

Steffen Hölldobler · Markus Krötzsch
Rafael Peñaloza · Sebastian Rudolph (Eds.)

KI 2015: Advances in Artificial Intelligence

38th Annual German Conference on AI
Dresden, Germany, September 21–25, 2015
Proceedings

Contents

Keynote

Safety Constraints and Ethical Principles in Collective Decision Making Systems	3
<i>Francesca Rossi</i>	

Full Technical Papers

Complexity of Interval Relaxed Numeric Planning	19
<i>Johannes Aldinger, Robert Mattmüller, and Moritz Göbelbecker</i>	
Oddness-Based Classifiers for Boolean or Numerical Data	32
<i>Myriam Bounhas, Henri Prade, and Gilles Richard</i>	
Packing Irregular-Shaped Objects for 3D Printing	45
<i>Stefan Edelkamp and Paul Wichern</i>	
Deciding Subsumers of Least Fixpoint Concepts w.r.t. General \mathcal{EL} -TBoxes.	59
<i>Shasha Feng, Michel Ludwig, and Dirk Walther</i>	
Towards a More Efficient Computation of Weighted Conditional Impacts for Relational Probabilistic Knowledge Bases Under Maximum Entropy Semantics.	72
<i>Marc Finthammer and Christoph Beierle</i>	
Assisting with Goal Formulation for Domain Independent Planning.	87
<i>Moritz Göbelbecker</i>	
Short-Term Wind Power Prediction with Combination of Speed and Power Time Series	100
<i>Justin Heinermann and Oliver Kramer</i>	
A Serendipity Model for News Recommendation	111
<i>M. Jenders, T. Lindhauer, G. Kasneci, R. Krestel, and F. Naumann</i>	
Axiomatization of General Concept Inclusions in Probabilistic Description Logics	124
<i>Francesco Kriegel</i>	
Kernel Feature Maps from Arbitrary Distance Metrics	137
<i>Markus Schneider, Wolfgang Ertel, and Günther Palm</i>	

A Doppelkopf Player Based on UCT.	151
<i>Silvan Sievers and Malte Helmert</i>	
An Empirical Case Study on Symmetry Handling in Cost-Optimal Planning as Heuristic Search	166
<i>Silvan Sievers, Martin Wehrle, Malte Helmert, and Michael Katz</i>	
Necessary Observations in Nondeterministic Planning	181
<i>David Speck, Manuela Ortlieb, and Robert Mattmüller</i>	
Analogical Representation of RCC-8 for Neighborhood-Based Qualitative Spatial Reasoning	194
<i>Diedrich Wolter and Arne Kreuzmann</i>	
Grid-Based Angle-Constrained Path Planning	208
<i>Konstantin Yakovlev, Egor Baskin, and Ivan Hramoin</i>	
Technical Communications	
Efficient Axiom Pinpointing with EL2MCS	225
<i>M. Fareed Arif, Carlos Mencia, and Joao Marques-Silva</i>	
Abducing Hypotheses About Past Events from Observed Environment Changes.	234
<i>Ann-Katrin Becker, Jochen Sprickerhof, Martin Günther, and Joachim Hertzberg</i>	
A Software System Using a SAT Solver for Reasoning Under Complete, Stable, Preferred, and Grounded Argumentation Semantics.	241
<i>Christoph Beierle, Florian Brons, and Nico Potyka</i>	
On the KL Divergence of Probability Mixtures for Belief Contraction	249
<i>Kinzang Chhogyal, Abhaya Nayak, and Abdul Sattar</i>	
A Critical Review on the Symbol Grounding Problem as an Issue of Autonomous Agents	256
<i>Richard Cubek, Wolfgang Ertel, and Günther Palm</i>	
Accurate Online Social Network User Profiling	264
<i>Raïssa Yapan Dougnon, Philippe Fournier-Viger, Jerry Chun-Wei Lin, and Roger Nkambou</i>	
LewiSpace: An Educational Puzzle Game Combined with a Multimodal Machine Learning Environment	271
<i>Ramla Ghali, Sébastien Ouellet, and Claude Frasson</i>	
Event Detection in Marine Time Series Data	279
<i>Stefan Oehmcke, Oliver Zielinski, and Oliver Kramer</i>	

A Componentwise Simulated Annealing EM Algorithm for Mixtures 287
Affan Pervez and Dongheui Lee

The Polylingual Labeled Topic Model 295
Lisa Posch, Arnim Bleier, Philipp Schaer, and Markus Strohmaier

Improving Heuristics On-the-fly for Effective Search in Plan Space. 302
Shashank Shekhar and Deepak Khemani

Hierarchical Hybrid Planning in a Mobile Service Robot 309
*Sebastian Stock, Masoumeh Mansouri, Federico Pecora,
and Joachim Hertzberg*

Towards Episodic Memory Support for Dementia Patients-by Recognizing
Objects, Faces and Text in Eye Gaze. 316
Takumi Toyama and Daniel Sonntag

Deriving a Primal Form for the Quadratic Power Kernel 324
Tim vor der Brück and Steffen Eger

Doctoral Consortium Contributions

Towards an Expert System for the Field of Neurology Based
on Fuzzy Logic. 333
Mirco Josefiok and Jürgen Sauer

Dynamics of Belief: Horn Knowledge Base and Database Updates 341
Radhakrishnan Delhibabu

Rock, Paper, Scissors What Can I Use in Place of a Hammer?
(Extended Abstract). 349
Madhura Thosar

Abductive Reasoning Using Tableau Methods for High-Level Image
Interpretation 356
Yifan Yang, Jamal Atif, and Isabelle Bloch

Author Index 367