Editorial

We are proud to present a Special Issue on Refinement, originating from the 11th BCS-FACS Refinement Workshop, held at Macao in October 2006.

This workshop was organised by the EPSRC RefineNet network (<http://www.refinenet.org.uk>) and co-located with ICFEM. The workshop proceedings have appeared in Electronic Notes in Theoretical Computer Science vol. 187. After the workshop, presenters were invited to submit significantly extended papers for inclusion in this special issue; seven of these were accepted and have been included here.

The first two papers are concerned with Unifying Theories of Programming (UTP). “A UTP Semantics for *Circus*” by Oliveira, Cavalcanti and Woodcock presents a denotational semantics in UTP of the language *Circus* which allows the proof of meta-theorems such as refinement laws for *Circus*. “Mutation testing in UTP” by Aichernig and He shows how UTP provides a foundation for testing and test case generation based on the deliberate introduction of faults.

“Relational Concurrent Refinement Part II: Internal Operations and Outputs” by Boiten, Derrick and Schellhorn derives simulation rules for concurrent refinement preorders through a relational embedding, including systems with internal operations and outputs.

“Graph Transformations for Object-Oriented Refinement” by Zhao, Liu, Liu and Qiu considers transformations on graphs (class diagrams and object diagrams) which preserve their services.

The next two papers are concerned with model checking. “FDR Explorer” by Freitas and Woodcock describes the internal structure of, and an API for interacting with, the refinement model checker FDR, with some of its applications. “Model checking action system refinements” by Smith and Winter encodes simulation conditions for action systems in CTL, which can then be checked with a CTL model checker.

Finally, “Trace-based Derivation of a Scalable Lock-Free Stack Algorithm” by Groves and Colvin presents a concurrent lock-free stack algorithm and shows how it can be derived by separating basic algorithmic ideas from implementation details.

We are grateful to ‘Formal Aspects of Computing’ for allowing us to publish this collection of papers in the journal, and for an ongoing pleasant collaboration; to the participants of the workshop, and to the reviewers involved in selecting the papers.

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