Tech scores among best values nationally

Georgia Tech ranks 12th among best values for public universities, according to Kiplinger’s 100 Best Values in Public Colleges.

Tech moved up one spot nationally for in-state students from 13th in 2007 to 12th in 2008. Kiplinger also ranked Georgia Tech (56) among the 100 best values for students paying out-of-state tuition rates.

Selected from a pool of more than 500 public four-year colleges and universities, schools in the Kiplinger 100 were ranked according to academic quality, cost and financial aid. Schools that made the list keep costs down through creative financing, such as using funding from lottery ticket sales, university-branded apparel and private fundraisers.

The University of North Carolina at Chapel Hill tops the list, with the University of Florida and the University of Virginia taking second and third, respectively.

For more information...
Kiplinger
www.kiplinger.com

Abby Vogel
Research News

Memory-shape polymers hold medical uses

Tech researchers are developing unique polymers that can have a direct health care application. The polymers, which can change shape upon heating, can be used to open blocked arteries, probe neurons in the brain and engineer a tougher spine.

These so-called shape-memory polymers can be temporarily stretched or compressed into forms several times larger or smaller than their final shape. Then heat, light or the local chemical environment triggers a transformation into their permanent shape.

Polymer continued, page 3

Visionary outreach

Professor lets end-user test ongoing research

For Assistant Professor Bruce Walker, sound doesn’t just enhance the other senses. Often times, it replaces them.

Research in his Sonification Lab aims to enable users to interact with displays that convey information—traditionally presented visually—in an auditory manner.

“We turn information into sound,” Walker said. “It’s technology for people who can’t look or can’t see.” Some examples Walker uses include drivers, surgeons in the middle of an operation, soldiers engaged in a confrontation, or the blind and visually impaired. “A lot of what we do is assistive technology.”

In keeping with much of his compatriots, research in Walker’s lab could easily have Department

Sonification, continued, page 2

Graduate research assistant Jeff Lindsay and Annie Ovasih, a client with the Center for the Visually Impaired in Atlanta, use the Sonification Lab’s SWAN System for Wearable Audio Navigation. Ovasih’s using the game controller to orient herself with the sound coming through the headphone.
Sonification. cont’d from page 1

of Defense applications—and for the most part, it does. However, he takes the approach of working primarily with the visually impaired, as they are the hardest nut to crack,” he says. “Assistive technology is vastly under-funded,” Walker said. “I would rather spend my time and efforts addressing the needs of that population first, because I know what we develop will have applicability across all spectrums. “If we spend our time and efforts developing something for the visually impaired, they’ll get to use it directly, from a consumer standpoint,” he said. “On the other hand, if we start the development for a military application, the cost of the final product may be too high for general consumers to benefit.”

This approach has led to a burgeoning partnership and unique outreach. Since last February, Walker takes 10 to 12 Tech students each month for “brown bag” lunch meetings with clients and staff of the Center for the Visually Impaired on West Peachtree Street in Atlanta. Researchers explore a theme in each event from the standpoint of the visually impaired. “Travel, education, sports … for example, how would someone play sports? How do the visually impaired get exercise? It’s more difficult than you might think.”

Walker, who came to Tech after graduating from Rice University in Houston, shares a dual appointment in the College of Computing and the College of Sciences. Due to the nature of his research, the Lab also often dovetails with the GUY Center, the College of Architecture’s Center for Assistive Technology and Environmental Access (CATEA) and GTRI, both in collaborative research and applying for grants.

“Both my appointment and research area are 75 percent psychology, and 25 percent computing,” he said. “My goal is to put more humanity in computers, and increase usability and ergonomics. I try to design hardware and software with humans in mind by conducting psychological studies first and then building the [equipment].” This led to the good relationship with the Center for the Visually Impaired in Atlanta—what he views as representative of the end-user, “I see them as collaborators and active team members.”

And working with CVI helped Walker and his team break through a lot of myths. “We learned about what they need and what they don’t need,” he said. “Through the discussions, we’ve come up with a whole bunch of research topics that were waiting to be tackled. Discussion is always forming our research.”

