

CPAIOR

The 5th International Conference on Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems

May 20-23, 2008 – Paris, France

Insitut Henri Poincare – 11 rue Pierre et Marie Curie – 75 005 Paris

SCHEDULE

Tuesday May 20, 2008 - Master Class – Amphitheater Hermite

Time	Session	Speaker
8:15-9:15	Registration / Welcome coffee	
9:15-9:30	Opening remarks	
9:30-10:40	Integrated IP and CP in Sports Scheduling	Mike Trick
10:40-11:10	Coffee break	
11:10-12:20	Anticipatory Algorithms for Decision Making under Exogenous Uncertainty	Pascal Van Hentenryck
12:20-01:50	Lunch	
01:50-03:00	Can formal languages be useful in OR ? The case of the shift scheduling problem.	Louis-Martin Rousseau
03:00-04:10	Building Hybrid Algorithms by Problem Decomposition	Claude LePape
04:10-04:40	Coffee break	
04:40-05:50	Challenges encountered using constraint programming for scheduling	Andrew J. Davenport
05:50-06:00	Wrapping up	

Wednesday May 21, 2008 – Conference – Amphitheater Hermite

Time	Session	Speaker
8:15-8:40	Registration / Welcome coffee	
8:40-8:45	Welcomes	François Fages, Laurent Perron, Michael Trick
	Invited Presentation	Chair: Michael Trick, Carnegie Mellon
08:45-9:45	Airline Scheduling: Accomplishments, Opportunities and Challenges	Cynthia Barnhart

09:45-10:15	Coffee break	
Session A	Decomposition and Distributed Approaches	Chair: Laurent Perron, ILOG
10:15-10:40	Multi-stage Benders Decomposition for Optimizing Multicore Architectures	Luca Benini, Michele Lombardi, Marco Mantovani, Michela Milano and Martino Ruggiero
10:40-11:05	From High Level Model to Branch and Price Solution in G12	Jakob Puchinger, Peter J. Stuckey, Mark Wallace and Sebastian Brand
11:05-11:30	Optimal Deployment of Eventually-Serializable Data Services	Laurent Michel, Elaine Sonderegger, Pascal Van Hentenryck and Alexander Shvarstman
11:30-11:45	A Parallel Macro Partitioning Framework for Solving Mixed Integer Programs	Mahdi Namazifar and Andrew Miller
11:45-12:00	Constraint Optimization and Abstraction for Embedded Intelligent Systems	Paul Maier and Martin Sachenbacher
12:00-12:15	A combinatorial auction framework for solving decentralized scheduling problems	Hoong Chuin Lau, Kong-wei Lye and Viet Bang Nguyen
12:15-01:45	Lunch	
Session B	Integrating CP/IP/Local Search	Chair: Barbara Smith, Leeds University
01:45-02:10	Constraint Integer Programming: a New Approach to Integrate CP and MIP	Tobias Achterberg, Timo Berthold, Thorsten Koch and Kati Wolter
02:10-02:35	Cost Propagation -- Numerical Propagation for Optimization Problems	Birgit Grohe and Dag Wedelin
02:35-03:00	Fast and Scalable Domino Portrait Generation	Hadrien Cambazard, John Horan, Eoin O'Mahony and Barry O'Sullivan
03:00-03:15	Using Local Search to Speed Up Filtering Algorithms for Some NP-Hard Constraints	Philippe Galinier, Alain Hertz, Sandrine Paroz and Gilles Pesant
03:15-03:30	CP with ACO	Madjid Khichane, Patrick Albert and Christine Solnon
03:30-03:45	The Polytope of Tree-Structured Binary Constraint Satisfaction Problems	Meinolf Sellmann
03:45-04:15	Coffee break	
Session C	Counting, Symmetry, and Sets	Chair: Yves Deville, UCLouvain
04:15-04:40	Counting Solutions of Knapsack Constraints	Gilles Pesant and Claude-Guy Quimper
04:40-05:05	Integrating Symmetry, Dominance, and Bound-and-Bound in a Multiple Knapsack Solver	Alex Fukunaga
05:05-05:30	A Novel Approach For Detecting Symmetries In CSP Models	Christopher Mears, Maria Garcia de la Banda, Mark Wallace and Bart

		Demoen
05:30-05:45	Counting solutions of integer programs using unrestricted subtree detection	Tobias Achterberg, Stefan Heinz and Thorsten Koch
05:45-06:00	The Steel Mill Slab Design Problem Revisited	Pascal Van Hentenryck and Laurent Michel
06:00-06:15	Filtering Atmost1 on Pairs of Set Variables	Willem-Jan van Hoeve and Ashish Sabharwal
8:00-10:30	Social dinner cruise	

