Call for Papers

A Focused Topic Issue on
“Software Test Automation, Practice, and Standardization”

The International Journal on Software Engineering and Knowledge Engineering (IJSEKE)

Theme

Today’s software systems suffer from poor reliability. Many lives and billions of dollars are lost annually due to software errors. According to the report by NIST in 2002, poor software quality costs 60 billion dollars yearly to US economy, and 22 billion dollars can be regained by improving infrastructure for detecting errors using testing closer to the development phase. With the quick increase of software in complexity and scale, test automation is becoming a very important and hot research field in software engineering and quality assurance. Now many researchers and practitioners have realized that software test automation will be a required systematic solution to meet with new software testing challenges and automation demands from the emerging software engineering technologies in SOA-based systems, model-based/component-based software, and mobile computing and clouding computing service systems.

In the past decades, many research papers have been published to address software testing and automation issues and solutions. And now a number of test automation tools are available for engineer. However, there are still many open issues, obstacles, and challenges in software test automation, practice, and standardization. Moreover, there is an emerging need in software test automation standardization to reduce test automation costs and efforts and increase the standardization of test processes, test design, and test tools.

This focused topic issue for the International Journal of Software Engineering and Knowledge Engineering (IJSEKE) is targeted at software test automation issues, solutions, practice, and standardization to address the above needs. It allows researchers and industry practitioners to exchange innovative ideas, practical solutions, and test automation tools to cope with practical issues and challenges in the real world. In addition, research papers discussing test automation standardization, challenges and issues are welcomed. Furthermore, this journal issue provides a great channel for engineers and researchers to report their practical test automation experience and lessons, exchange well-defined test automation standards for enterprises and production lines.
The Focused Topics

This focused topic issue seeks unpublished original papers, which propose new test automation ideas, solutions and tools, report practical experience in test automation projects, discuss new test automation process, standards, models, and test criteria. The typical scope includes different perspectives in test automation, including auto-test infrastructure, standards, models, test generation, test execution, test management, and test coverage analysis and measurement. In addition, it also seeks practice reports that present the current issues, challenges, experience and lessons on software test automation projects.

The topics for submissions include but are not limited to the followings:

(A) Automated test frameworks, solutions and tools:
- Automated test frameworks and components
- Software test automation tools and solutions for unit testing (black-box/white-box)
- Automatic techniques and tools for testing software production lines, such as installation testing, and configuration testing
- Automatic software regression test techniques and tools
- System load testing tools and performance evaluation tools for non-functional requirements and features
- Software simulation and tools for software auto-testing
- Software security testing techniques and tools
- User-oriented and requirements-based test automation approaches and tools
- Program-based software test automation methods, tools, and experience
- Language-based software test automation techniques and tools
- Software test automation cost analysis and complex evaluation tools
- Innovative software test languages, scripting techniques, and tools
- Automatic software test coverage analysis and monitoring tools

(B) Test automation standardization:
- Test automation standardization issues, challenges, motivations, and needs
- Test automation standards in test processes, test models, test languages, coverage criteria, and documentation
- Test automation standards for test planning, design & analysis, test generation and scripting, test complexity and cost evaluation, and tools
- Test automation techniques, experience, lessons and case studies
- General and domain-specific standardization for test automation and tools

(C) Emerging test automation methods and tools:
- Automatic validation techniques and technology for emerging software technologies
- SOA-based software test automation methods, techniques, and tools
- Testing methods and test automation solutions for cloud computing systems
- Model-based software test automation methods, techniques, and tools
- Component-based software test automation methods and tools
• Web-based and agent-based software test automation methods and tools
• Wireless-based software test automation approaches and tools
• Innovative software test automation solutions for cloud computing

(D) Test automation management and practice:
• Issues, challenges, and needs in software test automation and practice
• Test-driven-development techniques and project experience
• Software test automation case studies and empirical studies
• Software test automation project issues, experience and lessons learned

Important Dates:

• Paper submission due date: September 1, 2010
• Notification of acceptance: November 15, 2010
• Camera-ready copy: December 15, 2010
• Expected publication: 2011

Paper Submission

Papers should be prepared following the guidelines posted at the IJSEKE web site (http://www.worldscinet.com/ijseke/mkt/guidelines.shtml). Additionally, each paper is limited to 25 double-spaced pages in 11 pt font size. Send your papers in electronic format in PS or PDF to http://www.easychair.org/conferences/?conf=ijseke2010. For more information, please contact the guest authors.

Paper Review and Publication

All submitted papers will be reviewed by the selected researchers and experts in the research field committee. Each paper will be reviewed at least by three reviewers based on the review process of The International Journal of Software Engineering and Knowledge Engineering. The accepted papers will be published in IJSEKE as a journal focused topic issue on Software Test Automation, Practice, and Standardization in 2011.

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