

Preface

AAAI-2000

Artificial intelligence has always been exciting, and we're now entering a time of heightened enthusiasm for our field. Processor capabilities raise our expectations, of course, but far more importantly we are exploring challenging problems, creating new models of computation, and fielding impressive applications. To be sure, basic research continues on core issues in AI, but the startling news is the breadth of new AI research.

The National Conference on Artificial Intelligence is the premier showcase of the breadth of our field. The 2000 conference starts with a program of 17 workshops and 14 tutorials, then features the Robot Exhibition, 14 invited talks, and the Technical Program with 143 presentations of research drawn from many subareas of AI. While there are many workshops for specialized subareas of AI, the National Conference is the “big tent” — as broad as the scientific agenda itself.

The technical papers in this volume were selected from 432 submissions by a rigorous double-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. All the papers accepted for publication and presentation are good examples of research and scholarship. In particular, the Senior Program Committee would like to recognize four Outstanding Papers that combine substantial content and lucid presentation: “The Game of Hex: An Automatic Theorem Proving Approach to Game Programming” by Vadim V. Anshelevich, Vanshel Consulting; “Automatic Invention of Integer Sequences” by Simon Colton and Alan Bundy, University of Edinburgh; Toby Walsh, University of York; “Statistics-Based Summarization — Step One: Sentence Compression” by Kevin Knight and Daniel Marcu, University of Southern California; and “Local Search Characteristics of Incomplete SAT Procedures” by Dale Schuurmans and Finnegan Southey, University of Waterloo.

The National Conference on Artificial Intelligence relies on the generous help of many people. We extend our appreciation to the 130 members of the Program Committee, and the 28 members of the Senior Program Committee. Further, we thank Carol Hamilton, Keri Harvey, Rick Skalsky, and the entire AAAI staff for their professionalism, organization, and courtesy, and we thank Vibhu Mittal and Ramesh Patil for developing software to make this monumental task manageable. Finally, we thank the AAAI Executive Council for giving us this opportunity to cochair the conference.

- Henry Kautz and Bruce Porter

IAAI-2000

The Twelfth Annual Conference on Innovative Applications of Artificial Intelligence (IAAI-2000) continues the IAAI tradition of case studies of deployed applications with measurable benefits whose value depends on the use of AI technology. In addition, IAAI-2000 augments these case studies with 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 are jointly sponsoring several invited talks that fit the theme of both programs.

AI applications developers benefit from learning about new AI techniques that will enable the next generation of applications. Basic AI research will benefit by learning about challenges of real-world domains and difficulties and successes in applying AI techniques to real business problems. IAAI-2000 will address the full range of AI techniques including knowledge-based systems, vision, constraint programming, machine learning, software synthesis, planning & execution, natural language processing, diagnostic reasoning, reasoning with uncertainty, neural networks and cognitive simulation.

Deployed Applications are case studies that provide a valuable guide to designing, building, managing, and deploying systems incorporating AI technologies. This year's papers address applications in a wide variety of domains, including large-scale scheduling, biotechnology, medical data mining, civil engineering, financial modeling, e-mail management, manufacturing, and interactive agents. 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.

Invited talks by Prof. John Laird (Univ. Michigan) on AI's “Killer Application,” and by Dr. Bertrand du Castel (Schlumberger) on the future of wireless technology and its opportunities for AI applications, should be especially interesting to this year's conference attendees.

Bob Englemore and Haym Hirsh