Progress and Service
Institute’s motto rings true in Kenya
“A testamentary trust allows us to make a significant future gift to Tech in appreciation for the great start it gave us, while providing for the needs of our sons.”

Christopher T. Ratcliffe
IMGT 1977
Atlanta, Georgia

- Born in Canada to a father who was in the Canadian Diplomatic Service; grew up in The Netherlands, Switzerland, Spain, Canada, Israel, Jamaica, and Mexico; family moved to Atlanta his last year of high school and he stayed to attend Georgia Tech.
- Member of GT Rugby Club; participates in annual Homecoming rugby match between the “Old Boys” and the current GT team.
- MBA, International Finance, Georgia State University; post-graduate work at George Washington University.
- Professional career includes international marketing with Lockheed Martin and leadership positions with Measurement Systems Inc. and Marconi Avionics.
- Owner and partner in J. McMillan and Associates, maker of aerospace test equipment.
- Married to Karen for almost twenty years; two sons, Jackson and Connor.

Gifts to Georgia Tech
- Through testamentary charitable remainder trust, will establish the Karen A. and Christopher T. Ratcliffe Endowment Fund to provide unrestricted support of Georgia Tech.

Thoughts on Giving to Tech
“Not only do I owe my first job to the relationships I made on the rugby field at Tech, but also my many years of happy marriage. A testamentary trust allows us to make a significant future gift to Tech in appreciation for the great start it gave us, while providing for the needs of our sons. While I’d love to see the Institute use the gift to build a better rugby field, Karen and I have designated our gift for unrestricted endowment so that Tech’s future leaders can decide where the funds will do the most good.”

Chris and Karen Ratcliffe are among Founders’ Council’s 992 members who have made bequests or life-income gifts in support of Georgia Tech’s future.
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FROM THE PUBLISHER

Launchpad Toward Success


The common threads, of course, are Georgia Tech alumni and what they're doing with their lives and careers. An education from Georgia Tech is simply a foundation or a launchpad from which you build your life, and in this issue you'll find fascinating stories of our alumni involved in these vocations (or avocations as might be the case). You'll also see that three of the seven crew members launched into space aboard the shuttle Endeavour are Tech alumni.

The breadth of what our alumni do is astonishing. That points to the values that come directly from their educational and life experiences at Tech. I've said this before, but it bears repeating. The results of a Tech education manifest themselves as personal characteristics that serve our alumni very, very well in their lives. These include: an extraordinary work ethic, incredible problem-solving skills, a passion for learning, tremendous perseverance and a commitment to excellence. Those traits develop through the intellectual rigors and challenges of this academic environment.

Georgia Tech's reputation continues to grow in prestige both globally and nationally. In rankings released in October by The Times of London, the Institute ranked eighth on the list of the world's top universities in engineering and information technology prepared by the Times Higher Education Supplement—QS. It also ranked 83rd in the overall scheme, up from 97th the previous year.

The latest U.S. News & World Report rankings came out not long ago, and Tech was ranked seventh nationally among public universities for undergraduates.

This doesn't occur randomly. Your support makes all the difference to Tech — particularly in the mean economic times we're experiencing. Thank you for supporting Georgia Tech. It's a great investment in the future.

Joseph P. Irwin,
President
**Reward Offered for Missing Couple**

Fundraising efforts by friends and family of Elizabeth and John Calvert [ME 83] have pushed the Calvert Reward Fund to more than $65,000. The reward is available to anyone who comes forward with information leading directly to the whereabouts and safe return of Elizabeth and John Calvert or the arrest and conviction of the individual or individuals responsible for their disappearance. ['Paradise Lose,' an article about the Calverts' disappearance, appeared in the Fall 2008 issue of the ALUMNI MAGAZINE.]

Elizabeth and John Calvert have been missing since March 3. The couple were last seen in the Harbour Town area of Sea Pines Plantation, Hilton Head Island, S.C., where they both live and work.

We are all dying inside. We are desperate for leads that will help us find Liz and John. If you know anything, anything at all, please call investigator Angela Viens at the Beaufort County Sheriff's Office at (843) 671-2777. Please help us bring them back.

For reward details or to make a donation to the reward fund, go to www.CalvertRewardFund.com or contact me at info@calvertrewardfund.com.

David White, brother of Elizabeth Calvert Decatur, Ga.

**Join Us at Bobby Dodd Stadium**

I had been a consistent football season ticket holder starting in the mid-1980s until the middle of the Gailey regime. After the hiring of coach Paul Johnson, I am now back squarely on the Georgia Tech bandwagon and a proud season ticket holder once again. I want to encourage all Georgia Tech alumni in the Atlanta area who don't have season tickets to get them next season.

With the purchase of just one or two season tickets, local alumni can help fill Bobby Dodd Stadium with Tech fans and eliminate the scourge of visitors from the opposing team's fan base. With the hiring of such a great football coach as Paul Johnson, Georgia Tech will enjoy more than its share of autumn victories on the Flats. I feel it is our duty as devoted alumni of this tremendous Institute to help create a powerful home-field advantage.

The days of mediocre football at Georgia Tech are over! Be part of this exciting new era by joining us at Bobby Dodd Stadium. Mitch Ginn, Arch 82, M Arch 85 Newnan, Ga.

**Deconstructing '30 Under 30'**

I really enjoy the GEORGIA TECH ALUMNI MAGAZINE as it is generally well written and includes lots of articles about successful Tech grads. As an old engineer, it always fascinates me to read about success and try to analyze the approach taken to reach it.

The article "30 Under 30" in the Summer issue was illuminating in several ways. I don't really know how the 30 were chosen, but there seem to be some common threads. First, only 11 of the 30 graduated as engineers. Second, only four of those (my count) are really working as engineers. If around 13 percent of Tech grads working as engineers is representative of Tech as a whole, then what does that bode?

A common thread seems to be that very few (one or two depending on how you count) are working for large companies. Almost all 30 are working for themselves or continuing their education into other fields.

One hypothesis might be that it takes a lot longer than four to five years of school and 10 years of working in the engineering trenches to develop a star engineer, so star engineers might not show up in an "under 30" list. Engineering is about solving difficult problems using approaches and techniques taught (under pressure) at schools like Tech and learned on the job.

Another hypothesis based on the article might be that engineering is not visible and not as rewarding as all the careers of the 30. I don't think I could argue with that. Like teaching, engineering (solving problems) might be something to which one is driven.

Doug McCammish, IE 67 Columbia, Ky.

Editor's note: The number of engineers featured was not intended to represent the work force. We selected our "30 Under 30" from recommendations received from faculty, administrators, graduates and Alumni Association staff.

**Sharp-dressed GT Choir**

The 50 members of the Derbyshire Baptist Church senior adult choir in Richmond, Va., now have GT pins firmly affixed to their vests. While a few members of the choir know the logo represents my alma mater, most believe it represents the name of the group, the Golden Tones.

The Alumni Association was kind enough to send me the lapel pins, and our choir director agreed they should be worn. The Golden Tones perform locally and around the commonwealth of Virginia. A recent concert in Roanoke — not too far from the home of the Virginia Cavaliers and the Virginia Tech Hokies — prompted many exchanges between the locals and the Golden Tones. There were several interesting inquiries regarding the connection between the choir and Georgia Tech.

With the GT pins displayed prominently on their choir vests, the Golden Tones now look as sharp as they sound. From all outward appearances, it seems we now have 50 more Georgia Tech fans in Virginia.

Howard L. Hall Jr., IE 58 Richmond, Va.

Sophia's Choice

I thought I'd share a photo of my daughter, Sophia Davis, checking out the Fall 2008 ALUMNI MAGAZINE of her (hopefully) future alma mater. She seems to enjoy the articles as much as her daddy, so continue your hard work and great reporting!

Luke Davis, CE 97, MS CE 99 Ellicott City, Md.

David White, brother of Elizabeth Calvert Decatur, Ga.

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Luke Davis, CE 97, MS CE 99 Ellicott City, Md.

David White, brother of Elizabeth Calvert Decatur, Ga.
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26th Annual Alumni Career Fair
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☐ Research career opportunities and discover who is really hiring
☐ Talk with knowledgeable hiring managers face to face
☐ Drop in whenever it’s convenient for you
☑ All of the above
Gary Schuster prepares to escort Rep. Richard and Marilyn Royal onto the field at Bobby Dodd Stadium to salute the lawmaker for his 25 years of service in the Georgia Legislature. “There’s been no stronger advocate in the General Assembly for higher education,” Schuster said. “Richard Royal understands the value of education and the strength it brings to Georgia. He went to bat many times in the Capitol late at night for Georgia Tech, and there are very few initiatives that the state has funded for Georgia Tech that don’t have a few fingerprints on them of Richard Royal.”

Alumni Legislative Network Tackles Tough Opponent

While an army of tailgaters surrounded the Georgia Tech campus before the Yellow Jackets defeated the Florida State Seminoles on the football field, a budget brigade inside the Student Success Center rallied the troops to take the Institute’s funding cry to the Capitol.

On hand to hear the Georgia Tech Legislative Network’s funding priorities, including $43 million in new construction, and deliver the message to Gov. Sonny Perdue was Trey Childress, ISyE 00, IntA 00, MS PubPol 02, director of the state’s planning and budget office.

Childress told the Legislative Network, an Alumni Association affinity group, that Georgia’s economy is not expected to improve anytime soon. State revenues this fiscal year are expected to be down 1 percent from the previous one.

“It’s going to mean at least $1.6 billion in reductions in the current fiscal year. That is a large number and to get there it’s going to require essentially every corner of state government to do their part. It’s too big to avoid that,” Childress said during the Nov. 1 pregame meeting.

“It won’t be an across-the-board, one-size-fits-all reduction for education or for public safety or for social welfare programs but rather very targeted and very dependent on each situation,” he said.

Childress said state tax revenues in May and June “dropped substantially, to the point that we had to use our rainy day reserve. Because of the good work of the leadership in the General Assembly and this governor, we had built a rather healthy rainy day reserve. ... We had on the order of about $1.6 billion, which is good, because we used about $600 million of it.”

In August, the governor “began withholding expenditures across the state on the order of about 6 percent,” Childress said.

Georgia Tech Interim President Gary Schuster told the Legislative Network that during
How President-elect Obama's Platform Could Impact Georgia Tech

It remains to be seen how much the economic downturn and federal bailout of financial institutions will impact President-elect Barack Obama's platform when he takes office in January. But several of his campaign promises, if enacted, could have significant impacts at the Institute.

**Financial Aid**

Obama's proposed "American Opportunity tax credit" would cover the first $4,000 of college education and potentially provide additional funds to cover two-thirds of the cost of tuition at "the average public college or university." Recipients would be required to do 100 hours of community service.

Obama offered a plan to eliminate the free application for federal student aid and instead allow families to apply for aid by checking a box on their tax forms.

He has proposed a national online database to coordinate financial aid opportunities in science and technology from the federal government and public and private sources.

**College Preparation**

Obama proposed an initiative to increase the number of high school students taking advanced placement or college-level classes nationwide by 50 percent by 2016. The classes would be supported by grants when schools do not provide those resources.

He also has called for additional support for college outreach such as Gaining Early Awareness and Readiness for Undergraduate Programs, the TRIO programs and Upward Bound, which encourage students from low-income families to pursue higher education.

**Math and Science Education**

To increase the number of science and engineering graduates from colleges and universities, Obama called for more focus on math and science in K-12 education.

**Research Support**

Obama offered several ideas for supporting science and technology research, with the most prominent being doubling federal funding for basic research for the next 10 years. In addition, he called for new research grants especially targeted to "outstanding early-career researchers" at colleges and universities and to make permanent the research and development tax credit.

Obama's platform also included a plan to improve "clarity and predictability" in the U.S. patent system to allow for inventions to be approved more rapidly.

**Tech Students Back Obama**

While John McCain won Georgia on Election Day, Obama was declared the winner at the Georgia Tech Student Center precinct. The Technique reported that 67.3 percent of the ballots cast for president at the Student Center were for Obama. McCain received 28.8 percent, Libertarian Bob Barr got 2.7 percent and write-ins, including George P. Burdell, Gary Schuster and Paul Johnson, received 1.2 percent.

— Van Jensen

the 2008 fiscal year the Institute earned $445 million — "almost a half a billion dollars in research grants and contracts." Through the state funding formula, Tech was allocated $270 million for the fiscal year that ended June 30.

"We take that $270 million a year, and we turn it into $445 million in grants and contracts. That's not a bad return on investment from the way I look at it," Schuster said.

He said Tech will maintain its focus on research and teaching during the "downside to the business cycle" and will go to state lawmakers with only one major funding priority.

"That's the G. Wayne Clough Undergraduate Learning Commons," Schuster said. "That's going to be a critically important building to Georgia Tech because it's going to transform the undergraduate learning experience, particularly for that critical first year. We're anticipating and we're expecting $43 million. That's the only thing Georgia Tech has asked for in this legislative session.

"But we'd also like to make sure the formula is fully funded," Schuster said, explaining that would bring Tech an additional $114.7 million. "That's a big chunk of money, and in challenging economic times people are looking for chunks of money, but there's nothing more important for the state of Georgia to do than to fund the formula fully."

