followed Merrill throughout his career; so, too, has a certain houseplant. “When I was an undergraduate student, my research adviser had a Christmas cactus outside his office. As a reminder of what I learned from him, in 1972 I snipped off a piece, and it’s grown with my career, from training in Virginia, New York and North Carolina to being a professor at Emory then Georgia Tech. If I had a bigger pot I think it could grow even larger.”
Laura Cederquist, Book-Balancer and Martial Artist

In 1984, Laura Cederquist and a friend walked out of a movie theater wanting to be the next martial arts prodigies. “We just thought The Karate Kid was so cool,” said Cederquist, Mgt 92, now a financial manager in the School of Earth and Atmospheric Sciences. “So we walked to a studio up the street from the theater, signed up for lessons, and I’ve been training in the martial arts on and off ever since.”

Cederquist practices Korean Soo Bahk Do and trains students at a local studio a few times a week. “It’s not about beating people up,” she said. “This type of movement is more of the ballet of martial arts.” The Alumni Magazine spoke with Cederquist about the ties between martial arts and finance, and more.

What did you want to be as a child? I wanted to do something like teach English in Japan, which stemmed from my interest in martial arts. ... I changed majors three times during my first few quarters as an undergraduate at Tech. ... Once I realized that I didn’t have to take [engineering] calculus as a management student, I knew I’d found a fit.

How did you come to work here? Most people in my family went to Tech ... and my son is destined to come here, too. As a student, I got a job working in the School of Civil Engineering’s accounting office, which evolved into a full-time position once I graduated. After about two years, I moved on to my current position and have been here for 18 years.

What’s an average day like at the office? I balance my school’s financial books and make sure we don’t overspend or underspend based on our budget. I help faculty members with grant proposal and sponsored funding questions, and with purchasing items. Even though my office tries to focus on finance, my assistant and I wind up dealing with a little bit of everything.

“Many things learned while training help out in not only finance, but all parts of life like patience, respect, courage, honesty.

Where is your favorite spot on campus? I like the sunken garden over by the library. I used to take naps there as a student.

What’s the best advice you’ve ever received? Always finish what you start.

If you could have dinner with one person, who would it be? Audrey Hepburn, because she’s my favorite actress and had a very interesting life beyond acting.

What do you enjoy particularly about Soo Bahk Do? It’s challenging on both a mental and physical level. The founder, Hwang Kee, based the art on scientific principles. The focus of training is bettering yourself mentally and physically and not just the martial/fighting aspect.

Do your friends and coworkers know about this part of your life? They do, but it has been there for so long that it isn’t a big deal. Acquaintances are surprised sometimes especially since I’m not quite 5 feet 2 inches and don’t look like a poster child for a martial art practitioner.

Are there any similarities between finance and martial arts? The concentration learned from Soo Bahk Do has gone a long way to helping get particularly tricky budgeting and other problems figured out. Many things learned while training help out in not only finance, but all parts of life like patience, respect, courage, honesty.

Do you think you could take Daniel Larusso? Maybe when I was a lot younger. I’m not interested in doing any long-term damage to my body by fighting at this point in my life.
McKee Leads Way in Triple Jump

Julienne McKee had put together an outstanding first three years with the Yellow Jackets track and field team, and then she got even better. With one of the best triple jump efforts in Tech’s history—13.05 meters—McKee claimed an eighth-place finish at the 2013 NCAA Indoor Track and Field Championships, making her a first-team All American.

Why did you come to Tech?  
Because of the education as well as the athletics. I also love how even though Tech is in the city, it doesn’t feel like the city once you are on campus.

What’s your favorite memory from your time with the Yellow Jackets?  
My first outdoor conference meet. I surprised myself on how well I did. It was my freshman breakthrough.

What hobbies do you have outside of sports?  
I love reading, shopping, traveling and baking. Currently I’m trying to get my cooking skills up.

What’s the most interesting class you’ve taken?  
Information Technology. We use technology every day, so it’s interesting hearing all the new trends.

What’s your favorite music?  
Anything on the radio.

SNODDY TRADES PADS FOR CLEATS

In his time with the Yellow Jackets football squad, sophomore Broderick Snoddy has shown flashes of strong running ability. If gridiron coaches have been paying attention to his track exploits, he may have a more opportunities in the future. Snoddy nabbed a 13th-place finish in the 60-meter preliminaries at the 2013 NCAA Indoor Track and Field Championships to earn second-team All-America honors.

Why did you come to Tech?  
I wanted to play football, and coming to Tech lets me get a degree from one of the top institutions in the nation.

What’s your favorite memory as a Yellow Jacket?  
In football, scoring my first touchdown and winning the Sun Bowl. In track, running [the 60-meter] in 6.67 and making it to nationals.

What’s your favorite movie?  
The Lion King.

What are you listening to right now?  
“He’s Able” by Deitrick Haddon.

What are your post-college plans?  
Hopefully I’ll make it to the NFL and run in the Olympics. Also, I want to open my own restaurant.
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‘It’s Important That We Set Our Sights High’

Van Jensen

Mike Bobinski shares his vision for the future of Georgia Tech athletics.

Mike Bobinski, Georgia Tech’s new athletic director, has one hell of a work ethic. He spent March preparing to take the reins at Tech while wrapping things up at Xavier University (where he had served as director of athletics for 12 years) and serving as chair of the NCAA Division I Men’s Basketball Committee (which selected teams for the NCAA tournament). He also squeezed in time to talk with the Alumni Magazine about his sports background and his aspirations for the Yellow Jackets.

What do you see as Tech’s greatest strengths? The strength of our Athletic Department flows from the institution. Georgia Tech is a place that has continued to grow in every way, from a stature perspective, from the quality of education, from the impact. As I look at our department, we have a lot of people who are committed to the place, who care about Georgia Tech, who are experienced and talented in their fields. Having passion for what you do and where you do it has a lot to do with success in athletics.

What do you see as the biggest weaknesses? I don’t come in thinking about weaknesses. I look at: What are our strengths? What are our opportunities? What are the things we can be great at? It’s easier to focus on the shortfalls and the challenges, but those exist everywhere. What are things that need to be done better? There are the obvious things. The financial picture in college athletics is a challenge. We have to make sure we have resources in place to allow our teams to compete at the highest level. We need to have great crowds for football and basketball and other sports where we’re trying to raise revenue.

What are the things we can be great at? It’s easier to focus on the shortfalls and the challenges, but those exist everywhere. What are things that need to be done better? There are the obvious things. The financial picture in college athletics is a challenge. We have to make sure we have resources in place to allow our teams to compete at the highest level. We need to have great crowds for football and basketball and other sports where we’re trying to raise revenue.

The very first thing I want to make sure is that we have an internal belief about who we are and what we can accomplish.
It begins with the sense of, “We’re Georgia Tech, we have a chance to be a nationally competitive program, and we need to move toward that every day.” You need to strive toward something and try to move toward something that’s big.

**Do you have a game plan of how you’ll tackle the job?** The best way to do that is meet and talk to people face to face. That will be my first objective, a series of conversations with key administrative folks, other key folks on campus, key alumni, community leaders. It’s a long, long list that the president’s office has helped me assemble, as well as folks within the department, key donors, key benefactors. The more information I can gather, the more perspective I can gain from people who are familiar with the program, the better sense I’ll get of where we need to go.

It would be short-sighted to come in firing on day one and say I have the answers. I need to get that perspective and to understand why things are the way they are before I can chart an appropriate course for us to move forward.

**What excites you most about working with a football program?** It’s an unbelievable game. It’s so deeply woven into the sporting fabric of our country. I love the game of college football. These last years at Xavier where we don’t have a program have been enjoyable because I’ve been able to watch everybody. On a fall Saturday, I’m watching five games.

There’s nothing like a college football Saturday. Game day is such a tremendous experience. It has the opportunity to bring together your entire Georgia Tech family, plus others that we’d love to have join us from the greater Atlanta area. It’s such a great rallying point. I’m so excited to be part of that again, to get a chance to experience it, and hopefully being a part of achieving great success in the future.

**How will you define success?** In a general sense, I always believe in establishing really high goals. We’ve had tremendous moments of success and some sustained success. We’ve been in bowl games 16 straight years. We’ll continue to move that forward and to push the envelope to become a dominant team in our conference, to play at the national level. That’s something we should be striving for.

In basketball, you want to be a team on the men’s and women’s front that has a legitimate shot on a year-to-year basis making the NCAA tournament. Where I am now, we believe getting in is great, but becoming a second weekend team is the goal you want to have. Once you get to that second weekend, it’s all about matchups and who’s playing well at that point in time. And then anything’s possible.

Across the board, I believe in competing for championships and national prominence where we have a legitimate chance. It’s important that we set our sights high and have a plan in place to achieve those ambitious goals.

**There are those who say that Georgia Tech’s high academic standards hinder recruiting. How do you look at that?** I look at the opportunity that we’re going to be able to provide the young people who are part of our program to receive an education at a place like Georgia Tech and all that goes with it. It’s an unbelievable opportunity. Does that present challenges? Absolutely. But we want people who are willing to compete, who know that this provides an invaluable platform for the rest of their life. We ask a lot of our kids. The demands on their time are significant and real. To pretend that that doesn’t matter is foolish. But as long as we can provide them with appropriate support and find young men and women who are up to that challenge and recognize the value, it becomes a terrific strength.

**How will your administrative and fundraising experience at Xavier shape your approach to the job?** All of that experience is helpful in terms of perspective and understanding how things get done. I’m really simple in terms of how I approach my business as athletic director. It all begins with dealing effectively with the people who make up our program. I hate the term “people person,” which is really trite, but I believe that establishing relationships, establishing a vision and a positive, success-oriented environment is what it’s all about. All the experience that I have lets me understand situations and circumstances and how we might want to approach them. But it all boils down to having people who are energized, who have the right motivation and who have a plan and are executing that plan every day.

**What would you like to tell Georgia Tech alumni as you start in this new role?** Georgia Tech people have this amazing welcoming spirit and this desire to achieve great things. And I would say this: To all the Georgia Tech folks, I will be 100 percent committed to giving everything I have toward that end. But that won’t be enough just for me to want that or for our department to want that. We’ll need the entire Georgia Tech family. From our graduates to our campus to the greater Atlanta community, we’ll need everybody to be at their absolute best for us to achieve the success that’s possible. If we’re able to get everybody headed in the same direction, the future is very, very bright for Georgia Tech athletics.

I couldn’t be more excited to be part of that amazing community. I couldn’t be more excited to get there and begin that work.
Paul Raines, IE 85, wasn’t a gamer before taking the joystick—figuratively speaking—as CEO of GameStop, the chain of gaming retail stores. But he did bring a wealth of retail experience, having “leveled up” to executive vice president at Home Depot. ¶ In his two years on the job, Raines has led a dramatic turnaround for the company, and he even opened a new outlet at his alma mater, in Technology Square. He recently talked to the Alumni Magazine about technology, leadership and the future of his company.

What are some of the particular challenges to competing in this industry? Our category is very dynamic, much more dynamic than anything I’ve ever seen. That puts pressure on you. For us to be successful, we need to have a higher rate of internal change than the rate of change going on around us. We evaluate products constantly. We have a group that we’ve created [GameStop Digital Ventures] that has done five digital acquisitions. The goal is to cast a wide net, much wider than we have historically.

How are you combating challenges from the digital realm, and how are you trying to use digital technology to your advantage? We’ve tried to be experts on the consumer and know what they’re going to adopt. What we try to do is understand what the community is looking for. What that drives you toward is moving quickly into certain digital technology, and we’ve addressed most of those through acquisition. We also have developed digital content in-store. Our digital revenues in 2012 were about $600 million.

Is gaming something you’ve had much personal experience with? I have to say, I didn’t understand the depth of the category. The interesting thing is we’ve transformed GameStop into a video game and technology company. I spend a fair amount of time understanding games. I negotiated with my wife to let me play video games about four hours a week. I think maybe it’s the Georgia Tech man in me, but I think leaders need to be authentic. When I was at Home Depot, I did a lot of home improvement work. You want to understand what the customers are going through.

How does your Georgia Tech education shape the way you do your job? I don’t want to say it’s a blue-collar school, but it’s a working-person school. I came from a very modest background. [My parents] had a vision of education that was really special. Georgia Tech sounded like a place to them that was the right kind of education. I had Ivy League aspirations, but it became clear that Georgia Tech was the one they’d be able to afford. It was the perfect environment for a kid who had a couple of cultures in his background. I encountered a place that was absolutely unforgiving academically. It’s a place where you develop resilience. I learned at Georgia Tech to be prepared. I learned to climb that hill every winter quarter. It wasn’t fun, but you had to do it. And then the network of Tech people has been fantastic.
Who We Are
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Tech is Making Change in Georgia

As Georgia Tech President G. P. “Bud” Peterson readies for a statewide tour, we take a numerical look at the boost Tech has given to the Georgia economy in the past year.

$21,000,000
Investments brought in by those companies.

55,340
Number of Georgia Tech alumni living in the state.

$38,000,000
Reduction in operating costs for Georgia manufacturing companies thanks to assistance from Georgia Tech.

6,425
Number of people employed by Georgia Tech in the state.

$451,000,000
Increase in sales for those companies thanks to assistance from Georgia Tech.

