

14th International Conference on Integration of
Artificial Intelligence and Operations Research Techniques in Constraint
Programming
CPAIOR 2017

University of Padova

June 5-8, 2017

We are happy to be welcome you to CPAIOR 2017, hosted by the Department of Information Engineering of the University of Padova. We look forward to a dynamic and successful conference and hope that you enjoy your time in Padova.

Michele Lombardi and Domenico Salvagnin
Conference chairs

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Program for Master Class

Computational Techniques for Combinatorial Optimization

MASTER CLASS - Monday, June 5

8:15-8:45	Registration
8:45-9:00	Opening Remarks
9:00-10:30	Solving Mixed Integer Programs in Practice <i>Tobias Achterberg</i>
10:30-11:00	<i>Break</i>
11:00-12:30	MiniCP: A Minimalistic Educational Solver <i>Pierre Schaus, Pascal Van Hentenryck, Laurent Michel</i>
12:30-14:00	<i>Lunch</i>
14:00-15:30	Modeling, Constraint Solving and Model Manipulation <i>Pierre Schaus, Pascal Van Hentenryck, Laurent Michel</i>
15:30-16:00	<i>Break</i>
16:00-17:30	Searching in Style and coping with Hybrids <i>Pierre Schaus, Pascal Van Hentenryck, Laurent Michel</i>

