



Georgia  
Tech

# THE Whistle

## NEWS

### Tsunami of insecurity: Safeguarding mobile devices

Seymour Goodman, a professor of international affairs and computing at Georgia Tech, forecasts "a coming tsunami of insecurity" for phones and other mobile devices with substantial computing capabilities. (GovInfoSecurity)

<http://tinyurl.com/nlrzyo>

## RESEARCH

### Intelligence may cause cancer

Although humans and chimpanzees share 98 percent of genes, chimps have a surprisingly low cancer rate. Georgia Tech researcher John McDonald tries to discover why. (Fox News)

<http://tinyurl.com/oxx6r9>

## PEOPLE

### Making financial regulation work: Overseeing lending

Part of a series on the hearing "Making Financial Regulation Work," this guest post was written by Georgia Tech Associate Professor Dan Immergluck. (Washington Post)

<http://tinyurl.com/nfxtkr>

## CORRECTION

In the June 1 issue, the Office of Emergency Preparedness Web address was incorrectly listed. The correct address is [www.gatech.edu/emergency/](http://www.gatech.edu/emergency/). The Whistle regrets the error.

## EVENTS

### ARTS & CULTURE

#### June 17

The Flicks on Fifth Film Series continues, with "Slumdog Millionaire" (2008, R)," at Technology Square. "Duplicity" (2009, PG-13) will screen on June 24. Movies begin at sundown (approximately 9 p.m.). [www.flicksonfifth.gatech.edu](http://www.flicksonfifth.gatech.edu)

#### June 26, 27

DramaTech Theater, located in the Ferst Center for the Arts, presents "Deathtrap," at 8 p.m. Other performances are scheduled for July 2 and 3, and July 9-11. Tickets are \$8 for faculty and staff. [www.dramatech.org](http://www.dramatech.org)

### CONFERENCES/LECTURES

#### June 19

University of Potsdam Professor Peter Sallfrank presents "Electrons and Atoms in Motion," at 10 a.m. in room 3201A of the Molecular Science & Engineering building. [www.chemistry.gatech.edu](http://www.chemistry.gatech.edu)

Hagen Klauk from the Max Planck Institute for Solid State Research pres-

Calendar continues on page 2

## Open campus

### Tech camps serve as outreach for high school students

ROBERT NESMITH  
COMMUNICATIONS & MARKETING

While many Tech students are attending to their coursework during the summer, the Institute has opened its campus to elementary and high school students for several academic camps.

From classes about engineering, robotics, biotechnology, architecture or the investing nuances of Wall Street, high school students from across the state can participate in programs overseen by Tech faculty and staff.

Mike Ryan, program director with Tech's Center for Education Integrating Science, Mathematics and Computing (CEISM), says the summer programs are a result of collaborations with departments and colleges from across the state.

"While CEISM is involved in a various number of K-12 outreach initiatives across the state, many on campus and in the community see summer programs as a core dimension of CEISM," Ryan said. "In recent years, we have averaged 25 one-to-two week programs per summer, with more than 450 attendees in a variety of topics. While this can put a good bit of pressure on our resources and

schedule, we know the demand for programs and the desire of campus faculty to engage in meaningful outreach is significant. As a part of its mission, CEISM seeks to help those two forces meet."

Programs are offered by the schools of Aerospace Engineering, Biology and Civil and Environmental Engineering, as well as the colleges of Architecture, Computing and Management.

### Hands-on experience

Hands-On-Tech (HOT) Days @ GT serves as an introduction to electrical and computer engineering, presented by the School of Electrical and Computer Engineering.

Begun in 2006, HOT Days is open to rising high school sophomores and juniors in



Electrical and Computer Engineering Associate Professor Jeff Davis works with high school students on LEGO Mindstorm projects during the HOT Days @ GT camp.

Georgia. The camp's two sessions—both in June—are held in the Van Leer and Klaus buildings. The goal of the course is two-fold, according to ECE Outreach Coordinator Leyla Conrad: introduce students to electrical and computer engineering and instill an interest in the subject.

"Our objective is to reach out to economically disadvantaged students

who have an interest in engineering," said Conrad, who adds that more than 50 percent of this year's attendees fall into this category. Students are selected based upon interest and academic merit.

