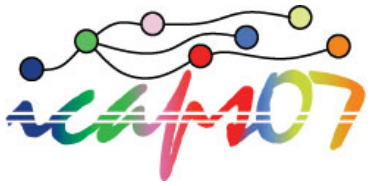


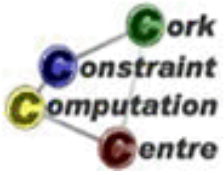
CP 2007 & ICAPS 2007

Conference Program

September 22 – 27, 2007

Providence, RI, U.S.A.

Brown
University



David E. Smith

ICAPS 2007 Satellite Events and CP 2007 Workshops – September 22 & 23

	Saturday 22		*Sunday 23*	
Room	***AM***	***PM***	***AM***	***PM***
BH141	8:25 – 12:30 ICKEPS	Tutorial: Fuzzy Temporal Reasoning	Tutorial: Conformant Planning	Tutorial: Advances in Combinatorial Optimisation
BH155	8:30 – 17:30 Planning and Plan Execution for Real-World Systems			
BH158	8:55 – 17:45 AI Planning and Learning		9:00 – 17:30 Planning in Games	
BH159	9:00 – 17:30 Scheduling a Scheduling Competition		9:00 – 17:40 International Planning Competition	
BH166	8:30 – 17:30 Doctoral Consortium		9:00 – 17:30 Moving P&S Systems into the Real World	
BH168	8:45 – 17:15 Heuristics for Domain-independent Planning		Tutorial: Probabilistic Temporal Planning	Tutorial: Learning Techniques in Planning
MAC115			9:00 – 17:00 Constraint Satisfaction Techniques for Planning and Scheduling	
CIT165			11:00 – 17:30 Autonomous Search	
CIT219			9:00 – 17:30 Distributed Constraint Reasoning	
CIT227			8:50 – 17:30 Symmetry and CSP	
CIT368			8:50 – 12:00 Constraint Modelling and Reformulation	14:00 – 17:30 Local Search in Constraint Satisfaction

ICAPS

CP

ICAPS Workshops

W1. AI Planning and Learning	BH 158
W2. Heuristics for Domain-independent Planning	BH 168
W3. Planning and Plan Execution for Real-World Systems	BH 155
W4. Scheduling a Scheduling Competition	BH 159
W5. Constraint Satisfaction Techniques for P&S	MAC 115
W6. International Planning Competition	BH 159
W7. Moving P&S Systems into the Real World	BH 166
W8. Planning in Games	BH 158

CP Workshops

CP1. Autonomous Search	CIT 165
CP2. Constraint Modelling and Reformulation	CIT 368
CP4. Distributed Constraint Reasoning	CIT 219
CP5. Local Search in Constraint Satisfaction	CIT 368
CP7. Constraint Satisfaction Techniques for P&S	MAC 115
CP8. Symmetry and CSP	CIT 227

Tutorials [AM 9:00-12:30, PM 14:00-17:30]

T1. Conformant Planning	BH 141
T2. Advances in Combinatorial Optimisation	BH 141
T3. Probabilistic Temporal Planning	BH 168
T4. Learning Techniques in Planning	BH 168
T5. Fuzzy Temporal Reasoning	BH 141

Lunch Break Time **12:30-14:00**

Coffee Breaks **AM 10:30-11:00, PM 15:30-16:00 in the Lobby of Barus and Holley**

Reception **Sunday, September 23, 18:15 – 20:30 in Sayles Hall, Brown University**

Monday, September 24, AM

8:50-9:00

CP: Welcome Ballroom D

ICAPS: Welcome Room 552

9:00-10:00

CP: Invited Talk Ballroom D, Chair Peter van Beek

Caching in Backtracking Search.
Fahiem Bacchus.

ICAPS: Invited Talk Room 552, Chair Brian Williams

Integrated Model-based Planning and Control for Highly Reconfigurable Systems.
Markus Fromherz.

10:00-10:30 **Coffee Break**

10:30-12:15

CP: Application-driven Research Ballroom D, Chair Pascal Van Hentenryck

An Efficient Model and Strategy for the Steel Mill Slab Design Problem.
Antoine Gargani, Philippe Refalo.

Solving an Air Conditioning System Problem in an Embodiment Design Context using Constraint Satisfaction Techniques.
Raphaël Chenouard, Patrick Sébastian, Laurent Granvilliers.

Exploring different constraint-based modellings for program verification.
Hélène Collavizza, Michel Rueher.

Reformulating CSPs for Scalability with Application to Geospatial Reasoning.
Kenneth M. Bayer, Martin Michalowski, Berthe Y. Choueiry, Craig A. Knoblock.

CP: Search & Symmetry Room 553, Chair Meinolf Sellmann

On Universal Restart Strategies for Backtracking Search.
Huayue Wu, Peter van Beek.

Exploiting Past and Future: Pruning by Inconsistent Partial State Dominance.
Christophe Lecoutre, Lakhdar Sais, Sébastien Tabary, Vincent Vidal.

Local Symmetry Breaking During Search in CSPs.
Belaïd Benhamou, Mohamed Réda Saïdi.

Breaking Symmetry of Interchangeable Variables and Values.
Y.C. Law, J.H.M. Lee, Toby Walsh, J.Y.K. Yip.

CP Doctoral Programme: Session 1 Room 551A, Chair Kostas Stergiou

Tree Decomposition to Solve Constraint Satisfaction Problems in Parallel.
Simon Boivin.

Defining Filtering Algorithms for Restricted Tree Problems using Balanced Trees.
Jérome Brongniart.

Using Relaxations to Improve Search in Distributed Constraint Optimisation.
David Burke.

Solving a Log-truck Scheduling Problem with Constraint Programming.
Nizar El Hachemi.

A Simple Application of Sampling Importance Re-sampling (SIR) for Solution Sampling.
Vibhav Gogate.

Rule 3-Minimal Ordering Constraints for some Families of Variable Symmetries.
Andrew Grayland.

