

## Preface

This volume contains the papers presented at KnowProS 2016: IJCAI-16 Workshop on Knowledge-based Techniques for Problem Solving and Reasoning held on July 8-14, 2016 in New York.

Despite recent attempts in various subareas of AI to integrate technologies to solve complex problems such as autonomous cars, there are still gaps between research communities that prevent efficient transfer of knowledge. For example, knowledge representation techniques focus on formal semantics and flexibility of modeling frameworks and put less emphasis on actual problem solving that requires efficient tools. Other communities such as planning and search put emphasis on efficiency of problem solving, but less attention is given to how the real problem is modeled, the connection between modeling and efficiency of problem solving, and the capability of the models to support other important features like plan revision and adaptation. This workshop attempted to bridge these particular communities with the goal to exchange information leading to more efficient problem solving starting with the the problem requirements and finishing with the solved problem.

Formal problem modeling is a critical step during problem solving. A good modeling framework should be flexible enough to describe important properties of problems solved and should allow application of efficient problem solving techniques. This workshop focused on papers at the frontier between formal problem modeling and problem solving. Papers emphasized the formal models from the perspective of problem solving and vice versa – problem solving techniques are seen in relation to models of the problem. Papers discussing methods on how to obtain information that is useful for efficient problem solving were also considered.

The workshop sought, in particular, papers addressing some of the following questions. How do the formal models relate to efficiency of problem solving? How do various modeling frameworks compare from the perspective of problem solving? How can the model be acquired? How can the model be verified and validated? How can the formal model be reformulated to get an efficiently-solvable model? How can the solution be checked with respect to the model? How does the model evolve in time? How can the model support solution revisions at execution time?

There were 12 submissions. Each submission was reviewed by at least 2, and on the average 3.1, program committee members. The committee decided to accept 10 papers. The program also includes 1 invited talk, offered by Dr. Veronica Dahl.

The organizers would like to thank IJCAI for the opportunity to hold this event as a workshop associated to the main conference.

July 20, 2016

Roman Bartak  
Lee Mccluskey  
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## Program Committee

|                         |  |
|-------------------------|--|
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| Luis Castillo           | University of Granada                                  |
| Amedeo Cesta            | CNR - National Research Council of Italy               |
| Lukas Chrpa             | University of Huddersfield                             |
| Marc Denecker           | K.U.Leuven   |
| Patrick Doherty         | Linkoping University                                   |
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