The Institute also hopes to receive a healthy portion of $70 million earmarked for the University System for a major repair and rehabilitation fund. Dene Sheheane, Mgt 91, Tech's
director of government relations, said the Institute currently has $100 million worth of deferred maintenance projects.

The state’s formula funding is Tech’s “bread and butter,” Sheheane said. “Those are the funds we’ve just got to have for day-to-day operations.”

— Kimberly Link-Wills

Nanotech Has New Home

The Georgia Tech campus is now home to the world-class Marcus Nanotechnology Research Center. The center, which opened to researchers in December, offers about 30,000 square feet of clean rooms for nanoscale research in addition to offices and meeting facilities.

The building is unique because it has clean rooms for engineering and biology researchers in close proximity, which makes it easier to conduct biological experiments at the nano level.

“This is going to set us apart from every research institution in the world,” says Greg Book, the center’s assistant director of external research.

Clean rooms are delicately engineered to have almost no particles in the air. Such particles can destroy nanotechnology components, because they are so minute.

Many research efforts at the center will be conducted through Tech’s partnership with Emory University in medicine and health care.

Interim President Gary Schuster says the joint biomedical engineering department with Emory is in the top three in the nation, “and we’re so proud of that relationship and what that’s done and the recognition that has brought to Georgia Tech.”

The $84 million building was kick-started with a $15 million grant from the Marcus Foundation in 2006. Construction on offices and meeting space will be complete in early 2009, and the structure will continue expanding after the Neely Nuclear Research Center is razed.

The center also has unfinished space, leaving room for future development in the field.

— Van Jensen

Gold & White Honors

The Alumni Association board of trustees has announced the recipients of Gold & White Honors, which will be presented Feb. 19.

Winners of the Joseph M. Pettit Alumni Distinguished Service Award, the highest honor conferred by the Alumni Association, are G. Wayne Clough, CE 64, MS CE 65, secretary of the Smithsonian Institution; Allen Ecker, EE 57, MS EE 58, executive vice president of Scientific-Atlanta/Cisco; and Wade T. Mitchell, Text 57, the retired executive vice president of SunTrust Bank.

The Distinguished Service Award recognizes a lifetime of leadership, achievement and service to the Institute. Since the award was first presented in 1934, only 105 alumni have earned the distinction.

Dean Griffin Community Service Award recipients are John H. Burson III, ChE 56, MS Met 63, PhD ChE 64, a physician, and J. Tom Coleman Jr., IM 50, chairman of the board and CEO of Bonitz of Georgia.

Heather Rocker, IE 98, has been named the Outstanding Young Alumna. She is the executive director of Women in Technology in Atlanta.

Honorary alumnae for 2009 are Anne Clough, former first lady of Georgia Tech, and Theo Silas, wife of Pete Silas, ChE 53.

Greg Stathis will be posthumously named an honorary alumnus. In his 17-year career as head coach of the Georgia Tech ice hockey club, he led the team to 348 wins and several Southeast division championships. Stathis died on March 17, 2008, of complications from his second kidney transplant.
Mission Accomplished
Shane Kimbrough, MS OR 98, waves to the camera during a spacewalk in November. For the first time in NASA history, three of the seven shuttle crew members were Tech graduates. Also aboard Endeavour were Eric Boe, MS EE 97, and Sandra Magnus, PhD CerE 96, who remains at the International Space Station.

Outstanding Women Leaders

Patrise Perkins-Hooker, IM 80, a partner with Hollowell Foster & Gepp PC, has received a number of awards and held a number of appointments in her more than 24-year career as a practicing attorney. But in addressing the crowd of Georgia Tech students, faculty, staff and graduates who had gathered for the Women’s Leadership Conference on campus in November, she said her passion is helping teenagers who have been sexually exploited on the streets of Atlanta.

A founding chair of the Juvenile Justice Fund, Perkins-Hooker urged students not to focus solely on their professional careers after graduation but also to strive to make a difference in their communities.

“I appreciate this award from Tech, but I want you to go out there and do something for somebody else in your community,” she said.

Perkins-Hooker was named outstanding Georgia Tech alumna of the year during the conference’s Women of Distinction awards ceremony Nov. 7.

The two-day Women’s Leadership Conference, which also included a full slate of workshops and discussions designed to inspire women to become leaders in their professions and communities and in society, this year celebrated its 10th anniversary.

Georgia Tech alumna Chelsey McGee, IE 99, owner and CEO of CGInteractive, a Web development agency that has worked with such clients as cable networks TNT, TBS, TCM and the new PeachtreeTV, was the keynote speaker at the awards ceremony.

In addition to Perkins-Hooker, four other members of the Georgia Tech community were honored this year with Dean Gail DiSabatino Women of Distinction Awards: Andrea Trillo, a management major, was named outstanding undergraduate student; Joanna Hass, enrolled in the School of Physics, was named outstanding graduate student; Ayanna Howard, an associate professor in the School of Electrical and Computer Engineering, received the outstanding faculty award; and Amelia Gambino, assistant vice president of Communications and Marketing, was named outstanding staff member.

In her acceptance speech, Perkins-Hooker said when she began her freshman year at Georgia Tech in 1976 there were only a handful of female students and even fewer African-American students on campus.

“What I decided to do when I came here was not be a victim and not have an excuse,” she said. “I decided to go to school, to be a student, to be involved, to be active and make them realize that I’m just as good as they are.”

Perkins-Hooker became involved in student government and was a member of Omicron Delta Kappa and ANAK. “I just did a lot of things. And if you start doing things, you realize that people start adjusting their expectations about what you can do,” she said.

— Leslie Overman
Can politicians and the public be convinced to push for the changes needed to recharge the industry?
The Nuclear Question

Georgia Tech's faculty and alumni are helping shape the future of atomic energy

By Van Jensen

Fifteen years ago, Nolan Hertel thought it was finally time to get out of the nuclear game.

Hertel, a professor of nuclear engineering at Georgia Tech, had seen the industry wither after public outcry over the 1979 partial core meltdown at the Three Mile Island Nuclear Generating Station and controversial storage of radioactive waste. While other countries became more reliant on nuclear energy, the United States went decades without ordering a single reactor.

But as fuel costs rose in recent years and environmentalists' focus shifted from radioactive waste to carbon emissions, nuclear-generated power once again entered public discussion, part of an American "nuclear renaissance." It even became a hot topic in the presidential election, as Sen. John McCain called for the construction of 45 nuclear plants to be operating by 2030.

"Now I'm glad I didn't get out," Hertel says. "It's exciting."

Still, questions remain before any new plants can be built.

Construction Challenges

And, perhaps most importantly, can politicians and the public be convinced to push for the changes needed to recharge the industry?

These are the questions several Georgia Tech faculty and alumni are trying to answer as they lay out the blueprint for a nuclear-fueled future.

Construction Challenges

While the future of nuclear power is far from certain, one certainty is that the United States, and the Southeast especially, will need more electricity, says Marilyn Brown, a professor of public policy at Georgia Tech who studies energy issues.

"Georgia predicts the need for an additional eight gigawatts a year over the coming decade," Brown says. "That's the equivalent of four new nuclear power plants."

She calls the Southeast "the hub of the nuclear renaissance," as the region has the demand for power, lower regulations than other regions and the three largest institutions with nuclear engineering programs — the University of Tennessee, Texas A&M University and Georgia Tech.

Brown, who decided to pursue a career in energy during the Arab oil embargo of 1973, says the United States remains "hostage to countries that hate us." Because of that, she's hopeful two nuclear reactors proposed to be built in Georgia will be approved.
"When we get going, we’re going to have challenges finding the necessary components. The longer we wait, the more difficult it’s going to be."

— Marilyn Brown

On the surface, building a reactor seems a relatively easy proposition, nothing a team of talented engineers can’t handle. After all, many of the first generation of U.S. nuclear power plants were constructed in less than three years by engineers who, at that time, didn’t even have electronic pocket calculators.

At Southern Nuclear’s Alvin W. Vogtle plant near Augusta, Ga., the company, a subsidiary of Southern Electric, plans to install two reactors in addition to the two existing ones, which would be the first new reactors built in the United States since the Three Mile Island accident. Simply acquiring the components for the reactors could be a hurdle, says Dale Lloyd, ME 74, MS IM 75, the deployment director for Southern Nuclear’s proposed reactors.

Lloyd, who moved out of Southern’s nuclear division during the industry’s lean years only to return about three years ago, says that as the U.S. market for nuclear reactors dried up, so did the stateside supply of components, which include difficult-to-manufacture items like tanks that can withstand the intense heat and pressure of a nuclear reaction.

“One of the things that will be different is there will be more parts purchased from overseas,” he says. “The manufacturing capability doesn’t currently exist in the United States. But there has continued to be efforts refurbishing old plants. We’re not starting from a dead standstill.”

Because the international market for nuclear power has grown so steadily, that could mean waiting in line to purchase parts, Brown says.

“When we get going, we’re going to have challenges finding the necessary components,” she says. “The longer we wait, the more difficult it’s going to be.”

Government Approval

When it comes to actually constructing the plant, one of the largest challenges, even in the regulation-light Southeast, rests in receiving state and federal government approval to begin construction, Lloyd says.

His last three years have gone toward the two new reactors, and the bulk of his efforts have been in applying for licenses through the Nuclear Regulatory Commission and obtaining approval from the Georgia Public Service Commission.

The design of the reactor and the site itself have to be approved. Southern Nuclear also had to apply to the NRC for a combined construction and operating license. It’s part of the new “streamlined” licensing process that still takes at least three years for approval. Ideally, the new Vogtle reactors could be up and running by 2016.

“We have very firm dates, but it’s still a lengthy process,” Lloyd says.

Lloyd credits the government with improving the process. He worked on licensing some of the first-generation reactors, when plant design couldn’t be approved until the facility was completely constructed. That made building a plant a huge financial gamble. The new plants also are standardized models used around the world, making them easier to approve.

There are those who still are critical of the way government handles nuclear energy, or even energy in general. Brown, who is part of the National Commission on Energy Policy, says even though she supports nuclear plant construction, she would like to see more focus in the Southeast on decreasing the growing electricity demand.

“There is no regional plan,” she says. “Other regions have done energy planning. The state of Georgia has a plan, but it does not address nuclear, and it’s not been implemented anyway. It’s just sitting on the shelf.”

Clinton Bastin, ChE 50, of Avondale Estates, Ga., spent more than 40 years working for the federal government, first at the now-defunct Atomic Energy Commission and then at the Department of Energy. He came away so disillusioned with the government’s role that he’s now writing a book on his experience and what he wants to see changed.

“I was involved with very successful programs many years ago that ran aground

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Nuclear Engineering Program Excels Despite Losing Test Reactor

For years, there was a running joke among Tech students that anyone having classes near the nuclear engineering program’s test reactor would never have children because of exposure to radiation.

That reactor is gone now, its once infamous dome leveled and every piece of equipment removed. It was decommissioned before the 1996 Summer Olympics because of safety concerns and never started again. It was razed in 2006.

That marked the end of the “nuclear era at Tech,” which began in 1965, as announced in a story in the Blueprint. The Alumnus also covered the event as the uranium reactor of the new Frank H. Neely Nuclear Research Center went critical for the first time on New Year’s Eve 1964.

It was hailed as a great opportunity for Tech to advance in an exciting new field. But as nuclear energy came under fire in the 1970s, that excitement dwindled.

“When we finally removed the reactor, a lot of people thought the Institute was just going to cut nuclear engineering,” says professor Nolan Hertel.

Instead, the program has flourished, now with five times as many undergraduate students as eight years ago. And the level of research hasn’t tapered, with a Department of Energy grant allowing the students to study North Carolina State University’s test reactor via the Internet, and the Savannah River Site providing another research outlet.

“It’s actually more comfortable now,” Hertel says. “Instead of standing in there with a clipboard, you can just sit at your desk.”

— Van Jensen
Continued from page 16

because of the mismanagement of the Nuclear Regulatory Commission," he says. "The Department of Energy has done nothing to solve our energy problems since it was founded."

That sentiment is echoed by Clark Miller, ME 65, who spent several years at GE Nuclear. He now runs a consulting company in Saratoga, Calif., that is advising Toshiba as it plans a new generation of small sodium-cooled reactors to install in remote locations with no electricity.

"We don't have an energy policy, and that's the worst thing," he says. "I've always had this love for nuclear power, and we really damaged our country a lot by not being objective about it. We need more engineers and fewer lawyers."

Miller cites France, which has long focused on nuclear development and now pulls about 77 percent of its power from nuclear reactors.

"We need somebody like Reagan with the ability to sell it, somebody to convince the country and take up the cudgel," Miller says. "But the public these days, they probably are ahead of the politicians."

Fuel and Safety

The most controversial element of a nuclear power plant is the fuel, uranium and plutonium that react with enough heat to power cities. Or, enriched further, to level them.

Susan Hoxie-Key, MS NE 85, has spent the past two-plus years supervising nuclear fuel for Southern Nuclear. She buys uranium and arranges for it to be processed, deals she describes as much more tedious than potboiler movies and novels depict.