Program for CPAIOR 2017

TECHNICAL PROGRAM - Tuesday, June 6

8:15-8:45	Registration
8:45-9:00	Opening Remarks

9:00-10:40	CP Modeling Sharpening Constraint Programming approaches for Bit-Vector Theory <i>Z. Chihani, B. Marre, F. Bobot, S. Bardin</i> Range-Consistent Forbidden Regions of Allen's Relations <i>N. Beldiceanu, M. Carlsson, A. Derrien, C. Prud'Homme, A. Schutt, P.J. Stuckey</i> MDDs are Efficient Modeling Tools: An Application to Dispersion Constraints <i>G. Perez, J.-C. Régin</i> On Finding the Optimal Relaxed Decision Diagram <i>D. Bergman, A.A. Cire</i>
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10:40-11:00	<i>Break</i>
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11:00-12:40	CP Tools Design and Implementation of Bounded-Length Sequence Variables <i>J.D. Scott, P. Flener, J. Pearson, C. Schulte</i> Auto-Tabling for Subproblem Presolving in MiniZinc <i>J.J. Dekker, G. Björddal, M. Carlsson, P. Flener, J.-N. Monette</i> In Search of Balance: The Challenge of Generating Balanced Latin Rectangles <i>M. Diaz, R. Le Bras, C. Gomes</i> Debugging Unsatisfiable Constraint Models <i>K. Leo, G. Tack</i>
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12:40-14:00	<i>Lunch</i>
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14:00-15:00	Invited Talk On the role of (machine) learning in (mathematical) optimization <i>Andrea Lodi</i>
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15:00-16:15	Data Mining Learning decision trees with flexible constraints and objectives using integer optimization <i>S. Verwer, Y. Zhang</i> Mining Time-constrained Sequential Patterns with Constraint Programming <i>J.O.R. Aoga, T. Guns, P. Schaus</i> Relaxation Methods for Constrained Matrix Factorization Problems: Solving the Phase Mapping Problem in Materials Discovery <i>J. Bai, J. Bjorck, Y. Xue, S.K. Suram, J. Gregoire, C. Gomes</i>
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16:15-16:45	<i>Break</i>
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16:45-18:00	Applications Minimizing Landscape Resistance for Habitat Conservation <i>D. De Uña, G. Gange, P. Schachte, P.J. Stuckey</i> A Hybrid approach for Stator Winding design optimization <i>A. Zanarini, J. Poland</i> A Distributed Optimal Method for the Geographically Distributed Data Centres Problem <i>M. Wahbi, D. Grimes, D. Mehta, K.N. Brown, B. O'Sullivan</i>
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9:00-10:40	<p>Global constraints & Search Explanation-Based Weighted Degree <i>E. Hebrard, M. Siala</i> Counting Weighted Spanning Trees to Solve Constrained Minimum Spanning Tree Problems <i>A. Delaite, G. Pesant</i> Efficient Filtering for the Energy-Cost AllDifferent Constraint <i>S. Van Cauwelaert, P. Schaus</i> The Weighted Arborescence Constraint <i>V.R. Houndji, P. Schaus, M.N. Hounkonnou, L. Wolsey</i></p>
10:40-11:00	<i>Break</i>
11:00-12:40	<p>MIP Learning when to use a decomposition <i>M. Kruber, M.E. Lübbecke, A. Parmentier</i> Experiments with Conflict Analysis in Mixed Integer Programming <i>J. Witzig, T. Berthold, S. Heinz</i> A first look at picking dual variables for maximizing reduced-cost based fixing <i>O.S. Bajgiran, A.A. Cire, L.-M. Rousseau</i> Experimental validation of volume-based comparison for double-McCormick relaxations <i>E. Speakman, H. Yu, J. Lee</i></p>
12:40-14:00	<i>Lunch</i>
14:00-15:00	<p>Invited Talk Relational Quadratic Programming: Exploiting Symmetries for Modelling and Solving Quadratic Programs <i>Kristian Kersting</i></p>
15:00-16:15	<p>Network Problems Vehicle Routing Problem with Min-max Objective and Heterogeneous Fleet <i>M. Yu, V. Nagarajan, S. Shen</i> Solving the Traveling Salesman Problem with Time Windows with Dynamic Discretization Discovery <i>N. Boland, M. Hewitt, M. Savelsbergh, D.M. Vu</i> A fast Prize-collecting Steiner Forest algorithm for Functional Analyses in Biological Networks <i>M. Akhmedov, A. Lenail, F. Bertoni, I. Kwee, E. Fraenkel, R. Montemanni</i></p>
16:15-16:45	<i>Break</i>
16:45-18:00	<p>Stochastic Optimization Scenario based Learning for Stochastic Combinatorial Optimisation <i>D. Hemmi, G. Tack, M. Wallace</i> Optimal Stock Sizing in a Cutting Stock Problem with Stochastic Demands <i>A. Zanarini</i> Stochastic task networks: Trading performance for stability <i>K.S. Mountakis, T. Klos, C. Witteveen</i></p>
19:00-19:45	Visit at the Orto Botanico of Padova
19:45-23:00	Social Dinner at the Orto Botanico of Padova

9:00-10:40	Scheduling Rescheduling Railway Traffic on Real Time Situations using Time-Interval Variables <i>Q. Cappart, P. Schaus</i> Dynamic Temporal Decoupling <i>C. Witteveen, S. Mountakis, T. Klos</i> A Multi-stage Simulated Annealing Algorithm for the Torpedo Scheduling Problem <i>L. Kletzander, N. Musliu</i> Cumulative scheduling with variable task profiles and concave piecewise linear processing rate functions <i>M. Nattaf, C. Artigues, P. Lopez</i>
10:40-11:00	<i>Break</i>
11:00-12:40	CSP Variants & Tree Decompositions The Nemhauser-Trotter Reduction and Lifted Message Passing for Weighted CSPs <i>H. Xu, T.K. Satish Kumar, S. Koenig</i> Combining CP and ILP in a tree decomposition of bounded height to solve the sum colouring problem <i>M. Minot, S.N. Ndiaye, C. Solnon</i> htd - A Free, Open-Source Framework for (Customized) Tree Decompositions and Beyond <i>M. Abseher, N. Musliu, S. Woltran</i> A Local Search Approach for Incomplete Soft Constraint Problems: Experimental Results on Meeting Scheduling Problems <i>M. Gelain, M.S. Pini, F. Rossi, K.B. Venable, T. Walsh</i>