ICAPS: Uncertainty I Ballroom E, Chair Eric Hansen

Using Adaptive Priority Weighting to Direct Search in Probabilistic Scheduling.
Andrew Sutton, Adele Howe, Darrell Whitley.

A Fast Incremental Algorithm for Maintaining Dispatchability of Partially Controllable Plans.
Julie Shah, John Stedl, Brian Williams, Paul Robertson.

Concurrent Probabilistic Temporal Planning with Policy-Gradients.
Douglas Aberdeen, Olivier Buffet.

spotlight Robust Local Search and Its Application to Generating Robust Schedules.
Hoong Chuin Lau, Thomas Ou, Fei Xiao.

spotlight Generating Exponentially Smaller POMDP Models Using Conditionally Irrelevant Variable Abstraction.
Trey Smith, David R. Thompson, David S. Wettergreen.

spotlight Mixed Integer Linear Programming for Exact Finite-horizon Planning in Decentralized POMDPs.
Raghav Aras, Alain Dutech, François Charpillet.

commentary by Eric Hansen.

ICAPS: Time & Resources Room 552, Chair Patrik Haslum

Online Planning for Resource Production in Real-Time Strategy Games.
Hei Chan, Alan Fern, Soumya Ray, Nick Wilson, Chris Ventura.

Evaluating Temporal Planning Domains.
William Cushing, Daniel Weld, Subbarao Kambhampati, Mausam, Kartik Talamadupula.

Complexity of Concurrent Temporal Planning.
Jussi Rintanen.

spotlight Managing Personal Tasks with Time Constraints and Preferences.
Ioannis Refanidis.

spotlight Bounding the Resource Availability of Activities with Linear Resource Impact.
Jeremy Frank, Paul Morris.

spotlight Planning with Respect to an Existing Schedule of Events.
Andrew Coles, Maria Fox, Derek Long, Amanda Smith.

commentary by Patrik Haslum.

12:15-14:00 **Lunch Break**

Monday, September 24, PM

14:00-15:40

CP: Systems & Modelling Ballroom D, Chair Pierre Flener

MiniZinc: Towards A Standard CP Modelling Language.
Nicholas Nethercote, Peter J. Stuckey, Ralph Becket, Sebastian Brand, Gregory J. Duck, Guido Tack.

Advisors for Incremental Propagation.
Mikael Z. Lagerkvist, Christian Schulte.

An Abstract Interpretation-based Combinator for Modelling While Loops in Constraint Programming.
Tristan Denmat, Arnaud Gotlieb, Mireille Ducassé.

Parallelizing Constraint Programs Transparently.
Laurent Michel, Andrew See, Pascal Van Hentenryck.

CP: Hybrid and Structural Approaches Room 553, Chair Roland Yap

AND/OR Multi-Valued Decision Diagrams for Constraint Optimisation.
Robert Mateescu, Radu Marinescu, Rina Dechter.

A Constraint Store-based on Multivalued Decision Diagrams Techniques.
H. R. Andersen, T. Hadzic, J. N. Hooker, P. Tiedemann.

Valid Inequality-based Lower Bounds for WCSP.
Mohand Ou Idir Khemmoudj, Hachemi Bennaceur.

Dynamic Management of Heuristics for Solving Structured CSPs.
Philippe Jégou, Samba Ndojh Ndiaye, Cyril Terrioux.

CP Doctoral Programme: Session 2 Room 551A, Chair Chris Beck

Interactive Configuration with Regular String Constraints.
Esben Hansen.

A Branching Approach to the Interval-based Evaluation of Ask Constraints in Hybrid CCP.
Daisuke Ishii.

Heuristics Guided by the Quality of Solutions in Weighted CSP.
Nicolas Levasseur.

Investigation of the Use of Hybrid Approach for Scheduling of Tests on Vehicle Protoypes.
Kamol Limtanyakul.

From Business Rules to Constraint Programs in Warehouse Management Systems.
Julien Martin.

A Decomposition-based Softening of AllDifferent in WCSPs.
Jean-Philippe Metivier.

ICAPS: Uncertainty II Ballroom E, Chair Dan Weld

External Memory Value Iteration.
Stefan Edelkamp, Shahid Jabbar, Blai Bonet.

FF-Replan: A Baseline for Probabilistic Planning.
Sungwook Yoon, Alan Fern, Bob Givan.

From Conformant into Classical Planning: Efficient Translations That May be Complete Too.
Héctor Palacios, Héctor Geffner.

spotlight Prioritizing Bellman Backups Without a Priority Queue.
Peng Dai, Eric Hansen.

spotlight FF+FPG: Guiding a Policy-Gradient Planner.
Olivier Buffet, Douglas Aberdeen.

spotlight Approximate Solution Techniques for Factored First-order MDPs.
Scott Sanner, Craig Boutilier.

commentary by Dan Weld.

ICAPS: Abstraction & Structure Room 552, Chair Craig Knoblock

Flexible Abstraction Heuristics for Optimal Sequential Planning.
Malte Helmert, Patrik Haslum, Jörg Hoffmann.

Act Local, Think Global: Width Notions for Tractable Planning.
Hubie Chen, Omer Gimenez.

Angelic Semantics for High-Level Actions.
Bhaskara Marthi, Stuart Russell, Jason Wolfe.

spotlight Online Identification of Useful Macro-Actions for Planning.
Andrew Coles, Maria Fox, Amanda Smith.

spotlight On the Hardness of Planning Problems With Simple Causal Graphs.
Omer Gimenez, Anders Jonsson.

spotlight Structural Patterns of Tractable Sequentially-Optimal Planning.
Michael Katz, Carmel Domshlak.

commentary by Craig Knoblock.

15:40-16:10 **Coffee Break**

16:10-17:00

CP: Local Search/Visualisation Ballroom D, Chair Bertrand Neveu

Model-Driven Visualisations of Constraint-based Local Search.
Grégoire Dooms, Pascal Van Hentenryck, Laurent Michel.

An Integrated White+Black Box Approach for Designing and Tuning Stochastic Local Search.
Steven Halim, Roland H.C. Yap, Hoong Chuin Lau.