"In nuclear fuel, because there had not been development of new plants, the whole fuel supply industry had settled down," she says. "Because of the renaissance, those fuel supply industries are getting cranked back up too. There's a lot more exploration and a new enrichment plant being built in New Mexico and another in Ohio."
"I've always had this love for nuclear power, and we really damaged our country a lot by not being objective about it. We need more engineers and fewer lawyers."

— Clark Miller

For years, the two central concerns over nuclear power were reactor meltdowns and storage of spent fuel.

Meltdowns are an extremely slight risk now, people in the industry say, because the new generation of plants, such as the AP1000, has fewer valves — where leaks can occur — and more passive safety features. Also, proponents of nuclear power are quick to point out that in the infamous Three Mile Island incident, no one died or suffered injury.

Dealing with used fuel is a much more delicate matter.

Currently, all of the 104 operating nuclear plants in the country store their own waste on site, Brown says. The waste is stored in "containers that are very well designed, secure from an attack and accident proof."

There had been a plan to store the material in a Yucca Mountain, Nev., repository, but legal challenges over safety concerns have delayed that for a decade. Critics say an earthquake or other natural disaster could hit the site, jarring loose the nuclear waste, which remains radioactive for thousands of years. It also would require transporting the waste across the country to the site, opening up another potential avenue for people to be exposed or material to be stolen.

But without a large storage facility, there is the potential of the nuclear industry simply running out of space for used fuel.

A solution to this problem does exist, though it's a politically divisive proposition. As Hertel says, "Reprocessing? That's a dirty word."

In the current nuclear reactors, used fuel retains as much as 99 percent of its energy. So, people in the industry say, simply locking that material away to slowly lose its energy is an incredible waste. Instead, they would recycle it to generate even more electricity and reduce the fuel's half-life.

"It can be done, and it is done," says Hoxie-Key, adding that France is one of several nations that reprocesses fuel, and it has been a successful venture for the country's nuclear industry.

President Gerald Ford banned reprocessing in 1976 over proliferation fears. While most in the industry now say it is safe, the facilities and infrastructure don't exist for reprocessing to start in the United States anytime soon. Still, the Department of Energy in 1999 began researching reprocessing at the Savannah River Site near Aiken, S.C. The Global Nuclear Energy Partnership, started by Secretary of Energy Samuel Bodman in 2006, calls for the United States to consider reprocessing.

Concerns remain over proliferation, however. And in the wake of the terrorist attacks of Sept. 11, 2001, those concerns have only increased. During the presidential debates, Barack Obama said he would consider developing nuclear energy only after first addressing proliferation.

Years ago, Hertel says, nuclear engineering faculty largely ignored proliferation concerns, instead focusing on safety and other research.

"You can't do that anymore."

In fact, his research now is on nuclear detection for Homeland Security, and the Centers for Disease Control and Prevention funds his work to analyze radiation detectors for use in the triage of potentially contaminated people. Hertel also serves as coordinator of Tech's Pioneer Research in Nuclear Detection program, a multidisciplinary effort to produce new radiation sensors for use in areas such as "nuclear forensics," in which specific nuclear material is traced to its origin.

The concern over reprocessing is that it adds one more point at which criminals, terrorists or rogue nations could obtain nuclear material. But Hoxie-Key says the enrichment technologies are so tightly controlled, and always have been, that uranium or plutonium being enriched to weapons-grade material isn't likely.

"There are going to be more plants in the world, and they will be highly guarded," she says.

Brown echoed that sentiment. As a freshman physics major at Rutgers in the late 1960s, she actually "baby-sat" the university's test reactor. But those days of lax security are long gone, she says.

Lloyd understands why people have concerns over the safety of nuclear energy, and that's why
"Since we haven't started construction on a plant for 30 years, those [trained workers] are all gone."

— Nolan Hertel

Southern Nuclear launched a series of public meetings as the company started to develop the two new reactors.

"We try to present people with the facts, and most people come to the realization that nuclear is a safe and effective way of generating power," he says. "There's tremendous benefit to allowing the public to be involved in the discussion up front."

Staffing and Funding

If proponents of nuclear energy can convince politicians and the public to approve plant construction, the utility companies will still have to find a new generation of workers to construct and staff the facilities.

That could prove challenging, as for nearly 30 years the number of nuclear engineering students dwindled with opportunities in the industry drying up. Asked about Sen. McCain's call for 45 new reactors, Hertel says it would be impossible to accomplish if only because of the lack of trained workers. That means not only more nuclear engineers but also more engineers of all kinds and skilled laborers and craftsmen.

"Since we haven't started construction on a plant for 30 years, those people are all gone," Hertel says.

In the past few years, that demand already has been felt, with nuclear companies once again coming to Tech to round up interns and potential employees, Hertel says. That hadn't happened for at least 10 years.

Southern Nuclear is one of the companies that has boosted its recruiting, with competition for engineers leading to earlier and earlier internship offers, Lloyd says.

Job demand has led to a huge influx of students into Tech's nuclear engineering program, which has rocketed from 30 undergraduates in 2000 to 150 today, Hertel says.

Staffing nuclear plants is one issue. Finding the funding for them is another. The two AP1000 reactors planned for Vogtle, for instance, are estimated to cost a combined $14 billion. Because of that massive financial outlay, building nuclear reactors is a daunting proposition, particularly in the current financial climate.

"We always get a question about cost," Lloyd says. "There's a high initial capital cost, but they have very low year-in, year-out operating costs. On the average, the production cost of electricity is significantly less than coal, natural gas or oil."

Brown agrees that nuclear energy is cost effective in the long term, so she supports government incentives such as loan guarantees, while others have said such resources should go only to renewable energy sources like wind and solar.

Because renewable energy is still relatively early in its development and makes up such a small part of the country’s energy supply — only about 3 percent — energy officials say the need for additional nuclear power is more pressing. And because nuclear plants have almost no carbon emissions, they’re now drawing support from environmentalists such as Patrick Moore, the co-founder of Greenpeace.

"People are realizing it's a very low-carbon option," Brown says. "It's captured the support of many renewable advocates who were staunch opponents, because they realize it may be a price we need to pay."

What Will Happen?

Within 15 years, the existing U.S. nuclear power plants that provide 20 percent of the country's power will begin to be decommissioned. Already, many have been extended by 20 years with upgrades and additions.

But they can't operate forever, and nuclear proponents warn that the country needs to start replacing them now, because new plants take so much time to license and construct.

"I think construction could start in five years," Brown says. "The first plant could be up and running in 10 to 12 years. They could be supplying power by 2020."

But Hertel stresses that a commitment needs to be made soon. "If people don't start to do this in the next couple of years, it's not going to happen."
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Big Fish in Small Ponds

With a civil engineer at the helm, Sahlman Seafoods makes a splash with its shrimp farm

By Kimberly Link-Wills

Tech-produced civil engineers are expected to be able to build just about anything. Marty Williams' job flow, from building houses in Florida to building shrimp ponds in Nicaragua, seems unusual even by Tech standards. But engineering a successful career as a shrimp farmer, he says, was just a matter of problem solving.

And when the shrimp farm was financially afloat, Williams, CE 84, solved another problem — and dove into more uncharted seas — by building a factory and launching a bottled water and packaged ice business.

But long before the shrimp farm idea was hatched, Harry Sahlman owned a lumberyard in Fernandina Beach, Fla.

“He sold lumber to a number of the shrimpers to build their boats. They were hitting on hard times and couldn’t pay him for the lumber. They said, ‘We quit, you take the boats,’” Williams recounts from the stories he’s heard. “He had these shrimp boats and didn’t know what to do with them so he hired a captain and said, ‘Go see if you can catch some shrimp.’ That’s literally how they got started shrimping.”

Sahlman Seafoods was born in the 1940s and soon employed Harry’s three sons. One of those sons, Jack Sahlman, is Williams’ father-in-law.

As the company grew, the prime fishing grounds moved farther away from the shore of Fernandina Beach. Sahlman boats followed the shrimp to Key West, then to Mexico and Central America and finally to Guyana, South America, where the company landed in 1958.

In 1996, Jack Sahlman, then president of the company and looking toward retirement, asked his son-in-law, a Tampa home builder, to join the family business.

“The building industry was slow, and I was getting frustrated with that. I guess I was looking for a change, but I never imagined I’d go into a completely different career — and certainly not the shrimp business,” Williams says.

He joined Sahlman Seafoods at an opportune time.

“For 60 years the company had been all wild-caught shrimp. My father-in-law decided we should diversify and get into aquaculture — shrimp farming,” Williams says. “There was a lot of construction involved in building the shrimp farm and building a processing plant. I remember telling my father-in-law, ‘Look, that’s my background, let me head up the engineering and construction work cause that’s what I do.’

“Nicaragua had a lot of available land. The government was pretty receptive to bringing in foreign investment. The shrimp farming industry there was pretty new,” he says.

Williams spent much of the next two years in Nicaragua. Often he was away from his wife, Lee, and two preschool-age daughters for two-week stretches.
The technical aspects of what we were doing weren't that difficult. The ponds were just a big earthwork project. The processing plant was like something you'd build in the U.S. The real trick was doing it in Nicaragua," Williams says. "The farm is in a very remote area. For the water quality, you want to be near the ocean, you want to be away from other industry and agriculture. You need to be in a fairly pristine area. To do that, the farm was just a long way from anything — no electricity, no telephone service, no cell phone service."

The generators that now power the farm as well as about 80 percent of the materials used to construct it were shipped from the United States, then carried by barge to the 4,000-acre island on which Sahlman Seafoods is located on the Pacific coast of Nicaragua.

The farm now consists of 53 25-acre ponds, all supported by pumps that bring in ocean water. Feed for the shrimp comes in 20-foot containers filled with pellets produced in Peru.

"In one of the 25-acre ponds, we'll stock anywhere from a million and a half to 2 million larvae. We might order larvae for four or five ponds at one time, 6 million, 8 million larvae," Williams says, explaining that the larvae are purchased from a hatchery and brought to the island in water-filled plastic bags inside Styrofoam coolers.

Sahlman Seafoods invested about $10 million in the farm and a processing plant built in the closest sizeable town, El Viejo, about an hour's drive from the island.

"We started with an initial 26 ponds, then once the business got up and running, we began reinvesting and adding more ponds," Williams says. "The first five years were horrible. We started working on the ponds in '97. In the fall of '98, Hurricane Mitch came through and really hit Honduras. You really didn't hear much about Nicaragua, but the farm borders Honduras. After Mitch, the waters were so churned up that the next couple of years were horrible. We started to get a lot of viruses.

"For two or three years, we were seeing this terrible problem with the white spot virus. It's not
"I don't remember a lot of the specifics, I couldn't sit down and do a structural engineering problem today if I had to. But Tech just teaches you the whole thought process."

Biologists on staff at the farm monitor the health of the shrimp every day. Feed for the shrimp is placed on pans that are lowered by hand to the bottom of the ponds. It would kill all the shrimp," he says.

Then and now, Sahlman-employed biologists monitor the health of the shrimp daily. "The biologists visually inspect them and take them to our lab on site, and they slice pieces of the tissue and put it under a microscope and look for disease and look at the color, the shape of the tail. You can see the intestines and see if they're eating the feed. They're taking samples in ponds every day. Testing the water chemistry and sampling the shrimp is just an ongoing function," Williams says.

"Fortunately we got through the virus issues. Around 2002 the farm really started to do better."

About that same time, Williams was promoted from vice president to president of Sahlman Seafoods.

The rise in the farm's fortune came with the drop in the shrimp-boating industry off the coast of Guyana, where climbing fuel prices and declining catches were killing Sahlman Seafoods' profits.

"In early 2005, we found a local Guyanese fisherman who was willing to buy our fleet. At the time, we had 31 boats. We sold him a processing plant, our dry dock facility, the 31 boats, everything we had in Guyana lock, stock and barrel" in a deal Williams says was priced about $11 million.

Seventy percent of Sahlman shrimp is sold to wholesale customers in Europe, particularly Spain, and shipped to buyers in 44,000-pound containers. "In Spain and France especially, they eat a lot of heads-on shrimp," Williams says. "It's more profitable to sell the whole shrimp than it is to dehead it. Farm-raised shrimp, since it's coming right out of the ponds and you're handling it very carefully, is well suited for that.

"Most shrimp consumed in the United States comes from Asia," explains Williams, who says Sahlman does 30 percent of its business with U.S. wholesale distributors, primarily in the Baltimore and New York City areas.

The shrimp belly up to the farm's underwater feed trays for about four months before the ponds are drained. The shrimp are caught in nets, put in coolers of ice and taken to the processing plant.

"You always harvest at night. The shrimp are a lot more active at night. During the day the water heats up and they stay right on the bottom and don't move around as much. We'll typically harvest two ponds a night," says Williams, who explains that each pond is used for two growing cycles a year.

There are about 110 Sahlman employees, including biologists and barge drivers, at the farm. Many are there for five-day shifts. They eat at the on-site kitchen and sleep in dormitories. "We bring in hourly and daily workers to harvest and feed. On any given day, there could be 110 to 150 people at the farm. The general manager, chief financial officer, all the way down, they're all Nicaraguan. There's not one American on staff there now, except me," says Williams, who has scaled back his time in Nicaragua significantly to about 40 days a year.