14,304
Jobs created or saved in the state thanks to government contracts Georgia Tech helped companies win.

978
Jobs created or saved at those companies.

$715,000,000
Value of those contracts.

New Companies That Georgia Tech Formed.

When G. P. “Bud” Peterson arrived as president of Georgia Tech, he went on a tour of Georgia to learn more about his new home state. He so enjoyed the face-to-face meetings with the people of Georgia that he’s gone every summer since. This June will mark the fifth President’s Tour, which is held in partnership with Alumni Association Networks. Here is this year’s itinerary.

June 8: Brunswick/St. Simons
June 9: Savannah
June 10: Statesboro
June 11: Lake Oconee
June 11: Athens
June 11: Lake Lanier

Want to attend a stop on the tour?
Contact Alumni Networks senior manager Jane Stoner at (404) 385-2216 or at jane.stoner@alumni.gatech.edu.

Source: Georgia Tech Office of Government and Community Relations and the Enterprise Innovation Institute.
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- JOCelyn M. Stargel IE ’82, MS IE ’86 and Robert N. Stargel Jr. EE ’83 (Executive Committee Member, Georgia Tech Alumni Association Board of Trustees)

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Paul Bowman’s Furniture Restoration

Alumnus uses his design skills to help the homeless.

During his sophomore year at Georgia Tech, Paul Bowman began volunteering at Atlanta’s Central Night Shelter, which gave him a new outlook on homelessness. “The shelter was an eye-opening experience for me, because many of the homeless people I interacted with didn’t match the stereotype that I had in my head,” said Bowman, ID 99. “I remember in particular a man who had a laptop and was an engineer who had been laid off, divorced and ended up at the shelter.”

“I think nothing makes a house feel more like a home than the furnishings,” Bowman said. “It’s something that feels special to them and something they can be able to keep.”

Here, he reveals his process for turning discarded items into something special again.

1. Assess any damage and remove it. This can involve removing a broken component or a damaged finish. Some pieces require only cosmetic repairs, but others require a serious overhaul. A lamp that is a particular favorite started out as an eyesore. It had an interesting oak top and bottom attached to a leather body. The leather was damaged by mildew, and the oak top and bottom were misaligned due to a botched repair with glue. The first step was to remove the wiring and separate the components.

2. Evaluate the options with a creative eye. Once the damaged elements are removed, it is easier to see the possibilities. In the case of the lamp, it wasn’t possible to clean the leather, so it was removed. Much of the visual interest was gone without it, so it needed to be replaced with something. In addition, the oak top and base appeared to have been reversed—the larger one on top, and the smaller one on the bottom, making the lamp feel unbalanced. These needed to be reversed, but not before addressing the misalignment from the botched repair. Fortunately, the glue joint was at a place that could be cut apart, so the pieces were separated and the excess glue was then sanded away.

3. Experiment with an open mind. This can be the most satisfying part. For the lamp, two finishes were needed—one to replace the leather, and another to address the oak top and base. After experimenting with a wood veneer, it didn’t contrast enough with the texture of the wood top and base. One day, I spotted some beautiful marbleized paper and was inspired. The colors were a perfect complement to the oak top and base, which only needed sanding and tung oil to enhance them. The marbleized paper was more labor intensive. It took more than one application to align the striations in the pattern as they wrapped the corners of the lamp to give the appearance of a solid piece of material. It then took many layers of sealer to allow it to be wet sanded and buffed, creating the matte finish resembling actual stone.
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**Wilson’s Bible Personages**
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Homier, HTS 99, had worked at the Fulton County Public Defender’s Office for four years after graduating from the University of Georgia law school. But the commute between Canton and Atlanta, 80 miles round-trip, soon became a strain. So she changed jobs, joining the Cherokee County Solicitor General’s Office, where she was assigned to traffic court. At first she was happy to step back: Her workload was lighter than as a trial lawyer, and she relished the nimble thinking the cases required.

By 2012, though, Homier was itching for something new. She wanted to get beyond prosecuting and address some of the flaws in the system she’d observed over the years. And then, as if on cue, a Cherokee County state court judge announced his retirement. An unspoken professional rule pooh-poohs new candidates running against incumbent judges, and Homier knew it could be decades before another judge retired. So she made her move.

“It was just the time for me to stand up and give back to my community that I grew up in, and be a leader and tell people what my vision was,” she says.

Homier launched a grass-roots campaign, knocking on 1,800 doors and passing out hundreds of tote bags, notepads, bumper stickers and flyers. She recruited her husband, parents, friends—and even her two kids, then 4 and 2—for canvassing at farmer’s markets, outdoor concerts and parades. “I just did it based on my heart and where I thought large groups of people would be,” she recalls.

Homier was elected the first female state court judge in Cherokee County in July 2012 and took office on Jan. 2. She remains committed to the promises of her campaign: offering alternatives in hardship cases where defendants can’t pay legal fines, developing a mental health court for Cherokee County and encouraging substance abuse treatment forfirst-time DUI offenders.

“There’s constantly this balance between ‘I need to do what I think is right’ and ‘I need to do what I can under the law,’” she says. “Although I would like this job for way more than four years, I’ve only been given the job for the next four years.”

Just a few months into her term, she’s already made a name for herself: “the judge with the purple robes,” to be exact. (Her vestments were custom made in her favorite color by the wife of a colleague.) But, Homier says, her most important title is one she’s had all along: “Mom.”

Balancing work and family can be tricky, but it’s a challenge she faces along with many other women in her field, as she learned during a recent training conference for new judges. The training was held in Athens, Ga., on a day when bad storms were rolling through Atlanta.

“It was mothers in the group who were out in the hallways during the conference trying to call and make sure their kids were OK, make alternative plans,” she remembers. “Because, at the heart of it, that’s really who we still are.”

Know a Ramblin’ Wreck with a fascinating job? Tell us all about their interesting career at publications@gtalumni.org.

In 2007, when Michelle Homier moved her young family from Atlanta back to her hometown of Canton, Ga., she also relocated her career.

Homier, HTS 99, had worked at the Fulton County Public Defender’s Office for four years after graduating from the University of Georgia law school. But the commute between Canton and Atlanta, 80 miles round-trip, soon became a strain. So she changed jobs, joining the Cherokee County Solicitor General’s Office, where she was assigned to traffic court. At first she was happy to step back: Her workload was lighter than as a trial lawyer, and she relished the nimble thinking the cases required.

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How to be Wrong

Rick Cavallaro, AE 84, has plotted the end of the world, revolutionized broadcast sports and out-sailed the wind. But his greatest accomplishment might be mastering the uncomfortable art of the mea culpa.
Rick Cavallaro had never considered whether it would be possible for a sailboat to outtrace a balloon traveling directly downwind in the same direction, but when a friend posed the query to him one afternoon in 2000, he said he’d think about it. It was an unlikely question, but Cavallaro—an engineer by trade and a daredevil by nature—is always up for a brain-bending challenge.

He walked through the scenario’s obvious factors: If the sailboat and the balloon both were powered exclusively by the wind, both traveling directly downwind in the same direction, they could only ever go as fast as the wind is blowing, the laws of conservation being what they are.

The sailboat could go faster than the balloon by tacking in a zig-zag pattern in the general direction of the end point, catching the cross-wind, but that would violate the “directly downwind” part of the question—the trickiest part, the fun part. Meanwhile, the balloon, taking the slower but straighter route, would still beat the sailboat every time.

So the obvious answer was “No.”

But Rick Cavallaro is not a fan of obvious answers.

Rick Cavallaro is 51 years old, but he still eats strawberry Pop-Tarts for breakfast every morning. He orders them by the case from Amazon and keeps his Mountain View, Calif., apartment stocked at all times. There are a few restaurants he likes in town—the Mexican place, the Thai place—and when the servers see him walk through the door, they already know his order. He’s lived in the same apartment since 1989; he knows what he likes, and he likes it here. No need to reinvent the happily turning wheel of his life just for the sake of something new. He takes his risks elsewhere.

When he was a kid it was skateboarding, driving fast cars, flying Cessnas; these days it’s paragliding, kite-surfing, sky-diving and especially snowboarding. He likes to run moguls, and he really likes to veer off the main slope and head into the woods, weave between the trees, make his own path. His brother has two rules for family ski trips. Rule one: Don’t follow Rick into the woods. Rule two: If Rick says, “No, really—it’s great, the trees are spaced pretty wide, come check it out,” refer back to rule one.

Such caution isn’t unwarranted. Cavallaro has crashed a few times off-slope, once bonking his head so hard he spent the next few hours back at the lodge in the throes of hallucinations. These days he wears a helmet, its dome bearing more than a few gashes and scrapes, ill-gotten souvenirs from encounters with low-hanging branches.

On the slopes and in his work, Cavallaro is a thrill-seeker. But it’s not just the promise of cathartic brushes with danger that pulls him into uncharted territory. It’s the knowledge that taking risks—and getting a little roughed up in the process—is pretty much the only way to accomplish anything remarkable.

Rick Cavallaro knew it was supposed to be impossible for a vehicle powered by the wind to travel directly downwind faster than the wind, but what if it wasn’t? Maybe it couldn’t happen on Earth, he thought, but what about another planet—say, a cylindrical one covered entirely by water, where the wind blew long-ways from one end to the other? He thought about the sailboat racing the balloon again, but on that other planet: The balloon would move through the air just like it would on Earth, but the sailboat could catch an endless cross-wind—not by tacking back and forth, like its earthly counterpart, but by sailing in a spiral around the circumference of the long cylinder.

Next, Cavallaro wondered: How could this scenario be made to play out on Earth? Well, what here looks like a sailboat spinning down the length of a cylindrical planet? Tweak the scale and you’ve got yourself a propeller blade moving around a threaded rod. Attach that propeller to the back of a cart, gear it to the wheels, let the wind push the cart; the wheels turn the propeller, the thrust generated pushes the cart forward faster, which causes the wheels and the propeller to turn faster still. What do you get? A wind-sparked, feedback-loop powered ... thing.

A thing capable of traveling directly downwind faster than the wind.

A thing capable of the impossible.

Rick Cavallaro is really good at being wrong, but that hasn’t always been the case. For many years, his ability to be wrong was only slightly above average. In high school in Naples, Fla., and later at Georgia Tech, he was the typical brainy slacker. He has a few embarrassing memories of challenging his professors during lectures, insisting that their points were incorrect or impossible—memories that sting because, even back then, he
prized his ability to recognize and admit his wrongness, to avoid the trap of the Dunning-Kruger effect, that pesky tendency of humans to feel more confident about a subject the less they actually know about it.

Flashes of academic overconfidence aside, at Tech Cavallaro came to see critical thinking and problem solving as their own disciplines, things that could be taught and learned and practiced. He became especially enamored with word problems—solving them methodically, always working backward, parsing out every bit of information needed to reach the end result.

In his aerospace engineering classes, Cavallaro also grew to admire counterintuitive solutions to complex conundrums—Gordian-knot type situations, problems better solved by pulling out a knife and slicing through rather than picking apart tedious tangles just to maintain the status quo. When he found himself struggling in a history course because there were no basic formulas to guide his studies, he tried to learn self-hypnosis to trick his brain into latching onto all the discordant facts of the world. It didn’t exactly work, but he learned the benefit of approaching problems with a certain open-minded skepticism.

And as his respect grew for the scientific laws of the universe—the laws of conservation, of thermodynamics—he felt less and less attached to the rules of received wisdom and so-called common sense. He came to believe that the world is made of two kinds of people: those who, after the apocalypse, would still stop for a red light, and those who would drive on through, unencumbered by what was “supposed” to be. He decided he would be one to drive on through.

RICK CAVALARO had dissected the problem of the sailboat and the balloon for his own obsessive enjoyment, but his propeller-spun conclusion seemed worth sharing with the world. And so, around 2001, he turned to the internet messageboards for hobbyist kite-surfers that he frequented and posted a friendly brainteaser: Could a wind-powered craft travel directly down-wind faster than the wind? The response was a resounding “of course not,” but he pressed on, posting his calculations, going back and forth with other message-board users, hashing out and clarifying his data. Unbelieving readers called him moron, a huckster, a hack—but he knew he was right.

General debate and balking continued apace for several years. In 2006, one especially vocal skeptic, a fellow hobbyist named Mark Conroy, gave in and built a model based on Cavallaro’s rough plans. He tested it at home and posted his results: The model did not work; it could not go faster than the wind. But Rick Cavallaro, being Rick Cavallaro, pushed on ahead. He knew Conroy’s failed attempt didn’t prove that his idea didn’t work, only that it hadn’t worked yet. So he and John Bolton, a co-worker and toy helicopter enthusiast, built a model of their own, carved the propeller themselves, set the craft up on a moving treadmill in a room with otherwise still air. And that one worked—but just barely. They posted their results and a video online, and were startled to hear back within 48 hours from Conroy, who had tested an even simpler version of the cart built from model helicopter and airplane parts. This time, before his skeptical eyes, it had worked—not only better than his first test model, but better than anything Cavallaro and Bolton had built so far. And so Cavallaro’s...
most committed doubter was converted, a new believer. But what about the others? On the messageboards, doubts didn’t just linger—the virtual air was thick with them. A tabletop model was not enough. If Cavallaro had any hope of disproving his nay-sayers, he would have to go big.

