Program & Exhibit Guide

SEVENTEENTH NATIONAL CONFERENCE ON ARTIFICIAL INTELLIGENCE (AAAI-2000)

TWELFTH CONFERENCE ON INNOVATIVE APPLICATIONS OF ARTIFICIAL INTELLIGENCE (IAAI-2000)

July 30-August 3, 2000

Austin Convention Center and Hyatt Regency Austin

Austin, Texas

SPONSORED BY THE AMERICAN ASSOCIATION FOR ARTIFICIAL INTELLIGENCE

Cosponsored by DARPA, Microsoft Research, Office of Naval Research,

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Acknowledgments

The American Association for Artificial Intelligence wishes to acknowledge and thank the following individuals for their generous contributions of time and energy to the successful creation and planning of the Seventeenth National Conference on Artificial Intelligence and the Twelfth Conference on Innovative Applications of Artificial Intelligence.

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A complete listing of the AAAI-2000 and IAAI-2000 Program Committee members appears in the conference proceedings.

Sponsoring Organizations

AAAI gratefully acknowledges the generous contributions of the following organizations or individuals to AAAI-2000:

- ACM/SIGART
- ActivMedia Robotics
- Defense Advance Research Projects Agency
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- National Science Foundation
- Nils Nilsson
- Naval Research Laboratory
- Office of Naval Research
- Ben Wegbreit

Special Events & Programs

AAAI Recognition Awards

AAAI is pleased to announce the recipients of three awards presented annually at the national conference: The AAAI Classic Paper Award, the AAAI Distinguished Service Award, and the AAAI Effective Expository Writing Award.

Classic Paper Award

The 2000 AAAI Classic Paper Award will be given to the author of the most influential paper(s) from the Second National Conference on Artificial Intelligence, held in 1982 in Pittsburgh, Pennsylvania. The Awards Committee has selected Judea Pearl to receive this award for his paper, "Reverend Bayes on Inference Engines: A Distributed Hierarchical Approach." Pearl is being honored for revolutionizing uncertain reasoning through the introduction of efficient Bayesian inference methods.

Distinguished Service Award

The AAAI Distinguished Service Award recognizes one individual each year for extraordinary service to the AI community. The AAAI Awards Committee is pleased to announce that the second recipient of this award will be Daniel G. Bobrow. Bobrow is being honored specifically for significant contributions to the field of artificial intelligence through sustained service to AAAI and stewardship of *Artificial Intelligence Journal*.

Effective Expository Writing Award

The 2000 AAAI Effective Expository Writing Award was established this year to honor the author(s) of a high quality, effective piece of writing, accessible to the general public or to a broad AI audience (not just a subarea), written within the last two years. The contribution should be based on sound science, interesting ideas or systematic review, with nontrivial content, but the award is primarily for the exposition. The award will be presented to James C. Hendler for his article, "Is There an Intelligent Agent in Your Future?," *Nature*, March 11, 1999.

AAAI Past President David L. Waltz will present the awards on Tuesday, August 1, at 8:30 AM in Ballroom A of the Austin Convention Center.

Fellows Recognition Dinner

Each year the American Association for Artificial Intelligence recognizes a small number of members who have made significant sustained contributions to the field of artificial intelligence, and who have attained unusual distinction in the profession. AAAI is pleased to announce that the six newly elected Fellows for 2000 are: Kenneth Ford, UWF / Institute for Human & Machine Cognition; W. Eric L. Grimson, Massachusetts Institute of Technology; Leslie Pack Kaelbling, Massachusetts Institute of Technology; David Poole, University of British Columbia; Jonathan Schaeffer, University of Alberta; and Bart Selman, Cornell University.

The 2000 Fellows Recognition Dinner will be held Monday, July 31, from 7:30 – 10:00 PM in the Foothills I Ballroom on the seventeenth floor of the Hyatt Regency Austin. A reception will begin at 7:30 PM, followed by dinner at 8:00 PM. (By invitation only).

