

## Special Issue on WODES'08

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The *9th International Workshop on Discrete Event Systems—WODES'08* took place at Chalmers University of Technology in Göteborg, Sweden, May 28–30, 2008 ([www.wodes2008.org](http://www.wodes2008.org)). WODES is one of the most distinguished international events entirely devoted to discrete event systems (DES), where different formalisms, methodologies and tools from control, computer science and operations research are combined and further developed. Earlier WODES meetings were held in Prague, Czech Republic (1992), Sophia-Antipolis, France (1994), Edinburgh, United Kingdom (1996), Cagliari, Italy (1998), Ghent, Belgium (2000), Zaragoza, Spain (2002), Reims, France (2004), and Ann Arbor, USA (2006).

The WODES'08 program included 77 contributed papers (44 regular and 33 invited), selected by the Scientific Program Committee from 107 submissions (71 regular and 36 invited). In addition, three plenary talks were held by distinguished researchers, PanosAntsaklis (University of Notre Dame, USA), Kim G. Larsen (Aalborg University, Denmark), and Stephan Biller (General Motors R&D Center, Detroit, USA), representing control engineering, computer science, and industrial applications, respectively.

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Based on the reviews of the Scientific Program Committee and guidance from the WODES Steering Committee, five papers were selected for possible publication in JDEDS. The authors were invited to submit expanded versions of their conference papers. Their submissions were carefully reviewed, following the normal editorial process of JDEDS. Based on the reviews and detailed revisions by the authors, all five papers were accepted to be included in this special issue of the JDEDS.

WODES'08 had an emphasis on invited sessions (40% of the contributions), and particularly invited sessions focusing on new topics closely related to DES, but extending the scope of WODES. This is also reflected in the papers of this special issue, where for instance the classical satisfiability problem from computer science and interesting results from systems biology are included.

The first paper by Andreas Bauer and Sophie Pinchinat offers a novel perspective on the diagnosis of star-languages via a topological characterization of omega-languages. This allows different concepts in diagnosis of DES to be related to one another in a uniform setting, including complexity issues. In the second paper Alberto Casagrande, Carla Piazza, and Alberto Policriti use hybrid automata to model and analyze biological systems. Decidability of the reachability problem is addressed, and a discrete semantics is introduced for hybrid systems to avoid misleading assumptions in systems biology. The third paper by Koen Claessen, Niklas Een, Mary Sheeran, Niklas Sörensson, Alexey Voronov, and Knut Åkesson gives a tutorial on the Boolean Satisfiability problem, commonly known as SAT. It is shown how modern SAT-solvers can be used to solve many important and practical problems. It is also demonstrated how SAT-solvers can be applied to supervisory control problems. In the fourth paper Jan Komenda, Sébastien Lahaye, and Jean-Louis Boimond propose an extension of the supervisory control problem to a class of timed DESs, modeled by  $(\max,+)$  automata. This includes nontrivial extensions of the parallel composition and supremal controllable languages. In the fifth paper Yu Ru and Christoforos N. Hadjicostis study online fault diagnosis based on a Petri net model, where observations can be generated both at transitions (observable labels) and at states/markings (some places have sensors that can count the number of tokens at any given time). The goal of the paper is to calculate the degree of confidence regarding the occurrence of different types of faults.

Finally, we are grateful to the authors for their creative and worthwhile contributions, and we thank the reviewers for their careful reading and constructive comments. We also wish to express our sincere thanks to the editor of JDEDS, Xiren Cao, and the WODES Steering Committee for inviting us to serve as editors of this special issue.

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Organizers of WODES'08  
Guest Editors