BROWN UNIVERSITY

Program

First Workshop on Principles and Practice of Constraint Programming

April 28-30, 1993
Newport, Rhode Island
Sponsored by ONR

Department

of Computer Science

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Technical Program

The First Workshop on the Principles and Practice of Constraint Programming (April 28–30, 1993 in Newport, RI) is an inter-disciplinary meeting focusing on constraint programming as a general paradigm for computation. The workshop is sponsored by the Office of Naval Research (ONR). It is organized by Paris Kanellakis (Brown University), Jean-Louis Lassez (IBM Watson), Clifford Lau (ONR), Vijay Saraswat (Xerox PARC), Ralph Wachter (ONR), and Donald Wagner (ONR). Local arrangements were made by Pascal van Hentenryck (Brown University). The program committee is:

Alan Borning (Univ. of Washington, Seattle)  Jacques Cohen (Brandeis Univ.)
John de Kleer (Xerox PARC)                  David Dill (Stanford Univ.)
Eugene Freuder (Univ. of New Hampshire)     John Hooker (CMU)
Joxan Jaffar (IBM Watson)                    Paris Kanellakis (Brown Univ.)
Deepak Kapur (SUNY Albany)                  Dexter Kozen (Cornell Univ.)
Jean-Louis Lassez (IBM Watson)              Jean-Claude Latombe (Stanford Univ.)
Nancy Lynch (MIT)                           David McAllester (MIT)
Albert Meyer (MIT)                          Anil Nerode (Cornell Univ.)
Fernando Pereira (AT&T Bell Labs)           Raghu Ramakrishnan (Univ. of Wisconsin)
Vijay Saraswat (Xerox PARC)                 Pascal Van Hentenryck (Brown Univ.)

The meeting will be small and informal, providing forums for prepared presentations, panels and discussions. Participation is by invitation of the program committee and is restricted primarily to authors of contributed papers. Proceedings will be available at the workshop in technical report form.

Workshop Organization: The workshop includes invited talks (half an hour followed by equal question and discussion time) and sessions. Each session is organized around a theme. It has a list of panelists selected from the workshop attendees, a list of papers selected for short presentations in that session, and it is to be moderated by members of the program committee and workshop organizers. Each session also has time for open discussion by the moderators, panelists, and the audience.

The proceedings will contain copies of 37 position papers, which were selected from 94 submissions to the workshop. The selected position papers formed the basis for composing the list of invitees. A subset of these papers was selected for short (15 minute) presentations, whose purpose is to set the stage for the half-hour panel discussions in each session.

The design of each session is in the hands of its moderators, subject to the condition that each planned presentation is allotted 15 minutes. Each session should have at least half an hour free for
open discussion—moderators may want to ensure that at least all panelists for the session have an opportunity to speak for some time. To make each session successful, we ask that the moderators correspond with each other, and identify basic issues which can serve as the backbone for open-ended discussion. Moderators are ultimately responsible for the allocation of remaining time and for additional speakers in this time.

In the overall organization an attempt was made to devote most time to open but structured discussion. An attempt was also made to include as many researchers with an active interest in constraint programming as possible, while keeping the size and atmosphere of a workshop.

**Tuesday April 27th**

8:00pm–10:00pm Welcoming Reception at Hotel

**Wednesday April 28th**

8:30am–9:00am Breakfast

9:00am–10:00am Invited Talk by A. Colmerauer (30 min.)
Moderator: J.-L. Lassez
Open Discussion (30 min.)

10:00am–10:30am Coffee Break

10:30am–12:00pm Session on Constraints in Logic Programming
Moderators: Jaffar, Van Hentenryck, Pereira
Panelists: Benhamou, Johnson, Maher, McAlloon, Michaylov, Older, Tretkoff, Warren

Initial Presentations (15 min. each):

*Higher-Order Logic Programming as Constraint Logic Programming*
Spiro Michaylov, Frank Pfenning

*Programming in CLP(BNR)*
William Older, Frédéric Benhamou

*Memoization in Constraint Logic Programming*
Mark Johnson

*2lp: Linear Programming and Logic Programming*
Ken McAlloon, Carol Tretkoff

Open Discussion (30 min.)

