

Call for Papers

Special Issue of *Software—Practice and Experience*: **Practical Aspects of Search-Based Software Engineering**

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Special Issue Scope

This special issue of *Software—Practice and Experience* invites the submission of original manuscripts describing applied research into the practical aspects of Search-Based Software Engineering (SBSE). We particularly welcome case studies and other work demonstrating practical experience of using SBSE to solve real-world or benchmark problems. The engineering problems solved may relate to any aspect of software design and implementation, and the search techniques used may include (but are not limited to) meta-heuristic search algorithms, OR methods, and hybrid algorithms that combine more than one technique.

Key Dates

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| 14 August 2009 | Manuscript submission (revised deadline) |
| 23 November 2009 | Acceptance notification (revised date) |
| 5 February 2010 | Revised manuscript submission |
| Spring 2010 (tentative) | Publication |

Submission

Manuscripts must conform to the submission guidelines for *Software—Practice and Experience*: please see the 'For Authors' link on the journal homepage at: <http://www3.interscience.wiley.com/journal/1752/home>. Manuscripts must not have been published previously or be currently under consideration for publication in any other journal or conference. Significant extensions to substantive papers published in conference proceedings are welcome and must be accompanied by a letter that details the additional material in the submission to this special issue.

Please submit your manuscript using the online submission system, as described on the journal homepage referenced above. During the submission process you should indicate that the manuscript is for a special issue, and you will be asked to supply the name of the special issue, which is: 'Practical Aspects of Search-Based Software Engineering'.

Search-Based Software Engineering

Software systems are becoming ever larger and more complex as new architectures emerge and high-performance hardware becomes increasingly affordable. However, many of today's approaches to software design and implementation are unable to scale to meet the challenges presented by such systems.

For this reason, a recent trend has been to automate tasks within the software engineering lifecycle using machine-based search. The engineering task is reformulated as an optimisation problem and solutions are found using efficient modern optimisation algorithms, such as meta-heuristic search and operational research (OR) methods. This approach, known as Search-Based Software Engineering (SBSE), promises much greater scalability than traditional labour-intensive methods since human effort is redirected to guide the search for solutions to the engineering problem, rather than perform the search itself.

SBSE has been applied across the spectrum of software engineering activities, including: requirements engineering, project planning, software task allocation, code refactoring, protocol synthesis, test data generation, and the design of algorithms for highly resource-constrained hardware platforms. As the efficacy and scalability of this approach is established for an increasing number of software engineering problems, a particular research focus is how to successfully apply SBSE in practice.