CP: Space & Time Room 553, Chair Francesca Rossi

A Generic Geometrical Constraint Kernel in Space and Time for Handling Polymorphic k-Dimensional Objects.
N. Beldiceanu, M. Carlsson, E. Poder, R. Sadek, C. Truchet.

Efficient Computation of Minimal Point Algebra Constraints by Metagraph Closure.
Alfonso Gerevini, Alessandro Saetti.

CP Doctoral Programme: Session 3 Room 551A, Chair Jimmy Lee

Exploiting Problem Data to Refine Models of Constraint Problems.
Martin Michalowski.

A CP Approach to the Balanced Academic Curriculum Problem.
Jean-Noel Monette.

Modelling Adjacency in Forest Harvest Scheduling.
Jason Myers.

Bounding Graphical Models Processing by Hypertree Width.
Lars Otten.

16:10-17:20

ICAPS: On-line planning and Execution Ballroom E, Chair Sven Koenig

Transformational Planning for Everyday Activity.
Armin Müller, Alexandra Kirsch, Michael Beetz.

Monitoring Plan Optimality During Execution.
Christian Fritz, Sheila McIlraith.

spotlight Planning with Diversified Models for Fault-Tolerant Robots.
Benjamin Lussier, Matthieu Gallien, Jérémie Guiochet, Félix Ingrand, Marc-Olivier Killijian, David Powell.

spotlight Dynamic Control in Path-Planning with Real-Time Heuristic Search.
Vadim Bulitko, Yngvi Bjornsson, Mitja Lustrek, Jonathan Schaeffer, Sverrir Sigmundarson.

commentary by Sven Koenig.

ICAPS: Search I Room 552, Chair Jörg Hoffmann

A Hybrid Linear Programming and Relaxed Plan Heuristic for Partial Satisfaction Planning Problems.
J. Benton, Menkes van den Briel, Subbarao Kambhampati.

A New Local-Search Algorithm for Forward-Chaining Planning.
Andrew Coles, Maria Fox, Amanda Smith.

spotlight Using Decision Procedures Efficiently for Optimisation.
Matthew Streeter, Stephen Smith.

commentary by Jörg Hoffmann.

17:10 - 18:10

CP: Panel Discussion Ballroom D, Chair Barry O'Sullivan

Opportunities and Challenges for Constraint Programming in Industry.
In this session representatives of a number of well known companies will present position statements outlining important industrial opportunities and challenges for constraint programming and optimisation. A panel discussion will follow.

17:30-19:00

ICAPS: ICKEPS and Awards Ceremony Room 552, Chair Sylvie Thiébaux

The International Competition on Knowledge Engineering for P&S (17:30-18:00)
Stefan Edelkamp, Jeremy Frank

Awards: (18:00-18:20)

- ICAPS-07 Doctoral Consortium Best Papers
- ICAPS-07 Best Papers
- 2007 ICAPS Influential Papers
- 2007 ICAPS Outstanding Dissertations

Outstanding Dissertation Presentations: (18:20-19:00)

- Complexity Analysis and Optimal Algorithms for Decentralized Decision Making. Daniel Bernstein.
- Admissible Heuristics for Automated Planning. Patrik Haslum.
- Solving Planning Tasks in Theory and Practice. Malte Helmert.
- Verification and Planning for Stochastic Processes with Asynchronous Events. Håkan Younes.

20:00-23.00 **CP Program Committee Banquet**

Brown Faculty Club, One Magee Street, Providence

Tuesday, September 25, AM

9:00-10:00

CP-ICAPS: Invited Talk Ballroom D, Chair Toby Walsh

Of Mousetraps and Men: A Cautionary Tale.
Matt Ginsberg

10:00-10:30 **Coffee Break**

10:30-12:30

CP-ICAPS: Constraint Reasoning for Planning and Scheduling Ballroom D, Chair Chris Beck

An LP-based Heuristic for Optimal Planning.
Menkes van der Briel, J. Benton, Subbarao Kambhampati, Thomas Vossen.

Constructing Conflict-Free Schedules in Space and Time.
David Hildum, Stephen Smith.

The Manpower Allocation Problem with Time Windows and Job-Teaming Constraints.
Anders Dohn, Esben Kolind, Jens Clausen.

Scheduling Conditional Task Graphs.
Michele Lombardi, Michela Milano.

commentary by Chris Beck.

CP: Presentation of recent CP solvers Room 553, Chair Barry O'Sullivan

- Comet
- CSP4J
- Declic
- Gecode
- HySAT
- CP Optimizer

10:30-11:15

CP Doctoral Programme: Invited Talk Room 551A, Chair Kostas Stergiou

Surviving the PhD: My Two Cents.
Lucas Bordeaux.

11:15-12:30

CP Doctoral Programme: Session 4 Room 551A, Chair Gregoire Dooms

Answer Set Optimisation for And/Or Composition of CP-nets: A Security Scenario.
Pamela Peretti.

Reformulation during Automated Constraint Modelling.
Andrea Rendl.

Cost-based Filtering for Stochastic Inventory Systems with Shortage Cost.
Roberto Rossi.

Timed Soft Concurrent Constraint Programs.
Francesco Santini.

Value-ordering for Quantified CSPs.
David Stynes.

12:30-14:00 **Lunch Break**

Tuesday, September 25, PM

14:00-15:30

CP: Awards Ceremony Ballroom D, Chair Francesca Rossi

Awards: (14:00-14:05)

- CP-07 Best Paper
- CP-07 Best Student Paper
- ACP Award

ACP award for Research Excellence in Constraint Programming Talk: (14:05-15:05)
How Did I Enter Constraints; Some of the Early Milestones.
Rina Dechter.

Best Paper Award Talk: (15:05-15:30)
Solution Counting Algorithms for Constraint-Centered Search Heuristics.
Alessandro Zanarini, Gilles Pesant.

ICAPS: Planning Formalisms Ballroom E, Chair David Smith

Temporally-expressive Planning as Constraint Satisfaction Problems.
Yuxiao Hu.