Thursday May 22, 2008 – Conference – Amphitheater Hermite

Time	Session	Speaker
8:15-8:45	Registration / Welcome coffee	
	Invited Presentation	Chair: François Fages, INRIA
08:45-09:45	30 Years of Constraint Programming	Pascal van Hentenryck
09:45-10:15	Coffee break	
Session D	Constraint Programming	Chair: Claude Le Pape, Schneider Electric
10:15-10:40	New Filtering for the Cumulative Constraint in the Context of Non-Overlapping Rectangles	Nicolas Beldiceanu, Mats Carlsson and Emmanuel Poder
10:40-11:05	Stochastic Satisfiability modulo Theories for Non-linear Arithmetic	Tino Teige and Martin Fränze
11:05-11:30	Simpler and incremental consistency checking and arc consistency filtering algorithms for the weighted spanning tree constraint	Jean-Charles Regin
11:30-11:45	The Weighted CFG Constraint	George Katsirelos, Nina Narodytska and Toby Walsh
11:45-12:00	Propagating separable equalities in an MDD store	Tarik Hadzic, John Hooker and Peter Tiedemann
12:00-12:15	Global Propagation of Practicability Constraints	Thierry Petit and Emmanuel Poder
12:15-01:30	Lunch	
1:30-3:30	Workshops	
3:30-4:00	Coffee break	
4:15-6:00	Workshops	

Thursday May 22, 2008 – Workshops

Open-Source Software for Integer and Constraint Programming (OSSIP) – Amphitheater Hermite

Time	Session	Speaker
01:30-02:00	Open Source Landscape	Robin Lougee-Heimer
02:00-02:30	The CHOCO constraint programming solver	Narendra Jussien
02:30-03:00	The ECLiPSe Optimization Platform	Joachim Schimpf
03:00-03:30	EasyLocal tools: a family of Software Frameworks for the development and the analysis of Local Search algorithms	Luca Di Gaspero
03:30-04:00	Coffee break	
04:00-04:30	Gecode - an Open Constraint Solving Library	Guido Tack
04:30-05:00	COIN-OR Branch and Cut Solver, CBC	John Forrest
05:00-06:00	Panel Discussion on Integrating IP and CP Solvers	All presenters plus Laurent Michel (moderator), John Hooker , Thorsten Koch , Pascal van Hentenryck

Bin Packing and Placement Constraints (BPPC) – ENSCP Amphitheater Chaudron

Time	Session	Speaker
01:30-02:30	Invited talk - Exact methods for rectangle placement problems	François Clautiaux
02:30-03:00	Using Global Constraints for Rectangle Packing	Helmut Simonis and Barry O'Sullivan
03:00-03:30	Modeling Irregular Shape Placement Problems with Regular Constraints	Mikael Z. Lagerkvist and Gilles Pesant
03:30-04:00	Coffee Break	
04:00-04:30	Two-dimensional Pickup and Delivery Routing Problem with Loading Constraints	Arnaud Malapert, Christelle Gueret, Narendra Jussien, Andre Langevin and Louis-Martin Rousseau
04:30-05:00	An Efficient Method for Strip Packing Based on Local Search and a Randomized Best-Fit	Bertrand Neveu and Gilles Trombetti
05:00-05:30	Generating Stable Loading Patterns for Pallet Loading Problems	Waldemar Kocjan and Kenneth Holmström
05:30-06:00	Repairing Bin Packing Constraints	Alex Fukunaga

Constraint-Based Methods for Bioinformatics (WCB) – Room 314

Time	Session	Speaker
01:30-01:50	Introduction: Perspectives of the area	Rolf Backofen
	Session: Biological Networks	
01:50-02:15	Detecting inconsistencies in large influence networks with Answer Set Programming	Philippe Veber, Sven Thiele, Martin Gebser, B. Usadel, and T. Schaub
02:15-02:40	Combinatorial Optimisation to Design Gene Regulatory Networks	Guillermo Rodrigo, Javier Carrera, and Alfonso Jaramillo
02:40-03:05	Investigating Gene Regulatory Networks Qualitative Properties using Constraints Programming	Damien Eveillard, Jonathan Fromentin, and Olivier Roux
03:05-03:30	Finding minimal P/T-invariants as a CSP	Sylvain Soliman
03:30-04:00	Coffee Break	
	Session: Combinatorial Problems	
03:55-04:20	A constraint-based approach to the phase problem in X-ray crystallography	Corinna Brinkmann and Alexander Bockmayr
04:20-04:45	A Pseudo-Boolean Solution to the Maximum Quartet	Antonio Morgado and Joao Marques-Silva
04:45-05:10	Generic ILP vs Specialized 0-1 ILP for Haplotype Inference	Ana Graca, Joao Marques-Silva, Ines Lynce, and Arlindo L. Oliveira
05:10-05:35	Stochastic local search for large-scale instances of the Haplotype Inference Problem by Parsimony	Luca Di Gaspero and Andrea Roli
05:35-06:00	A hybrid approach mixing local search and constraint programming applied to the protein structure prediction problem	Raffaele Cipriano, Alessandro Dal Palu', and Agostino Dovier

