Editorial:
Software testing in the United Kingdom

This special issue of STVR contains extended versions of three papers which appeared at SoftTest II: The Second U.K. Workshop on Software Testing Research, held at the University of York on the 4th and 5th of September 2003.

The workshop attracted 21 paper submissions, of which 17 were accepted. All papers received at least three reviews from an international programme committee. The General Chair for the workshop was Rob Hierons, the Programme Chair was Mark Harman and the Local Organizer was John Clark. Two keynote presentations were given by Cliff Jones from the University of Newcastle, U.K. and Ian Hayes from the University of Queensland, Australia.

The workshop was supported by the Universities of Brunel and York and by the U.K. Engineering and Physical Sciences Research Council through funding for the FORTEST network on Formal Methods and Testing.

Interest in testing has always been strong in the U.K. In recent years, building upon this strong foundation, there has been a further dramatic increase in academic research activity, coupled with an increasing realization of the importance of all aspects of software testing within industry. The SoftTest workshop in 2003 was the second U.K. testing workshop. The first was held in 1998 (also at York). It is planned to make these workshops a regular event.

The workshop brought together academic researchers and industrial practitioners. Although, as expected, the majority of contributions came from the U.K. testing community, the workshop was not exclusively a U.K.-centric event. There were also many contributions from the wider European testing community, including France, Latvia, Romania and Spain.

The three papers in this special issue have been considerably revised and extended from the original submissions to SoftTest and have been through a separate, additional reviewing and revision process.

The first paper, by Kalpesh Kapoor and Jonathan Bowen, concerns the assessment of fault-detection effectiveness for several widely used control-flow coverage criteria, together with a relatively new testing criterion originally proposed elsewhere by the second author and a colleague. This assessment is achieved using the concept of tolerance. Tolerance is a measure of robustness which evaluates the fault-detection ability of different test sets that exhibit identical coverage.

The second paper, by Kirill Bogdanov and Mike Holcombe, considers the problem of generating a test suite from a specification written using Harel’s Statecharts. They show that if a specification is hierarchical then it is possible to generate a test suite in an iterative manner. They then demonstrate that, where certain types of structures are guaranteed to be preserved in the implementation, the test suite may be reduced. These guarantees could be a consequence of the approach taken to development. An empirical study shows that the reductions can be many orders of magnitude.

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The third paper, by Séverine Colin, Bruno Legeard and Fabien Peureux, addresses the issue of preamble computation for the generation of test cases from model-based formal specifications. The B notation is used as the vehicle in this paper. Goal states are identified as the starting states for boundary value test cases. Reaching such states is a non-trivial task, well known to the protocol conformance testing community. The authors describe two methods for preamble computation and compare their performance. The supporting tool set has been shown to be effective on ‘real-world’ applications.

The SoftTest workshop in September 2003 demonstrated the wide and varied interest in testing, both within the U.K. and throughout Europe. The organizers aim to build on this success to establish the U.K. SoftTest workshop as a growing and developing regular event.

We hope to see you at the next U.K. SoftTest workshop, which is planned for 2005.

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