In November, instead of a usual round table discussion, Walker brought some of the items the Sonification Lab has been working on.

“We had a demo day—sort of like a technology petting zoo,” he said.

There were seven or eight demonstrations, which included the lab’s SWAN: System for Wearable Audio Navigation, a glove which holds a camera for relaying visual information in an audio format; and the Bone Conduction Headset, which transmits sound to a user without covering the ears. Walker said he is shooting for two GT/CVI demo days a year—one in the fall, and one in the spring.

“People who presented were all from Tech,” Walker said. “They included research scientists, graduate students conducting research and those working on class projects.

“In doing this, students were able to present their work to and receive feedback from their intended audience. The students grow so much from these brown bags. They’ve told me ‘we thought we knew what we were doing, but these people taught us things we should have known or didn’t know. Now we do.’

CVI Assistive Technology Specialist John Rempel said he appreciates the give-and-take aspect of the brown bags. “We are able to give to feedback on some of the latest and greatest that Georgia Tech is working on.”

he said. “Clients are coming and going on a regular basis. It’s very educational and informative for the clients we work with.”

Walker credits his interest in NASA and the space program with starting him down this path. As a young man, he wanted to be an astronaut, so he earned his bachelor’s degree in physics. “I realized I was more interested in being Jean-Luc Picard than in how planets rotate,” he said. Specifically his interests turned to the fictional crew’s interaction with the ship’s computers. “As an astronaut, you may not be looking or be able to look at a display. Using sound to communicate information would be beneficial.”

In working with blind and visually impaired populations, Walker credits the relationship he had with his grandfather, who lost his sight. “He was amazing,” Walker said. “I’d pick him up for lunch, and he’d direct me where to go in the car, even when to turn. He always knew exactly where he was in the city.” As a graduate student at Rice in Houston, the Canadian native forged a research relationship with the Texas School for the Blind and Visually Impaired. “I’ve always had this idea that you need real participants for your work.”

In partially fulfilling his goal, Walker worked for NASA during his post-doctoral student days at Rice University—where he received his doctoral degree in psychology with an emphasis on human-computer interaction. Compatriots told him that Tech was looking for a professor to be affiliated both with the College of Computing and the School of Psychology, so he applied.

Walker says that several of his students have started volunteering at CVI, outside of the brown bag meetings. “The relationship we have is truly remarkable,” he said. “The CVI folks appreciate these meetings as much as we do. It’s quite fulfilling, both in research and philanthropic goodwill.” In the future, Walker says he would like to conduct visits to CVI later in the day to be able to meet with the younger, after-school clients.

For more information...

Sonification Lab
http://cnsrv.psych.gatech.edu

Educational tour

Last week, a delegation from the offices of U.S. senators Saxby Chambliss and Johnny Isakson, as well as representatives Paul Broun, Nathan Deal, Phil Gingrey, Hank Johnson, John Lewis, David Scott and Lynn Westmoreland, toured Tech along with Emory University and the University of Georgia. Henrik Christensen, director of the Robotics and Intelligent Machine Center, showed Sting Racing’s DARPA Urban Challenge entry (above) and the robotics lab (below, left). Electrical and Computer Engineering Professor Joy Lasker displays wireless chips in the Georgia Electronic Design Center (below, right).

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Georgia Tech is a unit of the University System of Georgia.
use, internal use, sensitive and highly sensitive. Employee logins, Social Security numbers and non-directory student data, for example, would fall under Category III (sensitive), while external credit card numbers are considered Category IV (highly sensitive). This information must either be secured or deleted.

“We must reduce our exposure and risk by deleting the unneeded information, securely archiving information that needs retention, and securely storing needed information on protected departmental servers or on a central server,” Anderson said.

Some departments utilize guidelines that demand a paper backup of digital information. Anderson says, OIT has partnered with the Library’s Archives and Records Management Department to store and archive hard-copy files and the Office of Solid Waste Management and Recycling to securely destroy files.