Because of external funding and faculty and staff members donating time to organize and instruct the students, costs are low for the camp. The largest expenses

**CAMPS**, continued on page 4

## NCR relocation

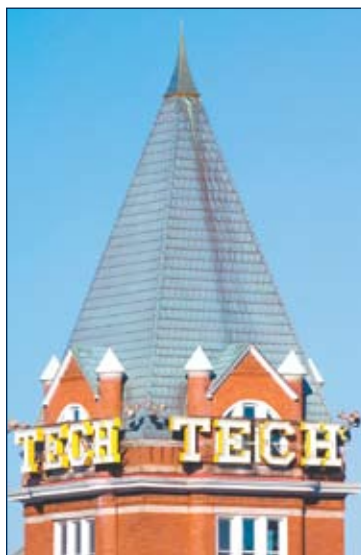
### Tech plays key role; collaborations planned

JOHN TOON  
RESEARCH NEWS

Tech played a significant role in one of Georgia's largest economic development successes—the move of Fortune 500 corporation NCR to Georgia. And the company will be looking to Tech as a source of engineering talent and as a partner in the development of future technology innovations.

Flanked by NCR officials, Georgia Gov. Sonny Perdue on June 2 announced that the company would move more than 2,100 jobs to the state by relocating its headquarters to Duluth and by developing a new advanced manufacturing facility in Columbus.

"The opportunity to partner with top-tier academic institutions such as Georgia Tech was



one reason among many that we made this decision," said Bill Nuti, NCR's chairman and chief executive officer.

Currently based in Dayton, Ohio, NCR is best known for automated teller machines (ATMs), self-service kiosks and other assisted- and self-service

**NCR**, continued on page 3

## Health plan

### Campus flu procedures outlined

Building on previously established plans, Stamps Health Services and the Office of Emergency Preparedness are prepared to care for students and advise faculty and staff who may become infected with Influenza A or the H1N1 virus.

These modified procedures—used for chicken pox and other communicable illnesses—will enable Housing, Emergency Preparedness, Health Services and the Dean of Students Office to provide care and information.

Students diagnosed with influenza A on campus may be tested for subtype H1N1 based on clinical presentation, which can usually take 48 hours or longer to confirm the classification of the flu strain. If a student is medically stable and not in need of emergency medical attention from a hospital or other health care professionals, Health Services will provide upon discharge a medical aftercare kit containing items such as a thermometer, surgical masks and hand sanitizer, as well as instructions for both care and protection of the student and caregivers.

If an infected student's permanent residence is near enough, family members will be asked to care for the student at home. Students living in off-campus housing will be provided an aftercare kit and instructions, along with follow-up phone calls from Health Services nurses to caregivers or other students.

**FLU**, continued on page 4

## EVENTS

ents "Organic Nanoelectronics," as part of the Center for Organic Photonics and Electronics seminar series, at 11 a.m. in room G011 of the Molecular Science & Engineering building. [www.cope.gatech.edu](http://www.cope.gatech.edu)

### June 26

The College of Engineering, along with the schools of Aerospace Engineering and Industrial and Systems Engineering, present astronaut and Tech alumnus Army Lt. Col. Shane Kimbrough, from 10:30 to 11:30 a.m. in the Student Center Theater.

### FACULTY/STAFF DEVELOPMENT

### June 18

Environmental Health and Safety presents "Advanced Lab Safety for PIs and Lab Managers," from 2:30 to 4 p.m. in the EHS Conference Room, at 490 10th St. Register through the Office of Organizational Development Web site. The class is also offered July 13. [www.orgdev.gatech.edu](http://www.orgdev.gatech.edu)

### June 18, 25

The Office of Organizational Development offers MyGaTech Calendar training from 9 a.m. to 11 a.m. in the Homer Rice Center (June 18) and Frances E. Kaiser room (June 25), both in the Library. The cost is free. [www.trainsweb.gatech.edu](http://www.trainsweb.gatech.edu)

### June 23

Environmental Health and Safety presents "Blood Borne Pathogens," from 10:30 to 11:30 a.m. in the EHS conference room, 490 10th St. Register through the Office of Organizational Development Web site. The class is also offered July 16. [www.orgdev.gatech.edu](http://www.orgdev.gatech.edu)

### Ongoing

Georgia Tech Training Services offers a Web-based tutorial on the basics of using a state purchasing card (p-card). [www.orgdev.gatech.edu/training/](http://www.orgdev.gatech.edu/training/)

The "Emergency Preparedness" certificate program, which consists of several smaller courses, including "Fire Safety" and "Facilities Hazard Training," provides faculty and staff with valuable information in the case of a campus emergency. [www.orgdev.gatech.edu](http://www.orgdev.gatech.edu)

The "Defining Customer Service" certificate program provides campus groups and employees with the foundation for offering exemplary service, to those both on and off the campus. Four required courses and two electives are offered. [www.orgdev.gatech.edu](http://www.orgdev.gatech.edu)

### MISCELLANEOUS

### June 23, 25

The Office of Emergency Preparedness will offer a ham radio test preparation class from 5 to 6:30 p.m. in the briefing room of the Beringhouse building. The license test is June 28 in Van Leer W218. If interested, contact Jennifer Mattingly at [jennifer.mattingly@police.gatech.edu](mailto:jennifer.mattingly@police.gatech.edu).