Exploiting Procedural Domain Control Knowledge in State-of-the-Art Planners.
Jorge Baier, Christian Fritz, Sheila McIlraith.

Planning Robust Temporal Plans: A Comparison Between CBTP and TGA Approaches.
Yasmina Abdedaïm, Eugene Asarin, Matthieu Gallien, Felix Ingrand, Charles Lesire, Mihaela Sighireanu.

commentary by David Smith.

ICAPS: Learning Room 552, Chair Alan Fern

Learning to Plan using Harmonic Analysis of Diffusion Models.
Sridhar Mahadevan, Sarah Osentoski, Jeff Johns, Kimberly Ferguson, Chang Wang.

Gradient-based Relational Reinforcement-Learning of Temporally Extended Policies.
Charles Gretton.

Discovering Relational Domain Features for Probabilistic Planning.
Jia-Hong Wu, Bob Givan.

commentary by Alan Fern.

15:30-16:00 **Coffee Break**

16:00-17:15

CP: Tutorial Ballroom D, Chair Frédéric Benhamou

Ants and CP.
Christine Solnon.

CP: Tutorial Room 553, Chair Pedro Meseguer

SAT Solving
Inês Lynce.

CP Doctoral Programme: Session 5 Room 551A, Chair George Katsirelos

An Empirical Comparison of CSP Decomposition Methods.
Sathiamoorthy Subbarayan.

Tractable Class of a Problem of Finding Supports.
Pavel Surynek.

Breaking Out CSPs.
Julien Vion.

Expressibility of Valued Constraints.
Stanislav Zivny.

Constraint Solving by Composition.
Zhijun Zhang.

16:00-18.00

ICAPS: Business Meeting & Festivus Room 552, Chair Maria Fox

- Business Meeting (16:00-16:30)
- Festivus: Help! Our Hard Problems are Missing! (16:30-18:00)
  Speakers: Fahiem Bacchus, Jeremy Frank, Héctor Geffner, Subbarao Kambhmapati.

19:00-00.00 **Dinner Banquet**

Biltmore Hotel, 11 Dorrance St, Providence

Wednesday, September 26, AM

9:00-10:00

CP-ICAPS: Invited Talk Ballroom D, Chair Mark Boddy

Automated Web Service Composition: New (and Not So New) Challenges for AI Planning
Sheila McIlraith

10:00-10:30 **Coffee Break**

10:30-12:10

CP: Global Constraints Ballroom D, Chair Christian Schulte

Encodings of the Sequence Constraint.
Sebastian Brand, Nina Narodytska, Claude-Guy Quimper, Peter Stuckey, Toby Walsh.

Bound-Consistent Deviation Constraint.
Pierre Schaus, Yves Deville, Pierre Dupont.

Decomposing Global Grammar Constraints.
Claude-Guy Quimper, Toby Walsh.

Filtering for Subgraph Isomorphism.
Stéphane Zampelli, Yves Deville, Christine Solnon, Sébastien Sorlin, Pierre Dupont.

CP: SAT Room 553, Chair Joao Marques-Silva

Limitations of Restricted Branching in Clause Learning.
Matti Järvisalo, Tommi Junttila.

Tradeoffs in the Complexity of Backdoor Detection.
Bistra Dilkina, Carla P. Gomes, Ashish Sabharwal.

Hierarchical Hardness Models for SAT.
Lin Xu, Holger H. Hoos, Kevin Leyton-Brown.

SATzilla-07: The Design and Analysis of an Algorithm Portfolio for SAT.
Lin Xu, Frank Hutter, Holger H. Hoos, Kevin Leyton-Brown.

10:30-12:30

ICAPS: Posters and Demonstrations Ballroom E, Room 552

Demonstrations (Ballroom E)

- MEXAR2: A Software Tool for Contin. Support to Data Dumping Activities for MARS EXPRESS.
  Amedeo Cesta, Gabriella Cortellessa, Simone Fratini, Angelo Oddi, Nicola Policella.
- Demonstrating Automated Planning and Scheduling for Orbital Express.
  Caroline Chouinard, Russel Knight, Grailing Jones, Daniel Tran.
- A Planning and Scheduling System to Allocate ESA Ground Station Network Services.
  Sylvain Damiani, Holger Dreihahn, Jörg Noll, Marc Niézette, Gian Paolo Calzolari.
- University Course Timetabling & Student Sectioning System.
  Tomas Müller, Keith Murray, Stephanie Schluttenhofer.
- SELFPLANNER: An Intelligent Web-based Calendar Application.
  Ioannis Refanidis, Anastasios Alexiadis.
- Traplas, a Transport Planning Simulator.
  Jonne Zutt, Willem Drost, Herbert de Vos.

Main conference posters (Ballroom E)

- Mixed Integer Linear Programming for Exact Finite-horizon Planning in Decentralized POMDPs.
  Raghav Aras, Alain Dutech, François Charpillet.
- FF+FPG: Guiding a Policy-Gradient Planner.
  Olivier Buffet, Douglas Aberdeen.
- Dynamic Control in Path-Planning with Real-Time Heuristic Search.
  Vadim Bulitko, Yngvi Bjornsson, Mitja Lustrek, Jonathan Schaeffer, Sverrir Sigmundarson.
- Planning with Respect to an Existing Schedule of Events.
  Andrew Coles, Maria Fox, Derek Long, Amanda Smith.
- Online Identification of Useful Macro-Actions for Planning.
  Andrew Coles, Maria Fox, Amanda Smith.
- Prioritizing Bellman Backups Without a Priority Queue.
  Peng Dai, Eric Hansen.
- Bounding the Resource Availability of Activities with Linear Resource Impact.
  Jeremy Frank, Paul Morris.
- On the Hardness of Planning Problems With Simple Causal Graphs.
  Anders Jonsson, Omer Gimenez.
- Structural Patterns of Tractable Sequentially-Optimal Planning.
  Michael Katz, Carmel Domshlak.
- Robust Local Search and Its Application to Generating Robust Schedules.
  Hoong Chuin Lau, Thomas Ou, Fei Xiao.
- Planning with Diversified Models for Fault-Tolerant Robots.
  Benjamin Lussier, Matthieu Gallien, Jérémie Guiochet, Félix Ingrand, Marc-Olivier Killijian, David Powell.
- Managing Personal Tasks with Time Constraints and Preferences.
  Ioannis Refanidis.
- Approximate Solution Techniques for Factored First-order MDPs.
  Scott Sanner, Craig Boutilier.
- Generating Exponentially Smaller POMDP Models Using Conditionally Irrelevant Variable Abstraction.
  Trey Smith, David R. Thompson, David S. Wettergreen.
- Using Decision Procedures Efficiently for Optimisation.
  Matthew Streeter, Stephen Smith.