“Employees must understand there are retention guidelines for this information,” Anderson said. “We need to either shred these documents, if outside the prescribed retention guidelines, or people can store it in the Archives and Records Management Department.”

Anderson says OIT has secured the use of Cornell University’s Spider, an open-source program designed by the university to locate sensitive information. “It will go through every file and e-mail, and will flag sensitive information, such as Social Security, credit card and Georgia Tech ID numbers,” she said. “We are trying to get everyone to run this on their systems.”

Those who want to utilize the Spider program should contact their building or departmental Information Technology representative. Users are able to review any files prior to deletion.

If sensitive information is on an employee’s system as part of his or her position requirement, then they will be on a departmental list approved by a manager, which would in turn be signed off by the department head. “These computers will be candidates for encryption,” Anderson said. “OIT has obtained copies of (PGP) encryption to be issued to people who might retain sensitive information on their computer.”

During the final few weeks of 2007, the tools and protocols of data cleanup were tested among some departments. OIT stressed that data protection does not start or end with this event—due diligence must be practiced every day. As such, Anderson said she plans to make this an annual campaign. This initiative is sponsored by the President’s Office; OIT; the Office of Solid Waste Management and Recycling; Facilities—Building Services; the Library, Archives & Records Management Program; Internal Auditing, and the Georgia Tech Information Security Center.

For more information

GT Data Cleanup
www.datacleanup.gatech.edu

New chair for undergrad studies

Industrial and Systems Engineering (I{Sy}E) Associate Professor Chen Zhou is the new associate chair for undergraduate studies at the Stewart School of I{Sy}E.

Zhou is the director of Global Education with the Supply Chain & Logistics Institute, director of the Dual MS Degree Program with the National University of Singapore, and director of the Beijing/Singapore Summer Program.

He succeeds I{Sy}E Professor Paul Griffin, who has returned to the faculty full-time after five years as associate chair. For more information, visit www.isye.gatech.edu.

Half-price day

The Fert Center for the Arts will offer Tech faculty and staff half-price tickets for the season’s shows on Jan. 17.

A valid Buzzcard must be shown, and faculty and staff members can purchase up to two tickets per show. Half-price tickets are available to employees for all performances on the day of the show and on Fridays for weekend shows.

The McCoy Tyner Trio with Sashon Glover on Feb. 15 and An Evening with Ricky Skaggs and Bruce Hornsby are excluded from the one-day sale. For more information, visit www.fcstcenter.gatech.edu.

LEGO volunteers needed

The State of Georgia FIRST (For Inspiration and Recognition of Science and Technology) LEGO League Challenge, Feb. 9 at the Stewart School of I{Sy}E, seeks volunteers to serve as referees, scorekeepers, food coordinators and assistants.

220 teams with 1,600 students ages 9 to 14 will begin the challenge, with 48 teams expected to advance to this event.

The School of Electrical and Computer Engineering and the Center for Education Integrating Science, Mathematics and Computing (CEISMIC) are co-hosts of the event. For more information, visit www.ece.gatech.edu.

STEP applications available

Applications are available for graduate STEP fellows for the 2008-9 year. The STEP (Georgia Tech Student and Teacher Enhancement Program) initiative aligns advanced graduate and undergraduate students with metro-area high school teams led by teacher-coordinators in an effort to boost leadership skills among Tech students and increase the math and science performance in Atlanta schools. For more information, visit www.cell.gatech.edu.

IN BRIEF:

DLPE interim provost named

Provost and Executive Vice President for Academic Affairs Gary Schuster announced that Nelson Baker will be the interim vice provost for Distance Learning and Professional Education (DLPE).

Baker, as associate professor of Civil and Environmental Engineering, has served as associate vice provost for DLPE since 2004. His research interests include intelligent learning environments for engineering, applications of artificial intelligence and other robotic applications to civil engineering. The appointment was effective Jan. 1. A search is currently under way for a new vice provost.