Friday May 23, 2008 – Conference – Amphitheater Hermite

Time	Session	Speaker
8:15-8:45	Registration / Welcome coffee	
	Invited Presentation	Chair: Laurent Perron, ILOG
08:45-09:45	Selected Challenges from Distribution and Commerce in the Airline and Travel Industry	François Laburthe
09:45-10:15	Coffee break	
Session A	Scheduling and Networks	Chair: Andrew Davenport, IBM
10:15-10:40	A Hybrid Constraint Programming / Local Search Approach to the Job-Shop Scheduling Problem	Jean-Paul Watson and Chris Beck
10:40-11:05	Gap Reduction Techniques for Online Stochastic Project Scheduling	Grégoire Dooks and Pascal Van Hentenryck
11:05-11:30	Amsaa: A Multistep Anticipatory Algorithm for Online Stochastic Combinatorial Optimization	Luc Mercier and Pascal Van Hentenryck
11:30-11:45	Connections in Networks: A Hybrid Approach	Carla Gomes, Willem-Jan van Hoeve and Ashish Sabharwal
11:45-12:00	Mobility Allowance Shuttle Transit (MAST) Services: MIP formulation and strengthening with logic constraints	Luca Quadrioglio, Maged Dessouky and Fernando Ordonez
12:00-12:15	Rapidly Solving an Online Sequence of Maximum Flow Problems	Doug Altner and Ozlem Ergun
12:15-01:30	Lunch	
Session B	Search	Chair: Laurent Michel, University of Connecticut
01:45-02:10	Leveraging Belief Propagation, Backtrack Search, and Statistics for Model Counting	Lukas Kroc, Ashish Sabharwal and Bart Selman
02:10-02:35	The Accuracy of Search Heuristics: An Empirical Study on Knapsack Problems	Daniel Hogson Leventhal and Meinolf Sellmann
02:35-03:00	Fitness-Distance Correlation and Solution-Guided Multi-Point Constructive Search for CSPs	Ivan Heckman and Chris Beck
03:00-03:15	Hybrid Variants for Iterative Flattening Search	Angelo Oddi, Amedeo Cesta, Nicola Policella and Stephen Smith
03:15-03:30	Guiding stochastic search by dynamic learning of the problem topography	Yehuda Naveh
03:30-03:45	A tabu search method for interval constraints	Charlotte Truchet, Marc Christie and Jean-Marie Normand
03:45-04:15	Coffee break	

Session G	Chair: Helmut Simonis, University College Cork	Applications
04:15-04:30	Efficient Haplotype Inference with Combined CP and OR Techniques	Ana Graça, Joao Marques-Silva, Ines Lynce and Arlindo Oliveira
04:30-04:45	A Hybrid Approach for Solving Shift-Selection and Task-Sequencing Problems	Amy Cohn, Ada Barlatt and Oleg Gusikhin
04:45-05:00	Integration of CP and Compilation Techniques for Instruction Sequence Test Generation	Boris Gutkovich
05:00-05:15	Solving a Log-Truck Scheduling Problem with Constraint Programming	Nizar El Hachemi, Michel Gendreau and Louis-Martin Rousseau
05:15-05:30	CPAIOR09 and Farewells	
05:30	End of conference	

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CP-AI-OR 2008

Paris
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2008

Fifth International Conference on Integration
of AI and OR Techniques in
Constraint Programming for
Combinatorial Optimization Problems

Registration deadline:

May 10, 2008

<http://contraintes.inria.fr/CPAIORo8>

Workshops:

- Open-Source Software for Integer and Constraint Programming, OSSICP
- Bin Packing and Placement Constraints, BPPC
- Constraint-Based Methods for Bioinformatics, WCB

Conference Chairs

François Fages (INRIA) and Laurent Perron (ILOG)

Program Chairs

Laurent Perron (ILOG) and Michael Trick (Carnegie Mellon)

Master Class Chairs

Cynthia Barnhart (MIT) and Laurent Michel (UConn)

Plenary Talks

Cynthia Barnhart (MIT), François Laburthe (Amadeus) and Pascal Van Hentenryck (Brown University)

