

Commenced Publication in 1973

Founding and Former Series Editors:

Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

Editorial Board

David Hutchison

Lancaster University, UK

Takeo Kanade

Carnegie Mellon University, Pittsburgh, PA, USA

Josef Kittler

University of Surrey, Guildford, UK

Jon M. Kleinberg

Cornell University, Ithaca, NY, USA

Friedemann Mattern

ETH Zurich, Switzerland

John C. Mitchell

Stanford University, CA, USA

Moni Naor

Weizmann Institute of Science, Rehovot, Israel

Oscar Nierstrasz

University of Bern, Switzerland

C. Pandu Rangan

Indian Institute of Technology, Madras, India

Bernhard Steffen

University of Dortmund, Germany

Madhu Sudan

Massachusetts Institute of Technology, MA, USA

Demetri Terzopoulos

New York University, NY, USA

Doug Tygar

University of California, Berkeley, CA, USA

Moshe Y. Vardi

Rice University, Houston, TX, USA

Gerhard Weikum

Max-Planck Institute of Computer Science, Saarbruecken, Germany

Peter van Beek (Ed.)

Principles and Practice of Constraint Programming - CP 2005

11th International Conference, CP 2005
Sitges, Spain, October 1-5, 2005
Proceedings



Springer

Volume Editor

Peter van Beek
University of Waterloo
Waterloo, Canada N2L 3G1
E-mail: vanbeek@uwaterloo.ca

Library of Congress Control Number: 2005933262

CR Subject Classification (1998): D.1, D.3.2-3, I.2.3-4, F.3.2, I.2.8, F.4.1, J.1

ISSN 0302-9743
ISBN-10 3-540-29238-1 Springer Berlin Heidelberg New York
ISBN-13 978-3-540-29238-8 Springer Berlin Heidelberg New York

This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, re-use of illustrations, recitation, broadcasting, reproduction on microfilms or in any other way, and storage in data banks. Duplication of this publication or parts thereof is permitted only under the provisions of the German Copyright Law of September 9, 1965, in its current version, and permission for use must always be obtained from Springer. Violations are liable to prosecution under the German Copyright Law.

Springer is a part of Springer Science+Business Media

springeronline.com

© Springer-Verlag Berlin Heidelberg 2005
Printed in Germany

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India
Printed on acid-free paper SPIN: 11564751 06/3142 5 4 3 2 1 0

Preface

The 11th International Conference on the Principles and Practice of Constraint Programming (CP 2005) was held in Sitges (Barcelona), Spain, October 1–5, 2005. Information about the conference can be found on the web at <http://www.iiia.csic.es/cp2005/>. Information about past conferences in the series can be found at <http://www.cs.ualberta.ca/~ai/cp/>.

The CP conference series is the premier international conference on constraint programming and is held annually. The conference is concerned with all aspects of computing with constraints, including: algorithms, applications, environments, languages, models and systems.

This year, we received 164 submissions. All of the submitted papers received at least three reviews, and the papers and their reviews were then extensively discussed during an online Program Committee meeting. As a result, the Program Committee chose 48 (29.3%) papers to be published in full in the proceedings and a further 22 (13.4%) papers to be published as short papers. The full papers were presented at the conference in two parallel tracks and the short papers were presented as posters during a lively evening session. Two papers were selected by a subcommittee of the Program Committee—consisting of Chris Beck, Gilles Pesant, and myself—to receive best paper awards. The conference program also included excellent invited talks by Héctor Geffner, Ian Horrocks, Francesca Rossi, and Peter J. Stuckey. As a permanent record, the proceedings contain four-page extended abstracts of the invited talks.

CP 2005 continued the tradition of the CP doctoral program, in which PhD students presented their work, listened to tutorials on career and ethical issues, and discussed their work with senior researchers via a mentoring scheme. This year, the doctoral program received 53 submissions. The field of constraint programming is indeed alive and growing! Each of the PhD students who did not already have a paper in the main conference was given one page in the proceedings to describe their ongoing research. As well, CP 2005 once again held a systems demonstration session to highlight the state of the art in industrial and academic applications, or prototypes. As a permanent record of the session, the proceedings contain a one-page description of each demo.