Calendar continues on page 3

## Research

### Replacement metal

#### Graphene may outperform copper on the nanoscale in integrated circuits

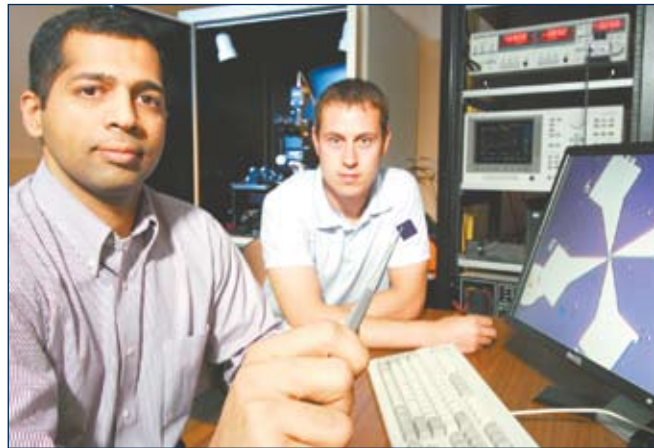
JOHN TOON  
RESEARCH NEWS

The unique properties of thin layers of graphite—known as graphene—make the material attractive for a wide range of potential electronic devices. Researchers have now experimentally demonstrated the potential for another graphene application: replacing copper for interconnects in future generations of integrated circuits.

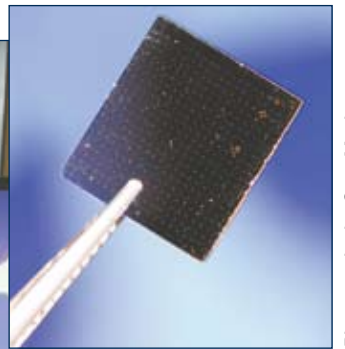
In a paper published in the June 2009 issue of the IEEE journal *Electron Device Letters*, researchers at Georgia Tech report detailed analysis of resistivity in graphene nanoribbon interconnects as narrow as 18 nanometers.

The results suggest that graphene could outperform copper for use as on-chip interconnects—tiny wires that are used to connect transistors and other devices on integrated circuits. Use of graphene for these interconnects could help extend the long run of performance improvements for silicon-based integrated circuit technology.

"As you make copper interconnects narrower and narrower, the resistivity increases as the true nanoscale properties of the material become apparent," said Raghunath Murali, a research engineer in the Microelectronics Research Center and the School of Electrical and Computer Engineering. "Our experimental demonstration of graphene nanowire interconnects on the scale of 20 nanometers shows that their performance is comparable to even the most optimistic projections for copper interconnects at that scale. Under real-world conditions, our graphene interconnects probably already outperform copper at this size scale."



Research Engineer Raghunath Murali, left, and graduate student Kevin Brenner are shown with a test station used to study the properties of graphene. A graphene sample (inset).



Photography by Gary Meek

Beyond resistivity improvement, graphene interconnects would offer higher electron mobility, better thermal conductivity, higher mechanical strength and reduced capacitance coupling between adjacent wires.

"Resistivity is normally independent of the dimension—a property inherent to the material," Murali noted. "But as you get into the nanometer-scale domain, the grain sizes of the copper become important and conductance is affected by scattering at the grain boundaries and at the side walls. These add up to increased resistivity, which nearly doubles as the interconnect sizes shrink to 30 nanometers."

The research was supported by the Interconnect Focus Center, which is one of the Semiconductor Research Corporation/DARPA Focus Centers, and the Nanoelectronics Research Initiative through the INDEX Center.

Murali and collaborators Kevin Brenner, Yinxiao Yang, Thomas Beck and James Meindl studied the electrical properties of graphene layers that had been taken from a block of

pure graphite. They believe the attractive properties will ultimately also be measured in graphene fabricated using other techniques, such as growth on silicon carbide, which now produces graphene of lower quality but has the potential for achieving higher quality.

