Allen Guest* (aguest@clemson.edu), Department of Mathematical Sciences, Martin Hall, Clemson University, Clemson, SC 29631, and Marilyn Reba, Calvin Williams, Roy Pargas and Ellen Breazel. Mathematics Partnering with Computer Science to Improve Calculus Instruction and Learning.

Over the four years of an NSF-CCLI-II grant, we have implemented technology to increase interaction between instructors and at-risk STEM students in the teaching of calculus. We have created web-based software using digital ink for the submission of group activities and quizzes, and for an error-tagging project on exams. From a 2010 error-analysis on thousands of pages of Calculus I final exams, we created targeted online quizzes to alert students early to common errors that typically escalate into course failure. Can we encourage at-risk students to remediate these mistakes while moving ahead in the course? For the second year, we have worked with faculty at Tri-County Community College in an online synchronous team-taught Calculus I course. We provide group activities for each class, as well as exams and the remediation quizzes. This pedagogical shift benefits students who transfer from Tri-County to Clemson. Prior to these joint efforts, there was a high failure rate (60%) when Tri-County students continued their Calculus studies at Clemson. We will share our performance statistics, surveys, and interview results. (Received September 25, 2012)