Doctoral Consortium Posters (Room 552)

- Planning with Contingencies via a Fast and Informed Action Selection Mechanism. Alexandre Albore.
- Constraint Directed Variable Neighbourhood Search. Alastair Andrew.
- Domain Control Knowledge and State-of-the-Art Planners. Jorge A. Baier.
- A Hybrid Linear Programming and Relaxed Plan Heuristic for Partial Satisfaction Planning Problems. J. Benton.
- Research in Concurrent Planning. William Cushing.
- Faster Dynamic Programming for MDPs. Peng Dai.
- Optimising the Slab Yard Crane Scheduling Problem. Anders Dohn.
- Combining Automated Planning and Hybrid Control: A Quadruped Bouncing Gait. Robert Effinger.
- Monitoring the Execution of Optimal Plans. Christian Fritz.
- Discrepancy-based Method for Distributed Supply Chain Operations Planning. Jonathan Gaudreault.
- From Task Definitions and Plan Traces to HTN Methods. Chad Hogg.
- Learning Action Success Patterns from Execution. Sergio Jimenez.
- Towards Structural-Patterns Admissible Heuristics. Michael Katz.
- Set-Additive and TSP Heuristics for Planning with Action Costs and Soft Goals. Emil Keyder.
- Symbolic Exploration for General Game Playing in PDDL. Peter Kissmann.
- Local Search for Grid Scheduling. Dalibor Klusacek.
- Robustness in Context-Aware Route Planning. Adriaan ter Mors.
- Planning for Automatic Video Processing Using Ontology-based Workflow. Gayathri Nadarajan.
- The Cyclic Sequence Constraint. Nina Narodytska.
- Wizard: Suggesting Macro-Actions Comprehensively. Hakim Newton.
- From Conformant into Classical Planning: Efficient Translations that May Be Complete Too. Héctor Palacios.
- Preliminary Results for Approximate Temporal Coordination under Uncertainty. Emmanuel Rachelson.
- Traffic Light Scheduling Using Policy-Gradient Reinforcement Learning. Silvia Richter.
- Harnessing Algorithm Bias in Classical Planning. Mark Roberts.
- Case-based Search Control for Heuristic Planning. Tomas de la Rosa.
- Using Abstraction for Generalized Planning. Siddharth Srivastava.
- Using Decision Procedures Efficiently for Optimisation. Matthew Streeter.
- Analysis of Search Landscape Neutrality in Scheduling Problems. Andrew Sutton.
- Autonomous Inter-Task Transfer in Reinforcement Learning Domains. Mathew Taylor.
- Discovering and Applying Domain Features in Probabilistic Planning. Jia-Hong Wu.
- Fault Detection and Recovery in Multi-Modal Transportation Networks. Jonne Zutt.

12:30-14:00 **Lunch Break**

Wednesday, September 26, PM

14:00-15:15

CP: Applications Ballroom D, Chair Gérard Verfaillie

Scheduling for Cellular Manufacturing.
Roman van der Krogt, James Little, Kenneth Pulliam, Sue Hanhilammi, Yue Jin.

Solving Planning and Scheduling Problems in Network-based Operations.
Christophe Guettier.

An Application of Constraint Programming to Generating Detailed Operations Schedules for Steel Manufacturing.
Andrew Davenport, Jayant Kalagnanam, Chandra Reddy, Stuart Siegel, John Hou.

CP: SAT-CSP Room 553, Chair Carla Gomes

GAC via Unit Propagation.
Fahiem Bacchus.

Propagation = Lazy Clause Generation.
Olga Ohrimenko, Peter J. Stuckey, Michael Codish.

Towards Robust CNF Encodings of Cardinality Constraints.
Joao Marques-Silva, Inês Lynce.

14:00-15:30

ICAPS: Search II Ballroom E, Chair Malte Helmert

Cost-Sharing Approximations for h^+.
Vitaly Mirkis, Carmel Domshlak.

Context-aware Logistic Routing and Scheduling.
Adriaan ter Mors, Jonne Zutt, Cees Witteveen.

Learning Macro-Actions for Arbitrary Planners and Domains.
M.A. Hakim Newton, John Levine, Maria Fox, Derek Long.

commentary by Malte Helmert

ICAPS: Systems and Applications Room 552, Chair Karen Myers

Towards a Heuristic for Scheduling the James Webb Space Telescope.
Mark Giuliano, Reiko Rager, Nazma Ferdous.

An Innovative Product for Space Mission Planning: An A Posteriori Evaluation.
Amedeo Cesta, Gabriella Cortellessa, Simone Fratini, Angelo Oddi, Nicola Policella.

itSIMPLE 2.0: An Integrated Tool for Designing Planning Domains.
Tiago Stegun Vaquero, Victor Romero, Flavio Tonidandel, José Reinaldo Silva.