"The processing plant has a permanent staff of maybe 130 people, which includes everything from accounting to supervisors and equipment operators. Women come in on a daily basis to process the shrimp — peeling, deheading, putting them in boxes, weighing them. On any given day, we could have 600 people in the plant if we're processing a lot of shrimp. There are 850 people on the payroll total," he says.

In addition to the economic benefits Sahlman Seafoods has reaped for Nicaragua, the company does pro bono construction work and donates supplies to a clinic and school near the farm. The company is popular with the people and the politicians. Local dignitaries and the media were among the crowd that came to the plant for the dedication of Jack Sahlman Stadium.

"We built the softball field, and we have a softball team comprised of employees. We also
Williams, a Georgia Tech alumnus, has sponsored a little league team whose members are employees' children. And we have a full-time guy who takes care of the field," Williams says.

Williams' interactions with local residents have helped him improve his Spanish, which was limited when he first started going to Nicaragua a decade ago.

"If I went to meet with the steel contractor or the electrical contractor, most of those companies have people who speak English. When you get below that level into the midmanagement level and then down to the supervisory level, that's where it was hard. There was a whole lot of pointing and diagram drawing going on," he says.

Williams also has had to negotiate with other farmers, who pay Sahlman to process their shrimp at the El Viejo plant. Ideally, he says, the plant processes 60,000 pounds of shrimp a day, although it has handled as much as 105,000 pounds when several farmers all want their harvests weighed, sorted and boxed at the same time.

In 2007, Sahlman's farm harvested 2.5 million pounds of shrimp. The haul for 2008 was 3.6 million pounds.

Despite the knowledge he has acquired, Williams does not have seawater in his veins. He grew up in a farming community of only 300 people in southern Virginia. After graduating from landlocked Georgia Tech, he earned a master's degree at the University of Michigan before finally settling on the Gulf Coast.

"You're going to think this is really hokey and contrived, but you can ask my wife. I do a lot of college fairs for Tech, and I tell these kids all the time that I don't remember a lot of the specifics, I couldn't sit down and do a structural engineering problem today if I had to. But Tech just teaches you the whole thought process. It teaches you how to assess a problem, come up with a plan, then go solve it," Williams says. "I love projects. Tech taught me how to attack a project."

Looking for a new project to attack, Williams embarked on the planning and building of a Nicaraguan ice and water plant and the digging of a well. From it comes Glacial (pronounced glay-see-all) bottled water and bagged ice.

The only ice plant in Latin America with National Sanitary Foundation certification, the Glacial facility can produce 44 tons of ice a day.

Williams' lack of marketing experience didn't deter him from tackling advertising — in Spanish. He worked with the teams he hired to design billboards and print campaigns and produce radio and television commercials. Perhaps the most ingenious move was to team up with a local rum company to sell iced drinks to tourists from the cruise ships.

No tourists come to Sahlman Seafoods' nondescript corporate headquarters in Tampa. In addition to Williams and his father-in-law, who comes in almost daily, only three other Sahlman Seafoods employees, two in accounting and one in sales, report for duty at the office near the port of Tampa. A decrepit boat in a canal behind the building is the only indication of what once took place there, back when Sahlman developed the property some 28 years ago.

"The shrimp boats back then were all built in Alabama. They'd have the boats built and brought here and put the refrigeration and navigation equipment on them and then send the boats to Guyana. The last new boats we got were in 2002. In the heyday, they were building boats like crazy. They say at one time the fleet had 160 boats," Williams says.

He appreciates what Nicaragua has meant to Sahlman Seafoods. The company combines community outreach with a project to give back to the land. Mangroves, which filter sediment on the banks of the pond and serve as a natural habitat for crustaceans, are thriving thanks to Sahlman Seafoods' efforts.

"We do a program every year where we send a biologist over to the local school to talk to the kids about mangroves. We do a mangrove reforestation project where we're taking seedlings that we dig up and planting them around the island. We've planted well over 100,000 mangroves. We'll get the kids from the school and go out to the farm and have a celebration and plant mangroves. It's called Mangrove Day."

Another problem solved.
STAR POWER

Gen2Media president Mary Spio skyrockets to top of digital media industry

By Kimberly Link-Wills
Mary Spio's life story reads like a script for one of the movies she helped digitally deliver to theaters.

The daughter of an African political party organizer, she was the only one of her father's 12 children born in the United States. She worked her way out of a ghetto in pursuit of the American dream. Both beautiful and brilliant, she earned four patents, including one of the first for digital cinema distribution, and launched a magazine, all before the age of 30.

This story is true — and only the opening chapters.

Now 35, Spio, MS EE 99, with a fifth patent pending and a partnership with Microsoft, is president and co-founder of Gen2Media, a young, publicly traded full-service digital media company headquartered in Orlando, Fla., that is showing as much promise as the woman herself.

Spio's story began when her parents temporarily relocated from Ghana to Syracuse, N.Y., where her father pursued an MBA and where she was born. When she was 4, the family returned to Ghana, where her father was a political activist.

"He was a founder of the National People's Party in Ghana, and he wanted to be back in Ghana. America to me was home. It was the land of opportunity — and it is," Spio says.

The family saved money for airfare, and she returned, alone, to the United States when she turned 16.

"I had no family anywhere," Spio says. "I had godparents who were friends of my dad in South Carolina. I stayed with them to finish high school."

Spio's parents expected her to return to Ghana after she earned a high school diploma. "I was in America to stay," she says, tapping a finger on a table for emphasis.

She left South Carolina for the boroughs of New York and got a job at a McDonald's. "I was living in New Lots, which is the ghetto-est of the ghetto. Getting home late from McDonald's, just walking to my apartment was not a fun thing," Spio says. "But doing what I was doing was not an option. It was the only choice for me. I couldn't pay for college."

Spio saw an advertisement for the Air Force — and the college tuition it could fund. Only 17 at the time, Spio had to acquire the written consent of her parents before she could enlist.

"I wanted to get out of New Lots. The Air Force, for me, was a way out. I'm a U.S. citizen. That was one of the best gifts my dad could have given me," she says of her father, Kwesi Spio, who was an attorney.
Spio traveled back to Ghana in July for her father’s funeral.

“They did a wonderful, wonderful tribute to him at his funeral. They talked about meeting at his house back when they were killing people after a coup d’etat. There are a lot of people that I know whose parents were judges and lawyers and they all got killed by firing squads. My dad was taken in a couple of times and tortured,” she says quietly, turning the conversation back to the military service her father helped make possible.

The Air Force sent Spio to Turkey for six months, then to Germany for four years to work as a satellite communications technician before naming her the 86th Communications Group recipient of a SOAR — Scholarships for Outstanding Airmen to ROTC — award. That and the GI Bill enabled Spio to enroll at her father’s alma mater, Syracuse University, when her Air Force stint was completed.

“My focus has always been on satellite communications and deep space engineering,” says Spio, who graduated first in her class — and was the only female earning an electrical engineering degree at Syracuse in 1998.

“I don’t think I’m any smarter than anybody else. Because I’d had real life experience, my perspective was completely different. I was very focused,” she says. “At the end of the day, I was still a kid — loving the same music [younger undergraduates] loved, going to the same concerts, going to the same clubs. I just knew how to balance things differently.”

For Spio, one of the draws to Georgia Tech to further her education, which was funded with a scholarship from the National Consortium for Graduate Degrees for Minorities in Engineering and Sciences, was work being done at the Institute on the Search for Extra-Terrestrial Intelligence project.

“They were designing a probe that would go and look for patterns in space. I just thought it was so awesome — all these heat-seeking probes and patterns and everything — and I got to assist with that!”

Spio also studied for a semester at Georgia Tech Lorraine — and served as the student body president there — to complete the global innovation for engineers certificate program. “I
“I just thought it was so awesome — all these heat-seeking probes and patterns and everything — and I got to assist with that!”

spoke a little bit of French, so being able to go over to Georgia Tech Lorraine and take engineering courses in French was an unbelievable experience.”

Spio wanted to experience working for Pan American Satellite after earning her master’s. “It was a smaller company, but they were doing a lot of cool things. I waited for four months. I had all these job offers. I kept turning them all down. Everybody kept saying, ‘You’re crazy.’”

PanAmSat eventually hired Spio as a satellite applications engineer. She designed satellite networks and transitioned signals from one satellite to another. “It was everything I thought it would be. I loved it,” she says.

“Spio is humbled by much of what has come her way, even though she has made her place in the world through sheer determination.

“My focus has always been on satellite communications,” says Spio, whose company provides digital branding and marketing for a growing list of clients as well as produces and disseminates a daily Spanish-language show.

Georgia Tech Alumni Magazine • Winter 2009
from savings, friends, family and a Small Business Administration loan and launched a magazine for singles, One2One Living, regionally in California in 2002 and nationally two years later.

"Everyone around me was single," she says. "One of the jobs I had to support myself while I was at Syracuse was at a dating service. In setting people up, I would post to a Web site all this stuff about great restaurants and good dating ideas based on all this feedback I was getting.

"While I was at Boeing working with all these guys — all these great, wonderful people were single, everyone around me was single — I said, 'We've got to find a way for people to meet.' I looked around and there was nothing. I said, 'You know what, I'm going to launch a magazine for professional singles.'"

In fact, she launched a very good magazine. Amazon rated One2One Living one of the best magazines of 2006. Today, the publication, through which she met her longtime boyfriend, is Web based at one2onemag.com. While she does not manage the day-to-day operations, Spio remains the publisher.

Through the magazine and technical consulting work she did for Disney, the parent company of ABC, Spio was hired by the producers of the television reality show The Bachelor.

"One of my patents is in demographic targeting. The Bachelor was in season seven. It was beginning to fizzle, and they needed to bring back that sizzle. They wanted to bring more people from online so they partnered with One2One to do the search for the women," she says.

Spio was only 29 years old when she launched One2One Living, but she was already an old hat at meeting looks of surprise when she walked into boardrooms.

"One, I was young, and two, I was an African-American female. I don't know, maybe because my name is different, there's always a point of surprise. Everywhere I've been it's mostly been white men," she acknowledges.

It was her track record that won her a deal to create a national magazine for Sam Goody stores.

"Sam Goody was getting 20 million people coming through their doors a year and yet they didn't have any means of capturing their information. What they wanted me to help them do was find a way to convert that foot traffic into lifetime customers by creating a database. So I created an entertainment magazine for them."

"One of the reasons why it outsold Rolling Stone and every other magazine on their stands was because it had coupons in it," she says. "You bought the magazine for $2, then you got $6 in coupons inside. There was a subscription base to it, there was an online component to it, so they knew their demographic. They got a database of 2 million-plus people. There were a lot of effective things that we were able to do for them."

"It's really not rocket science. At the end of the day, it's all about creating solutions for people."

Spio launched One2One Living magazine to help bring professional singles together. With her patent in demographic targeting, she also helped find contestants for The Bachelor.
Spio also did a lot of effective things for such clients as Media Play and TransWorld Entertainment and was named a 2006 member of "The New Power Generation" by Essence magazine — before founding Gen2Media, which she says is "on the verge of something extremely wonderful."

Only a year ago, the company was in the "development mode," Spio says. In 2008, revenues were expected to top $1 million. On Oct. 1, Gen2Media Corp. became a publicly traded company under the symbol GTWO.

Gen2Media, through its two business units — E360 LLC and Media Evolutions — creates and delivers digital content, from music videos to movies to online games, in a variety of channels.

Its growing client list includes Coca-Cola, for which Gen2Media creates digital branding and marketing at cocacolahiphop.com; the Tribune Company, for which it produces and digitally broadcasts a live daily Spanish-language show at vivelohoy.com; and Clear Channel, for which it provides the technology, production and digital content to convert New York City radio station Hot97 into a virtual TV network at hot97.com.

The company, which currently has 15 full-time staff members and works with a cadre of freelance writers, editors and producers, also provides automated video and live concert production services for such names as Mary J. Blige and Justin Timberlake.

Recently, Gen2Media entered into a partnership with Microsoft, according to Spio, to bring music and entertainment content to Xbox Live users. Artists can submit their music online at e360live.com, an online video and social network that allows consumers to watch or download videos and other digital content and allows users to create virtual television channels by dragging videos into a lineup.

Spio vows to never again eat the ramen noodles she survived on during One2One’s early days. “We’re on the verge of something amazing,” she says.

She currently has a patent pending for a method and apparatus for providing continuous playback of media programs at a remote end-user computer.

“It’s really not rocket science,” Spio says. “At the end of the day, it’s all about creating solutions for people.”

Spio hopes to one day again work for McDonald’s.

“I definitely want McDonald’s as a client, but I don’t want the oil burns,” Spio says with a giggle of pure joy. “There are so many opportunities in technology. I want to get that message out that if this kid from New Lots can do it, anybody can.”
A LIFE THAT RINGS TRUE

Jeff Beech uses business savvy and faith to develop nonprofit projects in Kenya, Georgia and around the world

By Van Jensen
everything comes back to the ring and faith, Jeff Beech says. He lifts his right hand and there is his Georgia Tech class ring, black stone in dark metal. Inscribed on it are the two words Beech says guide his life: progress and service.