On the first day of the conference, 13 workshops were held (listed on page IX), each with their own proceedings. Four excellent tutorials were presented during the conference: “SAT Solving and Its Relationship to CSPs” by Fahiem Bacchus; “Advances in Search, Inference and Hybrids for Solving Combinatorial Optimization Tasks” by Rina Dechter; “Programming with a Chinese Horse” by Thom Frühwirth; and “Complete Randomized Backtrack Search Methods: Connections Between Heavy-tails, Backdoors, and Restart Strategies” by Carla Gomes.

On behalf of the constraint programming community, I would like to publicly thank and acknowledge the hard work of the many people involved in putting this year's conference together. Thank you to Pedro Meseguer and Javier Larrosa, the conference chairs, for their many hours organizing, budgeting, planning, and coordinating that resulted in a most enjoyable conference for the rest of us. Thank you to Michela Milano and Zeynep Kiziltan, the doctoral program chairs, for smoothly and efficiently putting together the largest doctoral program so far. Thank you to Alan Frisch and Ian Miguel, the workshop/tutorial chairs, for their efforts in putting together excellent workshop and tutorial programs. Thank you to Felip Manyà, publicity chair, for prompt and efficient handling of the publicity for the conference. Thank you to Chris Beck and Gilles Pesant for their help on the Best Paper Award Committee. Thank you to the Program Committee and the additional referees for their service to the community in writing reviews and extensively discussing and choosing which papers to accept at the conference. It was truly a pleasure to work with all of you. I would also like to add a personal thank you to the Executive Committee of the Association for Constraint Programming for inviting me to be program chair this year. It has been a rewarding experience.

Finally, a thank you to the institutions listed below (page IX) who helped sponsor the conference. Their generosity enabled the conference to bring in invited speakers and fund students, thus greatly contributing to the success of the conference.

September 2005

Peter van Beek

Organization

Conference Organization

Conference Chairs	Pedro Meseguer, IIIA-CSIC, Spain Javier Larrosa, UPC, Spain
Program Chair	Peter van Beek, University of Waterloo, Canada
Doctoral Program Chairs	Michela Milano, University of Bologna, Italy Zeynep Kiziltan, University of Bologna, Italy
Workshop/Tutorial Chairs	Alan Frisch, University of York, UK Ian Miguel, University of St Andrews, UK
Publicity Chair	Felip Manyà, IIIA-CSIC, Spain

Program Committee

Pedro Barahona, U Lisbon, Portugal	Pedro Meseguer, IIIA-CSIC, Spain
Chris Beck, U of Toronto, Canada	Laurent Michel, U of Conn., USA
Nicolas Beldiceanu, EMN, France	Ian Miguel, U of St Andrews, UK
Frédéric Benhamou, U Nantes, France	Michela Milano, U of Bologna, Italy
Christian Bessiere, LIRMM, France	Eric Monfroy, U Nantes, France
Mats Carlsson, SICS, Sweden	Barry O'Sullivan, 4C, Ireland
David Cohen, Royal Holloway, UK	Gilles Pesant, Montréal, Canada
Rina Dechter, UC Irvine, USA	Jean-Charles Régin, ILOG, France
Boi Faltings, EPFL, Switzerland	Francesca Rossi, U of Padova, Italy
Alan Frisch, U of York, UK	Michel Rueher, U of Nice, France
Carmen Gervet, IC-Parc, UK	Christian Schulte, KTH, Sweden
Carla Gomes, Cornell U, USA	Meinolf Sellmann, Brown U, USA
Warwick Harvey, IC-Parc, UK	Helmut Simonis, IC-Parc, UK
Martin Henz, NUS, Singapore	Barbara Smith, 4C, Ireland
John Hooker, CMU, USA	Stephen F. Smith, CMU, USA
Peter Jeavons, U of Oxford, UK	Peter Stuckey, U Melbourne, Australia
Peter Jonsson, Linköping U, Sweden	Pascal Van Hentenryck, Brown U, USA
Zeynep Kiziltan, U of Bologna, Italy	Gérard Verfaillie, ONERA, France
François Laburthe, Bouygues, France	Mark Wallace, Monash U, Australia
Javier Larrosa, UPC, Spain	Toby Walsh, UNSW, Australia
Jimmy Lee, CUHK, Hong Kong, China	Roland Yap, NUS, Singapore
Kevin Leyton-Brown, UBC, Canada	Weixiong Zhang, Washington U, USA