commentary by Karen Myers

15:15-15:45 **Coffee Break, End of ICAPS**

15:15-16:45

CP: Posters and Coffee Break Room 551A

- Answer Set Optimisation for And/Or Composition of CP-Nets: A Security Scenario.
  Stefano Bistarelli, Pamela Peretti, Irina Trubitsyna.
- Uncertainty in Bipolar Preference Problems.
  Stefano Bistarelli, Maria Silvia Pini, Francesca Rossi, K. Brent Venable.
- An Analysis of Slow Convergence in Interval Propagation.
  Lucas Bordeaux, Youssef Hamadi, Moshe Y. Vardi.
- The Expressive Power of Valued Constraints: Hierarchies and Collapses.
  David A. Cohen, Peter G. Jeavons, Stanislav Zivny.
- Eligible and Frozen Constraints for Solving Temporal Qualitative Constraint Networks.
  Jean-Francois Condotta, Gerard Ligozat, Mahmoud Saade.
- The Log-Support Encoding of CSP into SAT.
  Marco Gavanelli.
- Groupoids and Conditional Symmetry.
  I.P. Gent, T. Kelsey, S.A. Linton, J. Pearson, C.M. Roney-Dougal.
- Sampling Strategies and Variable Selection in Weighted Degree Heuristics.
  Diarmuid Grimes, Richard J. Wallace.
- A Case for Simple SAT Solvers.
  Jinbo Huang.
- CP-based Local Branching.
  Zeynep Kiziltan, Andrea Lodi, Michela Milano, Fabio Parisini.
- Strong Controllability of Disjunctive Temporal Problems with Uncertainty.
  Bart Peintner, Kristen Brent Venable, Neil Yorke-Smith.
- Exploiting Single-Cycle Symmetries in Branch-and-Prune Algorithms.
  Vicente Ruiz de Angulo, Carme Torras.
- Constraint Symmetry for the Soft CSP.
  Barbara M. Smith, Stefano Bistarelli, Barry O'Sullivan
- Breaking Value Symmetry.
  Toby Walsh.

16:45-18:15

CP: Presentation of CP'08 and CPAIOR'08 Ballroom D (16:45-17:15)

CP: ACP General Assembly Ballroom D (17:15-18:15)

20:00-23.00 **CP Doctoral Programme Banquet**

Brown Faculty Club, One Magee Street, Providence

Thursday, September 27

9:00-10:15

CP: Elicitation, Explanation Room 552, Chair Roman Bartak

Dealing with Incomplete Preferences in Soft Constraint Problems.
Mirco Gelain, Maria Silvia Pini, Francesca Rossi, K. Brent Venable.

Cost-based Model and Algorithms for Interleaving Solving and Elicitation of CSPs.
Nic Wilson, Diarmuid Grimes, Eugene C. Freuder.

MUST: Provide a Finer-Grained Explanation of Unsatisfiability.
Eric Grégoire, Bertrand Mazure, Cédric Piette.

CP: Tutorial Room 553, Chair Jimmy Ho-Man Lee

ECLIPSE by Example. Joachim Schimpf, Kish Shen

10:15-10:45 **Coffee Break**

10:45-12:00

CP: Extensions of CSP Room 552, Chair Gilles Pesant

Min-Domain Ordering for Asynchronous Backtracking.
Roie Zivan, Moshe Zazone, Amnon Meisels.

Boosting Probabilistic Choice Operators.
Matthieu Petit, Arnaud Gotlieb.

Solution Directed Backjumping for QCSP.
Fahiem Bacchus, Kostas Stergiou.

CP: Applications Room 553, Chair Laurent Michel

Constraint-based Temporal Reasoning for E-learning with LODE.
Rosella Gennari, Ornella Mich.

Estimation of the Minimal Duration of an Attitude Change for an Autonomous Agile Earth-Observing Satellite.
Grégory Beaumet, Gérard Verfaillie, Marie-Claire Charmeau.

Solving the Salinity Control Problem in a Potable Water System.
Chiu Wo Choi, Jimmy H.M. Lee.

12:00-13:50 **Lunch Break**

13:50-15:05

CP: Local Consistency Room 552, Chair Amnon Meisels

A Compression Algorithm for Large Arity Extensional Constraints.
George Katsirelos, Toby Walsh.

Path Consistency by Dual Consistency.
Christophe Lecoutre, Stéphane Cardon, Julien Vion.

Constructive Interval Disjunction.
Gilles Trombettoni, Gilles Chabert.

CP: Extensions of SAT Room 553, Chair Lucas Bordeaux

Structural Relaxations by Variable Renaming and their Compilation for Solving MinCostSAT.
Miquel Ramirez, Héctor Geffner.

On Inconsistent Clause-Subsets for Max-SAT Solving.
Sylvain Darras, Gilles Dequen, Laure Devendeville, Chu-Min Li.

A Multi-engine Solver for Quantified Boolean Formulas.
Luca Pulina, Armando Tacchella.

15:05 **End of CP**

Invited Speakers

Fahiem Bacchus *Caching in Backtracking Search*

Monday September 24, 9:00-10:00, Ballroom D

Abstract: As backtracking search explores paths in its search tree it makes various inferences about the problem. The inferences search computes can be very computationally expensive to compute statically. However, in most backtracking CSP solvers this information is discarded when the search backtracks along the current path. In this talk we will investigate the alternative—caching these inferences and using them to improve the efficiency of the rest of the search. Caching provides radical improvements to the theoretical power of backtracking, and can also yield significant improvements in practice. Sometimes, however, obtaining improvements in practice might not be so straightforward. We will examine CSP caching techniques for the problem of finding a single solution, counting the number of solutions, and finding an optimal solution. Time permitting we will also look at caching techniques that would be useful for QCSPs.

Biography: Fahiem Bacchus is a Professor of Computer Science at the University of Toronto. He has made fundamental contributions in the areas of knowledge representation, where he did seminal work on formalisms for combining probabilities and logic; preference modelling, where he presented the first graphical models for utility functions; learning of Bayes Nets, where he developed some of the earliest methods based on the minimal description length principle; and planning, where he demonstrated the effectiveness of logically expressed domain specific control information. Most recently he has been working in the area of propositional reasoning (SAT, QBF, CSPs, and #SAT), and has contributed a number of new ideas and insights on these problems. Besides publishing many papers, Bacchus has also been heavily involved in the development of software systems embodying his research ideas. His TLPLAN system was a first prize winner in AIPS-2002 International Planning Competition, and his work on QBF helped lead to a sweep of 1st, 2nd and 3rd places in the 2006 QBF Competition. In 2006 he was elected as a fellow of the AAAI.