He wears it always. When his corporate consulting job pulled him and his family to London, when he walked away from that career to focus on nonprofit work, when he decided to give a lost orphan a home, when he jets around the world from one project to another, when he picks up a tool to put his sweat into an orphanage, when he shakes yet another hand to seal a new partnership.

Those guiding words, and his faith, have helped Beech, Mgt 87, develop an innovative approach to volunteering that is touching lives across the globe and changing how nonprofit organizations work.

"I always felt those were very important elements for Georgia Tech and for me," Beech says. "Service is at the core of my life. And, throughout Tech, you're instilled with the idea of progress."

A Spirit for Volunteering

Even before Beech went to Tech, he was always organized, his parents say. As a child, his room was spotless. At meals, he would systematically eat one thing at a time.

Raised in Tucker, Ga., Beech also always had a spirit for helping others. He cared for the family pets and planned to be a doctor. There was no question where he'd go to college. Tech was "a family thing," he says. "There are embarrassing shots of me as a newborn wearing nothing but a Tech sweater. It was predetermined."

While on campus, Beech got involved with everything he could. He was a "mic man" at Yellow Jackets games, revving up the crowds; a member of Phi Gamma Delta; and a volunteer with Special Olympics. He felt a strong draw toward helping children, especially those with special needs.

During college, Beech married his high school sweetheart, Greta, and worked as a co-op student. It was shortly after the wedding that Beech's father witnessed his son's steadfastness.

"When he first got married, he wanted to buy
On their first trip to Kenya, the Beech family spent a week in the countryside, going most of that time without seeing a paved road. Opposite page, some of the many Kenyan orphans given a home and school by the Beech Foundation and Kenyan church groups.

"I said, 'You're too young. You need to live in an apartment.' But he was determined, so we found something. And he managed to buy it. There doesn't seem to be anything that gets in his way."

Graduating from Tech took lots of determination, Jeff Beech says, and so ordering the class ring "was a big deal. I looked closely at it, and there were these two words on it: progress and service."

A First Adventure

Beech began working as a business strategist and was recruited by Andersen Consulting, which later became Accenture.

In the late 1990s, then with four children added to the family, an international opportunity came up and Beech jumped at it.

"We felt the need to increase our strategy presence in Europe with the Euro coming on," he says. "The question was who would go. I've never been too hesitant. From a career standpoint, it turned out to be my best move, and it turned out to be life-changing."

The Beeches settled into an old manor in London — the former home of a king's secretary — and, with no other relatives nearby, they became closer as a family. And with Beech's job requiring regular international trips, they traveled together as much as possible.

That adventuresome spirit led to a 2000 trip to Kenya. Beech, Greta and their children spent a week in the countryside, going most of that time without seeing a paved road.

"We fell in love with the people," Beech says. "We saw a country that had made progress, an amazing place where a lot more progress could be made. The people are extremely intelligent, resourceful and faithful. I felt I would be back, but I didn't know when."

Not long after that trip, Beech began to feel the philanthropic pull. "I became aware God had something very different for me," he says. The family returned to the United States, and in the summer of 2002 Beech, by then a partner, met with Accenture's CEO and said he planned to leave the company for the nonprofit world. The firm offered to give him a leave of absence of a few months.

Beech left, and after six weeks he came back and said, "I don't need any more time." With that, the Beech Foundation was launched, and the family began planning the next stage of their lives. "I felt a wave of peace," Beech says. "I knew if it was God's plan it was going to work out."

Return to Kenya

The decision was made, but big questions remained. What exactly would the Beech Foundation be? What would be its mission? Given Beech's Tech background and organizational fervor, he had laid out some plans, though the foundation has changed direction substantially since.

"I've planned with Fortune 50 CEOs, but I also understand the best plans are adaptable," he says. "Little did I know how adapted it would be."

The family volunteered with different organizations, including Rivers of the World, an international outreach program. Daughter Bethany, now 18, daughter Brenna, now 16, and twins Bailey and McKenzie, now 13, went to the remote village of Esperanza in the Dominican Republic and taught children there to use computers. Beech also worked with Dream House, which provides many services including short-term housing for medically fragile children who are neglected, abused or abandoned or have parents unable to meet their care needs, along with FOCUS and the ASPIRE Coalition, which deliver programs for special-needs children and their families.

Beech had worked with special-needs children while at Tech, and his passion grew much stronger after Bethany was born with Down syndrome.

"Having Bethany, I think, guided him," says Jeff's mother, Monte Beech. "He's a very religious person. After Bethany was born, he never said, 'God, why me?'"

As Beech worked with the different organizations, he saw the need to create partnerships
"We fell in love with the people. We saw a country that had made progress, an amazing place where a lot more progress could be made."
McKenzie Beech, Jeff Beech’s son, goes with his dad to Kenya every summer to work in Nakuru and spend time with orphans. 

between them, to share the scant resources available to nonprofits. He looked around the United States for similar projects to replicate but couldn’t find any.

About that time, in 2004, Beech heard of a Roswell, Ga., Presbyterian church group that had gone on mission trips to Nakuru, Kenya. He felt this was a door God was opening back to the country his family had fallen in love with, even if they didn’t know what the trip would entail.

The Beeches, along with 31 others, flew into Nairobi and drove more than 100 miles northwest to Nakuru. There, they saw extreme poverty, many people with little or no shelter. The AIDS/HIV epidemic had left millions of children orphaned and homeless.

"Some mothers would have babies and just leave them on the side of the road," says Monte Beech, who also went to Kenya. "The children lived in an orphanage that was pitiful. They had never seen a washing machine. They had no plumbing. When Jeff came home he said, 'Something’s got to be done.'"

The group visited a site where several Kenyan churches, nonprofits and nongovernmental organizations had come together to try to meet the needs of citizens. Instead of seeing people in need, Beech saw a chance to learn. Here was a perfect example of what he felt called to help create in Georgia.

"Within our first few days we said, 'Wow, now we know why we’re here,'" Beech says. "Just because people might appear disadvantaged doesn’t mean they don’t have a lot to teach us.

"They don’t have a lot of financial resources, so what you see are resourceful people. They realize they can do much more together than apart. We talk a lot about that here, but people were living it there."

That ideal became the core of the Beech Foundation and solidified its mission statement: “Be a bridge.”
"The children lived in an orphanage that was pitiful. When Jeff came home he said, 'Something's got to be done.'"

Power of Cooperation

Beech now travels twice a year to Kenya, each summer taking his family along. Working with six churches there, this coalition of groups purchased 30 acres of land near Nakuru.

So far, they've built a wing of an orphanage, a dining hall and two levels of a school. A dormitory, clinic, chapel and more are planned. The Beech Foundation is offering a challenge grant to match donations for construction there.

Because orphans whose parents died of AIDS are stigmatized, the organizers hope by putting orphans and other children in the same school, they can overcome that barrier.

"It's more exciting than anything I've ever done," Beech says.

Helping with construction on the project is Will Hardy, BC 04, Mgt 05, a former lineman on the Georgia Tech football team.

Hardy's wife, then his fiancee, convinced him to go on the 2004 trip to Kenya, though he was an admitted homebody, he says. "It was amazing. I think I was helped more than I could help anybody there."

Hardy says Beech is a meticulous planner, perfectly organizing their trips and projects. And Beech will "get dirty and work," Hardy says. "He's a good friend, and I go to him a lot for advice."

While working in Kenya, Beech and the others continued to see the power of cooperation. When they first arrived, there was no electricity within five kilometers of their land. The government said it would cost tens of thousands of dollars to bring power.

Along with a neighboring faith-based development, they went to the government and negotiated a deal. In the end, they paid nothing.

A New Member of the Family

As Beech was starting his professional career in the 1990s, across the world the African country of Sudan was embroiled in violence. During a civil war that lasted for more than 20 years, millions of Sudanese were killed and forced from their homes.

Among the largely Christian citizens uprooted during the war was Abuk Wach. As she fled the violence, she walked past bodies of those who didn’t escape. Eventually, she joined the thousands of refugees who became known as the Lost Boys of Sudan after they relocated to the United States.

Abuk immigrated to Clarkston, Ga., then moved to Lilburn, Ga., where she volunteered at Dream House and started high school, struggling to learn English and other subjects. Beech had joined the Dream House board, and one day in 2005 he met Abuk while attending a luncheon. She had heard of his involvement in Kenya, and they fell into a conversation.

As Beech left, he felt a connection with the girl and immediately called his wife. "We might be called to give Abuk a true home and family," he told Greta. She agreed, and he invited Abuk to spend time with his family, to see if she would like to join them. Quickly, they all bonded, especially Abuk and Bethany.

That fall, the Beeches were planning a mission trip to Belize with Rivers of the World when Hurricane Katrina struck. Instead of giving up
On 30 acres of land near Nakuru, Kenya, the Beech Foundation is helping build an orphanage, a school and other projects to assist the community.

one mission or splitting their team, they called for more volunteers and ended up with twice the people and two separate teams.

Abuk went with Beech to Pascagoula, Miss., where they joined a relief network run by the local Baptist association and the state. Again, Beech viewed it as a chance not just to help but to learn.

“We walked into the church area, and it looked like a professional war room, very well organized,” he says. “If you were there and willing, you were a partner. It’s a shame it takes a disaster to show people we can work together.”

As the family jumped into the task of cleaning out flooded homes, Beech says he wondered what Abuk thought of her new family. “She had no idea what crazy people she’d gotten in with,” he says.

Abuk is now a freshman at Gordon College in Barnesville, Ga., studying to become a nurse or pharmacist. She hopes to return to Africa after college and serve those in need. When she calls Beech to say she’s coming home for a weekend, his face lights up.

“She has come to be a big part of our family,” he says.

Building a Light House

Using the knowledge he gained working on the Kenya development, Beech set about creating a new collaborative in Georgia. It became Light House Village, a planned site dedicated to meeting those needing specialized residential care.

One of the challenges was that Beech wanted to include several Dream House facilities for medically fragile children, but law required such a facility to be built near a major medical center. When a Conyers church decided to donate land to create the village, it just so happened to be within a couple of miles of the Rockdale Medical Center.

“It was astonishing,” Beech says. “How blessed we felt.”

As the project moved forward, more and more groups signed on. It now encompasses 12 churches and three nonprofits. The Conyers city government and Rockdale County government also were eager to be involved.
So far, a chapel/community center and the respite house have been built, mostly using volunteer labor. A group of Tech fraternity members volunteered to plant trees throughout the site. Ground has been broken on the next building, an emergency transitional housing complex. After that, Light House will be constructing the Dream House facilities.

Because the different services are so close together, they can share utilities, staff, volunteers, food service and even building materials. With several groups going together to buy supplies, they typically get reduced rates or donated goods, Beech says.

Working together also is of benefit during lean economic times like the present, when donors spend less and are pickier about how they use their funds. “If they see places where they can get a bigger bang for their buck, they look there,” he says. “Our year is going to be great.”

**The Ring’s Message**

Even as his life has grown ever busier, Beech has remained involved closely with his alma mater. He served on the Alexander-Tharpe board and the College of Management advisory board and in 2006 was named an outstanding young alumnus by the College of Management.

He and Greta hold several season tickets at Bobby Dodd Stadium and Alexander Memorial Coliseum and gather with family and friends before every home game.

Still, Beech wants to do more, particularly with the chaplaincy program.

“That’s the great thing about the Tech community. There are so many ways of staying in touch and giving back,” he says. “There’s financial involvement, but there’s so much more than that.”

It’s the message that helps guide his life, a message he wears every day so he never forgets. “I keep coming back to what’s at the base of the ring,” he says.

Jeff Beech’s family goes to Kenya with him every year. They are, from left to right, his wife, Greta; daughters Abuk, Brenna, Bethany and Bailey; and son, McKenzie.
A portrait of the home’s original owner, and resident ghost, Col. Robert A. Alston is reflected in a mirror that hangs in the living room. The Harrisons retrieved the mirror from an Alston descendant who was embarrassed by its crack. The couple hunted for a table that would withstand the weight of the mirror and fit perfectly in the nook between the rooms’ French doors. “When we finally found a little table, we didn’t have to move it an inch. It fit right under there, so we think the colonel helped us,” Charlie Harrison says.
This Old House Has Old South Spirit

Charlie and Sylvia Harrison restore antebellum home with due respect to ‘the colonel’

Story by Leslie Overman
Photos by Melissa Bugg

The remains of Col. Robert A. Alston, a Civil War veteran and DeKalb County legislator killed in a duel in 1879, are buried in Decatur Cemetery. But Alston’s spirit lives in the Atlanta home he built in 1856 — or so say its current residents.

“He’s quite a character, and handsome,” says homeowner Sylvia Harrison as she looks up at the portrait of Alston, dashing with a mop of wavy black hair and a beard and handlebar mustache to match, that hangs above the mantel in the home’s living room. “He’s our resident ghost. I don’t mind having a cute ghost.”

Sylvia and her husband, Charlie Harrison, IM 52, have been living relatively peacefully with the ghost of Alston, or “the colonel” as they call him, for nearly 15 years. Perhaps the relationship has remained amicable because of the care the Harrisons have taken in restoring the antebellum home to its original luster after decades of misguided renovations and neglect.

