

## Journal of Systems and Software Special Issue on Engineering Test Harness



### Background

Program testing could not be conducted without tangible testing artifacts, and these artifacts should be usable by programmers so that program testing could be meaningfully conducted. At the heart of this dependency chain is the test harness. Test harness is a collection of tightly coupled artifacts, including, but not limited to, concrete test data composition, realization of test execution strategies, test result verification, framework extension, configuration and deployment management, and test visualization and workflow processes.

Many pieces of program testing techniques and tools focus on specific combinations of programmers, process and artifacts. They rest their assumptions on the availability or unavailability of other artifacts and activities taken or to be taken. Many empirical studies and experimentations reported in the literature have shown that under different human and program environments, system configurations and different implementations, the same process, technique or tool may exhibit different levels of quality of services, such as different fault detection effectiveness, efficiency, and energy consumption. However, misalignments among assumptions and generated artifacts of these processes, techniques and tools restrict the probability of their successful consolidation into the same test harness, thereby limiting their technology transfer potentials to create real impacts to the society.

Process, techniques and tools for a test harness should be validated in real-world scenarios. Any effective test harness should have successfully addressed the challenges in handling one or more types of artifacts and activities and their effective interaction.

This special issue invites contributions that present original and innovative ideas that address real-life problems with practical applications, and validate the ideas using real-world, preferably large-scale artifacts or projects, through rigorous case studies, empirical studies, experiments, or systematic comparison with existing approaches already in practice.

## Topics

The topics of interest include, but are not limited to:

- Formulation of test adequacy in test harness
- Formulation of test data generation, selection, and prioritization in test harness
- Formulation of test oracles in test harness
- Generation of test harness
- Dynamic execution mechanisms for test harness
- Extensible and scalable infrastructure for test harness
- Integration and interactions of components in test harness
- Interactions between test harness and programs under test
- Test harness in integrated development environment
- Management and process of test harness
- Reporting of test harness progress and results
- Visualization of testing activities conducted by test harness
- Specification and design of artifacts in test harness
- Usability of test harness
- Automation of test harness
- Test harness driven debugging
- Test harness driven maintenance
- Human and social aspects of test harness
- Interoperability and standardization of test harness
- Empirical study on the above topics
- Literature survey on the above topics

## Submission Information

There are two categories of submissions to this special issue. The first category includes the best papers relevant to the above topics selected from *The Symposium of Engineering Test Harness*. The event will be held in Nanjing, China in July 2013. Authors of each selected paper are invited to submit an extended version with at least 30% difference in both the technical content and the contributions. The second category is an open call for papers from the research community and from the industry.

We welcome high-quality and original submissions. Submissions must not have been accepted, published, or currently submitted elsewhere. Submissions must be written in

English and submitted in the PDF format via the Elsevier Editorial System (EES) at <http://ees.elsevier.com/jss>. To ensure the manuscripts are correctly submitted to this special issue, please select “**Engineering Test Harness**” as the “**Article Type**”.

Every submission will be evaluated by at least three reviewers, using the rigorous reviewing process and standard for JSS regular submissions. Please refer to the link at [http://www.elsevier.com/wps/find/journaldescription.cws\\_home/505732/authorinstructions#16001](http://www.elsevier.com/wps/find/journaldescription.cws_home/505732/authorinstructions#16001) for the Journal of Systems and Software submission guidelines.

The reviewing process of each submission will commence as soon as the submission has been received by the guest editors. Efforts will be made to ensure the decision on each round of review for each submission to be made as early as possible.

The Editor-in-Chief, along with the guest editors, will make the final decision to accept or decline a submission based on the reviews. The Journal of Systems and Software reserves the rights to include an accepted paper in the special issue or transfer an accepted paper as a regular paper of the journal.

### **Important Date**

August 31, 2013                      Paper submission deadline

### **Guest Editors**

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