Outstanding Paper Award

This year, AAAI's National Conference on Artificial Intelligence honors four papers that exemplify the highest standards in technical contribution and exposition. The winning papers are: "The Game of Hex: An Automatic Theorem Proving Approach to Game Programming," by Vadim V. Anshelevich; "Automatic Invention of Integer Sequences," by Simon Colton, Alan Bundy, and Toby Walsh; "Statistics-Based Summarization—Step One: Sentence Compression," by Kevin Knight and Daniel Marcu; and "Local Search Characteristics of Incomplete SAT Procedures," by Dale Schuurmans and Finnegan Southey.

Program Cochairs Henry Kautz and Bruce Porter will present the winners with their certificates on Tuesday, August 1, at 8:30 AM in Ballroom A of the Austin Convention Center.

Presidential Address

Bruce G. Buchanan, University Professor of Computer Science and Professor of Philosophy, Medicine, and Intelligent Systems, University of Pittsburgh, will give the AAAI Presidential Address on "Creativity at the Meta-Level" on Tuesday, August 1, 9:00 AM in Ballroom A of the Austin Convention Center.

Receptions, Meetings, & Posters

Opening Reception

The AAAI-2000 Opening Reception will be held in the Texas Ballroom of the Hyatt Regency Austin, Monday, July 31 from 7:00 – 8:00 PM. This event will provide the traditional opportunity for attendees to socialize at the beginning of the main technical conference. A variety of hors d'oeuvres and a no-host bar will be available. Admittance to the reception is free to AAAI-2000 registrants. A $15.00 per person fee ($5.00 for children) will be charged for spouses and other non-technical conference registrants. Guest tickets are available in onsite registration.

AI Festival

The AI Festival will be held in Exhibit Hall 1 of the Austin Convention Center, Wednesday, August 2 from 6:00 – 10:00 PM. This event will provide attendees the opportunity to stroll among numerous exciting events—the Mobile Robot Competition and Exhibition, the Intelligent Systems Demos, and the Student Posters—enlivened by informal supper and conversation. Admittance to the festival is free to AAAI-2000 registrants. A $20.00 per person fee ($5.00 for children) will be charged for spouses and other non-technical conference registrants. Guest tickets are available in onsite registration.

Technical Paper Posters

NEW!! The first National Conference Technical Paper Poster Session will be held Tuesday, August 1 from 7:00 – 10:00 PM in the Texas Ballroom of the Hyatt Regency Austin. Light refreshments will be served. All technical paper authors have been encouraged to participate, and will be available during one-hour periods.

Doctoral Consortium

The Fifth AAAI/SIGART Doctoral Consortium program will be held on Sunday and Monday, July 30-31, 2000 from 8:30 AM – 6:00 PM in Meeting Room 6A of the Austin Convention Center. The Doctoral Consortium provides an opportunity for a group of Ph.D. students to discuss and explore their research interests and career objectives in an interdisciplinary workshop together with a panel of established researchers. The twelve students accepted to participate in this program will also participate in the Student Poster program on Wednesday, August 2, from 6:00 – 10:00 PM during the AI Festival. All interested AAAI-2000 student registrants are invited to observe the presentations and participate in discussions at the workshop. AAAI and ACM/ SIGART gratefully acknowledge grants from Microsoft Research and the National Science Foundation, Knowledge and Cognitive Systems Program, which partially support student travel to the event.

Student Abstract Posters

Students whose abstracts were chosen for inclusion in the conference proceedings will display their work at the Student Abstract Poster Session in Exhibit Hall 1, Austin Convention Center on Wednesday, August 2 from 6:00 – 10:00 PM, in conjunction with the AI Festival. In addition, participants in the AAAI/SIGART Doctoral Consortium will display their poster presentations during this session. All students will be available for questions.

AAAI Business Meeting

The AAAI Annual Business Meeting will be held Wednesday, August 2, from 12:45 – 1:15 PM in Meeting Room 8, third level, Austin Convention Center.

AAAI Conference Committee Meeting

The Conference Committee Meeting will be held August 2, from 7:30 – 8:30 AM in the Little Colony Room, lobby level, Four Seasons Hotel.