Markus Fromherz *Integrated Model-based Planning and Control for Highly Reconfigurable Systems*

Monday September 24, 9:00-10:00, Room 552

Abstract: Embedded computing, sensing, and actuation keep getting cheaper, creating new applications for embedded software technologies. One particular opportunity is to modularize products - to build reconfigurable systems from simpler but smarter components. There is much promise in the use of intelligent software technologies for such systems, in particular in model-based approaches to planning and control. Current techniques, however, must address a number of challenges before they can be applied in reconfigurable real-time systems. For planning, these challenges include compositional modelling, on-line planning and exception handling, real-time planner control, and the interaction with low-level control. This talk will discuss challenges, solutions, and lessons learned in the context of a long-term project at PARC to bring such techniques to highly reconfigurable printing systems.

Biography: Markus Fromherz is director of the Intelligent Systems Laboratory at the Palo Alto Research Center (PARC), as well as a PARC Principal Scientist. The laboratory's focus is on advanced reasoning and interaction technologies that help people to perceive, reason, and interact in the physical and virtual worlds we live in. The laboratory performs research and development in cognitive science, user interfaces, image content extraction, natural language processing, and intelligent reasoning for embedded systems. Fromherz joined PARC in 1992. His research interests are in the domain of intelligent embedded software, in particular constraint-based modelling, model-based planning, scheduling, and

control, and model-based design analysis and optimisation. He has led and contributed to several research, development, and technology transfer efforts on intelligent control systems for Xerox. Fromherz received his Ph.D. in Computer Science in 1991 from the University of Zurich (Switzerland) and his M.S. in Computer Science in 1987 from ETH Zurich.

Matthew L. Ginsberg *Of Mousetraps and Men: A Cautionary Tale*

Tuesday September 25, 9:00-10:00, Ballroom D

Abstract: This talk consists of two interwoven stories. The Happy Story presents a technical solution to the problem of optimising for cost instead of the more normal metric of duration. We describe a mechanism whereby the optimisation problem is split into an evaluation component, where the projected cost of a schedule is evaluated using dynamic programming techniques, and a search component, where search is conducted in "window space" to find a cost-efficient schedule. The Sad Story explains what happens when you build a better mousetrap. The people beating a path to your door are the fat cats, who are reimbursed for their mouse catching on a cost-plus basis.

Biography: Matthew L. Ginsberg received his doctorate in mathematics from Oxford in 1980 at the age of 24. He remained on the faculty in Oxford until 1983, doing research in mathematical physics and computer science; during this period, he wrote a program that was used successfully to trade stock and stock options on Wall Street. Ginsberg's continuing interest in artificial intelligence brought him to Stanford in late 1983, where he remained for nine years. He then went on to found CIRL, the computational intelligence research laboratory at the University of Oregon, which he directed until 1996. He remained at CIRL until 1998, when CIRL spun off On Time Systems, a commercial entity focusing on scheduling and routing technology. Ginsberg has been the CEO of the company since its formation.Ginsberg's present research interests include constraint satisfaction and scheduling. He is the author of numerous publications in these areas, the editor of "Readings in Nonmonotonic Reasoning," and the author of "Essentials of Artificial Intelligence," both published by Morgan Kaufmann. He is also the author of the bridge-playing program GIB, which made international news by finishing 12th in the world bridge championships in Lille, France.

Sheila McIlraith *Automated Web Service Composition: New (and Not So New) Challenges for AI Planning*

Wednesday September 26, 9:00-10:00, Ballroom D

Abstract: Imagine a planning problem with tens of thousands of actions. Unlike classical planning operators, these actions are more akin to small, potentially nondeterministic, programs and are selected based on the optimisation of nonfunctional properties, as well as on their preconditions and effects. The intial state of this planning problem is incomplete. Further the goal is not a final state goal, but rather one that talks about properties over the evolution of the plan. Some of these goals must be achieved, others are merely statements of preference. This planning problem, and the many challenges it presents, is typical of the task of automated web service composition, and more generally automated composition of business processes. In this talk we use the task of web service composition to motivate a set of challenges to AI planning (some old and some new) and present recent progress in addressing some of these challenges.

Biography: Sheila McIlraith is an Associate Professor in the Department of Computer Science, University of Toronto. Prior to joining the university in 2004, McIlraith spent six years as a Research Scientist at Stanford University, and one year at Xerox PARC. McIlraith's research is in the areas of knowledge representation and automated reasoning, particularly as they relate to reasoning about dynamical systems. She has made contributions in the areas of automated web service composition, planning with preferences and temporally extended goals, logical reasoning, and diagnostic problem solving. McIlraith is an associate editor of the journal Artificial Intelligence, past editorial board member of JAIR, and past program co-chair of the International Semantic Web Conference.

Awards

CP 2007 Best Paper Award

Solution Counting Algorithms for Constraint-Centered Search Heuristics.
Alessandro Zanarini, Gilles Pesant.

CP 2007 Best Student Paper Award

Propagation = Lazy Clause Generation.
Olga Ohrimenko, Peter J. Stuckey, Michael Codish.

ACP 2007 Award for Research Excellence in Constraint Programming

How Did I Enter Constraints; Some of the Early Milestones.
Rina Dechter.

ICAPS 2007 Best Research Paper Award

Flexible abstraction heuristics for optimal sequential planning.
Malte Helmert, Patrik Haslum, Jörg Hoffmann.

ICAPS 2007 Best Application Paper Award

An Innovative Product for Space Mission Planning: An A Posteriori Evaluation.
Amedeo Cesta, Gabriella Cortellessa, Simone Fratini, Angelo Oddi, Nicola Policella.

ICAPS 2007 Best Student Paper Award

From Conformant into Classical Planning: Efficient Translations That May be Complete Too.
Héctor Palacios, Héctor Geffner.

ICAPS 2007 Best Doctoral Consortium Papers

Award: Monitoring the Execution of Optimal Plans.
Christian Fritz.

Runner Up: Using Decision Procedures Efficiently for Optimisation.
Matthew Streeter.