RICK CAVALLARO graduated from Tech in 1984 with a notion of how to think about the world but no clear idea of how to make his way in it. He moved to California and kicked off a string of jobs that taught him, slowly but surely, that every little failure is an opportunity to learn something, move on and do better next time.

First came the Aerospace Corporation, a private nonprofit servicing the aerospace and defense industries. There, in the waning days of the Cold War, he ran simulations on how the U.S. might best respond to a launch of Russian nuclear missiles—a day-in, day-out meditation on the end of the world. (Lesson learned: Despite having no philosophical problem with the work, he also had no constitution for it.) Later, at a firm named Failure Analysis Associates, he ran simulations for legally embroiled manufacturers to prove the ways their product couldn’t have led to the accidents or injuries or deaths for which they were being sued. (Lesson learned: He was interested in problem-solving, not blame-absolving.)

All the while, he kept a figurative knife close at hand, cutting through any Gordian tangle that fell at his feet.

In the meantime, he earned a master’s degree in dynamics and control theory from UCLA and kept at a problem he’d been working on since his first day at Aerospace, where he’d seen a female coworker walking down the office hallway and a flash in his brain told him, “That’s the woman you’re going to marry.” He approached the situation like a word problem on a Tech exam, working backward from the desired end result. What needed to happen? What did he need to do to make that happen? Step one: Talk to her. Step two: Ask her out. He did; she accepted. Seven years later, they got hitched. Now, his wife joins him on ski trips. She won’t follow him into the woods, either.

RICK CAVALLARO knew his calculations about the downwind craft were correct, but John Borton insisted the world needed more concrete proof. So they decided to go all the way: They’d build a full-scale manned vehicle, test it before a crowd and have the results verified by an independent judge.

They mined some Silicon Valley contacts for help—Google and Joby Energy both signed on as sponsors—and in late 2009 found themselves with budget enough to fund the construction of a full-sized land-boat: 23 feet tall, 450 pounds, the propeller 17 feet tip to tip. The finished craft was a mish-mash of plywood, carbon fiber, bits of bicycles and go-kart parts—not exactly elegant, but it would work. Or so they hoped.

They named it “the Blackbird.”

RICK CAVALLARO never much cared for hockey, but in 1996 it changed his life.

After leaving Failure Analysis Associates, he was hired by Etak, an early pioneer of in-vehicle navigation systems. The company was sold to Rupert Murdoch’s News Corp. around the time Cavallaro joined the team as a developer, and a few years into his tenure he was scooped up to develop a system to track on-ice movement of hockey pucks for broadcast TV. While the technology, dubbed FoxTrax, was still in development, Fox staged a marketing campaign claiming they were preparing to introduce the most revolutionary advancement in broadcast sports since the instant replay. After almost a year of testing and re-testing, Cavallaro and his team arrived in Boston, where the FoxTrax would debut during the 1996 NHL All-Star Game, only to find that their hotly-anticipated system—which relied upon a delicate interlinking of infrared sensors and cameras—was in danger of being rendered invisible by an unexpected glut of pyrotechnics and banners hanging from the arena rafters. On one test run, their system could barely even track the Zamboni.

It was a precarious three periods, with a new potential for failure every time a new puck (each cut open by hand and fitted with infrared LED lights) was dropped onto the ice. But it worked. The game was the highest-rated hockey match of all time, and Fox retained the software for the three years they held NHL broadcast rights.

FoxTrax was a major breakthrough for entertainment technology and for Cavallaro’s career. But there’s no end point to innovation, and past success is no guarantee against future failure.

Emboldened by the success of FoxTrax, Cavallaro and the team spun off into the independent SportVision in January 1998 and immediately set upon what seemed like the next sports broadcast game-changer: AIRf/x, an on-screen measurement of basketball players’ jump height. Rather than revolutionize the sport, though, AIRf/x served to illuminate an unexpected but
seemingly immutable detail. As it turns out, most basketball players jump the same height every time—right around 19 inches. Broadcasters couldn't get excited about the product because they knew audiences wouldn't get excited. AIRf/x worked in that it was competently executed, but there was no mystery to unlock, nothing unseen to illustrate, no story to tell.

But here's another thing about innovation: In the process of taking risks, in pushing yourself and your work out of bounds, you're going to fail once in a while. But if, like Cavallaro, you can admit your failure and think of your wrongness as a chance to learn and correct course, then you're always getting better, always moving forward. If you've got the vision, there's no shortage of next opportunities to prove it, or improve it.

Sure enough, after the AIRf/x no-go, SportVision bounced back with the Virtual Yellow 1st & Ten graphics system, a digital indicator of the first-down position for at-home football viewers. Revolutionary when it debuted in 1998, it's now as commonplace in broadcast games as cheerleaders on the sidelines. That breakthrough was followed in 2006 by PITCHf/x, a system measuring the speed and trajectories of pitched baseballs, now installed in every MLB stadium. But for Cavallaro—by then a senior vice president of operations, at long last settled into his niche—his biggest ever opportunity to be very right, or very wrong, was still lurking just over the horizon.

Rick Cavallaro had already figuratively poured himself into the Blackbird, but when it came time to test the craft in early 2010, he literally fitted himself into the vehicle. Its parts were the same as the tabletop test models just bigger, the design now including a just-barely man-sized sling into which Cavallaro situated his body, a bit like a luger, in order to steer and brake the craft and control the variable pitch propeller.

That March, Cavallaro and Borton took the Blackbird to the Mojave desert’s vast Ivanpah lakebed, home of the annual North American Land Sailing Association’s America’s Cup race, a site already vetted for the performance of dirt-boats and land-yachts. As Cavallaro strapped himself in for the day’s first run, he figured they’d need a few tries to get the gear ratios and prop pitches just right. With a small crowd watching at a distance, he settled into the Blackbird’s sling, released the hand-break and waited. The wind was blowing right around 15 miles per hour that day, cutting clear across the bare lakebed, hitting nothing but the gathered onlookers and the strange Frankenstein’s monster of a land craft.

For a few moments, all was still. But then, without a nudge or a spark, powered at first by nothing but the wind, the Blackbird began to move. Slowly, at first, and then less and less slowly. The wind pushed the cart, the moving wheels turned the drive train, the drive train spun the propeller, creating thrust that pushed the cart forward, igniting a feedback loop—just like Cavallaro knew would happen. The faster the wheels turned, the faster the propeller turned, the more thrust was created, the faster the wheels turned. Orange telltales tied to the craft whipped forward in the wind as if reaching into the future. As the Blackbird moved faster and faster across the desiccated lakebed, away from the cluster of boggled spectators. Cavallaro called the stats out over the radio—9 then 11 then 13 miles per hour. And then the Blackbird hit 15—the speed of the wind.

The orange telltales fell limp for a moment, then fluttered back up—but in the opposite direction, now trailing behind the wind. How it works

The Blackbird confounded skeptics in part due to its deceptively simple design. One common misconception is that the cart’s movement is initially sparked by the wind turning its propeller. But, Cavallaro explains, the wind hits the cart and pushes it forward as one “bluff body”; the propeller, geared to the cart’s wheels, only begins to turn once the cart begins to move. The propeller then generates thrust, which pushes the cart forward at an increasing speed. And that’s when things get interesting. “Unlike a sailboat going directly downwind, the cart is not exploiting the wind relative to itself,” Cavallaro says. “Instead, it’s designed to exploit the wind relative to the ground, which continues to be an available energy source even when the cart is at exactly wind speed.” The top speed is determined by the cart’s gearing, of course—but until it hits that point, it’s locked in a feedback loop: the faster the cart moves, the faster the propeller turns, the more thrust is created, the faster the cart moves. And that’s how you go directly downwind faster than the wind.
Blackbird as it sped along. The craft had hit wind-speed and kept on going, from 15 to 17 to 19 and faster and faster still. Cavallaro eventually pulled the brakes at around 30 miles per hour—twice the speed of the wind.

That day out on the Ivanpah lakebed, Rick Cavallaro did the impossible. And a few weeks later, he did it again. After some repairs and upgrades, in July 2010 Cavallaro and Borton took to a dry lake bed in El Mirage, Calif., to demonstrate the Blackbird for officials from NALSA. Again, they hit wind speed then blew right past it. The organization now considers the Blackbird the first successful attempt on record to sail directly downwind faster than the wind. Not long after, using NALSA’s data from the test, the Guinness Book of World Records issued its concurrence.

And in 2012, just for the heck of it, Cavallaro reconfigured the craft to prove it could go directly upwind faster than the wind, too. That was never so hotly contested, he knew. But if you’re going to do the impossible, you might as well be thorough.

Rick Cavallaro didn’t learn much about physics from the Blackbird experience—his plans were mostly based on the basics he learned at Tech—but he came to understand plenty about how people act when they’re wrong.

In the end, all of the right folks believed that the Blackbird did what it did. NALSA and Guinness gave him the thumbs up, Wired magazine ran several supportive features, and more former skeptics joined Mark Conroy in offering up mea culpas. But others became even more convinced that Cavallaro was wrong. Retorts moved beyond name-calling and into the realm of conspiracy: Some said the Blackbird had a hidden motor, or that the videos were faked, or that the Ivanpah lakebed wasn’t flat after all. And it wasn’t just laypeople or internet trolls; among his vocal deniers were professional scientists, researchers, professors at major universities.

Cavallaro was already familiar with how people can cling so fiercely to the tattered scraps of their own faulty notions. But it astonished him to see it play out in reality, and on such a large scale. Again he witnessed how the world seems to be divided into two kinds of people: those willing to admit their wrongness when confronted with compelling evidence against it, and those who dig deeper and deeper into denial.

But it’s tricky, he knows. The twist of the Dunning-Kruger effect is that a person can’t really know what it is he doesn’t know. Cavallaro tries to combat this catch-22 with a hair-trigger impulse to question his own assertions and admit his own ignorance. “I’ve had that experience more times than I care to, but I gotta tell you, it’s way better to be out in front saying, ‘Holy shit, I stand corrected,’” he says. “You never lose points for it, that’s the surprising thing. People think, ‘I’m gonna lose face if I’m wrong.’ No, you never do. You never lose face for admitting you’re wrong. You gain respect.”

When you’re right—especially when you’re right about something big, like the Blackbird—what comes next? Cavallaro isn’t sure. He’s considering going half-time at SportVision, where he’s now chief scientist, or retiring altogether; he’s itching to write, to teach. He’s also dead set on mastering the blues harmonica. (In typical fashion, his first attempt was a failure.) And he’d love more time for his wind sports. By now he’s too old to die young, he notes, but he’s still happiest when he’s being flung through the atmosphere at maximum speed. He loves to feel the wind in his hair, feel his body battered by the weight of its own resistance.

So he’ll keep jumping off of cliffs and out of planes, snowboarding in the woods, wagging his fingers in the face of the impossible until he’s old(er) and gray(er). That’s why we’re here, he thinks—to be fearless in big ways, to push ourselves into the uncharted darkness, to take those wild leaps into the glimmering unknown.

Rick Cavallaro doesn’t believe in fate or destiny or God, but he does believe in that.

But then again, he could be wrong. ▲

Want to know more? See video of Rick Cavallaro’s Blackbird in action and download plans for your own tabletop model at gtalumnimag.com/howtobewrong.
the ART of INVENTION

One Tech professor’s hunt for the wellspring of creativity.

RICH MCKAY & VAN JENSEN
PHOTOGRAPHS BY JOSH MEISTER
Nancy Nersessian is driven by a simple question that doesn’t have a simple answer:

“Where does creativity come from?”

As a Regents professor of cognitive science at Georgia Tech, she conducts groundbreaking research into the art of innovation—how scientists and inventors actually think. Her work bridges the philosophy of creativity and the hard science of math and physics, and it has revealed the process of innovation to be far different from what long has been hailed as sacrosanct.

Nancy Nersessian has been fascinated by math and science since childhood when, as a 4-year-old, she would eavesdrop on her older sister’s sessions with a math tutor. Later, she was the lone female physics major in her class at Boston University and at the same time helped program the Apollo 11 computers for the moon landing. In 2011 she was the inaugural recipient of the Patrick Suppes Prize in Philosophy of Science from the American Philosophical Society. Oh, and she’s an accomplished opera singer, too.

So in her studies on the culture and source of creativity, she draws upon plenty of personal experience. And Georgia Tech is a fitting setting for her topic of inquiry: The Institute’s faculty, alumni and students always have generated inventions that have saved lives and changed the way people live, and the Tech campus is home to world-renowned researchers, startup incubators and invention competitions that foster the next generation of innovators.

The Alumni Magazine picked Nersessian’s brain about the limits of the scientific method, the intersection of physics and philosophy, the future of creativity and more.

Q > HOW DID YOU BECOME INTERESTED IN THIS AREA OF STUDY?

I LOVED MATH FROM THE MOMENT I encountered it. I really didn’t like science labs in school, especially biology labs. Anyone who was paired with me in science lab was unfortunate and often in danger since I was quite clumsy. I was always theoretically oriented. I won third place in the Boston Science Fair for my project, which was a mathematical analysis of hyperbolic and elliptical functions.