Because graphene can be patterned using conventional microelectronics processes, the transition from copper could be made without integrating a new manufacturing technique into circuit fabrication.

"We are optimistic about being able to use graphene in manufactured systems because researchers can already grow layers of it in the lab," Murali noted. "There will be challenges in integrating graphene with silicon, but those will be overcome. Except for using a different material, everything we would need to produce graphene interconnects is already well-known and established."

### For more information

[www.mirc.gatech.edu](http://www.mirc.gatech.edu)

## Mountains to scale

### Faculty volunteers sought for pre-semester student retreat

ROBERT NESMITH  
COMMUNICATIONS & MARKETING

The President's Scholarship Program (PSP) is seeking faculty members to assist and attend a weeklong retreat in north Georgia.

In August, 67 incoming freshman students will undertake a three-day retreat at Unicoi State Park, using the time to participate in team-building and leadership exercises, and developing a network among fellow new students. A major benefit of the retreat, according to PSP Associate Director Billiee Pendleton-Parker, is the chance for incoming students to meet and talk with Tech faculty members.

"Many of these scholars had good relationships with their

instructors in high school," Pendleton-Parker said. "We wanted to provide that kind of collegiality [with Tech faculty members] at the retreat."

Faculty members wishing to participate can be from any discipline, Pendleton-Parker said, and they are not required to prepare or deliver a presentation. "It's very informal and not academic, in that sense," she said.

Transportation, food and lodging are covered by PSP. (Pendleton-Parker says that faculty members do not need to stay overnight.)

"Faculty add a whole new element to the retreat," said rising senior and President's Scholar Jonathan Saethang. "Freshman students may be intimidated by college professors. [This time] allows for faculty and students



Wendy Newstetter, director of Learning Sciences Research in the Coulter Department of Biomedical Engineering, attended the President's Scholars retreat for three years. "I was able to interact with really amazing students as they started at Tech and help them see that faculty are accessible."

to interact. I still keep in touch with faculty members I met during the retreat."

"[PSP] is looking for faculty members with a genuine interest in students," said rising sophomore and Student Assistant Mike Donohue, who added that he is changing his major from physics to public policy, largely because of retreat attendee and School of Public Policy Associate

Professor Richard Barke.

The President's Scholar retreat is scheduled from Aug. 10–14 at Unicoi State Park. Faculty interested in attending should call Pendleton-Parker at 894-2691 or e-mail [billiee.pendletonparker@psp.gatech.edu](mailto:billiee.pendletonparker@psp.gatech.edu).

### For more information

[www.psp.gatech.edu](http://www.psp.gatech.edu)

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Georgia Tech  
Communications & Marketing  
Wardlaw Center  
177 North Avenue  
Atlanta, Georgia 30332-0181

## Playing the field

### Bobby Dodd Stadium receives upgrades to infrastructure, entertainment system

ROBERT NESMITH  
COMMUNICATIONS & MARKETING

After spring commencement, the Athletics Association began working on improvements to Bobby Dodd Stadium at Grant Field. While these include restroom upgrades, painting and pressure-washing, some of the work is quite extensive, according to Associate Director of Athletics Wayne Hogan.

The most visible change, he says, will be the new scoreboard system mounted on the Wardlaw Building, at the southern end zone of the stadium.

The major renovations will be those that Hogan says spectators can enjoy. "All our entertainment and fan components are being updated," Hogan said. "We have a new LED video screen, which is twice the size of our previous screen." New ribbon boards [smaller LED screens with scrolling information] will be installed on suite facades and at the northern and southern ends of the stadium.

New panels will increase available advertising and fan entertainment space in the southern end zone, and the Hall of Fame graphics on the stadium's eastern side will be updated. And, Hogan adds, a new sound system should correct the imbalances from the old system. The previous scoreboard and screen were purchased in 2000.

Several suites are being transformed and renovated, as well. A group of suites on both corners of the stadium's eastern side are being reworked. Typically the least lucrative suites, the changes should bring improved revenue to the Athletic Association.

"We're taking the three suites out on the southern end and converting them to office space for Georgia Tech Sports Properties,"



Courtesy of Georgia Tech Athletics Association

LEFT: A rendering shows how the new video screen and advertising spaces will be situated in the southern end zone of Bobby Dodd Stadium. BELOW: Construction crews work on the video screen.