Additional Referees

Stefan Andrei	Marco Gavanelli	Claude Michel
Ola Angelsmark	Cormac Gebruers	Pragnesh J. Modi
Carlos Ansoategui	Michel Gendreau	Bertrand Neveu
Francisco Azevedo	Bernard Gendron	Peter Nightingale
Ismel Brito	Ian Gent	Gustav Nordh
Fahiem Bacchus	Vibhav Gogate	Brice Pajot
James Bailey	Alexandre Goldsztejn	Justin Pearson
Philippe Balbiani	Frédéric Goualard	Thierry Petit
Joe Bater	Laurent Granvilliers	Karen Petrie
Belaid Benhamou	Martin Green	Nicola Policella
Bozhena Bidyuk	Youssef Hamadi	Steven Prestwich
Simon Boivin	James Harland	Claude-Guy Quimper
Lucas Bordeaux	Emmanuel Hebrard	Philippe Refalo
Sebastian Brand	Mark Hennessy	Maria Cristina Riff
Pascal Brisset	Federico Heras	Andrea Roli
Ken Brown	Brahim Hnich	Emma Rollon
Andrei Bulatov	Alan Holland	Colva Roney-Dougal
Marco Cadoli	David Hsu	Horst Samulowitz
Tom Carchrae	Tudor Hulubei	Mati Sanchez
Carlos Castro	Christopher Jefferson	Abdul Sattar
Martine Ceberio	Christophe Jermann	Frédéric Saubion
Amedeo Cesta	Albert Xin Jiang	Thomas Schiex
Yixin Chen	Ulrich Junker	Joachim Schimpf
Kenil Cheng	Narendra Jussien	Philippe Serré
Jeff Choi	Olli Kamarainen	Zoltan Somogyi
Lau Hoong Chuin	Kalev Kask	Martin Sulzmann
Hélène Collavizza	Tom Kelsey	Radoslaw Szymanek
Jean-François Condotta	Ludwig Krippahl	Carme Torras
Martin Cooper	Vitaly Lagoon	Guido Tack
Jorge Cruz	Arnaud Lallouet	Armagan Tarim
Vilhelm Dahllöf	Frédéric Lardeux	Gilles Trombettoni
Victor Dalmau	Yahia Lebbah	Charlotte Truchet
David Daney	Michel Lemaître	Edward Tsang
Simon de Givry	Paolo Liberatore	Marc van Dongen
Romuald Debruyne	Gérard Ligozat	Willem-Jan van Hoeve
Iván Dotú	C. Likitvivatanavong	K. Brent Venable
Thomas Drakengren	Andrea Lodi	Petr Vilim
Greg Duck	Ines Lynce	Xuan-Ha Vu
Ulle Endriss	Gregory M. Provan	Magnus Wahlström
Andrew Eremin	S. Macho-Gonzalez	Richard J. Wallace
Alex Ferguson	Radu Marinescu	Jean-Paul Watson
Pierre Flener	Robert Mateescu	Grant Weddell
Spencer Fung	Pascal Mathis	Nic Wilson

Zhao Xing	Neil Yorke-Smith	Neng-Fa Zhou
Roland Yap	Yuanlin Zhang	Terry Zimmerman
Makoto Yokoo	Xing Zhao	

Executive Committee of the ACP

Krzysztof Apt, NUS, Singapore	Francesca Rossi, University of Padova, Italy
Fahiem Bacchus, University of Toronto, Canada	Peter van Beek, University of Waterloo, Canada
Christian Bessiere, LIRMM, France	Mark Wallace, Monash University, Australia
James Bowen, UCC, Ireland	Toby Walsh, UNSW, Australia
Michela Milano, University of Bologna, Italy	
Jean-François Puget, ILOG, France	

