

# Contents

## Background

Introduction to Combinatorial Optimisation in Numberjack. . . . .	3
<i>Barry Hurley and Barry O’Sullivan</i>	
Data Mining and Constraints: An Overview . . . . .	25
<i>Valerio Grossi, Dino Pedreschi, and Franco Turini</i>	

## Learning to Model

New Approaches to Constraint Acquisition. . . . .	51
<i>Christian Bessiere, Abderrazak Daoudi, Emmanuel Hebrard, George Katsirelos, Nadjib Lazaar, Younes Mechqrane, Nina Narodytska, Claude-Guy Quimper, and Toby Walsh</i>	
ModelSeeker: Extracting Global Constraint Models from Positive Examples . . . . .	77
<i>Nicolas Beldiceanu and Helmut Simonis</i>	
Learning Constraint Satisfaction Problems: An ILP Perspective. . . . .	96
<i>Luc De Raedt, Anton Dries, Tias Guns, and Christian Bessiere</i>	
Learning Modulo Theories . . . . .	113
<i>Andrea Passerini</i>	

## Learning to Solve

Algorithm Selection for Combinatorial Search Problems: A Survey. . . . .	149
<i>Lars Kotthoff</i>	
Advanced Portfolio Techniques. . . . .	191
<i>Barry Hurley, Lars Kotthoff, Yuri Malitsky, Deepak Mehta, and Barry O’Sullivan</i>	
Adapting Consistency in Constraint Solving. . . . .	226
<i>Amine Balafrej, Christian Bessiere, Anastasia Paparrizou, and Gilles Trombettoni</i>	

## Constraint Programming for Data Mining

Modeling in MiningZinc . . . . .	257
<i>Anton Dries, Tias Guns, Siegfried Nijssen, Behrouz Babaki, Thanh Le Van, Benjamin Negrevergne, Sergey Paramonov, and Luc De Raedt</i>	

Partition-Based Clustering Using Constraint Optimization . . . . .	282
<i>Valerio Grossi, Tias Guns, Anna Monreale, Mirco Nanni, and Siegfried Nijssen</i>	
<b>Showcases</b>	
The Inductive Constraint Programming Loop . . . . .	303
<i>Christian Bessiere, Luc De Raedt, Tias Guns, Lars Kotthoff, Mirco Nanni, Siegfried Nijssen, Barry O'Sullivan, Anastasia Paparrizou, Dino Pedreschi, and Helmut Simonis</i>	
ICON Loop Carpooling Show Case. . . . .	310
<i>Mirco Nanni, Lars Kotthoff, Riccardo Guidotti, Barry O'Sullivan, and Dino Pedreschi</i>	
ICON Loop Health Show Case. . . . .	325
<i>Barry Hurley, Lars Kotthoff, Barry O'Sullivan, and Helmut Simonis</i>	
ICON Loop Energy Show Case . . . . .	334
<i>Barry Hurley, Barry O'Sullivan, and Helmut Simonis</i>	
<b>Author Index</b> . . . . .	349

Data Mining and Constraint Programming  
Foundations of a Cross-Disciplinary Approach  
Bessiere, C.; De Raedt, L.; Kotthoff, L.; Nijssen, S.;  
O'Sullivan, B.; Pedreschi, D. (Eds.)  
2016, XII, 349 p. 73 illus., Softcover  
ISBN: 978-3-319-50136-9