Hogan said. A division of International Sports Properties Inc., Georgia Tech Sports Properties works in multimedia marketing, event management, and marketing and promotional support services. The group will move from its Buckhead office to work on-site.

Contractors also are converting the three suites in the northeast corner into a super suite, with an outdoor patio and balcony. "It will have a really upscale interior and will hold up to 75 people," he said. Currently, seats are facing forward, and because of the position of the suites, it is difficult to see action on the field. Hogan says the new patio area will correct this, with 50 seats angled for a better view of the field.

Additionally, concrete areas of the stadium will be dressed up with gold-and-white piping and other graphics, and the Athletics Association is updating its cameras and video production equipment.

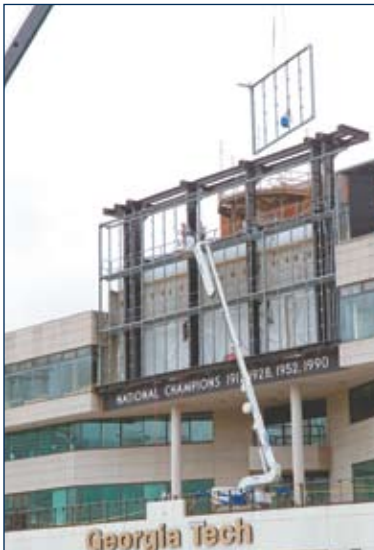
Completion of the video screen installation is slated for July 15, with a completion date of Aug. 1 for the other projects.

These renovations and improvements have been in the works for a while, Hogan says. "The video and sound improvements are from one source, costing roughly \$4.5 million," he said. "Increased revenue from corporate advertising and the \$1 million we received from a multiyear contract with Coca-Cola helped

jump-start this."

"We have a great [football] schedule this year," Hogan said. "We play Georgia, Clemson and Virginia Tech—all marquis games—at home."

In addition to the stadium, construction continues for the Zelnak Practice Facility for Tech's basketball teams, which is slated to be finished Oct. 15. The new facility will not only offer an additional court for practice, but will provide a weight room and meeting room.



#### NCR, continued from page 1

solutions. The Columbus facility, which will employ 870 people over the next five years, will produce advanced technology equipment enabling consumers to use ATM kiosks for a growing number of financial transactions.

Working with the Institute's Strategic Partners Office, NCR officials learned about a broad range of resources and expertise, in collaboration with the University System's Intellectual Capital Partnership Program (ICAPP) and the Georgia Research Alliance (GRA).

Perdue's announcement specifically mentioned the College of Computing, Health Systems Institute, School of Industrial and Systems Engineering and College of Management as potential collaborators for NCR. In addition, company officials have been briefed on resources available at the Georgia Electronic Design Center (GEDC), the Gvu Center and Georgia Tech Information Security Center (GTISC), said Strategic Partners Officer Greg King.

"The company is interested in both ensuring access to a highly

educated work force and in linking to the innovation in Georgia Tech's research and development network," King explained. "There are many advanced technology areas in which Georgia Tech and NCR have interests in common."

More than a year ago, King began meeting with NCR officials to learn about the company's needs and to pinpoint potential areas of interest at Tech. That led to a campus meeting for NCR management with Senior Vice Provost for Research and Innovation Mark Allen. Additional follow-on discussions about potential collaborations were also held.

"Georgia Tech is committed to supporting innovation through university-industry collaborations, and we believe there are many opportunities for us to work with NCR," Allen said. "We welcome this opportunity to work with NCR as the company develops new cutting-edge products and processes."

The Institute will be involved in assisting the development of NCR's Columbus manufacturing operation through an ICAPP-supported project in production

design, agile manufacturing and continuous improvement. The project will include faculty and staff from the Enterprise Innovation Institute, School of Industrial and Systems Engineering and College of Management.

"This project and the future collaborations are excellent examples of how Georgia Tech works with organizations such as the Georgia Department of Economic Development, the University System of Georgia's ICAPP program and the Georgia Research Alliance to impact investment and growth in the state," said Carl Rust, director of the Strategic Partners Office.

NCR's connections to Georgia Tech go back more than 20 years to the launch of a new product development group in the Advanced Technology

*"Georgia Tech is committed to supporting innovation through university-industry collaborations, and we believe there are many opportunities for us to work with NCR."*

— Mark Allen  
Senior Vice Provost  
for Research and Innovation

Development Center's former incubator on 10th Street. Since then, the company has had a significant presence in the state, and in 2008 had announced that it would establish a global Center of Excellence in Peachtree City.