Workshops

Applications of Constraint Satisfaction and Programming to Computer Security
 Constraint Propagation and Implementation
 Preferences and Soft Constraints
 Cooperative Solvers in Constraint Programming
 Distributed and Speculative Constraint Processing
 Constraint Programming Beyond Finite Integer Domains
 Interval Analysis, Constraint Propagation, Applications
 Constraint Solving Under Change and Uncertainty
 Constraints and Design
 Modelling and Reformulating CSPs
 Local Search Techniques in Constraint Satisfaction
 Quantification in Constraint Programming
 Symmetry and Constraint Satisfaction Problems

Sponsoring Institutions

Association for Constraint Programming (ACP)
 Catalan Ministry of Universities, Research and Information Society (DURSI)
 CoLogNET
 Cork Constraint Computation Centre (4C)
 ILOG Inc.
 Intelligent Information Systems Institute (IISI), Cornell University
 MusicStrands Inc.
 Spanish Association for Artificial Intelligence (AEPIA)
 Spanish Ministry of Education and Science (MEC)
 Spanish Council for Scientific Research (CSIC)
 Springer, Publisher of the Constraints Journal

Swedish Institute of Computer Science (SICS)

Technical University of Catalonia (UPC)

University of Lleida (UdL)

Table of Contents

Invited Papers

Search and Inference in AI Planning <i>Héctor Geffner</i>	1
OWL: A Description Logic Based Ontology Language <i>Ian Horrocks</i>	5
Preference Reasoning <i>Francesca Rossi</i>	9
The G12 Project: Mapping Solver Independent Models to Efficient Solutions <i>Peter J. Stuckey, Maria Garcia de la Banda, Michael Maher, Kim Marriott, John Slaney, Zoltan Somogyi, Mark Wallace, Toby Walsh</i>	13

Best Papers

Symmetry Definitions for Constraint Satisfaction Problems <i>David Cohen, Peter Jeavons, Christopher Jefferson, Karen E. Petrie, Barbara M. Smith</i>	17
Dynamic Ordering for Asynchronous Backtracking on DisCSPs <i>Roie Zivan, Amnon Meisels</i>	32

Full Papers

Incremental Algorithms for Local Search from Existential Second-Order Logic <i>Magnus Ågren, Pierre Flener, Justin Pearson</i>	47
Inter-distance Constraint: An Extension of the All-Different Constraint for Scheduling Equal Length Jobs <i>Konstantin Artiouchine, Philippe Baptiste</i>	62
Mind the Gaps: A New Splitting Strategy for Consistency Techniques <i>Heikel Batnini, Claude Michel, Michel Rueher</i>	77

Graph Invariants as Necessary Conditions for Global Constraints <i>Nicolas Beldiceanu, Mats Carlsson, Jean-Xavier Rampon, Charlotte Truchet</i>	92
Allocation and Scheduling for MPSoCs via Decomposition and No-Good Generation <i>Luca Benini, Davide Bertozzi, Alessio Guerri, Michela Milano</i>	107
Sub-optimality Approximations <i>Russell Bent, Irit Katriel, Pascal Van Hentenryck</i>	122
A Linear-Logic Semantics for Constraint Handling Rules <i>Hariolf Betz, Thom Frühwirth</i>	137
Distributed Stable Matching Problems <i>Ismel Brito, Pedro Mesequer</i>	152
Beyond Hypertree Width: Decomposition Methods Without Decompositions <i>Hubie Chen, Víctor Dalmau</i>	167
Ad-hoc Global Constraints for Life <i>Kenil C.K. Cheng, Roland H.C. Yap</i>	182
Tractable Clones of Polynomials over Semigroups <i>Víctor Dalmau, Ricard Gavaldà, Pascal Tesson, Denis Thérien</i>	196
CP(Graph): Introducing a Graph Computation Domain in Constraint Programming <i>Gregoire Doms, Yves Deville, Pierre Dupont</i>	211
Interval Analysis in Scheduling <i>Jérôme Fortin, Paweł Zielński, Didier Dubois, Hélène Fargier</i>	226
Assumption-Based Pruning in Conditional CSP <i>Felix Geller, Michael Veksler</i>	241
Conditional Symmetry Breaking <i>Ian P. Gent, Tom Kelsey, Steve A. Linton, Iain McDonald, Ian Miguel, Barbara M. Smith</i>	256
Symmetry and Consistency <i>Ian P. Gent, Tom Kelsey, Steve Linton, Colva Roney-Dougal</i>	271
Solving the MOLR and Social Golfers Problems <i>Warwick Harvey, Thorsten Winterer</i>	286