[In college] my physics professors were just interested in teaching the formulas. I was asking, “What does it all mean?” But they didn’t encourage me to pursue this question. In my junior year, I accidentally signed up for a class with Milic Capek, a professor of philosophy and brother of the Czech science fiction writer Karel Capek. His class was on the philosophy of space and time, and I was hooked. It was then that I started to understand what Einstein’s theory of relativity told us about nature.
I wanted to find out, “Where did these theories come from? What’s the process?”

I wanted to look at ordinary scientists and engineers doing frontier research and how they think. How do they solve problems and compare that to the struggles of the great scientists and thinkers like [Michael] Faraday, [James Clerk] Maxwell and Einstein? How did they solve their problems?

Q > HOW DO YOU GO ABOUT RESEARCHING THAT?

THE BEST ADVICE I EVER RECEIVED came when I started grad school, from my mentor, Howard Stein, now an emeritus professor at the University of Chicago. He said: “Don’t just read what philosophers say about science, read the scientists themselves.” As a physics student, it had never occurred to me that it was possible to read the writings of the people who had created the theories in the textbooks.

What I began to find wasn’t just mathematical problems, but their letters and diaries, notebooks filled with sketches and drawings. They made lots of analogies. They ran lots of thought experiments. I was surprised when I first encountered the numerous sketches in Faraday’s diary, the analogical models in Maxwell’s writings and Einstein’s use of thought experiments. These didn’t fit the view of “the scientific method” I’d been indoctrinated with, and yet I was convinced that they were key to understanding how scientists think creatively. However, you can’t talk to dead scientists, so I also began studying scientists and engineers in their research labs.

Q > HOW DOES THEIR PROCESS DIFFER FROM THE PERCEIVED VIEW OF THE SCIENTIFIC METHOD?

WHAT WE’RE TAUGHT often is that you make a hypothesis, deduce a result and then test it empirically. But that’s not what they did. They went through a different process. I call it model-based reasoning. It’s the engine of creativity. It’s what drove people to their solutions.

Q > HOW DOES MODEL-BASED REASONING AID CREATIVITY?

A MODEL IS an integrated representation that provides an interpretation of the phenomena under investigation. Models are selective (you can’t model everything) and are constructed to exemplify what are considered to be the important features of phenomena, and so a good model focuses the mind on the cognitively relevant features and enables manipulation of these.

The processes of building models integrate constraints from a variety of resources so that, over many iterations, genuinely novel behaviors or structures can emerge. And models can be represented in different formats, which enable different kinds of manipulations and support different kinds of inferential processes. Transforming models from one format to another can lead to novel insights (e.g., language affords logical inferences, diagrams enable perceptual inferences).

Q > WHAT’S AN EXAMPLE OF THIS?

IN CONSTRUCTING THE electromagnetic field equations, Maxwell built a series of conceptual models that incrementally merged what was known experimentally about electricity and magnetism with constraints from fluid mechanics and machine mechanics to create imaginary models that enabled him to tap into the representational power of the mathematics of continuum mechanics—something he and others at Cambridge had been working on for years before he took on the electromagnetism problem. The other thing he did was to make diagrams of the models that facilitated thinking about the complex interrelations of electricity and magnetism through perceptual inferences and mental simulations.

Q > YOU HOLD APPOINTMENTS IN THE COLLEGE OF COMPUTING, THE COLLEGE OF ARCHITECTURE AND THE IAN ALLEN COLLEGE OF LIBERAL ARTS. WHY ARE YOU SUCH A PROponent OF INTERDISCIPLINARY RESEARCH?

THIS MERGING OF CONSTRAINTS from various sources is part of what makes interdisciplinary research a source of creativity. For instance, the biomedical engineering researchers my research group has studied often build physical simulation models that merge constraints from biology and engineering—they can’t experiment on the phenomena directly, so they build physical models that capture what they consider to be relevant aspects, manipulate these hybrid bio-engineered models, and again novel behaviors and structures can emerge. Something new is created in the course of representing these (usually in math).
In recent years, Georgia Tech has become a haven for innovators. But campus has been home to creative minds since the very beginning. Here, we take a look at just a handful of notable inventions to come from Tech minds.

**WD-40**
- Reginald Fleet, ME 16, invented the ubiquitous weapon against squeaky doors in the 1950s.

**Elmer’s Glue-All**
- Ashworth Stull, Chem 37, tried 800 variations before finding the right formula in 1942.

**Household bleach**
- Frank Mayo, Cls 25, discovered how to stabilize chlorine while he was a student and went on to create a cleaning sensation.

**O’Celo sponge**
- Gerard E. “Red” Murray, ChE 39, created the O’Celo cellulose sponge (the type you keep under the sink) in 1946.

**SIDS monitor**
- Parker H. “Pete” Petit, ME 62, MS EM 64, engineered the first at-home monitor to watch out for Sudden Infant Death Syndrome in the 1970s.

**Grasshopper oil pump**
- Joseph P. Byrd, GE 38, designed the Mark II oilfield pumps, known as the grasshopper, still used in oil fields around the world.

**PC modem**
- Dennis C. Hayes, Cls 73, developed the first “intelligent” modem in 1977.

**Gang-nail connector plate**
- J. Calvin Jurit, CE 49, invented the galvanized steel joint, commonly used in roof trusses, in 1955.

**Polymerase Chain Reaction**
- Kary Mullis, Chem 66, developed the technique to generate millions of copies of a DNA sequence in 1983.

**Coulter Counter**
- Wallace H. Coulter, Cls 34, created a method used in medical diagnostic tests for counting and sizing microscopic particles suspended in a fluid in 1948.

**Stereophonic recording**
- Hazard E. Reeves, ME 28, invented a system to synchronize sound recordings directly onto film in 1937.

**Lexicon language translator**
- Michael Levy, EE 63, built the first handheld language-conversion computer in the late 1970s.

**Multi-story interior atria**
- John Portman, Arch 50, designed the Hyatt Regency Atlanta with a multi-story atrium, the first envisioned by an architect.

**Thermoplastic carpet tape**
- Charles Burgess, Cls 33, designed a system to use adhesive tape to join carpet sections in 1968.

**Cold permanent waving**
- Arnold Willar, EE 1907, invented a system for perming hair without using a machine [the precursor to the modern perm] in 1938.
Hello! ¡Hola!

INNOVATION

What?

High Tech

- Polymerase Chain Reaction
- Coulter Counter
- Lexicon Language Translator
- Grasshopper Oil Pump
- SIDS Monitor
- Cold-Permanent Waving

Low Tech

- Sterophonic Recording
- Thermoplastic Carpet Tape
- Multi-Story Interior Atria
- WD-40
- O'Celto Sponge
- Elmer's Glue
- Bleach

Name Brand
“There are a lot of smart, creative people who never produce anything. And there are many people who might not think that they are all that creative, but they do produce.”
The systems biologists we’ve studied build computational models to produce simulations that integrate data from a vast range of literature, creating a synthesis that exists nowhere else, and building and running the simulations through numerous iterations often leads to novel behaviors that provide insight into system-level phenomena about which little is currently understood.

Q> DO PEOPLE HAVE A PREDISPOSITION TO BEING CREATIVE? HOW CAN AN INSTITUTION LIKE GEORGIA TECH FOSTER CREATIVITY?

THAT’S A DRIVING QUESTION. There are a lot of smart, creative people who never produce anything. And there are many people who might not think that they are all that creative, but they do produce. There’s a persistence factor in this. They keep working a problem, looking at it from different angles. They struggle. Now, if we can understand that cognitive and neural activity, what happens there, that would be something. And I think we can get there. But without that we can still figure out what the characteristics are that promote creative thinking and foster them.

Q> DO YOU HAVE ANY IDEAS OF WHAT THOSE CHARACTERISTICS MIGHT BE?

A MAJOR ONE IS cognitive flexibility—the ability to see something from different perspectives. One way to foster this is to provide opportunities for students to engage a problem from multiple points of view. Also, I think philosophy is great training for any scientist. It engages a problem from multiple points of view. Also, to foster this is to provide opportunities for students to see something from different perspectives. One way that they will inevitably encounter along the way. This teaches you how to formulate problems. It teaches you how to think—how to understand things conceptually. We shouldn’t be restricted to just looking at formulas. Music also fosters creativity more broadly. Einstein played the violin.

What I tell my PhD students is that they need to have real intellectual problems driving their research and feel a passion for the research that will sustain them through the hard work, failures and difficulties that they will inevitably encounter along the way. This points to the significant role of emotion in creativity. It’s what cognitive scientists call “hot cognition.” The moments of insight come with elation, things going well can be exciting, impasses produce despair. To stick with it requires resilience in the face of impasse. Resilience is something that can be fostered in the learning environments designed to promote creativity and innovation.

Q> WHERE DO YOU THINK CREATIVITY COMES FROM?

THE SHORT ANSWER IS: from a lot of hard work. I like Einstein’s paraphrase of the old adage: “Genius is 1 percent talent (inspiration) and 99 percent hard work (perspiration).” Some people focus on creativity as an act—the “Aha!” moments of insight. But this leaves out all the prior thinking that went into preparing the mind for that moment. Others focus on creativity as an attribute or characteristic—there are psychological tests to measure the creative predisposition of an individual.

I focus on creativity as a process and, specifically, as a problem-driven process. Thinking of it as a process enables us to see how it takes place within a cognitive-social-cultural nexus that can facilitate or impede it. Importantly, as educators, it also enables us to think of ways in which we can design learning environments that cultivate and facilitate ways of thinking and working that promote creativity and innovation.

Q> HOW DOES ARTISTIC CREATIVITY RELATE TO SCIENTIFIC CREATIVITY?

I SEE THEM as lying on a continuum. Creative thinking across the arts, humanities, sciences and engineering make use of various forms of model-based reasoning: analogies, visualizations, thought experiments. The problems and resources for solving them are contextual in the arts as for science and engineering. There is support for this from countless accounts by writers, artists and musicians that detail their struggles to solve problems in trying to create something novel. In the final telling, these struggles are often omitted or underplayed.

Q> WHAT’S AN EXAMPLE OF THAT?

THERE’S THE MYTH that Jack Kerouac wrote On the Road in one continuous stream of “spontaneous writing.” However, that myth leaves out the fact that he struggled for years and across many drafts both with how to tell that story and how to perfect the art of “spontaneous writing.” Renaissance artists struggled with the problem of perspective, 20th century musicians with tonality. I think even performance artists go through problem-solving processes. As an opera singer, my struggles were not only with problems of technique and vocal production but also with how to portray the character I was singing—finding the experiential and imaginative resources that would tell the story of that character.

Q> WHAT IS THE FUTURE OF CREATIVITY IN SCIENCE AND ENGINEERING?

THE AREA THAT’S EXPLODING with creative research is the interface of computation, biology and engineering. Computational power and sophisticated algorithms are enabling us to begin to understand complex biological systems and to design synthetic organisms. New technologies are enabling us to merge biological and engineered materials (including in the human brain). Bio-computing is opening the possibility of reprogramming or repairing biological processes. Biologically inspired design is creating novel products. These developments—if we consider the ethical implications—have the potential to transform human life in positive directions.

When I was a student, everyone pointed me in the direction of physics. As much as I love that subject, when science and engineering students ask me where the action is—where they have the possibility to be most creative—I send them in the bio-computing-engineering direction. ▲
THINK LITTLE

SOME OF GEORGIA TECH’S BIGGEST INNOVATIONS ARE COMING IN VERY (VERY, VERY) SMALL PACKAGES.

BY VAN JENSEN
THE INSTITUTE’S interlocking “GT” shows up on T-shirts and websites, on billboards and the massive scoreboard at Bobby Dodd Stadium. But the most impressive display of the logo just might be one that can’t be seen at all—at least not with the naked eye.

On this spread is a nanoscopic image of GT logos created by a team at Tech’s Nanotechnology Lab. Constructed out of nanotubes, cylindrical structures built of carbon, each “GT” is about 50 micrometers wide. (A micrometer is one millionth of a meter.)
When they’re not being employed in hyper-miniature displays of school spirit, nanotubes are revolutionizing electronics, photovoltaic cells and batteries. Soon, a satellite will launch carrying a field emission array built with nanotubes created by the Nanotechnology Lab, led by Jud Ready, MatE 94, MS MetE 97, PhD MSE 00, an adjunct professor in the School of Materials Science and Engineering and a principal research engineer at Georgia Tech Research Institute.

That achievement marks a dramatic change from 20 years ago, when the summer 1993 Alumni Magazine took an early look at the nanotech research being conducted at the Institute. Researchers used scanning-tunneling microscopes to study the world in nano scale (a nanometer is one billionth of a meter), and could do little more than theorize about potential applications.

At that point, Mark Allen, then a professor in electrical engineering, had just begun to fashion rudimentary nanomachines in the clean room of Tech’s Microelectronics Research Center. Asked about the possibility that nanotechnology could dramatically change our lives, Allen said such ideas were “overly optimistic... but you never know.”

Over the next two decades, Allen’s work in the field generated dozens of patents and led to the creation of two successful start-up companies: Redeon commercialized Allen’s microneedle breakthrough, and CardioMEMS manufactured and distributed his implantable wireless sensors used to monitor for abdominal aortic aneurysms. Those breakthroughs are now saving lives.