Executive Council Meeting

The AAAI Executive Council Meeting will be held Sunday, July 30, from 9:00 AM – 5:00 PM in Foothills 1, seventeenth floor, Hyatt Regency Austin Hotel. Continental breakfast will be available at 8:30 AM.

Program Committee Lunch

The AAAI-2000 Program Committee Luncheon will be held Tuesday, August 1, from 12:45 – 2:00 PM in the San Jacinto Ballroom on the first level of the Four Seasons Hotel to honor the contributions of all the members of the AAAI-2000 and IAAI-2000 Program Committees. (By invitation only.)

Conference at a Glance

MORNING	AFTERNOON	EVENING
Sunday, July 30 Registration Tutorial Forum Workshops AAAI/SIGART DC Robot Building Lab	Registration Tutorial Forum Workshops AAAI/SIGART DC Robot Building Lab	Mentoring Tutorial SP5
Monday, July 31 Registration Tutorial Forum Workshops AAAI/SIGART DC Robot Building Lab	Registration Tutorial Forum Workshops AAAI/SIGART DC Robot Building Lab	Opening Reception 2000 Fellows Dinner
Tuesday, August 1 Registration AAAI 2000 & IAAI 2000 Presidential Address Invited Presentations Exhibition / IS Demos Robots / Botball	Registration AAAI 2000 & IAAI 2000 Invited Presentations Exhibition/IS Demos Robots / Botball	Technical Poster Session
Wednesday, August 2 Registration AAAI 2000 & IAAI 2000 Invited Presentations Exhibition & IS Demos Robots / Botball	Registration AAAI 2000 & IAAI 2000 Invited Presentations Exhibition & IS Demos Robots / Botball	AI Festival Exhibition & IS Demos Robots / Botball Awards Student Poster Session
Thursday, August 3 Registration AAAI 2000 Invited Presentations Robot Workshop	Robot Workshop	

Tutorial Forum

AAAI-2000 Technical registration includes admission to up to four tutorials and the corresponding four tutorial syllabi. A maximum of four consecutive tutorials may be taken due to parallel schedules. Tutorial attendees may redeem their tutorial syllabi tickets at the tutorial rooms. Attendees who wish to obtain syllabi from other tutorials may purchase them separately for $15.00 per syllabus in onsite registration. The Mentoring Tutorial (SP5) is open to all AAAI-2000 registrants and requires no preregistration.

Session I: Sunday, July 30

9:00 AM – 1:00 PM

SA1: Probabilistic Robotics
Sebastian Thrun
Meeting Room 9A&B, Austin Convention Center

SA2: Practical Tools for Knowledge Representation and Nonmonotonic Reasoning
Ilkka Niemelä and Miroslaw Truszczynski
Meeting Room 8, Austin Convention Center

SA3: New Frontiers in Statistical Natural Language Processing
Christopher Manning
Meeting Room 10, Austin Convention Center

Session II: Sunday, July 30

2:00 – 6:00 PM

SP1: Foundations of Electronic Markets
Tuomas Sandholm
Meeting Room 9A&B, Austin Convention Center

SP2: Approximation Techniques for Automated Reasoning
Rina Dechter and Irina Rish
Meeting Room 8, Austin Convention Center

SP3: Mining Unstructured Data
Ronen Feldman
Meeting Room 10, Austin Convention Center

SP4: Solving and Programming with Soft Constraints: Theory and Implementation
Philippe Codognet and Francesca Rossi
Meeting Room 9C, Austin Convention Center

7:00 – 8:30 PM

SP5: Mentoring Tutorial: Advising Graduate Students
Manuela Veloso
Meeting Room 10, Austin Convention Center

Session III: Monday, July 31

9:00 AM – 1:00 PM

MA1: Vision-Based Interaction and Control
Gregory D. Hager
Meeting Room 9A&B, Austin Convention Center

MA2: Recent Advances in AI Planning: A Unified View
Subbarao Kambhampati
Meeting Room 10, Austin Convention Center