Advances in Polytime Isomorph Elimination for Configuration <i>Laurent Hénoque, Mathias Kleiner, Nicolas Prcovic</i>	301
Planning and Scheduling to Minimize Tardiness <i>J.N. Hooker</i>	314
Search Heuristics and Heavy-Tailed Behaviour <i>Tudor Hulubei, Barry O’Sullivan</i>	328
2-Way vs. <i>d</i> -Way Branching for CSP <i>Joey Hwang, David G. Mitchell</i>	343
Maintaining Longest Paths in Cyclic Graphs <i>Irit Katriel, Pascal Van Hentenryck</i>	358
Applying Constraint Programming to Rigid Body Protein Docking <i>Ludwig Krippahl, Pedro Barahona</i>	373
Maximum Constraint Satisfaction on Diamonds <i>Andrei Krokhin, Benoit Larose</i>	388
Exploiting Unit Propagation to Compute Lower Bounds in Branch and Bound Max-SAT Solvers <i>Chu Min Li, Felip Manyà, Jordi Planes</i>	403
Generalized Conflict Learning for Hybrid Discrete/Linear Optimization <i>Hui Li, Brian Williams</i>	415
Parallel Local Search in Comet <i>Laurent Michel, Pascal Van Hentenryck</i>	430
Generating Corrective Explanations for Interactive Constraint Satisfaction <i>Barry O’Callaghan, Barry O’Sullivan, Eugene C. Freuder</i>	445
SPREAD: A Balancing Constraint Based on Statistics <i>Gilles Pesant, Jean-Charles Régin</i>	460
Automatic Detection of Variable and Value Symmetries <i>Jean-François Puget</i>	475
Breaking All Value Symmetries in Surjection Problems <i>Jean-François Puget</i>	490

AC-*: A Configurable, Generic and Adaptive Arc Consistency Algorithm <i>Jean-Charles Régin</i>	505
Maintaining Arc Consistency Algorithms During the Search Without Additional Space Cost <i>Jean-Charles Régin</i>	520
Weak Composition for Qualitative Spatial and Temporal Reasoning <i>Jochen Renz, Gérard Ligozat</i>	534
Boosting Distributed Constraint Satisfaction <i>Georg Ringwelski, Youssef Hamadi</i>	549
Depth-First Mini-Bucket Elimination <i>Emma Rollon, Javier Larrosa</i>	563
Using SAT in QBF <i>Horst Samulowitz, Fahiem Bacchus</i>	578
Tree Decomposition with Function Filtering <i>Martí Sánchez, Javier Larrosa, Pedro Mesequer</i>	593
On Solving Soft Temporal Constraints Using SAT Techniques <i>Hossein M. Sheini, Bart Peintner, Kareem A. Sakallah, Martha E. Pollack</i>	607
Eplex: Harnessing Mathematical Programming Solvers for Constraint Logic Programming <i>Kish Shen, Joachim Schimpf</i>	622
Caching Search States in Permutation Problems <i>Barbara M. Smith</i>	637
Repair-Based Methods for Quantified CSPs <i>Kostas Stergiou</i>	652
Handling Implication and Universal Quantification Constraints in FLUX <i>Michael Thielscher</i>	667
Solving Simple Planning Problems with More Inference and No Search <i>Vincent Vidal, Héctor Geffner</i>	682
Solving Large-Scale Nonlinear Programming Problems by Constraint Partitioning <i>Benjamin W. Wah, Yixin Chen</i>	697

