

Preface

Special Issue on Artificial Intelligence and Symbolic Computation

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Preface to the Special Issue

This special issue contains a selection of papers presented at the 9th International Conference on Artificial Intelligence and Symbolic Computation (AISC 2008) on 31 July to 1 August, 2008, in Birmingham, UK, as part of the Conferences on Intelligent Computer Mathematics (CICM 2008).

AISC is a series of biennial conferences that is concerned with the integration and application of Symbolic Computation techniques in general Artificial Intelligence, and conversely with the integration of Artificial Intelligence techniques into computer algebra approaches. Therefore, AISC attracts a wide-ranging audience of scientists working on a variety of topics in the intersection of these two diverse research directions. The five articles compiled in this special issue — which are significantly extended and improved versions of selected contributions to AISC 2008 — reflect this broad spectrum of activities. Each extended paper underwent a new, rigorous peer review by leading experts in the field, fully independently of the AISC review process.

The paper by Distler and Kelsey on *The Monoids of Orders Eight, Nine & Ten* presents a combination of constraint satisfaction techniques with a computer algebra system for symmetry breaking to obtain enumeration results in finite algebra. The contribution by Dixon and Duncan describes an equational framework that enables the modelling of *Graphical Reasoning in Compact Closed Categories for Quantum Computation*. A decision procedure for first-order constraint satisfaction problems together with an implementation is demonstrated in Djelloul's paper entitled *A Full First-Order Constraint Solver for Decomposable Theories*. Peltier's article on *Constructing Infinite Models Represented By Tree Automata* presents a method that uses finite model builders in order to construct infinite models of

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first-order formulae. And finally the contribution by Zankl and Middeldorp is concerned with the use of *Increasing Interpretations* in the refinement of termination criteria for term rewrite systems.

We would like to thank the authors for their contributions to this special issue and the referees for their time to enable a rigorous peer review. We are also very grateful to the publisher and editor of the *Annals in Mathematics and Artificial Intelligence* to provide us with the opportunity to assemble a special issue on the research topics of the AISC community.

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Jacques Calmet in Karlsruhe, Germany
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