The University of Memphis
Systems Testing Excellence Program
FedEx Institute of Technology

Seventh International Research Workshop
on
Advances and Innovations in Software Testing

The workshop is organized by the:

Systems Testing Excellence Program - STEP (step.memphis.edu) at the University of Memphis. STEP is an interdisciplinary research program under the auspices of the FedEx Institute of Technology that brings together the Departments of Computer Science, Management Information Systems, and Electrical & Computer Engineering.

October 28-29, 2013
Memphis, Tennessee
Welcome to the Seventh International Research Workshop on Advances and Innovations in Software Testing

On behalf of the Workshop organizing committee, I extend a warm welcome to you for the seventh annual International Research Workshop on Advances and Innovations in Software Testing, sponsored by the Systems Testing Excellence Program (STEP) and FedEx Institute of Technology (FIT) of the University of Memphis.

The members of the organizing committee have worked hard over the last few months to put together a great agenda for the workshop. I sincerely hope that you will go back with some bright ideas to enhance your software testing activity, after interactions with experts in the field. We have tried to mingle academic researchers with industry practitioners through paper presentations, invited talks, and panel discussions. I urge you to fully participate and be as interactive as possible to make the workshop worthwhile. We also welcome your comments and suggestions to make the workshop more pertinent to your work in software testing.

STEP is a collaborative effort of CS, MIS, and EECE departments of the University of Memphis. The workshop is also supported by FedEx’s Global Testing Center of Excellence which has a unique research and training partnership relationship with STEP. It is a pleasure to acknowledge the sponsorship of FedEx, IBM, Syntel, Mphasis, and Cisco.

Thank you for joining us. Let us move Software Testing to newer heights of excellence!

Sajjan G. Shiva, Ph.D., Workshop General Chair
Professor and Chairman of Computer Science Department
University of Memphis
Monday, October 28, 2013

Workshop

All sessions are located in The Methodist Room on the first floor of FIT and all breaks will be in the lobby in front of the same room.

7:30 – 5:00 ................................................................. Registration Open FIT Lobby

7:30 – 8:00 ................................................................. Breakfast

8:00 – 8:05 ................................................................. Welcome Comments

   Dr. Sajjan Shiva, General Chair

8:05 – 8:20 ................................................................. STEP Updates

   Dr. Jasbir Dhaliwal, Director of STEP,
   Dave Miller, FedEx and Co-Founder of STEP, and
   Sean Healy, FedEx

8:20 – 8:40 ................................................................. Welcome Comments

   Dr. David Rudd, Provost, University of Memphis

8:40 – 9:00 ................................................................. Keynote Talk

   Patrick Shelton
   IBM
   The Importance of Agile Testing and Test Virtualization

9:00– 9:20 ................................................................. Keynote Talk

   Ron Moussafi
   Intel Corporation
   Implications of the Intel Fab Experience for Software Development and Testing

9:20– 9:35 ................................................................. Break

9:35– 11:00 ................................................................. Paper Session 1

Session Chair: Xihui “Paul” Zhang

Mark Gillenson and Xihui “Paul” Zhang: Determining the Unit Cost of Test Cases

Vikram Dias: Requirements and Testability notions for IT Disaster Recovery

Ramya Dharam and Sajjan Shiva: Security Testing to Handle Tautology based SQL Injection Attacks using Runtime Monitors

11:00–12:00 ................................................................. Panel 1: Global & Remote UAT

Panel Chair: Russ Young, FedEx Express

Panelists:
Ashley Calvert, FedEx Express
Jeff Brittain, Merck Consumer Care
Mihaela Herbei, Shelby Systems, Inc.