These days, Allen serves as executive director of the Institute for Electronics and Nanotechnology, a position tasked with helping coordinate Georgia Tech’s efforts in the field. That work received a boost in 2009, when the Marcus Nanotechnology Building opened on campus. The 190,000-square-foot facility includes 30,000 square feet of clean room space, making Tech a premier nano location. Tech’s nationally renowned researchers regularly partner with scientists and engineers from industry, government and other universities as part of the National Nanotechnology Infrastructure Network, which is supported by the National Science Foundation.

“Led by professor Jim Meindl, the Nanotechnology Research Center is a key part of Tech’s interdisciplinary and institute-wide focus on electronics and nanotechnology and how they can be used to solve complex challenges in a changing world,” says Steve Cross, Tech’s executive vice president for research.

Around campus, Tech’s nano researchers are innovating at the smallest scale. Normally, these can only be seen in the lab with the most powerful imaging equipment. On the following pages, we provide a glimpse into the tiniest breakthroughs happening at Georgia Tech.
It seems like something out of a sci-fi vision of the future: As a person walks, the friction in his clothing generates electricity that powers his electronic devices. But such a nanogenerator already exists thanks to the work of a team led by Zhong Lin Wang, a Regents professor in the School of Materials Science and Engineering and director of the Center for Nanostructure Characterization. Polymer nanowires are placed against aligned zinc oxide nanowires (seen below). As the material flexes, it generates and captures electricity. The nanogenerator could create a self-sufficient power source for nanomachines, such as sensors inside the human body, as well as for turning our clothing into moving power generators.
TARGETING CANCER AT THE CELLULAR LEVEL

Nanotech research is about more than making tiny machines—it also could lead to major developments in health care. A particular focus is the potential ability to fight cancer at the single-cell level. A group led by Mostafa El-Sayed, a Regents professor in the School of Chemistry, has developed a technique called Targeted Plasmonic Enhanced Single Cell Imaging Spectroscopy, which allows for the direction of gold and silver nanoparticles to specific locations within a cell. His team was the first to synthesize metallic nanoparticles in different shapes. The images above show a time lapse of the cell cycle of a cancer cell, from creation to cell death. The research has drawn significant attention as a possible means to target cancer cells—a silver bullet to fight the disease.
In building machines at the nano scale, one element of critical importance is the materials used and how they interact with their surrounding environment. As James Gole, a professor emeritus in the School of Physics, puts it, this work exists at the intersection of chemical and condensed matter physics and material science. Using a variety of techniques, Gole and his team have developed a toolbox full of nano-scale materials such as wires, brushes, tubes and coatings that can be seen using a transmission electron microscope. The image below shows needle-like, silver-based dendritic nanostructures that could have applications in photocatalysis and photovoltaics.
GROWING A NANO ‘FOREST’

The process of building nanoscale structures often sounds like a type of gardening: planting seeds in a substrate, fertilizing it and watching it grow. And so it’s no surprise that the structures seen here, created by a team led by mechanical engineering professor Suresh Sitaraman, often are called a “forest.” What looks like tree trunks are vertically aligned carbon nanotubes, and what looks like foliage is titanium evaporated onto the tips of the nanotubes. The material has broad potential applications, including for use in disease diagnosis and next-generation microelectronic interconnects.
The image above might look like the surface of the sun, but it’s actually a nanoscopic view of an aerogel microsphere made from cellulose-based nanofibrils by a team led by Yulin Deng, a Tech professor and fellow of the International Academy of Wood Science. Which is a complicated way of saying that it’s very advanced paper. The team is researching potential uses of nanomaterials in forest products.
Currently, carbon fiber composites are 10 times as strong as steel. But the material has the potential to be much stronger. With funding from the Department of Defense, a team led by Satish Kumar, a professor in the School of Materials Science and Engineering, is working to reinforce carbon fibers with carbon nanotubes to develop state-of-the-art composites for use in airplanes and rockets. This image shows a cross-section of their new material.
GROVE OF THE ‘NANOWIRE TREES’

A team led by Michael Filler, an assistant professor in the School of Chemical and Biomolecular Engineering, demonstrated a process to grow semiconductor nanowire “trees,” seen here. The researchers controlled atoms decorating the nanowire surface, which allowed them to program the structure. The team is studying applications in next-generation electronics, photonics and energy conversion.
THE FUTURE OF ELECTRONICS

While computing power has grown exponentially through the use of silicon chips, scientists are approaching the material’s physical limits. The race is on to find a replacement substance, and many believe that will be graphene, which is composed of carbon atoms arranged in a hexagonal pattern. In 2003, Walt de Heer, a Regents professor in the School of Physics, patented a method to grow epitaxial graphene on silicon carbide. The image below shows the view through a scanning electron microscope, revealing gate structures that are far less than a micrometer wide. These gate structures are key to building next-generation electronics that will be faster and far more efficient than today’s models.

GOLD NANOCAGES OFFER CANCER INSIGHTS

Biologists have long understood the basic functioning of cells, even if they’ve been unable to see how a cell operates at the smallest scale. But a new technique developed at Georgia Tech is shedding light, literally, on the inner workings of cells. Younan Xia, the Brock Family Chair and Georgia Research Alliance Eminent Scholar in Nanomedicine in the Wallace H. Coulter Department of Biomedical Engineering at Georgia Tech and Emory, recently published an article demonstrating that, using radioactivity and optical scattering/adsorption, his team could see the system functioning at a nano scale and could control gold nanocages inside a biological system. The research could be used in future tests to better diagnose and treat cancer.

THIS IS WHY YOU SNEEZE

Pollen season is an annual headache for many. And when you see how nasty pollen looks at the nano scale, as in the image of a grain of dandelion pollen below, it makes sense why the stuff brings on sneezing fits. But understanding the structure of pollen at the nano scale is potentially helpful in developing next-generation adhesives. With funding from the Air Force, a team led by Carson Meredith, a professor in the School of Chemical and Biomolecular Engineering, is using the sticky structure of pollen as inspiration for sensors and markers with tunable adhesion.

Want to know more? Go to gtalumnimag.com/thinklittle.
Philanthropy at Work

“The ability to completely immerse myself in exploring my passions has been the greatest gift of the Stamps Scholarship.”

Joy Buolamwini

CS 2012
4th Rhodes Scholar in Georgia Tech history (2012). Pictured with PLEO rb, a next-generation companion robot developed by Innvo Labs.

- Fulbright Scholar, 2012-13
- Stamps Scholar
- Founded Techturized, a hair care technology company

Hometown: Cordova, Tennessee
Hobby: Playing guitar

Undergraduate scholarships and graduate fellowships are a top priority for Campaign Georgia Tech, the $1.5 billion effort to enable Georgia Tech to define the technological research university of the twenty-first century.
alumni house
THE 2013 GOLD & WHITE HONORS GALA
Gold & White Honors Gala Raises $294,000 for Student Programs

The Alumni Association bestowed its highest honors at the newly re-engineered event, which featured a silent auction full of jaw-dropping items.
On Feb. 21, the Georgia Tech community gathered to honor current alumni and raise funds for the alumni of tomorrow at the Gold & White Honors Gala.

The event featured the awarding of the Gold & White Honors, the most prestigious accolades given out by the Alumni Association, to such notable alumni as John Brock, ChE 70, MS ChE 71, the chairman and CEO of Coca-Cola Enterprises; and Ernest Scheller Jr., IM 52, chairman emeritus of Silberline Manufacturing and namesake of the Ernest Scheller Jr. College of Business. A complete list of honorees is at gtalumnimag.com.

This year, the Gold & White Honors Gala was open to the public for the first time. More than 530 people attended the event, which was held at the Intercontinental Hotel in Atlanta’s Buckhead neighborhood.

Also for the first time, the gala featured a silent auction that included an array of impressive Tech-themed items, including a ride in the Ramblin’ Wreck and football season tickets. Through the auction, ticket sales and sponsorships, the event raised nearly $294,000, which will be used in support of the Georgia Tech Alumni Association’s student programs, such as Student Alumni Association, the Ambassadors and the Student Foundation.

The alumni of tomorrow played a prominent role in the event, as student leaders introduced award recipients during the ceremony, which was kicked off by remarks from Steve Chaddick, EE 74, MS EE 82, who served as chair of the Gold & White Honors Gala committee.

“The inaugural version of the Gold & White Honors Gala was a smashing success,” said Joe Irwin, IM 80, president of the Alumni Association. “Virtually everyone that I spoke to that evening and subsequently has commented on how inspired they were, how much fun they had and how they’re looking forward to next year’s edition.”

The gala also featured dinner, a performance by the Glee Club and photos with the Ramblin’ Wreck and Buzz. Our thanks go out to sponsors and alumni committee members who helped create an unforgettable evening.

Want to be part of Gold & White 2014? Planning is already underway for next year’s Gold & White Honors Gala. Alumni and friends who are interested in donating auction items or serving as sponsors of the event may contact Melanie King, leadership giving officer, at (404) 894-2259 or melanie.king@alumni.gatech.edu.
Waffle House is proud to support and be a part of developing and inspiring Georgia Tech's next generation of alumni leaders.
Congratulations to John & Mary Brock and all of the 2013 Gold & White Award Recipients!

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Congratulations to the Honorees!

A Fortune Magazine and Corporate Counsel Magazine
“Go-To Law Firm” for Litigation
On March 12, more than 110 employers and about 800 job-seekers converged on Atlanta's Cobb Galleria Centre for the annual Georgia Tech Alumni Career Fair.

Inside the sprawling expo space, hiring managers conferred at their booths with sharply dressed graduating students and alumni alike.

In the atrium surrounding the ballroom, career fair attendees double-checked their resumes and pored over the official employer databook received by all registrants.

Sitting in a sunny spot by a spacious picture window was Deborah Dillard Johnson, IE 83, taking a moment to prepare herself before entering the ballroom's fray. She had been to an Alumni Career Fair before—"many many moons ago," she laughed—but had returned this time seeking a project management position.

"I'm hoping to convert some of these introductions into interviews," she said, "and then into a job that's just right for me—and where I'm just right for them." A well-attended lunch workshop featured Jennifer Kahnweiler—author, speaker, executive coach and "champion for introverts." Following the fair, a meet and greet held at Buckhead Pizza Co. and hosted by the Marietta Alumni Network and sponsored by Hunter Technical Resources drew several hundred Ramblin' Wrecks for libations and further networking.

Want to attend the 2014 Career Fair? For more information on next year's event, make sure to check in on gtalumni.org/careerfair.
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At the annual Leaders & Legends Awards Ceremony in March, the Georgia Tech Black Alumni Organization honored members of the Tech and Atlanta communities. Congressman John Lewis (seen here with Clifford and Kim Sanders, CE 90) received the GTBAO Pioneer Award. Lewis, a civil rights icon, also received the Ivan Allen Jr. Prize for Social Courage in April.

The Black Alumni Organization is an alumni affinity group. To learn more about affinity groups, visit gtalumni.org/affinitygroups.

KUDOS!

The Alumni Association’s Networks and Affinity Groups depend on volunteer leadership to organize gatherings, fundraisers and community service projects. Here are a few leaders who deserve thanks for all of their hard work.

Ligia Florim, CE 99, president of the Hispanic Alumni Network, has devoted her time and expertise to support the group and to develop new programs and events. She has focused much of her efforts on raising funds to support Hispanic students. Florim is president of Bron Cleveland Associates.

Jan Gripp, ChE 72, has led the Hampton Roads, Va., Georgia Tech Network for the past few years, during which time it won first place in the Networks competition for 2011-12. With his leadership team, Jan developed a yearly wine tasting, which has become the Network’s signature event to raise scholarship funds.

Arthur Hughes has served as the program director of the Military Affinity Group since 2006. He works continuously to engage military-affiliated members of the Georgia Tech community. A veteran of the Army National Guard, he has been committed to veterans affairs since his retirement. He is the building coordinator of the Wardlaw Center on Tech’s campus.

Susan Wells, ME 81, president of the Delaware Valley/Philadelphia Georgia Tech Network, has dedicated herself in recent years to reactivating the Delaware Valley network while working full time as a teacher. Susan and her team plan the network’s calendar early every year, allowing them to inform alumni about upcoming events in plenty of time.
Leadership Circle Donors Make Big Impact

The President’s Dinner, Celebrating Roll Call will be held June 22.

On June 22, the Alumni Association will welcome Leadership Circle donors to the Georgia Aquarium for the President’s Dinner, held annually to give thanks for the donors’ philanthropy.

Last year, the Roll Call annual fund received $4,019,000 from Leadership Circle donors—those who give $1,000 or more per year to the fund. It’s a big number.

To give it some context, we decided to look at how average students could put it to use. In-state students pay about $22,254 per year, adding up tuition, student fees, meal plans, housing, books, supplies and personal expenses, according to the Office of Undergraduate Admission.

So just a single year’s worth of Leadership Circle giving would be enough to cover all costs for 180 students to attend Tech for one year.

That’s a great testament to the power of philanthropy.

Want to join the Leadership Circle?
For more information on the Roll Call annual fund and to join Leadership Circle, visit gtalumni.org/leadershipgiving.

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The Alumni Travel program takes Yellow Jackets to exciting locales around the globe.