MA3: Text Summarization
Dragomir R. Radev
Meeting Room 8, Austin Convention Center

Session IV: Monday, July 31

2:00 – 6:00 PM

MP1: Empirical Methods for Artificial Intelligence and Computer Science
Paul Cohen, Ian P. Gent and Toby Walsh
Meeting Room 10, Austin Convention Center

MP2: Conceptual Modeling and Ontological Analysis
Nicola Guarino and Chris Welty
Meeting Room 8, Austin Convention Center

MP3: User Modeling and Adaptive Interfaces
Pat Langley and Haym Hirsh
Meeting Room 9A&B, Austin Convention Center

Robot Building Laboratory

The Robot Building Laboratory will be held in Meeting Room 4, level three, Austin Convention Center at the following times:

Sunday, July 30	9:00 AM – 9:00 PM
Monday, July 31	9:00 AM – 1:00 PM
Monday, July 31	3:00 PM – 5:30 PM (RBL-2000 Contest/Exhibition)

Preregistration is required. The robot building lab (RBL) is a chance for AI researchers to experiment with hardware. What happens to your favorite AI algorithm when it actually gets embodied? How reliable is the real world compared to a simulation? Why do roboticists always seem to be having a better time at the conference than logic theorists? These are the questions that can best be answered by participating in the RBL. As in the past, this year's RBL will break the participants into small groups. Each group will be given a robot kit and then will spend the next day and a half creating a robot system to achieve that year's task. The lab will conclude with a friendly competition among the different groups. The theme for this year's lab will be 'multi-agent cooperation'. Each robot kit will contain enough parts to create two or more independent robots that will work together (hopefully) to accomplish the task. Participants are encouraged (but not required) to bring a MacOS, Windows 98, or LINUX laptop with them so that there will be multiple programming stations for each group. The results of the lab will be presented as part of the robot exhibition, later in the conference. The RBL is aimed at educators, students and researchers interested in robotics. A general knowledge of programming will be assumed. No prior robotics experience is required. The lab is being organized and taught by the KISS Institute for Practical Robotics (KIPR) for AAAI. Instructors and assistants are from KIPR's trained staff. David Miller is the lead instructor.

Workshop Program

Attendance at the workshops is limited, and participation is by invitation only. All workshop participants must register for the AAAI-2000 technical program. Registration onsite for a workshop is possible with the prior permission of the corresponding workshop organizer. The times for each workshop are listed below. All workshops will be held in the Hyatt Regency Austin.

Sunday, July 30

W1: Agent-Oriented Information Systems
Organizers: Yves Lespérance, Gerd Wagner and Eric Yu
Hill Country B, Hyatt Regency Austin
9:00 AM – 6:00 PM

W4: Artificial Intelligence for Web Search
Organizers: Kurt Bollacker, C. Lee Giles, and Steve Lawrence
Hill Country C, Hyatt Regency Austin
8:30 AM – 6:00 PM

W5: Constraints and AI Planning
Organizer: Alexander Nareyek
Texas 2, Hyatt Regency Austin
8:15 AM – 6:00 PM

W7: Integration of AI and OR Techniques for Combinatorial Optimization
Organizers: James M. Crawford and J. Paul Walser
Texas 6, Hyatt Regency Austin
9:00 AM – 5:00 PM

W16: New Research Problems for Machine Learning
Organizers: Miroslav Kubat and Tom Mitchell
Texas 7, Hyatt Regency Austin
8:30 AM – 6:00 PM

W17: Parallel and Distributed Search for Reasoning
Organizer: Jörg Denzinger
Big Bend A&B, Hyatt Regency Austin
1:00 – 5:30 PM

W19: Spatial and Temporal Granularity
Organizers: Claudio Bettini and Angelo Montanari
Texas 5, Hyatt Regency Austin
8:00 AM – 5:30 PM

Monday, July 31

W2: Artificial Intelligence and Enterprise Resource Planning / Customer Response Management Systems
Organizer: Daniel O'Leary
Big Bend C-E, Hyatt Regency Austin
8:30 AM – 6:00 PM