Nestled among oak trees and situated just across the street from East Lake Golf Club, Meadow Nook was Alston’s wedding gift to his bride, Mary Charlotte McGill. The home was designed in the Greek Revival style with coastal touches, like a wraparound porch, honoring Mrs. Alston’s upbringing near Charleston, S.C.

When the Harrisons bought the home in 1994, it was in desperate need of renovation. The fluted Doric columns that once lined the perimeter of the wraparound porch had rotted and been replaced with New Orleans-style wrought iron. The previous owner had been renting out the house, Charlie says, and Meadow Nook’s grounds were overgrown and littered with auto-
mobile tires, abandoned bicycles and filthy mattresses.

"It had been used for prostitution and drugs and was in just terrible shape," says Charlie, who learned about the property from his cousin, Tom Cousins, an Atlanta real estate developer who at the time was in the process of renovating the East Lake Golf Club. Cousins and his project manager had a contract for the house, which sat at the club's entrance. Knowing that Sylvia had been interested in finding a historic home in the city to renovate, Charlie took the contract home to her.

"She saw the picture and saw that it was built in 1856," Charlie says. "She always said she wanted to live in an old historic house, and I said, 'Here it is.'"

The couple bought the house for about $77,000 and during the first couple of years of renovating split their time between Meadow Nook and a home in Cobb County. The Harrisons stripped layer upon layer of paint off the walls and trim and peeled back black-and-white-checkered linoleum in the foyer to reveal its original heart-pine flooring.

"Fortunately, most everything was still intact," says Sylvia. "It wasn't in good shape — and some of it still isn't — but it's still original."

Upon entering the home, visitors encounter a magnificent circular staircase, the banister of which bears butt marks made by Union soldiers who beat their rifles against it while ascending and descending the stairs.

All six of the home's original fireplaces are still standing — those in the public rooms are chiseled marble and those in the bedrooms carved wood.

No longer standing were the wooden columns that had originally lined the porch — only one remained on the premises when the Harrisons moved in. With the help of an old friend from Georgia Tech, Jack Glenn, Cls 59, they found a pattern maker who constructed new columns using the original as a guide.

"They were measured to one-sixteenth of an inch, so they're an exact replica of what was there," Charlie says.

The 1856 column now stands in the home's front hall like a work of art, its capital preserved in a Plexiglas box in the living room.

The couple's rehabilitation efforts have not gone unnoticed. In 1998, they received an Award of Excellence for Historic Preservation from the Atlanta Urban Design Commission. In 2004, Meadow Nook was named to the National Register of Historic Places. A marker is planted in the front yard.

The Harrisons respect the house's storied past. It was occupied by Confederate soldiers during the Battle of Atlanta and by Federal troops following the war, Sylvia says. A Confederate soldier, who was wounded in battle and later died at the home, is buried in the backyard.
Charlie Jr. is one of five stray cats taken in by the Harrisons. "When I met Sylvia, I didn't realize that her favorite cat had died and she was in mourning," Charlie says. "I guess she found out I didn't like cats, so I didn't see cats for a while. Within a month after we got married, cats started showing up."
The couple rescued items from golfer and Georgia Tech alumnus Charlie Yates' family home in East Lake before it was demolished, including a door and claw-foot tub, which they installed in their new bathroom. "We tell everybody when we show them, 'Charlie Yates' rear end sat many a time in that tub,'" says Charlie Harrison.

Col. Alston's original secretary, now filled with framed photographs and books on the Civil War and Charlie's favorite pastime of golf, sits in the corner of the room that once served as his study. "There was some article about the house in the paper, and then a descendant of the colonel's called us and wanted to sell us a secretary that was in the house in 1860," Sylvia says. "So, of course, you've got to get it."

After all of the work the Harrisons put into stripping the large folding door leading from the dining room to the living room, they decided against stripping the Greek key trim throughout the home — or covering the work they had done. "I told Charlie if anyone puts paint on it, I'll murder them," Sylvia says.

Hearing that a Confederate sniper shot and killed a Union soldier in the front hallway, Sylvia hunted for a bullet hole left in the floorboards. She believes she found it.

Both Sylvia and Charlie have an almost encyclopedic knowledge of the Civil War, often citing specific dates of battle — and often quoting Gone With the Wind. During the home's restoration, Sylvia read books and diaries about the war and made trips to the Georgia Historical Society and DeKalb History Center, poring over old newspaper articles, letters and manuscripts in the archives in search of information about the home and its original owner.

Alston owned about 500 acres of land, including the grounds that now are the East Lake Golf Club. Born in 1832 in Macon, Ga., he served in the Confederate Army with John Morgan's Raiders during the Civil War. He later worked as a lawyer and farmer and in 1878 was elected to the Georgia General Assembly.

It was at that time that Alston became an outspoken opponent of the convict-lease system, which allowed prisoners to be rented for just $1 apiece a year for work on private property.

When a U.S. senator gave Alston power of attorney to sell a convict lease he owned, Edward Cox, a close friend of Alston's who was subleasing convicts from the senator, became enraged. On March 11, 1879, Cox confronted Alston and demanded he call off the deal. Alston refused, and Cox told him to arm himself.

Later that day, the men met in the office of the state treasurer at the Capitol. Both fired shots. Alston received a fatal wound to the head.

Journalist Henry Grady reported that Alston, his friend, "stood erect, his head thrown back in the old royal way, half wheeling on his heels at each shot, to confront the enemy, who dodged from one side of the room to the other. When the pistol snapped, he knew he was gone, but he never blanched."

A 1967 Atlanta Journal and Constitution Magazine article of the account states that Cox, who was convicted of murder and served some

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"Fortunately, most everything was still intact. It wasn't in good shape — and some of it still isn't — but it's still original."
On a wall in the foyer, Civil War artifacts are preserved in a glass case along with a portrait of Charlie’s great-grandfather, Ferdinand Wurm, a member of the Wurm Family Orchestra, one of Atlanta’s first instrumental ensembles. “In addition to being a musician, he was also an artist, and this was a self-portrait,” Charlie says. “We have some pictures of him. He took a little liberty. He isn’t that good looking.”

A tombstone marks the grave of George Morgan Rikard, a Confederate soldier wounded during the Battle of Atlanta who died at Meadow Nook. “He’d been wounded, and a friend of his met him here and stayed with him for six hours until he died and then wrote a letter back to the soldier’s wife saying he was at peace with the Lord,” Charlie says. “It’s so touching it makes me cry every time I think about it.”
Just to the left of the foyer is the room that once served as Col. Alston's study. It now houses much of Charlie's golf memorabilia, including his invitations to play in the Masters Tournament in 1960 and '73. A member of the Institute's swimming and golf teams, he was inducted into the Georgia Tech Athletics Hall of Fame in 1962 and into the Georgia Sports Hall of Fame in 1991. In the early 1990s, he left the insurance business to join the East Lake Foundation and develop an after-school program for local children. "I'd like for it to grow and get bigger and bigger," Charlie says. "It's been really rewarding for me." In 1998, the Charles W. Harrison Scholarship was established. Sixty scholarships have been awarded to students working at the golf course.
A log cabin found near Sylvia's hometown of Dothan, Ala., was taken apart, transported and pieced back together in the Harrisons' backyard. Charlie "numbered the logs, so it was just like a great big Lincoln Log set," Sylvia says. "That's pretty good training. I know where he got it — he got it at Georgia Tech." The Harrisons, who often relax in the rocking chairs on the front porch, also have thrown parties in the cabin. "It's a great little building, and it helps represent all the little houses that would be on a plantation," Sylvia says. At right, an antique piano is tucked away under Meadow Nook's spiral staircase.
time in prison before being paroled, is buried in Decatur Cemetery, about 40 feet from Alston.

The Harrisons say relatives and out-of-towners have reported encounters with Col. Alston during their visits to the home and one even prefers a sleeping bag to staying in either of the upstairs bedrooms. But Charlie and Sylvia often speak of Alston as a helpful ghost who helped guide the renovation.

The Harrisons tell tales of cabinet drawers that mysteriously open to reveal misplaced items. Leading guests on a tour of their home, the two often point at objects and say, “The colonel helped us out on that one.”

With the stories of all the Civil War soldiers who passed through the doors of the home, one wonders how the Harrisons were able to identify the ghost as that of Alston. Sylvia offers an explanation. When the couple moved into Meadow Nook, a Catholic priest paid a visit to bless the house. Sylvia already had grown attached to the ghost.

“I said, ‘Father Abbott, if you bless this house, will it get rid of my ghost?’ He said, ‘It certainly should, my dear.’ And I said, ‘But I don’t want to get rid of the ghost of Colonel Robert A. Alston.’ He said, ‘I will exclude him from the blessing.’ So he said all the prayers and excluded the ghost of Colonel Robert A. Alston,” Sylvia says.

She stands in the driveway looking up at the house. “I don’t know who’s out here, but I know who’s in the house.”

The Harrisons know what’s in a lot of houses in the neighborhood. With the success of their first renovation, the couple launched Meadow Nook Properties. They now have renovated 25 houses, all bordering the golf course.

“It’s got some really distinctive houses,” Sylvia says. “I guess that my passion is to fix all of them.”

In 2002, the Harrisons won an award for their work in restoring the Kemp-Castle house, a historic farmhouse that they transplanted from Kennesaw to a lot near the golf course.

But the Harrisons have no intention of moving and leaving the colonel. They still consider Meadow Nook a work in progress.

“We’re not through yet,” Charlie says. “But you know, as Scarlett O’Hara says, ‘I’ll worry about that tomorrow.’”
Readers of all ages flock to Andy Runton's animal-friendly stories

By Van Jensen

While keeping a late-night study schedule as an industrial design student at Georgia Tech, Andy Runton's mom teasingly began calling him a night owl. He responded by drawing on his artistic bent and leaving her notes with sketches of a friendly little owl.

Over the ensuing years, that sketch grew and coalesced into Owly, a comic-book character with a worldwide following. For Runton, it has been a strange and unexpected journey as he left the corporate world to pursue his love of comics and spread his love of animals.

Like so many boys, Runton, ID 98, MS ID 00, read comic books growing up. He was pulled in by the art and the powerful possibilities the medium held.

"I'm sure I could trace my earliest interest back to my mom reading the Sunday funnies to me, all of the kids books I loved and still love, the Disney movies I'd be enthralled by and the cartoons on TV I watched religiously every Saturday morning," he says. "At a very early age, I began drawing the characters I had seen in books and at the movies, and Owly encompasses several of the characters I knew from my book and movie experiences."

While deciding what to study in college, he never seriously considered comics as a career. Runton followed the family tradition established by his father, David L. Runton, CE 63, MS CE 64, and brother, David W. Runton, EE 93, MS EE 94, and enrolled at the Institute.

"I never took any actual cartooning classes, but in the industrial design program in the College of Architecture, I learned about conceptualizing, sketching, drawing, color theory, rendering, perspective, layout and design," he says. "We were given the freedom to learn by working in our studio classrooms and through our outside project experiences.

"My own mistakes and seeing that others were also making mistakes made me realize that you can learn from them and become even better. That was very important to me as I developed my own style and found I was less afraid to try new things."

His thesis focused on the intersection of design and cartooning, adding personality to commercial products through
"Sure, I loved to read action and crime-fighting tales, but I always wanted to know more about the plucky little sidekick than the main character."

color character design. Not knowing exactly how he wanted to apply those skills, Runton accepted a design job in a corporate setting.

It was challenging work and financially rewarding, but Runton didn’t feel personally rewarded. He began cartooning again in his spare time, experimenting with art and style and stories.

The push he needed came when his division was cut. Instead of finding another corporate gig, Runton realized he wanted to make comics. He pulled together his savings, moved back to his parents’ home and started to draw. Again, he was working through the night, leaving notes for his mom.

While spending time in their wooded Lilburn, Ga., neighborhood watching wildlife, Runton’s stories of an owl and other animals facing challenges and overcoming them began to take shape.

With a four-page story finished, he printed a few copies and took them to Atlanta’s Dragon*Con, which brings in comics publishers as well as sci-fi fans in bizarre costumes. His story was a simple adventure, almost quaint in its friendly tone. It also had a strange element. Instead of traditional dialogue, Runton substituted in pictograms.

At the convention, Runton met Chris Staros, publisher of Marietta, Ga.-based Top Shelf Comics, one of the top independent comics houses.

“When I first met Andy and saw his early Owly stories, there was a real and immediate sense that Andy’s true inner self was being perfectly channeled through his character,” Staros says. “And it’s that emotional power of Owly, and Andy’s innovative storytelling style, that made me fall in love with Owly. It’s also the reason that his fan base is so large and so loyal, as they also see the same thing — a character, and creator, that they can care for immensely.”

They started developing an Owly book, and in 2004 The Way Home & The Bittersweet Summer was released. The 150-page comic has two main stories. In the first, Owly saves an earthworm, and the two become best friends. In the second, Owly and Wormy befriend a pair of hummingbirds and have fun together but have to say goodbye as the birds migrate south in the fall.

How Owly Talks

One of the more interesting aspects of the Owly comics series is how artist Andy Runton represents dialogue. Instead of using words, he draws little icons and illustrations. Here, he explains what’s going on in a collection of panels from Owly: A Time To Be Brave.

