



Preface

AAAI-2002

This volume collects the papers accepted for presentation at AAAI-02, the Eighteenth National Conference on Artificial Intelligence. The traditionally high standards of submission and acceptance were in force once again this year, with the result being an exciting program reflecting the great variety and depth of modern AI research. Probabilistic and logical approaches to classical and recent problems seem to be not just peacefully coexisting, but benefiting from each other's presence. This year we had substantial numbers of submissions in all traditional areas of AI, including learning, knowledge representation and planning, probabilistic reasoning, constraint satisfaction, and satisfiability. There was also an impressive rise in areas such as multi-agent systems, electronic commerce, and algorithmic issues in game and auction theory.

The technical papers in this volume were selected from 470 submissions by a rigorous and blind review process. Each submission was reviewed by three members of the AAAI Program Committee, who were supervised by one member of the Senior Program Committee. Decisions were reached following discussions among the reviewers of each paper, and finalized in a meeting of the Senior Program Committee. We believe the reader will find these articles to be of the highest quality, representing a significant contribution to the field of AI in all its diversity.

The award for Outstanding Paper for AAAI-02 was selected by the Senior Program Committee, and chosen from a number of very strong candidates. We are pleased to present this award to the paper "On Computing All Abductive Explanations," by Thomas Eiter and Kazuhisa Makino. This work, along with other results, settles an open problem in classical abductive reasoning.

Apart from the presentations of accepted papers, and in addition to the presidential address by Tom Mitchell, we are very pleased to have four distinguished invited speakers: Hector Geffner, Michael Jordan, Raymond Kurzweil, and Naftali Tishby.

The National Conference on Artificial Intelligence relies on the generous help of many people. We extend our appreciation to the 180 members of the Program Committee, and the 25 members of the Senior Program Committee. Furthermore, we thank Carol Hamilton, Keri Harvey, Rick Skalsky, and the entire AAAI staff for their professionalism, organization, and courtesy. Finally, we thank the AAAI Executive Council for giving us this opportunity to cochair the conference.

- Rina Dechter, Michael Kearns, & Rich Sutton

IAAI-2002

The Fourteenth Annual Conference on Innovative Applications of Artificial Intelligence (IAAI-02) continues the IAAI tradition of case studies of deployed applications with measurable benefits from the use of AI technology. In addition, IAAI-02 also includes papers and invited talks that address emerging areas of AI technology or applications. IAAI is organized as an independent program within the National Conference, with schedules coordinated to allow attendees to move freely between IAAI and National Conference sessions. IAAI and the National Conference also jointly sponsor invited talks that fit the theme of both programs.

AI applications developers benefit from learning about the latest AI techniques that will enable the next generation of applications. Basic AI research benefits by exposure to the challenges of real-world domains and difficulties and successes in applying AI techniques to real business problems. IAAI-02 addresses the full range of AI techniques including knowledge-based systems, planning and scheduling, perception and monitoring, knowledge formation, knowledge management, learning, intelligent design, natural language processing, and diagnostic reasoning.

Deployed applications are case studies that provide a valuable guide to designing, building, managing, and de-

ploying systems incorporating AI technologies. This year's papers address applications in a wide variety of domains, including large-scale scheduling, monitoring for terrorism response, text and language processing for customer support, engineering configuration, education, call-center scheduling, and quote generation. These applications provide clear evidence of the impact and value that AI technology has in today's world.

Papers on emerging applications and technologies describe efforts whose goal is the engineering of AI applications. They inform AI researchers about the utility of specific AI techniques for applications domains and also inform applications developers about tools and techniques that will enable the next generation of new and more powerful applications.

This year we are very pleased to have two invited talks. Robin Murphy's talk, "Robots for Urban Rescue," will describe the use of robots to facilitate rescue during both man-made and natural disasters and includes footage from efforts at the World Trade Center. In a talk jointly sponsored with AAAI, Ray Kurzweil will speak on "Human Level 'Strong' AI: The Prospects and Implications," in which he reflects on the accelerating pace of change in high technology areas.

New for IAAI in 2002 is a series of events focusing on AI Businesses. We begin with the panel "AI Businesses: A 20

Year Review," chaired by Neil Jacobstein, President and CEO of Teknowledge. This panel will focus on the lessons learned from 20 years of AI businesses. Next, Craig Knoblock, Chief Scientist of Fetch Technologies, chairs the panel "Recent Startups." This panel will focus on the how to overcome the hurdles in starting an AI business. Finally, Steve Chien and Minda Wilson chair the Entrepreneur's Forum, an informal event designed to enable Technologists, Legal Professionals, and Financiers to network during the AI Festival.

The Innovative Applications of Artificial Intelligence Conference could not take place without the generous help of many people. We extend our appreciation to the IAAI-02 program committee: Neil Jacobstein, Peter Wurman, Craig Knoblock, David Kortenkamp, Ted Senator, David Opitz, Bruce Buchanan, Randy Hill, Reid Smith, Sam Uthrusamy, Bob Engelmores, Ora Lassila, Daniel Marcu. Further, we thank Carol Hamilton, Keri Harvey, Rick Skalsky, and the entire AAAI staff for their professionalism, organization, and courtesy.

– Steve Chien & John Riedl