Project “Georgia Computes!”
An NSF BPC Alliance

http://www.georgiacomputes.org

What we do:
Improve the computing education pipeline across the entire state:

- **K-12:** We run YWCA and Girl Scouts workshops and summer camps. We teach high school teachers how to teach CS up to AP classes. We teach other *University System of Georgia (USG)* computing departments how to run summer camps, and offer them seed funding.

- **Undergraduate:** We teach USG faculty how to offer high-retention curricula, then evaluate uptake of the curricula and the impact of the curricula. We look for reasons why students do not take CS classes. We use undergraduates as leaders and mentors, and in high school classes as STEP fellows.

- **Graduate:** We use graduate students as leaders, mentors, material developers, and evaluators. We track CS graduate enrollment in Georgia.

**Successes:**
- We have doubled the number of high schools teaching AP CS in the state.
- Georgia now has a larger percentage of high schools offering APCS than any other state in the Southeast.
- Around half of the CIS programs in the state have now sent faculty to our workshops. 7—10 of 32 CIS programs in the state have changed their approaches. We have anecdotal evidence of increased enrollment in CS2.
- We sponsored the first African-American, all-girls YWCA robotics team in the state.
- We are seeing change in how Girl Scouts perceive computing, and we are documenting the kinds of Girl Scout workshop activities lead to the greatest positive changes in attitudes about computing.
- We have invented new kinds of summer camps, including successful HCI and OLPC programming camps.
- We have seeded ten new summer camp programs around the state.
Highlighted Projects for 2010:

**New kinds of workshop curricula:** We continue to develop new curriculum and new approaches that appeal to a diverse range of students. We had found previously that Lego Robotics has not proven as successful as Scratch animations and Alice storytelling for engaging Girl Scout participants. However, we have found that programming the Pleo robot dinosaur has had an enormous impact, giving us a new kind of robotic intervention to engage girls. We are also developing curriculum for wearable computing.

**High School Cohort:** We are training a group of high school students to act as mentors and assistants in our workshops (e.g., for Girl Scouts). We are tracking how the high school students’ attitudes change toward computing, as they become placed in the role of being teachers. We are noting how they become agents for change in their own high schools, as their expectations of and demands for quality computing education change.

**Glitch:** A BPC Demonstration Project started through *Georgia Computes!* GLITCH: GAME TESTERS is a group of high school students who have a passion for gaming and a desire to learn about the game industry, fulfilling their dreams of becoming game programmers and designers. This Quality Assurance (QA) team works full-time in the summer and part-time during the school year testing games and entertainment applications. The students' QA job training includes introductory computer science courses. We hope Glitch is developing future game programmers, designers, and artist to improve the diversity of the game industry. Glitch is a research project conducted by Georgia Institute of Technology and Morehouse College and funded by the National Science Foundation.

**Disciplinary Commons for Computing Educators (DCCE):** A project now funded by NSF CPATH started under *Georgia Computes!* The DCCE brings together high school and university teachers of introductory computer science. They share methods, reflect on their practice, observe each others’ classes, and learn about the issues of each level, and how to support students in transitioning between them.

**Statewide Evaluation: Where have they gone, and where are they coming from?** In our two year extension, we are making a statewide effort to track where students have gone who have taken any of our workshops and to track the influences on students now in computing. We are tracking all students that we can reach from prior workshops and summer camps, to find out what their later experience has been with computing. We are surveying all students in CS1, across the entire state, in 27 of the 31 USG computing departments (those who will participate), to determine the influences on their decision to study computing. We are aiming to get a good sense of the overall impact of *Georgia Computes!* programs, both directly (e.g., attending a workshop) and indirectly (e.g., taking AP CS from a teacher we trained).