Factor Analytic Studies of CSP Heuristics <i>Richard J. Wallace</i>	712
Short Papers	
Lookahead Saturation with Restriction for SAT <i>Anbulagan, John Slaney</i>	727
Evolving Variable-Ordering Heuristics for Constrained Optimisation <i>Stuart Bain, John Thornton, Abdul Sattar</i>	732
Multi-point Constructive Search <i>J. Christopher Beck</i>	737
Bounds of Graph Characteristics <i>Nicolas Beldiceanu, Thierry Petit, Guillaume Rochart</i>	742
Acquiring Parameters of Implied Global Constraints <i>Christian Bessiere, Rémi Coletta, Thierry Petit</i>	747
Integrating Benders Decomposition Within Constraint Programming <i>Hadrien Cambazard, Narendra Jussien</i>	752
Using Boolean Constraint Propagation for Sub-clauses Deduction <i>S. Darras, G. Dequen, L. Devendeville, B. Mazure, R. Ostrowski, L. Saiš</i>	757
Extending Systematic Local Search for Job Shop Scheduling Problems <i>Bistra Dilkina, Lei Duan, William S. Havens</i>	762
Interactive Reconfiguration in Power Supply Restoration <i>Tarik Hadzic, Henrik Reif Andersen</i>	767
Neighbourhood Clause Weight Redistribution in Local Search for SAT <i>Abdelraouf Ishtaiwi, John Thornton, Abdul Sattar, Duc Nghia Pham</i>	772
Computing and Exploiting Tree-Decompositions for Solving Constraint Networks <i>Philippe Jégou, Samba Ndojh Ndiaye, Cyril Terrioux</i>	777
Encoding Requests to Web Service Compositions as Constraints <i>Alexander Lazovik, Marco Aiello, Rosella Gennari</i>	782

Test Instance Generation for MAX 2SAT <i>Mistuo Motoki</i>	787
Consistency for Quantified Constraint Satisfaction Problems <i>Peter Nightingale</i>	792
Alternate Modeling in Sport Scheduling <i>Laurent Perron</i>	797
Approximations in Distributed Optimization <i>Adrian Petcu, Boi Faltings</i>	802
Extremal CSPs <i>Nicolas Prcovic</i>	807
Beyond Finite Domains: The All Different and Global Cardinality Constraints <i>Claude-Guy Quimper, Toby Walsh</i>	812
Views and Iterators for Generic Constraint Implementations <i>Christian Schulte, Guido Tack</i>	817
Approximated Consistency for the Automatic Recording Problem <i>Meinolf Sellmann</i>	822
Towards an Optimal CNF Encoding of Boolean Cardinality Constraints <i>Carsten Sinz</i>	827
Approximate Constrained Subgraph Matching <i>Stéphane Zampelli, Yves Deville, Pierre Dupont</i>	832
Doctoral Papers	
Distributed Constraints for Large-Scale Scheduling Problems <i>Montserrat Abril, Miguel A. Salido, Federico Barber</i>	837
Solving Over-Constrained Problems with SAT <i>Josep Argelich, Felip Manyà</i>	838
A Constraint Based Agent for TAC-SCM <i>David A. Burke, Kenneth N. Brown</i>	839
Solving the Car-Sequencing Problem as a Non-binary CSP <i>Mihaela Butaru, Zineb Habbas</i>	840

Dimensioning an Inbound Call Center Using Constraint Programming <i>Cyril Canon, Jean-Charles Billaut, Jean-Louis Bouquard</i>	841
Methods to Learn Abstract Scheduling Models <i>Tom Carchrae, J. Christopher Beck, Eugene C. Freuder</i>	842
Automated Search for Heuristic Functions <i>Pavel Cejnar, Roman Barták</i>	843
Constraint-Based Inference: A Bridge Between Constraint Processing and Probability Inference <i>Le Chang, Alan K. Mackworth</i>	844
Scheduling Social Tournaments <i>Iván Dotú, Álvaro del Val, Pascal Van Hentenryck</i>	845
Domain Reduction for the Circuit Constraint <i>Latife Genc Kaya, John Hooker</i>	846
Using Constraint Programming for Solving Distance CSP with Uncertainty <i>Carlos Grandon, Bertrand Neveu</i>	847
Improved Algorithm for Finding (a,b)-Super Solutions <i>Emmanuel Hebrard, Toby Walsh</i>	848
Local Consistency in Weighted CSPs and Inference in Max-SAT <i>Federico Heras, Javier Larrosa</i>	849
Modeling Constraint Programs with Software Technology Standards <i>Matthias Hoche, Stefan Jähnichen</i>	850
Solution Equivalent Subquadrangle Reformulations of Constraint Satisfaction Problems <i>Chris Houghton, David Cohen</i>	851
Mechanism Design for Preference Aggregation over Coalitions <i>Eric Hsu, Sheila McIlraith</i>	852
LP as a Global Search Heuristic Across Different Constrainedness Regions <i>Lucian Leahu, Carla Gomes</i>	853
Consistency for Partially Defined Constraints <i>Andrei Legtchenko, Arnaud Lallouet</i>	854