"The decision to consolidate functions in Georgia and build a technology-focused corporate headquarters campus is right in line with our business strategy to drive growth, improve our innovation output, increase productivity and continually upgrade our focus on the customer," Nuti said in the June 2 announcement.

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NCR will join 13 other Fortune 500 companies and 29 other Fortune 1,000 companies already headquartered in Georgia.

## EVENTS

### July 16

The Office of Organizational Development presents the brown bag seminar "Buying or Selling a Home in Today's Real Estate Market," from 11:30 a.m. to 1 p.m. in room 203 of the Savant building. There is no cost. [www.orgdev.gatech.edu](http://www.orgdev.gatech.edu)

### Ongoing

Techmasters—Tech's chapter of Toastmasters International—meets every Thursday at 7:30 a.m. in room 102 of the Microelectronics Research Center. [www.techmasters.gatech.edu](http://www.techmasters.gatech.edu)

CATEA (Center for Assistive Technology and Environmental Access) seeks full-time employees with a mobility disability to take part in a telephone interview. Participants will be reimbursed. Call Claire Yang at 385-8589 or e-mail her at [hsiang-yu.yang@coa.gatech.edu](mailto:hsiang-yu.yang@coa.gatech.edu).

The Campus Recreation Center, in conjunction with the Arthritis Foundation, is offering Sun Tai Chi classes every Tuesday and Thursday from 11:45 a.m. to 12:45 p.m. [www.crc.gatech.edu](http://www.crc.gatech.edu)

For a more comprehensive listing of events updated daily, visit [www.gatech.edu/calendar](http://www.gatech.edu/calendar).

## CLASSIFIEDS

### AUTOMOBILES/MOTORCYCLES

2005 Chevrolet Avalanche. Black, fully loaded, asking \$13,000. Call Aisha Gaddis at 678-777-8179 or e-mail [aishgaddis@hotmail.com](mailto:aishgaddis@hotmail.com).

2007 Piaggio BV250 motor scooter, 375 miles, Excalibur Gray. \$4,500. Auto transmission, maximum speed 77 mph, gets 65 to 70 mpg. Includes top case, 2 helmets and outdoor cover. E-mail [joann\\_lowell@yahoo.com](mailto:joann_lowell@yahoo.com).

1992 Pontiac Sunbird convertible, yellow/red interior. Power locks/windows, 3.1 V6, cruise control, 5-speed, garaged. Perfect For college student. \$1,000. Call 404-539-2746.

2006 Hyundai Sonata LV, V-6. Only 8,900 miles, mostly by elderly driver. 2 years bumper-to-bumper warranty remaining. Power everything, immaculate. Front, side and curtain airbags. Call 404-407-8645 or e-mail [monti@gatech.edu](mailto:monti@gatech.edu) for more info or pics.

### SPORTS/FITNESS/RECREATION

3BR/2BA peaceful, furnished, waterfront cottage along the southern Outer Banks, N.C. \$150/day, 3-day min. Pets OK. Boat slip. E-mail [jud.ready@gatech.edu](mailto:jud.ready@gatech.edu). Visit <http://travel.ajc.com/ads/158>.

### REAL ESTATE/ROOMMATES

For rent: Large 1BR/1BA, 830 sf. Midtown condo, located at elegant 800 Peachtree. Light, gym, game room, theater, pool. Covered, secure parking. 2 blocks from Tech, Fox, MARTA. Available July 1. \$1,100/month. E-mail [apartment.peachtree@gmail.com](mailto:apartment.peachtree@gmail.com).

For rent: 2BR/2.5BA townhouse at Cross Creek Condominiums, near downtown. HW floors downstairs, updated kitchen with new appliances, bathrooms updated, large courtyard patio, end unit. Available June 1. \$1,400/month. E-mail [ateach@yahoo.com](mailto:ateach@yahoo.com) for pics or info.

For sale or rent: 4BR/2.5BA. 2-car, 3-level, 3,250-sq.-ft. home in a well-maintained swim-tennis neighborhood

Classifieds continue on page 4

## Training that's off the wall



The Atlanta Fire Department practiced rooftop rescue training at the abandoned Burge Apartments on North Avenue on June 9.

## FLU, continued from page 1

Infected persons living on campus and unable to return home will be housed in a more isolated setting while sick, to prevent spreading the flu to other members of the student body. Housing staff will conduct daily check-ins with the student. If any emergency or further medical care is warranted, Health Services or other emergency medical providers will be contacted and the Institute will inform the proper authorities.