Hello Again, Vietnam
Alumni veterans discover a friendly, beautiful country

Ginger Amoni

Vietnam

TRIP ITINERARY

1 Hanoi
City tour, boat tour of Halong Bay

2 Da Nang
City tour, visit to historic Hoi An

3 Hue
Tour of ancient city, river cruise

4 Mekong Delta
Floating market tour

5 Ho Chi Minh City
Boat tour, city tour
Our first morning in Vietnam, we gathered with our tour guide and introduced ourselves. Two of our Georgia Tech travelers, it turned out, were Vietnam War veterans. George Moss, Text 57, had been a career military officer and saw action in the early years of the conflict. He returned to the country only at his wife’s urging. John Smith, CE 68, had been drafted and served in the later years of the conflict. Over the following days, as we explored the beautiful country and stunning cities, the two veterans recalled places they’d seen decades earlier. The Vietnamese people were friendly and gracious. Everyone we encountered smiled and welcomed us, even in the Museum of War Atrocities in Ho Chi Minh City.

The group had the opportunity to visit the home of a former Viet Cong soldier outside of Hoi An. Smith in particular connected with a man he once had called an enemy.

“He showed me his hammock made from U.S. parachute flares and a camera he took off a dead journalist. I didn’t inquire as to who killed him,” Smith said. “A few days later we visited the Cu Chi tunnels where the Viet Cong staged many attacks in the south. These tunnels were 13 miles from my base camp in Pho Loi. But, 41 years later, we toasted peace and good luck to Vietnam and the U.S.A.”

We were all surprised at how beautiful Vietnam is. The scenery in Ha Long Bay was breathtakingly unique. The striking vistas continued in Da Nang on China Beach, in the French colonial city of Hoi An, and in Hue, an ancient imperial city. From there we flew to Saigon and bussed to the Mekong Delta.

Another nice surprise was the food. We traveled along the eastern coast, so we enjoyed seafood, including lobster, shrimp, swordfish and mussels. I never grew tired of it and never wished for a hamburger.

We had one more interesting reunion. In Saigon, we met with Marc Pare, ME 10, and Tech student Danny Thai, who are working in the country on a startup called Mekong Green Tech. The company, which is helping to decrease pollution in Vietnam’s rural brickmaking industry, won first place in the 2012 Ideas to Serve Competition in the Tech College of Business.

It was great to meet up with these Ramblin’ Wrecks, and it served as a reminder of the impact that Georgia Tech’s innovators have around the world.▲

Want to travel with fellow Ramblin’ Wrecks? More information is available at gtalumni.org/travel, or call Martin Ludwig, director of Alumni Travel, at (404) 894-0758.

Treasures of Peru and Machu Picchu, Sept. 11-21 Discover Peru’s cultural and natural treasures starting in Lima and continuing to Cuzco, the archaeological hub of the Americas. The tour includes stops in the Sacred Valley, the Indian market at Pisac, Lake Titicaca and Machu Picchu.

Canada and New England, Sept. 24-Oct. 6 Experience the vibrant fall colors of the scenic East Coast aboard the elegant Oceania Cruises Regatta. Stunning landscapes and historic sites blend in the captivating ports of Quebec City, Charlottetown, Halifax, Bar Harbor, Camden, Newport and more.

Legendary Turkey, Oct. 10-24 This journey features Istanbul, the World War I battlefield of Gallipoli, Troy and the classical city Ephesus—including the grand Library of Celsus. The trip continues on a privately chartered yacht for four days of cruising the Turquoise Coast and wraps up in the seaside resort of Antalya.

Panama, Jan. 5-15, 2014 Travel through the locks of the historic Panama Canal, which crosses the huge, man-made Gatun Lake and the amazing Gaillard Cut, blasted out of a mountainside. Venture through virgin rain forests, enjoy the world’s most beautiful beaches and visit a variety of ports, Mayan ruins and quaint villages.

Bangkok to Bali: Eastern & Oriental Express, Oct. 30-Nov. 12 Experience a kaleidoscope of colors, sounds, cultures and history in Thailand, Malaysia, Singapore and Indonesia. The trip includes three nights aboard the legendary Eastern & Oriental Express Train, a raft cruise on the Kwai Yai River, a visit to Singapore and a final stop at the idyllic island of Bali.
Mark A. Glass, Mgt 89, was appointed by Gov. Nathan Deal to the board of the Georgia Department of Economic Development.

1960s

William L. Ball, IM 69, is spearheading Georgia’s strategic, jobs-focused defense initiative formed by Gov. Nathan Deal. He is the former U.S. Secretary of the Navy under President Ronald Reagan and a former member of the Georgia Tech President’s Advisory Board.

Jack B. Murray Jr., ChE 69, retired from Exxon Mobil’s law department after 31 years and now serves as managing member of his own firm, J B Murray PLLC, in Fairfax, Va.

1970s

Khosrow Behbehani, IE 75, was named a 2013 IEEE Fellow for her contributions to the development of respiratory therapy devices in chronic pulmonary diseases.

Bruce J. Cutler, ESM 78, was promoted to president of MasterWorks International, an HP-authorized distributor and logistics company in Houston.

Donald Struble, PhD AE 72, retired after a 30-year career as an auto-accident reconstructor. He is working on a book about the field.

Richard L. Thornton, Arch 72, appeared on The History Channel’s America Unearthed, discussing his research on the Mayan civilization’s presence in North Georgia.

1980s

Abe Adewale, CE 88, was selected as Engineer of the Year for 2013 by the St. Louis Chapter of the Missouri Society of Professional Engineers. He is a principal of ABNA Engineering Inc.

Rodney Arroyo, M CRP 82, was named adjunct professor at Wayne State University, where he teaches a graduate land-use planning class. His consulting firm, Clearzoning Inc., was awarded the 2012 John Keller Award for Planning Initiative.

Mark Bourcier, ME 89, is a senior engineer at the Hyundai America Technical Center, where he works on engine design.

F. Perna Carter, IE 89, was named dean of the School of Business and Technology at Saint Augustine’s University in Raleigh, N.C.

Eric Fidler, ME 83, was appointed president of global operations at InTech Process Automation. He lives in Spring, Texas.

Mark A. Glass, Mgt 89, was appointed by Gov. Nathan Deal to the board of the Georgia Department of Economic Development. He is the founder and president of Glass Enterprises Inc., a poultry and alligator farm in Camilla, Ga.

Ric Gray, IE 87, was named president of AdTech Global in Alpharetta, Ga. He serves as a mentor for local non-profits and Georgia Tech students. A cancer survivor, he volunteers as a patient coach through the American Cancer Society.

Paula Hammond, MS ChE 88, was featured in an episode of Catalyst Film Series: Women in Chemistry, produced by the Chemical Heritage Foundation. She is a David H. Koch professor of engineering at MIT.

Rhett R. Jaehn, AE 88, was given command of the USS Georgia submarine.

Ron Johnson, MS OR 85, was named a professor of practice in Tech’s school of Industrial and Systems Engineering and the managing director of the Tennenbaum Institute. He is the former vice president of referee operations for the NBA and a retired two-star Army general.

Richard Kramer, Arch 80, M Arch 82, received an Honorable Recognition Award from AIA Georgia. He is an architect with Pieper O’Brien Herr Architects and is the chairman of Alpharetta’s Design Review Board.

Andrea Laliberte, IE 82, MS IE 84, joined the Stewart School of Industrial & Systems Engineering as the Edenfield Executive in Residence. She was previously a senior vice president of distribution and consumer service for Coach Inc.

Mike MacIntyre, Mgt 89, was hired by the University of Colorado to head its football program. He was formerly a coach at San Jose State.

Patrise Perkins-Hooker, IM 80, was nominated as president-elect of the State Bar of Georgia. She is the past president of the Gate City Bar Assoc.

Michael Price, Bio 88, gave the keynote at the Chinese Orthopedic Association’s annual meeting in Beijing in November 2012. He is a practicing orthopedic surgeon in Santa Barbara, Calif.
Out & About

1. L-R: Annie McIntyre, ME ’12, celebrates “getting out” after commencement while her younger sister, Mary, looks forward to enrolling as a freshman the following semester.

2. L-R: Tom Meree, NE ’79, and Bill Henry, CE ’80, pose for a photo after running into each other at the “Big E,” the USS Enterprise, where both spent parts of their careers.

3. Ramblin’ Wrecks brave the frosty climes of Danco Island, Antarctica, to pose with their school colors.

4. Steve Introne, ME ’93, MS ME ’94, poses with his racecar. He began racing in 2000 and moved to the national level two years ago.

5. Ryan Kikendall, IE ’00, walks along the Great Wall near Beijing during a recent trip to China.

6. John Patrick O’Har, CE ’09, MS CE ’11, and Lucrecia Martinez, M CRP ’11, trek across the Perito Moreno Glacier in Patagonia, Argentina.

7. Tom Ventulett, Arch ’57, snapped this photo of his grandson, Will, before heading to a Yellow Jackets basketball game.

8. Brian Dale, EE ’80, and Catherine Bruner Dale, IM ’79, show off the reading material they brought on a trip to Hallstatt, Austria.

9. L-R: Climbing guide Wolfgang Huber and Tech students Michael Butler, Marc Ruet and Parker Vasik stop for a photo after a five-hour hike to the top of Mont Blanc as part of an Outdoor Recreation at Georgia Tech excursion.

10. The engraved bricks outside the headquarters of Milliken’s in Greenville, S.C., include a familiar name.

Wade R. Smith, AE ’86, was nominated by President Barack Obama for an appointment to the rank of brigadier general. He is a colonel in the U.S. Air Force.

Richard Staten, AE ’88, contributed a case study, “Harnessing Globalization: The Case of Innovation at The Coca-Cola Company,” to the 2012 collection Beyond Knowledge Management: What Every Leader Should Know. In 2012, as the innovation director at Coca-Cola, he was granted four patents for new beverage technologies. In April 2012, he helped his wife open Cupcakelicious, a gourmet bakery in Woodstock, Ga.

Eric Sweeney, EE ’84, received his master of science in international political economy from the University of Texas at Dallas. He works as a test engineer.

Al Trujillo, AE ’81, was appointed to the Georgia State Lottery Board by Gov. Nathan Deal.

1990s


Matt Bracewell, CE ’95, was hired by Burns & McDonnell-Southeast as a senior engineer with the company’s water practice department.

John Cordova, EE ’94, completed a master’s of science in applied biomedical engineering at the Johns Hopkins University in May 2012. He is a contractor with the U.S. State Department in Washington, D.C.

Tim Hagan, MS EE ’93, was elected as the treasurer of the Libertarian Party.
Wanda J. Harding, MS EE 93, accepted a group achievement award on behalf of the Mars Science Laboratory Mission Integration Team for work on the Mars Science Laboratory mission. She is a senior mission manager in the Flight Projects Office of the Launch Services Program at NASA’s Kennedy Space Center in Florida.

Carolyn Holcomb, MS Mgt 91, was awarded the Woman of the Year in Technology award for the enterprise organization category by Women in Technology. She is a partner and leader of PwC’s Assurance Data Protection and Privacy Practice.

Stan Hoptroff, MS MoT 98, was named one of Computerworld’s Premier 100 IT Leaders for 2013. He works for Southern Company.

Mark F. Horstemeyer, PhD ME 95, was recognized as a fellow of the American Association for the Advancement of Science Engineering Section and as a fellow of the Society of Automotive Engineers. He is chair professor in mechanical and computation engineering at Mississippi State University.

Lina Karam, MS EE 92, PhD EE 95, was named a 2013 IEEE Fellow for her contributions to perception-based visual processing, image and video communications and digital filtering.

Eric Lausten, HTS 98, is chief of staff for U.S. Congressman Dan Lipinksi in Washington, D.C.

Sandra Magnus, CerE 96, was appointed as the executive director of the American Institute of Aeronautics and Astronautics.

Wanda J. Harding, MS EE 93, is senior mission manager in the Flight Projects Office of the Launch Services Program at NASA’s Kennedy Space Center.

Alumni Partner on NASA Messenger Mission

After crossing paths on campus during their shared time in the School of Aerospace Engineering, Andy Calloway, AE 89, and James Hudson, MS AE 90, reunited at NASA, where they both work on the Messenger Mission. Calloway serves as the mission operations manager, and Hudson is the guidance control analyst. “Every day is different, and we are literally rewriting the science and engineering textbooks as we explore the inner Solar System,” Calloway said. In January, Messenger completed its mission to capture images of 100 percent of Mercury. Among its discoveries was evidence of ice at the planet’s poles. “It never ceases to amaze me that we are sending signals to a robotic spacecraft hundreds of millions of kilometers away, and then we wait tens of minutes to receive and confirm the responses,” Hudson said.
Errika Mallett, IE 96, joined the Information Technology Senior Management Forum as membership director. She is a member of the Alumni Association Board of Trustees and the Industrial Engineering Department’s advisory board and is a former president of the Georgia Tech Black Alumni Organization.

John Marshall, IE 96, was named the Atlanta Telecom Professional of the Year by the Association of Telecom Professionals. As founder, president and CEO of AirWatch, he has brought more than 700 jobs to Atlanta.

Siddeeqah Powell, Mgt 97, received an honorable mention in GMC’s Faith and Family Screenplay Competition for Somebody’s Child. The movie received an NAACP Image Award nomination for Best Actor in a Television Movie for Michael Jai White.

Heather Smith Rocker, IE 98, was named executive director of the national headquarters for the Distinguished Young Women scholarship program.