12:00pm–1:30pm Lunch at hotel.
1:30pm-3:00pm Session on Constraints and Concurrency
Moderators: Dill, Lynch, Saraswat
Panelists: Aït-Kaci, Haridi, Mackworth, Montanari, Rossi, Savor, Zhang
Initial Presentations (15 min. each):
Constraint Satisfaction, Constraint Programming and Concurrency
Ugo Montanari, Francesca Rossi
Constraint Programming in Constraint Nets
Ying Zhang, Alan Mackworth
A Real Time Extension to Logic Programming Based on the Concurrent Constraint Logic Programming Paradigm
Tony Savor, Paul Dasiewicz
The Andorran Kernel Language (AKL): A General Purpose Concurrent Constraint Language
Sverker Janson, Seif Haridi, Johan Montelius, Torkel Franzén, Per Brand, Kent Boortz, Börn Danielsson
Open Discussion (30 min.)

3:00pm-3:30pm Coffee Break

3:30pm-5:00pm Session on Programming with Constraints
Moderators: Borning, Cohen, J.-L. Lassez
Panelists: Bobrow, Keirouz, Kramer, Meyers, Reiss, Sannella, D. Smith, Zippel
Initial Presentations (15 min. each):
Exploiting Dependency Information for Debugging and Explanation
Walid Keirouz, Glenn Kramer, Jahir Pabon
Constraining the Structure and Style of Object-Oriented Programs
Scott Meyers, Carolyn Duby, Steven Reiss
Synthesis of Constraint Algorithms
Douglas Smith
A Constraint Based Scientific Programming Language
Richard Zippel
Open Discussion (30 min.)

5:00pm Dinner (on your own)

Thursday April 29th
8:30am-9:00am Breakfast
9:00am-10:00am Invited Talk by H. Gallaire (30 min.)
Moderator: Saraswat
Open Discussion (30 min.)

10:00am-10:30am Coffee Break

10:30am-11:45am Session on Constraint Databases
Moderators: Kanellakis, Ramakrishnan
Panelists: Brodsky, Cruz, Kuper, C. Lassez, Naqvi, T. Smith
Initial Presentations (15 min. each):
Separability of Polyhedra and a New Approach to Spatial Storage
Alexander Brodsky, Catherine Lassez
Aggregation in Constraint Databases
Gabriel Kuper
Using a Visual Constraint Language for Data Display Specification
Isabel Cruz
Open Discussion (30 min.)

11:45am-1:00pm Lunch at hotel

1:00pm-2:15pm Session on Constraint Solving I
Moderators: Kapur, Kozen, Meyer
Panelists: Dubé, Fages, Imbert, H. Kirchner, Mantha, Yap
Initial Presentations (15 min. each):
The Geometry in Constraint Logic Programs
Thomas Dubé, Chee-Keng Yap
Fourier’s Elimination: Which to Choose?
Jean-Louis Imbert
Implementing Computational Logics with Constraints
Claude Kirchner, Hélène Kirchner, Marian Vittek
Open Discussion (30 min.)

2:15pm-2:30pm Coffee Break
2:30pm-4:00pm  Session on Constraint Solving II
   Moderators: de Kleer, Freuder, McAllester
   Panelists: Frühwirth, Hubbe, Jégou, Kasif, Menezes, Rounds
   Initial Presentations (15 min. each):
   * Domains Decomposition in Finite Constraint-Satisfaction Problems
     Philippe Jégou
   * A Disjunctive Decomposition Schema for Constraint Satisfaction
     Eugene Freuder, Paul Hubbe
   * Terminological Reasoning with Constraint Handling Rules
     Thom Frühwirth, Philipp Hanschke
   * Local Consistency in Parallel Constraint-Satisfaction Networks
     Simon Kasif, Arthur Delcher
   Open Discussion (30 min.)

4:00pm-6:00pm  Visit to “The Breakers” mansion and Newport tour

6:00pm-9:00pm  Banquet at the Eisenhower House

Friday April 30th

8:00am-8:30am  Breakfast

8:30am-9:30am  Invited Talk by A. Nerode (30 min.)
   Moderator: Kanellakis
   Open Discussion (30 min.)

9:30am-9:45am  Coffee Break

9:45am-11:15am Session on Applications
   Moderators: Hooker, Latombe, Nerode
   Panelists: Donikian, Fernando, Gleicher, Major, Pai, Ward
   Initial Presentations (15 min. each):
   * Robot Programming and Constraints
     Dinesh Pai
   * Constraint Satisfaction in Functional Programming
     François Major, Marcel Turcotte, Guy Lapalme
   * Constraint Management in a Declarative Design Method for 3D Scene
     Sketch Modeling
     Stéphane Donikian, Gérard Hégron
   * Practical Issues in Programming Constraints
     Michael Gleicher
   Open Discussion (30 min.)
11:15 am - 11:30 am  Coffee Break

11:30 am - 12:00 pm  ONR Panel

  Moderators: Lau, Wachter, Wagner

12:00 pm  END OF WORKSHOP.
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