Housing will provide a "room supply kit" for isolated students consisting of cooking utensils, food supplies, cleaning supplies, linens and masks for both the student and visitors.

Any faculty and staff member exhibiting flu-like symptoms is encouraged to check with his or her health care provider. If infected with either influenza A or H1N1, he or she is strongly advised to stay home for seven days after symptoms begin or until symptoms subside for 24 hours, whichever is longer.

According to the Centers for Disease Control and Prevention (CDC), H1N1 is of concern for several reasons. Experts have said the existing flu vaccine is not effective, it is likely to become the dominant strain in the coming flu season and a significant portion of the population is susceptible to H1N1.

Check the Stamps Health Services Web site for a link to the CDC for information regarding symptoms and care for H1N1 infection.

## For more information

[www.health.gatech.edu](http://www.health.gatech.edu)

[www.cdc.gov/swineflu/](http://www.cdc.gov/swineflu/)

## CAMPS, continued from page 1

are incurred in hiring one graduate level and several undergraduate teaching assistants and providing lunch for attendees.

"We change the agenda every year, which allows different faculty members to participate," Conrad said. "As a result, faculty members tend to become more involved in outreach."

An added benefit for camp attendees is the interaction with undergraduate student teaching assistants. "Working with these undergrads, they learn about ECE and college campus life," Conrad said. "Kids learn a lot from the TAs—they can relate."

And since the program has been on the books now for three years, Conrad says this year's incoming freshmen will be compared with those who have attended the camp since 2006 to see how much, if any, recruitment can be attributed to the camp. Each camp ends with a session from Undergraduate Admissions.

During the year, the ECE Outreach office provides full-day tours for high school students and resources for high school physics teachers.

## More than meets the eye

The Microelectronics Research Center (MiRC), in conjunction with the National Nanotechnology Infrastructure Network, offers two sessions of Nanotech Explorations. High school students in ninth through 12th grades can learn about the smallest particles being used and manipulated by engineers and scientists.

With 24 students per session—and 60 more on a waiting list—Education Outreach Program Manager Joyce Palmer says the class presents students with different aspects of nanotechnology. Through lab tours, presentations and hands-on projects, students will explore many aspects of chemistry, physics and the physical sciences. An added benefit, Palmer says, is that high



Image courtesy Microelectronics Research Center

High school students explore size effect on chemical reactions at Nanotech Explorations.

school students may have an opportunity to become involved in research. "I think it's important that students realize it's not just SAT scores that matter," she said. "Schools are looking for those who are involved in other activities, those who are more well-rounded."

During the five-day camp, students learn about the unique properties at the nanoscale, energy research and nanotechnology, sensors and nanotechnology, tools of nanotechnology and societal issues related to nanotechnology. But Palmer, who has overseen the camp for the past two years, says she wants to take the camp further this year.

"A concern I have is that only students who can make it to the Tech campus can attend," she said. "We wanted to try and get our camp out to other schools." Through a RESA grant (Regional Educational Service Agency), Palmer will be instructing teachers from three different south Georgia schools to conduct their own nanotechnology camps later in the summer. "It's a nice way for some of the top students to have extra STEM [science, technology, engineering and mathematics] exposure."

During the year, MiRC conducts both student tours and teacher workshops, and Palmer spends time touring state high schools. "We try to help teachers realize they can teach nanotechnology in what they already teach."

"The expertise and passion that Tech faculty and students have for their subject is tremendous, and summer programs present opportunities for students, parents and teachers from across Georgia and the nation to know what leaders in STEM research and education look like," Ryan said.

"And while the Tech community and facilities obviously stand out, it is the very idea that Tech provides a place and a context to inspire the next scientist or engineer which makes it great."

## High school summer camps

**Wall Street on West Peachtree**  
July 22–26, College of Management

**Engineering the Future**  
July 30–31, School of Aerospace Engineering

**Bio @ Tech: Advanced Biology**  
June 1–19; July 13–31, School of Biology

**Hands-On-Tech — HOT Days @ GT**  
June 8–12; June 15–19, ECE

**Nanotech Explorations**  
July 22–26; July 13–17, MiRC

**CSI: GT**  
July 6–10, supported by the School of Chemistry and Biochemistry and the Department of Biomedical Engineering.

