SCHOOL OF COMPUTING SEMINAR
ULSS CREATE Seminar

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YORK UNIVERSITY

THURSDAY, APRIL 24
2:30-3:30 PM
DUPUIS HALL 215

Light Refreshments

AUTOMATED QUALITY ASSURANCE FOR ULTRA-LARGE-SCALE SYSTEMS

ULTRA-LARGE-SCALE (ULS) systems refer to systems of unprecedented scale in terms of code size, transaction rates, user base, and geographical spread of deployed machines. There are already many existing ULS systems (e.g., Facebook and Gmail), which serve millions of users worldwide. Studies show that many field problems of such systems are often related to them not scaling to field workloads instead of feature bugs. To assure the quality of these ULS systems, load testing is a required testing procedure in addition to conventional functional testing procedures, such as unit and integration testing. Current industrial practices for checking the results of a load test remain ad-hoc, involving high-level manual checks. Few research efforts are devoted to the automated analysis of load testing results. In this talk, I present a series of automated approaches to assess the quality of a ULS system under load by mining the recorded system behavior data (execution logs and counters). Case studies show that these approaches scale well to large enterprise and open source systems. The approaches produce high precision results that help load testing practitioners effectively analyze the quality of ULS systems.

DR. ZHEN MING (JACK) JIANG is an Assistant Professor at the Department of Electrical Engineering and Computer Science, York University. Prior to joining York, Dr. Jiang worked at BlackBerry Performance Engineering Team. His research interests lie within Software Engineering and Computer Systems, with special interests in software performance engineering, mining software repositories, source code analysis, software architectural recovery, software visualizations and debugging and monitoring of distributed systems. Some of his research results are already adopted and used in practice on a daily basis. He is the co-founder and co-organizer of the annually held International Workshop on Large-Scale Testing (LT). He is also the recipient of several best paper awards including ICSE 2013, WCRE 2011 and MSR 2009 (challenge track). Dr. Jiang received his PhD from the School of Computing at the Queen's University. He received both his MMath and BMath degrees in Computer Science from the University of Waterloo.