“Owly tells his friend the raccoon good night, and then he has an idea. He says that his friend Wormy and he could use their craft supplies to make a little card to give to the possum in the morning. Wormy looks at the card and says, ‘That looks great!’ The two friends admire their handiwork. They’re very excited and can’t wait until he wakes up and sees what they’ve done.”
Runton, at right, painted a guitar with Owly characters for a charitable auction in Baltimore in October. The winner of the guitar says she and Runton "geeked out on birds" the first time they met.
"I like stories that can be enjoyed by the whole family and have a message of understanding, kindness and hope in them. This doesn't exactly fit the predominantly dark world of comics."

The book sold well, with the surprise being that readers of all ages took to the kid-friendly comic.

"I'm quite surprised of the broad appeal that Owly has," Runton says. "I never tried to make it appeal to everyone, but it just seemed to work out that way. These are the kinds of stories I was always drawn to when I was growing up. Sure, I loved to read action and crime-fighting tales, but I always wanted to know more about the plucky little sidekick than the main character."

He compares Owly and friends to the adventures of the R2-D2 and C-3PO robots in the Star Wars films. "Human interaction and friendship are timeless themes, and the Owly stories are emotionally deep in that way," Runton says.

"Owly is a lot like me, and, personally, I like stories that can be enjoyed by the whole family and have a message of understanding, kindness and hope in them," Runton says. "This doesn't exactly fit the predominantly dark world of comics, and because of that, I didn't think anyone would ever like Owly. Thankfully, I was wrong.

That popularity was evident this fall at SPX, a Maryland comic-book convention. Runton had painted a guitar with Owly characters for an auction to benefit the Comic Book Legal Defense Fund. The bidding shot up, with several Owly fans heatedly competing for the piece.

Julia Goodwin, the winner with a bid north of $2,000, smiled big as she held the guitar, but she seemed even happier to talk to Runton. The two first met at the convention a few years before and talked about their love of animals.

"When we met we just geeked out on birds," Goodwin said after the auction. "He's a really sweet guy, and I love to see him succeed."

Runton's tall stature and long hair at first belie the sweet, delicate nature of Owly. But Runton is an unfailingly cheerful person, and even his long hair has a generous purpose: He's growing it out to donate to Locks of Love.

Owly has been one of Top Shelf's most successful recent franchises, with the fifth book just being released and the earlier ones getting new hardcover printings. Runton will continue doing new Owly books for Top Shelf, and he's also working on two original Owly children's books to be published by Simon & Schuster.

While the books have done well, the growing but still small comics market has meant Runton continues to work constantly to scrape by and still lives with his parents. He spends as much time as he can making new Owly comics, but he also spends much of his time promoting the books at conventions.

"I do it because I love it," he says.

He's also become a regular at schools and libraries around the country. Because of Owly's unique dialogue, educators have told him the stories are ideal for teaching young children to read.

"My mom used to teach at a preschool and had written lesson plans before. We created an Owly lesson plan packet that I distribute freely on my Web site," Runton says.

"The response has been wonderful. Teachers have e-mailed lots of suggestions, and we plan on updating the document every year and adding new and more diverse lesson plans."

Runton's goal going forward is to travel less and focus on expanding the Owly franchise.

"I've got lots of new ideas for stories waiting to be told as well as new toy ideas, promotional items, merchandise updates and some new Owly endeavors like the new Owly children's books that are coming out," he says. "It's really exciting to work on those because I'll be bringing Owly to a broader audience. The stories are wonderful, and I think that my current fans will love them as well."
As Runton's creation has grown more and more popular, fans have started asking Runton to sketch him as different characters. A complete collection is at: www.andyrunton.com/sketches.html. Here are a few. See if you can tell who Owly is. An answer key is below.

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J: Darth Vader K: Spock L: Harry Potter
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A: Ewok B: Optimus Prime C: Napoleon Dynamite D: Superman E: Hello Kitty
Cyber security has been in the news recently with Russia’s online attacks against Georgia and the campaigns of Barack Obama and John McCain both having China-based hackers breach their computers. Internet safety has long been a focus at the Institute, as the interdepartmental Georgia Tech Information Security Center is now 10 years old. Recently, it held its annual summit to gather experts in the field to discuss emerging cyber threats. Professor Mustaque Ahamad, the center’s director, talks about the future of online warfare and Tech’s role in improving cyber security.

Will prominent situations like the political campaigns and even the White House computers being hacked raise awareness about cyber threats?

They definitely will raise awareness. The point we made at our summit is that we’re dealing with a very sophisticated adversary. We used to call them “script kiddies,” kids who used to hack for fun or bragging rights. That’s no longer the problem. One of the new threats comes from nation-states. You have a sophisticated adversary who is after something of great value, and our job is to protect that.

Security is, unfortunately, not 100 percent. The only way I can guarantee a machine is secure is to disconnect it completely, but that’s not very useful.

It’s very important to raise awareness. There are new threats, and the threats keep evolving. What we try to do is anticipate and learn how we can counteract those.

Was it surprising that the computers in the White House and in the campaigns were hacked?

I talk about practicing safe hygiene in the digital world. If you do all the right things, you can be reasonably confident you’ll be OK. But I’m not surprised. I hear all the time from the Department of Defense that they are attacked. We’re living in this cyber environment where the bad guys have to find one way to get into your system, and you have to plug all the holes. This is what makes this research challenging but at the same time exciting.

Is a situation similar to Russia’s launching of both a physical and cyber invasion of Georgia what we should expect of warfare from now on?

I think so. A lot of physical things are now under cyber control. Also, information is of great value in this scenario. So cyber space also becomes a battleground. Air Force Lieutenant General Robert J. Elder Jr. was talking at the summit about how you dominate in a contested cyber environment. It’s important, because it enables control of the physical world where the battle takes place.

The interesting aspect of the Russia-Georgia conflict is ordinary citizens apparently were doing their part. Russian hackers set up the infrastructure to allow the cyber attack. But was it controlled or was it spontaneous? If you want to do your part, it’s a lot easier to do that from the keyboard of your machine.

In the movie War Games, a hacker inadvertently almost sets off a nuclear war between the United States and the Soviet Union. Could a hacker gain that kind of access to weapons systems?

We certainly have systems that are critical that we can’t say are immune. The reliance on cyber systems keeps growing. People are talking about health care now and digitizing records. So, yes, that could happen. At Georgia Tech, we are leaders in active monitoring and anomaly detection. If these systems are agile and secure, they will tell you something is going on. So we’re hopefully not just a sitting duck.

We need to spot emerging threats and
proactively address them. If we don’t do anything, someone could deal us a crippling blow.

The focus has been on defending our networks, but is the Department of Defense also developing its own cyber offensives?

There are conversations. When General Elder was here, they talked about controlling or dominating. And you aren’t going to do that just by defending your assets. You have to go after your adversary’s assets and minimize how they can use them.

The Georgia Tech Research Institute does a lot of R&D with the Department of Defense, and we work closely with them on that kind of work. Some of the ideas we develop, they can test those in the context of needs the Department of Defense might have.

Does the public understand how serious the cyber threat is?

When you’re in a bad neighborhood in the physical world, you understand that and you lock the doors of the car. In the cyber world, it’s hard to see if you’re in a bad place. Though, identity theft is one issue people worry a great deal about.

What kind of movies I see or music I download or things I buy online, people are after all of this. Security is very event driven. If your house is broken into, you go get an alarm. But if you do a good job of protecting people, they think less and less about the threat. One of our projects is usable security, which teaches the average person to stay safe.

What are some important things everyone should do?

You need anti-virus, firewalls, all those security tools. You also need passwords and things like that. But people are generally very trusting. I’m not saying you should be paranoid, but you need to be aware you’re a potential target of an attack.

I wish there was a quick, simple solution, but we’re dealing with a complex system and have smart people on the other end who we need to keep defending against.

What are some of the major developments to come from the Information Security Center?

The most important threat we face is botnets, which is people going after your computer itself. The bad guys find a way to control your machine, and they find hundreds of thousands of others and herd them into a network. And then they tell someone, “I can give you 200,000 machines to deliver spam.”

We were pioneers in understanding this threat. Associate professor Wenke Lee is working on monitoring activities and understanding the behavior of these networks. There’s a great example of research that contributes to real solutions.

Telephones are increasingly using voice-over-Internet protocol, which is moving them to the Internet world. We have played a leadership role in securing these kinds of applications.

In the future, you’re going to carry a smart phone that’s more like a laptop with sensitive data, and those are going to be threats. How are we going to secure these future devices that are always on, that you use for staying in touch and all sorts of things like e-commerce?

It’s never a good idea to add security at a later point, it has to be built in. We do hardware, software and even the networks themselves. There’s quite a bit going on.
Mac Taylor, CE 52, and his wife, Jan, are world travelers. The couple keep a list of places they’d like to visit, and for the past several years have been marking off three to four destinations a year, including a few spots they visited with the Alumni Travel program. But it’s unlikely that any of the souvenirs picked up during their past travels compare to the one they brought back from a November trip to India — a bullet that blasted through their hotel room door.

The Taylors were among the guests who were held hostage in the Taj Mahal Palace & Tower Hotel in Mumbai in late November during a three-day siege on the city by Islamist gunmen. Nearly 200 people died in the attacks. The victims were honored during a campus memorial service hosted by the India Club of Georgia Tech on Dec. 2.

Trapped in their room for 44 hours, the Taylors munched on snacks from the room’s minibar and passed the time reading books, their sleep often interrupted by the sound of gunfire or grenades exploding in the hotel.

"I’m real pleased how calm we remained," Taylor says. The couple were on the last day of an 18-day tour of India when they heard gunshots ring through the hotel.

“We called the operator, and she said, ‘We’re under attack by terrorists. Lock your door and stay in your room,’” Taylor recalls.

“We had no communication with the outside world aside from telephone,” says Taylor, who notes that the television cables were disconnected by hotel management to keep the terrorists from watching the news coverage. “It’s probably just as good, because if we’d seen the photos of the hotel burning, I probably would’ve been petrified.”

Taylor and his wife both celebrated their birthdays during the trip, turning 80 and 76, respectively. The couple, who have five children and 20 grandchildren, were able to contact their family by phone and received updates on the situation through calls to the American Consulate and the travel agency that had organized the group tour.
"The only mistake I made was in opening the door too many times. I was shot at and still have the bullet."

"The American Consulate was just awesome," Taylor says. "They couldn't come to us, but they kept talking to us and letting us know what was going on."

An Australian man in the Taylors' travel group was shot and killed when he and his wife exited their room to escape the encroaching fire. Though they could see the smoke from their windows, the Taylors, who were staying at a room at the other end of the hotel, were not affected by the fire.

"We were really in the right place at the right time," Taylor says. "The only mistake I made was in opening the door too many times. I was shot at and still have the bullet."

The 9-millimeter bullet that pierced the door of their hotel room came from the pistol of an Indian commando, who in checking rooms was alarmed when Taylor slammed the door. "If it had been a terrorist, they'd probably have sprayed the whole door and I wouldn't be here," Taylor says.

The Taylors were escorted from the hotel by commandos on Nov. 29.

"We passed three dead terrorists on the way down the stairs. It was pretty gruesome," he says. Upon returning to their home in Richmond, Va., Taylor received some good news in a phone call from his son Paul Taylor, IE '87. "The first thing he said was, 'Dad, we beat Georgia.' "That was great. I'm sorry that I didn't get to see the game."

Mac and Jan Taylor have a souvenir from the 44 hours they spent locked in a hotel room in Mumbai during a terrorist attack — the bullet shot through their door.

Connect with alumni in your area.
To find your local GT Club, log onto www.gtalumni.org/clubs or contact Jane Stoner at 404-385-2216.
"The ship was not part of the original design. Its concept came from a toy owned by the son of the director of marketing for the Buccaneers and the Tampa Bay-Gasparilla invasion pirate ship that annually plunders the city and kidnaps local politicians."

"The cannons appear to fire after each score, but it is simulated with speakers and smoke. And there are carbon dioxide and compressed-air cannons for shooting T-shirts to the fans."

"During the design of the ship, we learned many pirate ships were small sloops that could navigate shallow waters and escape quickly to the refuge of the coastal bayous. The galleons prevalent in books and movies were trophy ships."
Architect gives permission to come aboard pirate ship

By Van Jensen

As an architect and avid sailor, Chip Hayward long held a dream of designing and building his own ship. He surely didn't expect the dream to come true in the way it did.

Hayward, M Arch 81, moved to Tampa, Fla., for a position in an architecture firm after graduating from Tech. He has overseen more than $2 billion in construction projects, including the New York Yankees' spring-training complex and the renovation of Tropicana Field for the Rays baseball team.

With his experience on sports projects, he was asked to work with the owners of the Tampa Bay Buccaneers on their new stadium. Hayward, who also serves as president of the Suncoast/Tampa Georgia Tech Club, helped create Raymond James Stadium, which opened in 1998. The stadium hosted the 2008 ACC football championship game and will host Super Bowl XLIII on Feb. 1.

Hayward worked on the stadium's most recognizable feature — a complete pirate ship built into the stands.

"I got to fulfill my dream of designing a ship, even though it is still in and has never left dry dock," says Hayward, who received a Super Bowl ring when the Buccaneers topped the NFL in 2003.