Dudley Smith, ME 93, is the engineering coordinator for Honda of America Manufacturing, where he works in new model development.

Jason P. Tuell, PhD GeoS 90, was named the director of the National Weather Service eastern region. He is the chief of the meteorological services division of NOAA’s National Weather Service.

Adam Bever, EE 04, received his master of science in systems engineering with a specialization in software intensive systems from George Mason University in December. He was promoted to senior systems engineer at Sedna Digital Solutions in February. He lives in Oakton, Va.

Simon Clark, ME 09, is working with Engineers Without Borders to build an earthen dam for a trade school outside of Lichinga, Mozambique, to provide water for irrigation during Mozambique’s dry season. He also works as a space flight consultant.

Keedick Coulter, IE 01, celebrated the one-year anniversary of his restaurant, Bobwhite Lunch & Supper Counter, in New York City. He has been recognized in the New York Times and recently reopened Bobwhite after Hurricane Sandy.

Joseph Dant, AE 05, received the NASA Exceptional Achievement Medal for exemplary achievement in leading the Kennedy Space Center Safety and Mission Assurance team, culminating in the successful launch of the Mars Science Lab mission.

Andrew Dana Dalton, Cls 03, was ordained as one of the Legionaries of Christ, a Catholic congregation, in December 2012 in a ceremony in Rome, where he lives and specializes in biblical theology.

Kathryn Genter, CS 09, was the RoboCup 2012 robot soccer world champion in the standard platform league. Her team defeated the three-time world-champion German team in the finals.

Sandie Grage, MS AM 03, won the 2013 Science Spectrum Trailblazer award, sponsored by the U.S. Black Engineer and Information Technology website. Grage is a mathematician at the Naval Undersea Warfare Center Division in Newport, R.I.

Dail Tim Hur, IE 05, was appointed by the president of the National Association of Realtors as the liaison to South Korea.

Yousef S. Iskander, MS ECE 01, earned a PhD in computer engineering from Virginia Tech.

Atif Khan, CS 01, joined Sandvik Mining’s Gainesville, Fla., branch as the manufacturing plant’s first software engineer and has served as its engineering manager for Automation and Control Systems since October 2010.

Amanda Koons-Gillespie, AM 00, earned her American Society of Quality Reliability Engineer Certification in January 2011. She is a reliability, maintainability and analysis engineer with the Science Applications International Corporation, supporting the NASA KSC Ground Systems Development and Operations program. She has won a number of awards for her work—most recently, the Space

Alumni Elected to National Academy of Engineering

James O. Ellis, MS AE 70, and John R. Huff, CE 68, have been elected to the National Academy of Engineering. Ellis is the president and chief executive officer for the Institute of Nuclear Power Operations in Atlanta and serves on the board of directors of Lockheed Martin. He is a retired four-star admiral and former commander, United Stated Strategic Command, Offutt Air Force Base in Nebraska. Ellis was recognized by the NAE “for leadership in advancing safe nuclear power plant operations throughout the world.”

The current chairman and retired CEO of Oceaneering Inc., Huff was recognized by the Academy for his contributions to the development of remotely operated vehicles for deep-water explorations. Huff originally supported the development of the vehicles as a means to improve the extraction of oil and gas deposits. Oceaneering, Inc.’s ROVs have also been employed to explore the Titanic and other underwater wreckage.

VOLUME 89 NO.2 2013
Chioma Nwachukwu, IA 02, returned from four years in Africa working on women’s reproductive health issues.

Coast Woman Engineer Technical Achievement Award of the Year from the Society of Women Engineers.

Hugh Malkin, ME 05, and Adam Wilson, CS 03, MS CS 05, created hugecity.us as a way to connect people to events in Atlanta and beyond.

Lea Miller, Mgt 02, is the president of Lea Miller & Associates, a sports and entertainment firm founded in 2010. She recently won a stadium bid in Nassau, Bahamas, to bring in sporting events from all over the world. She created, among other events, the Battle 4 Atlantis Division I men’s preseason college basketball tournament.

Chioma Nwachukwu, IA 02, returned from four years in Africa working on women’s reproductive health issues. She received her master of public health at the London School of Economics and a certificate in nonprofit management from Duke.

Michael Pink, IE 01, founded Construx Solutions, a company focused on changing how the construction industry views consultants. He lives in New York City.

Charles Brian Quinn, CS 03, became CEO of Big Nerd Ranch. He was previously CEO of Highgroove Studios.

Kristen Shaw, Mgt 06, graduated first in her class from the Medical College of Georgia’s College of Dental Medicine with her doctorate of dental medicine. She will continue her residency training in orthodontics at the Medical College of Georgia.

Page Siplon, CmpE 02, MS ECE 05, was appointed to the U.S. Advisory Committee on Supply Chain Competitiveness. He is the executive director of the Georgia Center of Innovation for Logistics.

Domenick Treschitta, M Arch 02, was promoted to principal of Historical Concepts, an architecture and planning firm, and was appointed to the board of directors of the Southern Architecture Foundation. He has served as an adjunct faculty member in Tech’s School of Architecture.

Daniel Weinman, ME 09, is a professional poker player competing in both the World Series of Poker and the European Poker Tour.

Harry Woodworth, PP 09, was named an associate attorney at McCurdy & Candler LLC after passing the Georgia bar exam.

Jamal Starr, MS IE 99, founded Starr and Associates in Atlanta in 2003 and has since recruited a number of fellow students from the School of Industrial and Systems Engineering, including Monte Fowler, IE 01, MBA 12, and Albert Thomas, IE 00. The consulting firm works with companies to provide strategic guidance, project management, interim executive leadership and more.

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2010s

Jon Paprocki, AM 11, Phys 11, competed on TBS’s King of the Nerds reality TV show.

Kunal Parbadia, EE 10, co-founded Better Weekdays, a job search service that recently launched in beta.

Luis Alberto Simauchi Jr., BA 12, is an inbound marketing specialist for Do My Own Pest Control.
William “Randy” Avera, AE 77, and Kelli Nahors on June 25, 2011. Randy works with the FAA. They live in Madison, Ga., with their daughter Maggie.

1. Annie-Rae Barber, Bio 12, and Andrew Rosen, CS 10, on May 27, 2012, in Long Creek, S.C. Annie-Rae is pursuing a job in conservation education. Andrew is a doctoral student in computer science at Georgia State University.

2. Drew Bolton, IE 99, and Elizabeth Ellen Richwine on Nov. 3. Drew is a senior program manager for Precysse Technologies.

3. Michelle Renee Corley, ChE 98, and Andrew Michael Galuski on Aug. 14 in Castries, St Lucia. Michelle is a market development engineer for Techmer Engineered Solutions. They live in Coppell, Texas.

4. Umehani Dalal, ECE 08, and Imran Kanga were married in January in Mumbia, India. The weeklong celebration doubled as a reunion for a number of far-flung Tech friends. In attendance were Grace Marie Mooker, Bio 08; Haley Carney, ME 11; Sugandh Windlass, ECE 07; Jennifer Vilbig, CE 07; Sharifa Chinikamwala, IE 10; Shruthi Panicker, CS 08; Raahi Kapadia, IE 10; Peony Park, IAML 10; Charlene D’Souza, EE 09; and Shalini Bumb, BME 07.

5. Michael Deane, CE 11, and Georgia Kennedy, IA 10, on Dec. 27, in Decatur, Ga. Michael is a law student at the University of Texas. Georgia is a kindergarten teacher. They live in Austin, Texas.

6. Emily Gress, Mgt 11, and Brandon Taylor, Mgt 09, on July 28 in Peachtree City, Ga. Brandon is an operations consultant and Emily is a derivatives analyst, both at Bank of America. They live in Charlotte, N.C.

Laura Janet, ID 07, MBA 09, and Kelly Gravesen on Nov. 3 in Atlanta. Laura works for the Centers for Disease Control and Prevention.


8. Matthew T. Taylor, Mgt 05, Econ 05, and Jennifer Nicole Bruzan on Oct. 12 in Naperville, Ill. Matthew is a division finance manager at Freudenberg-NOK. They live in Chicago.
BIRTHS


2. Eric Chang, CE, MS CE 99 and his wife, Dana, welcomed son Adlai Tottenham Chang on Feb. 5. Adlai joins big brother Lyndon, Eric’s stepson. Eric is a senior EHS compliance engineer at URS. They live in Decatur, Ga.

3. Christopher George Cox, Arch 05, MS BC 12, and his wife, Alison, welcomed daughter Riley Josephine on Jan. 24. Christopher is an assistant project manager for Noble Investment Group. They live in Marietta, Ga.

4. Lisa Ann Barron Curtis, ME 92, and her husband, Douglas, welcomed daughter Mollie Grace on Oct. 9. Douglas is a systems architect for OIT at Georgia Tech.

5. Kimberly Wallace Gantt, IE 01, and David Gantt, MBA candidate, welcomed son Jacob David on Dec. 21. He joins big sister Kendall, 1. David is a C-17 pilot in the Air Force. Kimberly is a solutions engineer with Sprint. Grandfather: John Wallace, ME 75.


7. Erin Porter Izen, IE 01, and her husband, James, welcomed daughter Lauren Ann-Marie on Aug. 17. Erin is the director of strategic projects for The Home Depot.

Welcomed a future Yellow Jacket into your family? Send a photo and note to ramblinroll@gtalumni.org.
They live in Marietta, Ga.


9. Randy McDow, PP 05, MS IE 03, and Lauren Weatherly McDow, Mgt 03, welcomed son Liam on July 16. He joins brother Eston, 4, at the family’s home in Atlanta.

10. Michael Scott, CE 06, MS CE 07, and Gena Scott, CE 01, welcomed son Theodore Eugene on Jan. 8.

11. Matt Wieters, Cls 08, and Maria Wieters, STC 07, welcomed son Maverick Luther on Sept. 28. Matt is a catcher for the Baltimore Orioles.
in memoriam

1930s

Charles Staples, ME 38, of Santa Rosa, Calif., on Nov. 29. Naval Reserve (Submarine service, Lt. Cmdr.), World War II. Plant engineer, Proctor and Gamble.

1940s

Bruce Benjamin Blackburn Jr., EE 47, of St. Petersburg, Fla., on Nov. 1. Army (1st Lt.), Central Intelligence Agency, Intelligence Medal Of Merit.


Carl Lumpkin Beard Jr., Cls 49, of Warner Robins, Ga., on Feb. 11. Navy, OB/GYN. Houston Medical Center. Houston County Hospital Authority.


George Lee Brock, Arch 44, of Jackson, Miss., on Feb. 8. Army, World War II. Architect, N.W. Overstreet & Associates; Skidmore, Owings and Merrill; George L. Brock, A.I.A.

Harvey Gene Cagle, MS ChBE 48, Text 50, of Rossville, Ga., on Dec. 18. World War II.


Louis D. Conn, ME 48, of Steens, Miss., on April 11, 2012.


Robert West Feagles, ME 43, of Vero Beach, Fla., on Dec. 25. Army (Capt.), World War II. Head of domestic and overseas personnel, First National City Bank. Travelers Insurance Co.

Arthur Miller Field, ME 48, of Colorado, on Jan. 25. Army Air Corps (Lt.), World War II. Geophysicist, Mobil.

Lewis Hale Fig Jr., IE 48, of Montgomery, Ala., on Feb. 4. Navy, World War II. Grandson: Matthew Lewis Figh, Bio 05.


Robert D. Grogan Jr., Cls 45, of Charlotte, N.C., on Jan. 30. Army Corps of Engineers (Lt., Purple Heart), World War II. President, Grogan-Edwin Associates Inc.

Martin L. Gursky, Phys 48, MS Phys 50, of Los Alamos, N.M., on Jan. 17. Engineer Corp (Sgt.), World War II.


Patrick Sanders Jr., IE 48, of Meridian, Miss., on Jan. 05. Marines (Aviator), World War II. Korea. Industrial engineer. Episcopal priest.

Harry Seitz, IM 48, of Atlanta, on Feb. 20. Naval Air Corps, World War II. Atlanta Provision Company.

Jan List Boal, ME 54, MS Math 54, not only graduated first in his class at Tech, he also concurrently earned the Institute’s first-ever master’s of science degree in mathematics. Boal died on Jan. 16 in Atlanta.

He went on to earn his PhD in math from MIT and taught the subject at the University of South Carolina. During that stint, he received NSF-USAID grants to improve the teaching skills of math professors in India.

He returned to Atlanta in 1969 to become chair of the Math Department at Georgia State University. Later, he and his wife, Bobby, purchased the Veranda Bed & Breakfast Inn. It was highlighted in a variety of publications, which showed off the inn’s massive collection of kaleidoscopes. It also became a favorite of movie producers and actors, including Kathy Bates and Elijah Wood.

After retiring from the Inn in 2006, the couple opened the Kaleidoscope Shop, where Boal was renowned for calling out to visitors, “Welcome! Welcome! We’re so glad to see you! Come on in!”

Jan List Boal
MATHEMATICIAN, KALEIDOSCOPE ENTHUSIAST


Berthold Gotlieb Stumberg, TE 49, of Atlanta, on Feb. 18. Army (Lt. Col., two Purple Hearts, Bronze Star), World War II. Owner/operator, SSC.