ICAPS 2007 Influential Papers

Award: Conditional Nonlinear Planning.
Mark Peot, David E. Smith.
Proc. AIPS-92

Mention: Using Temporal Logic to Control Search in a Forward Chaining Planner.
Fahiem Bacchus, Froduald Kabanza.
Proc. ECP-95

ICAPS 2007 Outstanding Dissertations

Award: *Håkan Younes* - for his creative research on formal verification of discrete event systems and planning with concurrent actions with uncertain duration, for the development of an original representation based on Semi-Markov Decision Processes and of a highly innovative algorithmic approach for solving this class of planning problems.

Mention: *Daniel Bernstein* - for his highly innovative research on planning under uncertainty for multiple agents introducing and characterizing a new framework of decentralized MDPs.

Mention: *Patrik Haslum* - for his marked contribution to the development of a family of admissible heuristics for optimal planning in the sequential and temporal settings.

Mention: *Malte Helmert* - for his extensive work on the analysis and characterization of the structure of classical planning domains and his highly effective heuristics using abstraction hierarchies derived from causal graphs.

ICAPS-07

Monday, September 24 - Breakfast 8:15 – 8:50

Time	*Ballroom E*	*Room 552*
8:50 – 9:00	ICAPS-07 Welcome (Room 552)	
9:00 – 10:00	Invited Talk: Markus Fromherz (Ballroom D)	
10:00 – 10:30	Coffee Break	
10:30 – 12:15	Uncertainty I	Time & Resources
12:15 – 14:00	Lunch Break	
14:00 – 15:40	Uncertainty II	Abstraction & Structure
15:40 – 16:10	Coffee Break	
16:10 – 17:20	On-line Planning and Execution	Search I
17:30 – 19:00	ICKEPS - 30mn (Room 552) Awards – 20mn, PhD Award Talks - 40mn	

Tuesday, September 25 - Breakfast 8:15 – 9:00

Time	*Ballroom E*	*Room 552*
9:00 – 10:00	Invited Talk (Ballroom D) Joint CP-ICAPS: Matt Ginsberg	
10:00 – 10:30	Coffee Break	
10:30 – 12:30	Constraint Reasoning for Planning and Scheduling (Ballroom D)	
12:30 – 14:00	Lunch Break	
14:00 – 15:30	Planning Formalisms	Learning
15:30 – 16:00	Coffee Break	
16:00 – 18:00	Business Meeting - 30mn (Room 552) Festivus - 90mn	
19:00 – 00:00	Dinner Banquet (Biltmore Hotel)	

CP-07

Monday, September 24 - Breakfast 8:15 – 8:50

Ballroom D	*Room 553*	*Room 551A*	*Time*
CP 2007 Welcome (Ballroom D)			8:50 – 9:00
Invited Talk: Fahiem Bacchus (Ballroom D)			9:00 – 10:00
Coffee Break			10:00 – 10:30
Application-driven Research	Search & Symmetry	Doctoral Program	10:30 – 12:15
Lunch Break			12:15 – 14:00
Systems & Modelling	Hybrid and Struct. Approaches	Doctoral Program	14:00 – 15:40
Coffee Break			15:40 – 16:10
Local Search/ Visualisation	Space & Time	Doctoral Program	16:10 – 17:00
Panel on the Use of CP in Industry (Ballroom D)			17:10 – 18:10

Tuesday, September 25 - Breakfast 8:15 – 9:00

Ballroom D	*Room 553*	*Room 551A*	*Time*
Invited Talk (Ballroom D) Joint CP-ICAPS: Matt Ginsberg			9:00 – 10:00
Coffee Break			10:00 – 10:30
Constraint Reasoning for Planning and Scheduling	Presentation of Recent CP Solvers	Doctoral Program	10:30 – 12:30
Lunch Break			12:30 – 14:00
Awards Ceremony (Ballroom D) Best Paper, Best Student Paper, ACP Award ACP Award Talk, Best Paper Talk			14:00 – 15:30
Coffee Break			15:30 – 16:00
Tutorial Ants and CP Christine Solnon	Tutorial SAT Solving Inês Lynce	Doctoral Program	16:00 – 17:15
Dinner Banquet (Biltmore Hotel)			19:00 – 00:00

ICAPS-07

Wednesday 26 - Breakfast 8:15 – 9:00

Time	*Ballroom E*	*Room 552*
9:00 – 10:00	Invited Talk (Ballroom D) Joint ICAPS-CP: Sheila McIlraith	
10:00 – 10:30	Coffee Break and Poster Set-Up	
10:30 – 12:30	Poster/Demo Session Demos, DC Posters, Regular Posters	
12:30 – 14:00	Lunch Break	
14:00 – 15:30	Search II	Systems & Applications
15:30	The End	

Monday 24 – Wednesday 26

Internet Room	Room 550A
Executive Committee Meetings	Room 551B

CP-07

Wednesday 26 - Breakfast 8:15 – 9:00

Ballroom D	*Room 553*	*Time*
Invited Talk (Ballroom D) Joint ICAPS-CP: Sheila McIlraith		9:00 – 10:00
Coffee Break and Poster Set-Up		10:00 – 10:30
Global Constraints	SAT	10:30 – 12:10
Lunch Break		12:10 – 14:00
Applications	SAT-CSP	14:00 – 15:15
Coffee Break & Poster Presentation (Room 551A)		15:15 – 16:45
Presentation of CP-08 and CPAIOR-08 (Ballroom D)		16:45 – 17:15
ACP General Assembly (Ballroom D)		17:15 – 18:15

Thursday 27 - Breakfast 8:15 – 9:00

Room 552	*Room 553*	*Time*
Elicitation, Explanation	Tutorial: ECLIPSE by Example Joachim Schimpf, Kish Shen	9:00 – 10:15
Coffee Break		10:15 – 10:45
Extensions of CSP	Applications	10:45 – 12:00
Lunch Break		12:00 – 13:50
Local Consistency	Extensions of SAT	13:50 – 15:05
The End		15:05