At left, he explains some of the ship's features and the difficulties of its construction.
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Against the Odds

Georgia Tech football by the numbers

It took only a season for new coach Paul Johnson to beat the Bulldogs, as the Yellow Jackets finished the regular season with a big 45-42 win over Georgia in Athens. Still, Johnson says, "I feel like we've only scratched the surface." Here's a statistical look at that game and the Jackets' entire season, which shows how a young, injury-hampered team managed to exceed most pundits' expectations and earn Johnson ACC Coach of the Year honors.

9 wins Tech had in the regular season.
1 Tech win over formerly top-ranked Georgia.
16 freshmen and sophomores who started for the Yellow Jackets against Georgia.
20.1 average age of Tech's players, making the Jackets one of the country's youngest teams.
60 yards covered in a touchdown run to start the third quarter against Georgia by sophomore All-ACC back Jonathan Dwyer, who has 1,471 total yards for the season.
409 total rushing yards by Tech against Georgia.
19 passing yards by Tech against Georgia, on one completion, by sophomore quarterback Josh Nesbitt.
46.5 Nesbitt's completion percentage for the season.
35 yards sophomore safety Morgan Burnett ran for a touchdown after an interception against Georgia, giving him a team-leading seven interceptions and 54 tackles for the season.
32 sacks for the season by Tech's defense for a loss of 237 yards by opponents.
48 total games missed by Tech players because of injuries.
3,388 rushing yards for Tech for the season, or 282.3 per game, which is third best in the nation.
199.3 rushing yards per game for Tech in 2007.
1 win over Georgia. Wait, did we mention that already?
The first couple of weeks of practice I didn’t know what was going on. But I definitely enjoy it.”

Scroll down the Tech football team roster and you’ll see player after player from the top prep sports high schools in the Southeast. There are two notable exceptions: Michael St. Denis of Roswell, Ga., and Scott Elder of Stone Mountain, Ga., were both home-schooled.

“When you think of a home-schooled person, there’s a stigmatism they’re not going to be on the same level,” St. Denis says. “But there are plenty of opportunities out there for socialization and athletics.”

St. Denis’ mother educated him at home because she thought she could offer a more academically challenging syllabus than public schools. That hardly meant he was a shut-in. He played in recreational sports leagues through middle school and then joined the newly formed home-school North Georgia Falcons football team as a ninth-grader.

The team first competed against private schools, and in subsequent years more teams made up of home-schooled players sprang up around the state. There are now 10 varsity high school teams.

Different states offer different opportunities for home-schooled students. In Florida, they are allowed to play on high school teams. Heisman Trophy winner Tim Tebow is that state’s most famous home-schooled player.

“You couldn’t compare [Georgia’s home-schooled teams] to any of the upper-tier high school teams,” St. Denis says. “Across the board the competition wasn’t great, but there were a few teams that could hold their own. There were definitely some players.”

St. Denis was one of the top players, making the all-state team his sophomore, junior and senior seasons. An offensive lineman, he looks like a football player, standing more than 6 feet tall and weighing about 300 pounds.

He came to Tech both for the education and to test himself against all those top athletes from public schools. “I wanted to see if I could keep up with all the people from Roswell and Buford,” St. Denis says.

The Division I level of play was a big jump, from learning the terminology to adjusting to the much faster and stronger competition.

“When you’re home-schooled, you’re not in the same weight program or training as everyone else,” St. Denis says.

Elder faced an even sharper learning curve when he tried out for the team, as he’d never picked up a football before. His parents had opted to home-school him for academic reasons and to instill a Christian worldview in his education, he says. He loved sports but only played soccer on a traveling team.
When Elder was a freshman in the fall of 2007, he went to a football game and said, “I think I can kick a field goal,” so he tried out last spring. The team didn’t need another kicker, but coaches told him to come back in the fall. He did, and again they didn’t need a kicker, but he was asked if he’d like to play cornerback.

Despite being fairly slight, Elder gave it a shot.

“It was kind of intimidating at first,” Elder says. “The first couple of weeks of practice I didn’t know what was going on. But I definitely enjoy it. I’m still kind of lost, but I feel like if I work really hard over the spring semester I can work my way up. It keeps me disciplined.”

A biochemistry student, Elder had two science lab classes in the fall semester and plays music at his church and for another Christian organization. “I’m kind of tired,” he admitted after a fall football practice. “The schedule is pretty rough, but it’s awesome.”

Elder hopes to go to medical school and credits being home-schooled for the focus he brings to his busy schedule.

“A lot of the education you’re getting at home you’re teaching yourself,” he says. “Either you’re motivated or you’re not. Getting to learn what you want to learn, it makes you passionate about what you want to do.”

St. Denis, who calls himself a cerebral football player, is studying psychology and plans to pursue coaching after college. Given the chance, he says, he won’t just recruit from the top high schools.

“I’ll see if I can open up another demographic of players,” St. Denis says. “If there are two of us on one Division I team, there have got to be more.”
No one quite remembers how the connection was made. Georgia Tech swimming and diving coach Stuart Wilson says his predecessor somehow got in touch with a promising swimmer from Tel Aviv, who for one reason or another decided to become a Yellow Jacket. Shilo Ayalon, EE 03, MS ECE 05, would go on to become a three-time All-American and have a Georgia Tech Athletic Association award named for him.

Ayalon also became renowned in Israel’s swimming community for his success not just in the pool but in the classroom as well.

“He has gone back to his country and told all of the swimmers how great the program is and that the academics are second to none,” Wilson says. “Then the group I have now are telling their friends back home about Georgia Tech.”

That current group is five swimmers strong and includes one of Israel’s top swimmers from the Beijing Olympics.

The first one to come to Tech was Mickey Malul, a fourth-year management major who competes in the breast and free strokes. This year he’s joined by Ilia Ayzenshtock, a third-year management major and backstroke competitor, and Gal Nevo, a third-year economics major and individual medley swimmer, who transferred to the Institute from Purdue and Arizona State, respectively.

The other two Israelis on the team are breaststroke swimmer Hen Pauker, a second-year industrial design major, and free-stroke swimmer Keren Siebner, a first-year industrial design major.
Nevo swam in the 2008 Summer Olympics, advancing to the semifinals of the 200-meter individual medley, in which he broke the Israeli national record. He also finished 11th in the 400-meter individual medley.

Growing up across Israel, the swimmers all looked up to Ayalon and were eager to follow his path to Atlanta. Malul, Ayzenshtock and Nevo all attended their country’s swimming academy, which meant leaving their families to train full time at Israel’s single Olympic-size pool.

In that high-pressure environment, the three became lasting friends. And when Ayzenshtock and Nevo weren’t satisfied at their first universities, Malul easily convinced them to join him at Tech. Now, they live together near campus.

“In all ways and manners, this is better,” Ayzenshtock says of being a Yellow Jacket.

“It’s like a chain reaction,” Malul says of the connection between Israel and Tech that began with Ayalon. “Shilo was the first one. He made Georgia Tech really famous. He showed everyone that you can succeed in sports and studies.”

Being so far from home can be challenging. “For me, it’s really hard to be away,” Pauker says. “I go home once a year, in the summer, and once my parents came to visit me.”

Though they’re away from their families, the swimmers find life easier in America because they have each other.

“When you have a group like we have, the transition to Georgia Tech is easier,” says Wilson, in his fourth year as coach. “The entire team is always supportive of one another and will offer a place to stay with their families when they can’t go home during the holidays.”

Heading into the spring portion of the season, Georgia Tech’s newest Israeli contingent is helping the team to a successful year. That success will just strengthen the connection to Israel. All the players say they recommend Georgia Tech to young swimmers when they return home.

“Every year I will have a swimmer from Israel who is interested in Georgia Tech, so you can say that the connection between Georgia Tech and Israel is strong,” Wilson says.

"It's like a chain reaction. Shilo was the first one. He made Georgia Tech really famous."
The National Science Foundation awarded $8.1 million to Georgia Tech this fall to create the Materials Research Science and Engineering Center, focused on the development of graphene and its potential to replace silicon.

Dennis Hess, the Thomas C. DeLoach Jr. chair of the School of Chemical and Biomolecular Engineering, was named director of the center, housed in the new Marcus Nanotechnology Research Building.

The lab's research is a cross-disciplinary effort utilizing the talents and resources of Tech as well as those of the University of California, Berkeley; University of California, Riverside; Alabama A&M; and the University of Michigan. Initially, the lab will house research conducted by 13 Tech faculty members and five from the partner institutions.

Interim President Gary Schuster says Tech's graphene research will bring Atlanta a nickname to rival Silicon Valley.

"There is the potential that graphene is going to replace all the silicon that's in your cell phone and computer," Schuster says. "I'm going to predict that in a few years Atlanta is going to be known as Graphene Junction. That's where the next generation of technology that is going to be powering up the revolution in electronics is going to occur, and it's going to occur right here on the Georgia Tech campus."

Hess, who earned his bachelor's degree at Albright College in 1968 and his master's and doctorate at Lehigh University in 1970 and '73, joined the Tech faculty in 1996.

**Why did you choose a career in academia?**

I had been interested in a position in academia since enrolling in graduate school but decided that I should gain some industrial experience first. After four years at Fairchild Semiconductor, I accepted a position as an assistant professor in chemical engineering at the University of California, Berkeley, which wanted to initiate a program in microelectronics processing since many of its graduates were joining microelectronics firms in Silicon Valley. This was the first formal program in microelectronics processing in a chemical engineering department.

Close interactions with students in courses and research along with the freedom to undertake research directions of my choosing — provided that I can raise the necessary funds — are the reasons that I have remained in academia. I stayed at Berkeley for 14 years until the lure of moving back to the East and closer to family took over.

**What brought you to Georgia Tech?**

As I was completing my five years as the chemical engineering department chair at Lehigh University in 1996, I was ready for a change. The year before, the chemical engineering department at Georgia Tech had invited me to give a seminar on my research, and I was very impressed with how the school was progressing.

They had hired several excellent senior faculty members I had known for some time — Ron Rousseau, Chuck Eckert and Paul Kohl — and also had hired a number of outstanding young faculty members. This indicated that the chemical engineering department was poised for continued and enhanced success and thus represented a great opportunity. I wanted to be part of this effort since this was clearly a school that was on the move.

**Briefly explain graphene research.**

Continued advances in microelectronic devices and integrated circuits and the fundamental limitations of silicon properties have led to the need to find a successor to silicon...
for future devices. Graphene, which is a single or generally a few layers of graphite, offers the potential for higher-speed devices than silicon with similar structures that can be fabricated with some of the same processing approaches to those currently used. However, extensive materials characterization of graphene properties, their connection to processing techniques and methods to successfully form layers of graphene for device fabrication are required.

How will mankind benefit in the future from graphene research being conducted at Tech today?

The phenomenal advances in microelectronic devices have made possible laptops, cell phones, iPods, supercomputers and astounding movie effects. Higher-speed materials and devices can improve the performance of such devices and will offer the potential for new and, to date, unimagined applications for integrated circuits due to the enhanced computational and processing speed expected from graphene devices. Realization of such expectations is probably at least 10 to 15 years away.

Although our center will focus initially on the fundamental understanding of graphene and other electronic materials as possible successors to silicon-based electronics and will facilitate technology transfer to industry, there may be other more immediate uses for graphene. Biocompatible biosensors are one possibility. Similar to carbon nanotubes, the high conductivity of graphene will likely find application as a material additive for application-specific polymers or nanocomposites since the cost to manufacture graphene flakes appears to be much lower than that of CNTs. Graphene layers also may find use as electrodes for batteries and as optically transparent electrodes for photonic devices.

If, as expected, lowered cost and enhanced performance result from the use of graphene in such applications, society will benefit immensely.

Please complete this sentence.
I don't leave home without:
A book or articles — technical and nontechnical — to read.

What are you reading now?
I recently finished Einstein by Walter Isaacson and am now reading Mark Twain by Ron Powers.
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In a letter dated Jan. 11, 1994, Pat Crecine announced that he would step down as president of Georgia Tech at the end of June. The Board of Regents would name Wayne Clough as Crecine's successor in July.

Scenes for The Bear, starring Gary Busey as coach Paul Bryant, were filmed in January 1984 at Rose Bowl Field, which became the Alabama practice field in the movie. The Georgia Tech Athletic Association was paid $5,000 for the 10 days the film crew was on campus.

The Georgia Tech Post Office burned to the ground Jan. 21, 1964. The fire broke out in the building, constructed in 1898 to house the smith shop and boilers for the foundry, after the Tech-Georgia basketball game. Georgia Tech Alumnus photographer Bill Sumits was in the crowd that watched as the fire "within an hour had left the building a smoking hulk."

Carter T. Barron, Com 26, center, chaired the parade committee for the Jan. 19, 1949, inauguration of President Harry S. Truman, second from right. Barron, a division manager for Loew's theaters, was a past president of the Washington, D.C., Georgia Tech Club.
Sophomore back Jonathan Dwyer celebrates after Tech's 45-42 win over Georgia. Dwyer later was named ACC Player of the Year, and Paul Johnson earned conference Coach of the Year honors. Eight Yellow Jackets made the All-ACC team, including a league-high four on the first team.
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