James W. Webster, TE 42, of Atlanta, on Jan. 24. Army Air Corp (1st Lt.), World War II. Painter, artist.

1950s

James D. Anderson, AE 50, of Norwalk, Conn., on Jan. 27. Navy (1st Lt.), World War II. Head of development engineering, installation-tool division, Burndy Corporation.


Richard Burke Connelly, CE 58, of Signal Mountain, Tenn., on Dec. 17. Air Force. TVA. Adjunct professor of math, Chattanooga State.

James F. Cook, IM 50, of Atlanta, on Nov. 4. Army Air Corps, World War II. Ford Motor Company. Son: James F. Cook Jr., IM 75.

Alfred C. Daniel, EE 53, MS EE 57, of Dalton, Ga., on Dec. 25. Teacher, University of Colorado, University of
Football star at Georgia Tech and in the NFL, Larry Morris, IM55, died Dec. 19 in Austell, Ga. Following his death, his family provided his brain to a center at Boston University that is researching the brains of former football players to understand degenerative brain disease and the long-term impacts of concussions.

Morris’ bruising style of play earned him the nickname “Brahma Bull.” He played on two undefeated Yellow Jackets teams under Bobby Dodd and was a renowned linebacker during an 11-year NFL career.

In 1963, Morris and the Chicago Bears clamped down on the New York Giants and quarterback Y.A. Tittle. The Bears won the game 14–10, and Morris was named the game’s MVP. Morris was named to the Georgia Sports Hall of Fame and the College Football Hall of Fame.

After returning to Atlanta, Morris struggled as a real estate developer. His wife, Kay, told the New York Times that her husband’s poor business decisions owed to the early onset of dementia in his mid-50s. Morris had suffered several concussions during his career, and his wife said a geriatric psychiatrist believed his condition related to his football experience.

His brain will help the Center for the Study of Traumatic Encephalopathy in its mission to better protect athletes against brain damage.
Sid Williams
LIFE UNIVERSITY FOUNDER

Sid Williams, IM 51, of Atlanta, on Dec. 27. After getting out, he attended Palmer School of Chiropractic in Davenport, Iowa, then returned to Atlanta and founded what would become Life University, the world’s largest chiropractic college. Following his retirement in 2002, he helped direct the Life Foundation Inc., a nonprofit chiropractic research and educational organization, and was involved with a number of other business ventures. A star player for the Yellow Jackets under Bobby Dodd, he was inducted into the Georgia Tech Athletics Hall of Fame in 1999.

Seymour Salmirs, AE 50, MS AE 52, of Scottsdale, Ariz., on April 14, 2012.
Bruce D. Smith, EE 51, of Hancock, N.H., on Feb. 24. Senior engineering manager, Digital Equipment Corporation. GTE Sylvania. RCA. Philco Corp.
Robert Hardy Smith, Arch 52, of Atlanta, on Jan. 13. Contractor, Raburn-Nash Flooring.
Thomas Varnson, IE 53, of Pensacola, Fla., on Feb. 22. Air Force Reserve (Lt. Col.). Production engineer, NAS.


1960s
In 1990, when the Alumni Magazine listed Tech’s greatest inventors, Glen P. Robinson Jr., Phys 48, MS Phys 50, earned a prominent spot on the list. The article, titled “Dream Makers,” listed Robinson as having 35 patents in solar energy, antenna systems and energy management.

Robinson died Jan. 16 in Atlanta. He worked up until the day that he died, consulting business owners and tinkering with technology.

While a student, Robinson worked as a research engineer at the Engineering Experiment Station, which became the Georgia Tech Research Institute, and left school temporarily to serve in the Naval Signal Corps during World War II. After graduating, he worked as an associate physicist at Oak Ridge National Laboratory. Robinson went on to found Scientific-Atlanta in 1952 and served as its president until 1971. He also created the company E-Tech, which created a line of electric heat pumps that cut water-heating energy usage in half.

Robinson returned to his alma mater to serve as chairman of the Georgia Tech Research Corporation and as a trustee of the Georgia Tech Foundation. He received an honorary PhD in physics from the College of Sciences.
ChBE 69, PhD ChBE 76, of Atlanta, on Dec. 19. Army (2nd Lt.). Georgia Tech College of Engineering Advisory Board. Vice president of science and technology, Gold Kist. Proctor & Gamble. President/CEO, Agra Tech. CEO, Luker Inc. Memorial contributions: Georgia Tech Foundation.


William Earl Sears III, EE 67, MS EE 69, of Sugar Hill, Ga., on Jan. 30. Director, electronic systems laboratory, Georgia Tech Research Institute. Daughter: Emily Sears Warlick, EE 93, MS 96 EE.


Keith Laird Weekly, IM 64, of Marietta, Ga., on Sep. 8.

Mather Foy Whitehead, TE 63, of Jamestown, N.C., on Dec. 31. Director of engineering, Cone Mills Corp.


Steve Zurko, Cis 65, of Tallahassee, Fla., on Jan. 24. Coast Guard. Teacher, Palm Beach County School District.

1970s

Donald Lewis Adams Jr., Cis 70, of Stone Mountain, Ga., on Dec. 28. Army (Lt. Col., three Bronze Stars, two Purple Hearts, Combat Infantryman Badge, Presidential Unit Citation), Vietnam. Atlanta Advertiser. Son: Matthew Donald Adams, MSE 98.


Stephen P. Fry, Phys 75, of Crowley, Texas, on May 2, 2011.

John William Kilgo, IE 73, of Tallapoosa, Ga., on Feb. 13.

Jonathan Kent Martin, TE 70, of Fredericksburg, Va., on Feb. 27. Army. Computer science teacher, Draughon’s Junior College, University of Alabama; Texas State University-San Marcos; Prairie View A&M University. Vecna Technologies.


William Lloyd Worley, EE 73, MS NE 77, of Alpharetta, Ga., on Dec. 28. Sun Microsystems. MB&R Engineering.

1980s

Donald Lewis Adams Jr., Cis 70, of Stone Mountain, Ga., on Dec. 28. Army (Lt. Col., three Bronze Stars, two Purple Hearts, Combat Infantryman Badge, Presidential Unit Citation), Vietnam. Atlanta Advertiser. Son: Matthew Donald Adams, MSE 98.


Earle Frederick Close, ME 87, of Macon, Ga., on Jan. 23.

Marion J. Herkert Cole, ICS 86, MS ICS 89, of Alpharetta, Ga., on Jan. 30. Senior software engineer, Rolls Royce Civil Nuclear. Brothers: Ralph M. Herkert, EE 88, MS EE 90; Arthur G. Herkert, MS EE 89.

Charlotte Jacobs, PhD IE 87, of Cullman, Ala., on Feb. 21. Industrial engineer, Georgia Tech.

Dan DeCicco, EE 87, of Pasadena, Md., on Jan. 15. Senior staff electrical engineer, Johns Hopkins Applied Physics Lab.

Jeffrey A. Wierenga, Arch 80, M Arch 83, of Atlanta, on Dec 31. TVS & Associates. Longest living adult patient with single heart transplant.

2010s

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I actually rode in the original Ramb-lin’ Wreck to grammar school for several years before Dean Dull purchased it for Georgia Tech.

The Model A Ford was purchased in its original unrestored shape by my family’s neighbor, Ted Johnson, who was chief pilot for Delta Airlines. The car was for his son, Craig, who along with me attended Georgia Military Academy (now Woodward Academy) in Atlanta.

Capt. Johnson didn’t have the time or expertise to restore the car, and so he sent it to a professional, Ken Johnson (no relation), who finished restoring it in the spring of 1958.

Craig Johnson drove this car to the Academy, and I was one of his riders. I paid around $2.50 per week for gas. Being the youngest of the group, I had to ride in the rumble seat.

After graduating in 1959, Craig Johnson entered Florida State University, where he was on the track team. He drove the car to a track meet between Georgia Tech and Florida State and parked it outside of Grant Field. It was there that Dean Dull noticed the car, and the rest is history.

My father, also a pilot, later encouraged me to buy a 1926 Model T Ford. I paid $225, and we restored it together. I drove every day to the Academy and later to Georgia Tech, where I attended from 1964–68. The car served me faithfully, making many runs to the Varsity, Agnes Scott, fraternity events and more.

I remember vividly that gas was 30 cents per gallon, and the tank held eight gallons. You could fill it up for less than $2.50! But there was a downside. With the Model T, you never knew your gas mileage, because it had neither a gas gauge nor an odometer.

In 2007, my wife and I participated in the Georgia Tech Alumni Travel program to China. On one of the visits to an old Chinese home, the people there seemed perplexed about our group and our Georgia Tech apparel. Finally our guide asked and translated their question: “Why, if you say you are from such a technically advanced institution, do you have an old car as your symbol?”

The answer is a story that I know all too well.
A Yellow Jackets ‘Man Cave’

“1 like to collect,” says Joe Belcher, in what is certainly a frontrunner for understatement of the year.

Belcher, Cls 91, has turned the 1,500-square-foot basement in his Franklin, N.C., home into a Georgia Tech “man cave” overflowing with memorabilia. His collection includes about 100 pennants, dozens of bobbleheads, two gate signs from the old Bobby Dodd Stadium and about 40 game-worn basketball and football jerseys.

“I’ve got a Joe Hamilton jersey. I’ve got Shaun Jones’ game-used jersey. I’ve got a Tashard Choice jersey from when he was captain at the Humanitarian Bowl,” Belcher says. “I like old stuff. But if I don’t have it, new or old, I try to get it.”

Belcher grew up in Blacksburg, S.C., where most root for South Carolina or Clemson. But as a contrarian youngster, Belcher decided to be a fan of the Yellow Jackets. His parents were regulars at the local flea markets and would pick up Georgia Tech items for their son.

“I still have all of it,” he said. “The first thing I ever got was in the early 1980s. It’s a Georgia Tech print of a helmet. That’s the only thing that stays upstairs, over the mantle. The rest is in the basement. It’s not worth that much, but it’s the first thing I got. And I’ve never seen another one.”

Belcher eventually enrolled at Georgia Tech but later transferred to Western Carolina after deciding to pursue a career in law enforcement. (He now works in environmental enforcement.) But his passion for the Yellow Jackets remained. He and his wife, Heather, have season tickets to Tech football games and make the two-hour drive to almost every match.

Over the years, Belcher began to pick up a few items whenever he found something of interest. He would hit up garage sales, flea markets and sports memorabilia shows.

Later, Belcher became close friends with a neighbor, Orville Vereen, IM 55, who played on the 1952 championship-winning football team and was captain of the Yellow Jackets in 1953. Belcher and Vereen travelled together to the unveiling of the Bobby Dodd statue on Tech campus last fall.

Vereen had held onto his football gear, including a jersey and a championship ring, and he gave it all to Belcher. Belcher says those are among his most cherished items.

While Belcher’s collection is seemingly endless, there are a couple of items he’s still trying to track down.

“The 1952 media guide with Marilyn Monroe on it is one I’d really like to have,” he says. “I’ve seen one, but it sold before I could get it. And I need the 1947 bowl program.”

Have a Tech artifact to share? Send mail to Editor, Georgia Tech Alumni Magazine, 190 North Ave. NW, Atlanta, GA 30313, or contact us by email at publications@gtalumni.org.
A Sunday Drive, A Father’s Command

Chuck Huling, CE 74

Following the road that leads to Tech.

“Become something like an engineer!”

That was the first—and best—career advice I ever received. It was given to me by my dad, Marcus H. Huling Jr., during one of the many Sunday car rides we took when I was a kid.

Dad worked for Big Apple grocers in Atlanta, and part of every Sunday was spent checking the motors on the store’s refrigeration units. At the time, most stores were closed on Sundays, but Dad knew that if the refrigeration units malfunctioned there would be some foul-smelling food greeting customers come Monday morning. That wasn’t going to happen on his watch.

After church and lunch, my family would pile into Dad’s 1953 Chevy and drive a half hour to the College Park store. If all worked well, we’d be back by dinner. If not, it could be a very long day.

One day we stopped at a drugstore and got ice cream cones. I was 8 years old, and this was one of life’s unquestionable pleasures. As we drove away, though, my parents were less blissful. They were discussing the long hours Dad’s job required, the time spent away from the family. At the first traffic signal, my father turned around and addressed me directly:

“I don’t want you to have to work like me to make a living,” he said. “You should go to college and become something like an engineer!”

I didn’t know what an engineer was, but I did know Dad was serious, and that was good enough for me. I learned everything I could about engineering. I focused on math and science in school. And I set my sights on the only place you’d want to go to get an engineering degree—Georgia Tech—because I wanted to make Dad proud.

During college, when I worked long hours by Dad’s side, I began to feel the same weariness he’d expressed on that Sunday when I was 8. I was annoyed by the monotony of the work and resentful of the time it took away from other youthful pleasures. In retrospect, I see it as yet another gift I got from my Dad.

“Become something like an engineer” was a pointed reminder that I had options he would never have. If I’m proud of anything, it’s that he lived to see me earn that engineering degree from Georgia Tech and, with it, to establish a life where Sundays were, in fact, a day of rest.

Chuck Huling retired as a vice president for Georgia Power and serves as the executive in residence for the Georgia Tech Strategic Energy Institute. He is the chair of the Civil and Environmental Engineering Advisory Board.
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