At the School of Interactive Computing at Georgia Tech, we advance the state of the art of interaction between computing machines, people and the world. We expand the boundaries of computing and thus broaden the range of people to whom computing is relevant. We have a passion for re-visioning computing education at all levels. Whether it is an innovative undergraduate curriculum implemented by the College of Computing or enhanced K-12 computing experiences in classes and informal settings, we deeply believe an understanding of computing is fundamental to education—and innovation in education is fundamental to computing.

Georgia Computes! Injects New Life into K-16 Education

Georgia Computes! is an NSF-sponsored alliance of the University System of Georgia (USG), Georgia Department of Education, youth-serving organizations (like Girl Scouts) and others, led by Georgia Tech, with a shared goal of improving computing education across the state at all stages of the pipeline. We aim to improve diversity and broaden participation in computing. We offer workshops and summer camps for students from 4th grade through 12th. We teach other colleges and universities how to run their own camps and workshops (10 new camps have started around the state). We train high school teachers to teach computer science, and we work with undergraduate faculty to make their curriculum more engaging and improve retention.

- Georgia now has the highest percentage in the Southeast of high schools offering Advanced Placement Computer Science, but still less than 20% of all the high schools in Georgia offer AP CS
- AP CS A counts as a science for graduation from Georgia public high schools and as a science or math for entry into Georgia’s colleges and universities
- In 2009, only 110 females (19%) in Georgia took the CS AP A exam, versus 473 (81%) males. In 2009, 3429 females (50%) in Georgia took the AP Calculus AB exam.
- In 2009 only 69 (12%) African Americans took the CS AP A exam in Georgia, and of these just 7 passed the exam
- Thousands of students—including several students now enrolled at Georgia Tech—have been introduced to computing through our after-school programs, weekend workshops and summer camps

The U.S. Department of Labor predicts 1.4 million new computing jobs by 2018.
Partnering with Youth Organizations for Computing Workshops

Georgia Computes! holds weekend computing workshops in conjunction with youth-serving organizations like the Girl Scouts, Cool Girls and local high schools and libraries. A new, once-a-month program draws 4th through 6th graders to the Georgia Tech campus to hone their computing skills. These workshops use tools like PicoCrickets, Scratch, Alice, Pleo robots, and LEGO NXT robots, WeDo kits and Tetrix. Georgia Computes! also conducts after-school computing workshops with the YWCA Teen Girls in Technology program.

See http://coweb.cc.gatech.edu/ice-gt

Operation Reboot Turns IT Pros into CS Teachers

Operation Reboot combines Georgia Tech’s innovative high school computing teacher training program and the successful Georgia Teacher Alternative Preparation Program (GaTAPP) to transform 30 unemployed IT workers into high school computing teachers over three years. We pair an IT worker with an existing computing teacher to co-teach at least two computing classes for a year. This will allow the IT workers to become certified teachers with a computer science endorsement. Our first cohort will be finished with the program in Dec 2010. The second cohort was selected in May 2010 and will finish the program in May 2011. We will choose the third and final cohort in May 2011.

See http://coweb.cc.gatech.edu/ice-gt/1077

Summer Computing Camps for Georgia K-12 Students

In 2010, 200 students attended 40 weeks’ worth of Georgia Computes! summer camps. During Summer 2010, more than 200 kids attended a computing camp at Georgia Tech. The program also provides training and seed money to other state colleges and universities to help them start their own computing camps. Among those who have participated are University of Georgia, Columbus State University, Valdosta State University, Georgia Tech Savannah, Georgia Southwestern State University, Mercer University, Georgia Gwinnett College, Kennesaw State University, Darton College and Albany State University.

See http://coweb.cc.gatech.edu/ice-gt/1080

Threads: A 21st Century CS Curriculum

The College of Computing’s undergraduate curriculum is structured around a concept called Threads™. Threads breaks down the field of computer science into eight distinct, logical perspectives—they are both viewpoints on the field and goals for achieving expertise. Each perspective is associated with a set of courses, from introductory level through to specialized senior courses, from computing and other fields. Together these courses lead to a student’s building expertise in that slice of computing. In effect, Threads replaces the generalized curriculum with an intense, four-year program tailored to a student’s interests and aimed at real-world computing opportunities.

See http://www.cc.gatech.edu/future/undergraduates/threads