**Career Discovery in Architecture**  
June 8–19, College of Architecture

**Summer I.C.E. Scribbler @ Tech**  
June 15–19, College of Computing

**Summer I.C.E. NXT @ Tech**  
July 20–24, College of Computing

**Life on the Edge: Astrobiology**  
July 6–10, Schools of Chemistry and Biochemistry, and Biology

For more information, visit [www.ceismc.gatech.edu](http://www.ceismc.gatech.edu).

## CLASSIFIEDS

with convenient access to highways, shopping malls and Tech is available for a reduced price of \$189,900. Rent: \$1,250/month. For more info call 894-0029 or e-mail [krishna.parachuru@pffe.gatech.edu](mailto:krishna.parachuru@pffe.gatech.edu).

For sale: 2BR/1BA Midtown townhouse. Restored historic Midtown row home, quiet street, walking distance to Tech and Piedmont Park. No association fees. Private courtyard garden. New kitchen and bath. HW floors throughout. Townhouse has finished basement. Visit [atlanta.craigslist.org/rea/](http://atlanta.craigslist.org/rea/) and search under 882 Argonne. E-mail Kim Wilson at [KimWilsonMNA@aol.com](mailto:KimWilsonMNA@aol.com).

For rent: 4BR/2BA, living room, fireplace, dining room, den, deck, washer-dryer, garage, storage room, fenced back yard. Channing Valley Buckhead, Morris Brandon Elementary, easy access to Tech. Pets OK. \$1,450/month. Call 404-352-5152.

For sale: 3BR/2BA 4-sided brick house w/ 2-car garage and back yard on almost 1 acre. Located in Lithonia, close to Stone Mountain Park and Mystery Valley golf course. Owner willing to do a quick sale. Call 770-469-8220.

For sale: \$512,121. 4BR/2.5BA, 9 miles from Tech, inside perimeter, on Heritage Drive. Exc. cond., updated kitchen with custom wood cabinets, HW floors. Great for entertaining. Finished basement and storage area. Energy efficient with extra insulation, storm windows, dual-heat fuel pumps. Call Kathleen Kane at 404-609-9898 or e-mail [kathleenkane@comcast.net](mailto:kathleenkane@comcast.net).

## FURNITURE/APPLIANCES

Bedroom set: headboard, dresser/mirror, night stand, chest. Modern style, medium wood tone, exc. cond. \$500 OBO. Also, dinette: \$90; entertainment system: \$300; and rug: \$75. For more information, e-mail [tina.allen@vpss.gatech.edu](mailto:tina.allen@vpss.gatech.edu).

Queen size bed frame for sale, solid wood, easy to assemble, with mattress. Asking \$400. Call 678-380-0135 for more info.

1 black couch and 1 black couch chair: \$200 OBO for both. Will sell separately. Both are 10 years old, in fair condition. Furniture needs to be sold quickly. E-mail Taz Lakhani at [taslim.lakhani@police.gatech.edu](mailto:taslim.lakhani@police.gatech.edu) for pics and more info.

Queen-sized bed in excellent condition, mattress, box spring and frame. \$140. Also, 7-ft. sofa, brown, exc. condition. \$130. E-mail [masako.kanno@modlangs.gatech.edu](mailto:masako.kanno@modlangs.gatech.edu).

Dining room set. Solid, wood construction; mahogany stained. Table is 74" x 38". Buffet is 48L" x 18d" x 33h". 6 chairs with padded seats and back, no rips, tears or stains. Custom designed to fit into a condo, loft or townhouse. \$999. For pics or info, e-mail [gary.smallwood@dev.gatech.edu](mailto:gary.smallwood@dev.gatech.edu).

2-piece (couch/love seat) family room seating group. Forest green, very nice, thick cushions, good condition, very comfortable. \$150 OBO. Priced for quick sale. E-mail Angela at [Angela.Strong@gtri.gatech.edu](mailto:Angela.Strong@gtri.gatech.edu) or call at 404-407-7005.

## MISCELLANEOUS

Two used large Igloo doghouses for sale. Will hold 100-lb dogs easily. New ones cost more than \$125. Will sell these used ones for \$25 each. For pics and info, e-mail [kay.kinard@coe.gatech.edu](mailto:kay.kinard@coe.gatech.edu).

Check out more ads at [www.whistle.gatech.edu](http://www.whistle.gatech.edu). Ads appear and are published for three issues in the order in which they are received. E-mail submissions to [editor@comm.gatech.edu](mailto:editor@comm.gatech.edu).