12:00– 1:00 ................................................................. Lunch Break

Dr. Mark Gillenson, STEP Certifications in Systems Testing

1:00– 1:15 ................................................................. Industry Talk

Scott Aziz, Mphasis
Vice President, QA & Testing Business Leader
Tackling the Cost of Software Quality: A focus on Poor Quality during the Testing Lifecycle
1:15–1:30 .................................................................Industry Talk
Darshan Dave, Syntel Inc
Test Environment, Virtualization and CloudSpeaker

1:30– 3:00 ..................................................................Paper Session 2
Session Chair: Ted Lee
Robin Poston, Jignya Patel, and Jasbir Dhaliwal: Testing in Agile Development
Mike Racer and Mark Gillenson: Optimizing Requirements Selection for Agile Iterations
Manish Shrivastava, Ted Lee, Son Bui, and Jasbir Dhaliwal: An Evaluation of an Open Source Load Testing Tool Based on the Java Load Testing Framework

3:00– 3:15 ................................................................. Break

3:15– 4:15 ..................................................................Paper Session 3
Session Chair: Mark Gillenson
Sajjan Shiva, Sandeep Ramesh and Ramya Dharam: Testing Methodologies for Cloud
Arun Bahuleyan Leela: Mobile Testing: QA Strategy

4:15 – 5:15 ........ Panel 2: Optimized Requirements for Testing
Panel Chair: Scott Gillam, FedEx Services
Panelists:
Rob Stalder, University of Memphis
Mohan Sankararaman, First Horizon
Terry Maready, Mallory Alexander International Logistics

5:15 – 5:30 .................................................................Closing Comments

6:30 – 8:00 ....... Dinner at Boscos - Meet in FIT Lobby at 6:15
2120 Madison Ave, Memphis, TN 38104, (901) 432-2222

Tuesday, October 29, 2013
Half-Day Tutorials on Advanced Testing
All sessions are located in the Fogelman College of Business and Economics (FCBE) Second Floor Classrooms, 263, 266, and 268

Concurrent Tutorial Sessions

8:30 – 9:00 .................................................. Light Breakfast, 2nd Floor
9:00– 11:30 .................................................. Tutorial 1: FCBE 263

Cognitive and communication bias in software testing—Dr. Jong Lee, Department of Management Information Systems, University of Memphis
Cognitive bias is a pattern of deviation in judgment, and known to adversely affect people’s ability to make right decisions in a myriad of business settings. While software testers rely on “logical” tools and engineering principles, they not immune to cognitive bias. In fact, recent research shows that software testers often fall victim to a variety of cognitive biases, including black swan, sunk cost, confirmation, and selective attention biases. Further, recent research suggests that communication bias can cause a breakdown in the organizational communication systems used to report testing results concerning a software project; examples include deaf effect and mum effect. Therefore, the objective of this tutorial is to review major types of cognitive and communication biases relevant to software testing, and discuss de-biasing strategies.
9:00 – 11:30 ................................................. Tutorial 2: FCBE 266

Test Virtualization and Collaborative Lifecycle Management – Patrick Shelton, IBM
This limited-seating session provides the opportunity for guided hands-on exercises with IBM quality management solution. Choose between two different lab exercises: (1) Manage a defect through the project management, requirements impact analysis, code change, and test execution phases; or (2) Create models of the physical and logical representations of the system under test (SUT), Create tests using a variety of manual and automated techniques, Virtualize aspects of the SUT that are not available for testing, Publish services to the Virtualization Server, and Conduct performance tests.

9:00 – 11:30 ............................................... Tutorial 3: FCBE 268

Instrumentation of Software Systems – Dr. James H. Hill, Department of Computer and Information Science, Indiana University-Purdue University Indianapolis
Networked systems, also known as distributed systems, are increasing in both size and complexity. Unfortunately, waiting too late into the software lifecycle to test and validate their quality-of-service (QoS) properties, such as performance, scalability, and reliability, can make locating and resolving QoS bottlenecks both a costly and time-consuming process at the expense of overrun project costs and deadlines. It is therefore becoming more critical to test and validate distributed system QoS properties during early phases of the software lifecycle (i.e., before complete system integration time), and continuously throughout it, to hopefully prevent such scenarios from occurring. This tutorial therefore presents the latest methods and tools for testing and validating distributed system QoS properties during early phases of the software lifecycle, and continuously throughout it. The methods and tools discussed in this tutorial have been validated in the context of represented distributed systems from various application domains. Finally, all methods and tools discussed in this tutorial are freely available in open-source format.