

COSC FACULTY CANDIDATE 2010 SEMINAR

DATE: FRIDAY, APRIL 16, 2010

TIME: 11:00 AM

WHERE: PGH 232

SPEAKER: Dr. James Clause, Georgia Institute of Technology

Title: Enabling and Supporting the Debugging of Field Failures

Abstract:

Most real-world applications are released with faults or missing functionality. In fact, the examples of failures experienced by users in the field--field failures--are countless. This talk presents a novel approach that facilitates the debugging of field failures by recording and replaying program executions. Recording executions is done by efficiently intercepting and logging the interactions between an application and its environment while the application executes on a user's machine. If the execution terminates with a failure, the resulting execution recording can be sent to developers who can use it to investigate the recorded failure. The approach also addresses two of the most important practical issues when collecting information from the field: (1) the potentially large size of the data collected and (2) the possible violation of user privacy involved with the data collection. To reduce the amount of data recorded (and sent to developers), the approach minimizes failing executions by removing portions of the recordings that are not necessary for reproducing the captured failures. To help address privacy concerns, the approach automatically anonymizes execution recordings by replacing potentially sensitive information with non-sensitive information that can still be used to reproduce the captured failure. The talk discusses these techniques and their evaluation in realistic scenarios.

Bio:

James Clause is a Ph.D. candidate in the College of Computing at the Georgia Institute of Technology. He works with Professor Alessandro Orso in the area of software engineering. His current areas of interest include techniques for improving the effectiveness of debugging and dynamic-information-flow based program analysis. Additional information on James's research can be found on his website: <http://www.cc.gatech.edu/~clause>