William Wepler, the previous DLPE vice provost, was named chair of the Woodruff School of Mechanical Engineering. For more information, visit www.dlpe.gatech.edu.
**CAMPUS EVENTS**

**Arts & Culture**

Jan. 19
The Flying Karamazov Brothers return to the Ferst Center for the Arts with “Fourplay,” a show filled with music, juggling and jokes, at 8 p.m. Tickets range from $20 to $56. For more information, visit www.ferstcenter.gatech.edu.

Jan. 22
Mexico’s Tania Pérez-Salas Compañia de Danza comes to the Ferst Center for the Arts for an evening of Mexican contemporary dance, starting at 8 p.m. The dance company is known throughout Mexico and Europe for its visually stunning movement and sensual theatrics. Tickets range from $25.60 to $42. For more information, visit www.ferstcenter.gatech.edu.

Feb. 16
Chemical and Biomolecular Engineering Associate Professor Pete Ludovic is the host for “Pocket Professionals,” an outdoor fashion statement show at 8:30 p.m. at the Relapse Theatre on 14th Street. The event is the third annual stand-up comedy show by sponsored by the MIT Alumni Club of Atlanta. For more information, visit www.drpetecomedy.com.

**Conferences & Lectures**

Jan. 15–16
Princeton University Professor Simon A. Levin presents “Approaches to Ecological Interactions” will be from 2 to 3 p.m., in room 1116F of Klaus. The seminar is part of the Microsystems Packaging Research Center Distinguished Lecture Series. For more information, visit www.ece.gatech.edu.

Jan. 16
Red Hat Inc. CEO and President Jim Whitehurst will speak as part of Management’s IMPACT Speaker Series, which brings successful professionals on campus weekly to speak about business issues at 4:50 p.m. in LeCraw Auditorium. For more information, visit www.math.gatech.edu.

Jan. 17
University of Pennsylvania Professor Louis Sokolosky presents “Tendon Healing in a Rotator Cuff Animal Model,” starting at 11 a.m. in room 1128 of the IBB building. For more information, visit www.ibb.gatech.edu.

Milko Matijasic, an economist with Salesian University of São Paulo, Brazil, presents “Brazil in Transition: Political and Institutional Change During Economic Recovery,” from 1:50 to 3 p.m., in room 156 of Habenicht Hall. For more information, visit www.inta.gatech.edu.


Chemistry and Biochemistry research scientist Christine Kranz presents “Introduction to Focused Ion Beam Technology and its Application,” part of Nano@Tech, at noon in rooms 102A and B in the NRC, RSVP to katie.hutchison@nmic.gatech.edu.

Jan. 28
Texas Instruments fellow Charvaka Duvvury will present “Electrostatic Protection for Semiconductor Electronics,” from 2 to 3 p.m., in room 1116F of Nias. The seminar is part of the Microsystems Packaging Research Center Distinguished Lecture Series. For more information, visit www.ece.gatech.edu.

**Faculty/Staff Development**

Ongoing
The Office of Organizational Development is offering the Emergency Preparedness Certificate, which consists of several smaller courses, including “Fire Safety,” “Facilities Hazard Training,” and “Basic First Aid/Adult CPR/AED.” For more information on scheduling, visit www.origdev.gatech.edu.

Jan. 17
The Center for the Enhancement of Teaching and Learning presents “Orientation to Teaching at Georgia Tech,” a workshop for temporary and part-time faculty, from 4:30 to 7:30 p.m. in the Wilby Room at the Library and Information Center. For more information, visit www.ctl.gatech.edu.

Jan. 17
The Center for the Enhancement of Teaching and Learning presents “Dealing with Misconduct in the College Classroom,” from 11 a.m. to 1 p.m. in the Wilby Room of the Library. For more information, visit www.ctl.gatech.edu.

**Miscellaneous**

Jan. 22
Sam Yunn School of International Affairs and College of Computing Professor Seymour Goodman will sign copies of his book, “Too Safe and More Secure Cyberspace,” from 5:30 to 6:30 p.m. at the Georgia Tech Bookstore. For more information, visit http://gategch.bncollege.com.