Subnet Generation Problem: A New Network Routing Problem <i>Cheuk Fun Bede Leung, Barry Richards, Olli Kamarainen</i>	855
Partial Redundant Modeling <i>Tiziana Ligorio, Susan L. Epstein</i>	856
AND/OR Branch-and-Bound for Solving Mixed Integer Linear Programming Problems <i>Radu Marinescu, Rina Dechter</i>	857
Weak Symmetries in Problem Formulations <i>Roland Martin, Karsten Weihe</i>	858
Towards the Systematic Generation of Channelling Constraints <i>B. Martínez-Hernández, A.M. Frisch</i>	859
AND/OR Search Spaces and the Semantic Width of Constraint Networks <i>Robert Mateescu, Rina Dechter</i>	860
Statistical Modelling of CSP Solving Algorithms Performance <i>Carles Mateu, Ramon Béjar, Cèsar Fernández</i>	861
Probabilistic Arc Consistency <i>Deepak Mehta, M.R.C. van Dongen</i>	862
GOOSE – A Generic Object-Oriented Search Environment <i>Henry Müller, Stefan Jähnichen</i>	863
Randomization for Multi-agent Constraint Optimization <i>Quang Huy Nguyen, Boi V. Faltings</i>	864
Uncertainty in Soft Constraint Problems <i>Maria Silvia Pini, Francesca Rossi</i>	865
Speeding Up Constrained Path Solvers with a Reachability Propagator <i>Luis Quesada, Peter Van Roy, Yves Deville</i>	866
From Linear Relaxations to Global Constraint Propagation <i>Claude-Guy Quimper, Alejandro López-Ortiz</i>	867
Encoding HTN Planning as a Dynamic CSP <i>Pavel Surynek, Roman Barták</i>	868

Specialised Constraints for Stable Matching Problems <i>Chris Unsworth, Patrick Prosser</i>	869
Bounds-Consistent Local Search <i>Stefania Verachi, Steven Prestwich</i>	870
Robust Constraint Solving Using Multiple Heuristics <i>Alfio Vidotto, Kenneth N. Brown, J. Christopher Beck</i>	871
Scheduling with Uncertain Start Dates <i>Christine Wei Wu, Kenneth N. Brown, J. Christopher Beck</i>	872
The Role of Redundant Clauses in Solving Satisfiability Problems <i>Honglei Zeng, Sheila McIlraith</i>	873
Applying Decomposition Methods to Crossword Puzzle Problems <i>Yaling Zheng, Berthe Y. Choueiry</i>	874
Asymmetric Distributed Constraints Satisfaction Problems <i>Roie Zivan, Amnon Meisels</i>	875
Full Arc Consistency in WCSP and in Constraint Hierarchies with Finite Domains <i>Josef Zlomek, Roman Barták</i>	876
System Demonstrations	
CoJava: A Unified Language for Simulation and Optimization <i>Alexander Brodsky, Hadon Nash</i>	877
Programming with $TOY(FD)$ <i>Antonio J. Fernández, Teresa Hortalá-González, Fernando Sáenz-Pérez</i>	878
Computing <i>Super</i> -Schedules <i>Emmanuel Hebrard, Paul Tyler, Toby Walsh</i>	879
Proterv-II: An Integrated Production Planning and Scheduling System <i>András Kovács, Péter Egri, Tamás Kis, József Váncza</i>	880
The Comet Programming Language and System <i>Laurent Michel, Pascal Van Hentenryck</i>	881
Random Stimuli Generation for Functional Hardware Verification as a CP Application <i>Yehuda Naveh, Roy Emek</i>	882

A BDD-Based Interactive Configurator for Modular Systems <i>Erik R. van der Meer</i>	883
Author Index	885