W3: Artificial Intelligence and Music: Towards Formal Models for Composition, Performance, and Analysis
Organizers: William Birmingham, Gerhard Widmer, and Roger Dannenberg
Hill Country C, Hyatt Regency Austin
9:00 AM – 6:00 PM

W8: Intelligent Lessons Learned Systems
Organizers: David W. Aha and Rosina Weber
Texas 3, Hyatt Regency Austin
8:30 AM – 5:30 PM

W9: Knowledge-Based Electronic Markets
Organizers: Tim Finin and Benjamin Grosof
Texas 2, Hyatt Regency Austin
8:30 AM – 6:00 PM

W10: Learning from Imbalanced Data Sets
Organizer: Nathalie Japkowicz
Hill Country B, Hyatt Regency Austin
9:00 AM – 5:30 PM

W12: Learning Statistical Models from Relational Data
Organizers: Lise Getoor and David Jensen
Texas 5, Hyatt Regency Austin
8:30 AM – 6:00 PM

W13: Leveraging Probability and Uncertainty in Computation
Organizers: Carla P. Gomes and Holger Hoos
Texas 6, Hyatt Regency Austin
8:30 AM – 6:00 PM

W18: Representational Issues for Real-World Planning Systems
Organizers: Yolanda Gil and Karen L. Myers
Texas 7, Hyatt Regency Austin
9:00 AM – 6:00 PM

Thursday, August 3

W14: Mobile Robotic Competition and Exhibition Workshop
Organizer: Alan Schultz
Meeting Room 6A, Austin Convention Center
10:00 AM – 3:00 PM

Invited Talks

All AAAI-2000/IAAI-2000 invited presentations will be held in Ballroom A, level one, Austin Convention Center, unless otherwise noted.

Tuesday, August 1

9:00 – 10:00 AM

AAAI 2000 Presidential Address:

Creativity at the Meta-Level

Bruce G. Buchanan, *University Professor of Computer Science and Professor of Philosophy, Medicine, and Intelligent Systems, University of Pittsburgh*

Introduction by David L. Waltz (Past President, AAAI), NEC Research Institute

We know creativity when we see it, but can we automate it? In the 1998 Presidential Address, Dave Waltz listed creativity as one of three main aspects of intelligence, along with perception and language, but left the topic for another time. In this year's Presidential Address we'll circle the concept of creativity from human and machine perspectives in an attempt to show that computers can be creative — and sometimes are.

Although there may be some merit in the semantic objection that being creative just means being successful in the absence of known procedures, we can overcome the objection by layering a program's problem solving knowledge. One key idea is structuring programs with explicit conceptual frameworks and strategies that can be examined and adjusted by a meta-level program. This is essentially what John McCarthy was saying in his Advice Taker paper and Arthur Samuel was doing in the 1950's. With the benefits of much bigger machines and nearly fifty years of research, it is time for a renewed push to make our programs as creative as McCarthy and Samuel were showing us how to do.

10:30 – 11:30 AM

AAAI 2000 Invited Talk:

Unconventional Vision Sensors

Shree K. Nayar, *Columbia University*

What can be perceived by a human or computed by a machine from an image is fundamentally restricted by the captured data. Current imaging systems are severely limited in spatial resolution, field of view, and dynamic range. In this talk, we present new vision sensors that provide unconventional forms of visual information. The first part of the talk focuses on the use of catadioptrics (lenses and mirrors) for capturing unusually large fields of view. We describe several methods for obtaining single viewpoint and multi-viewpoint images. The second part of the talk addresses the problem of acquiring high dynamic range images using a low dynamic range detector. We present two approaches for extracting the desired extra bits at each pixel; the first one uses multiple images while the second uses just a single image. Several interactive demonstrations of our results will be shown. These results have implications for digital photography, immersive imaging, image based rendering, 3D scene modeling, and advanced interfaces.

11:40 AM – 12:40 PM

AAAI 2000 Invited Talk:

Artificial Intelligence and Mobile Robots: Successes and Challenges

David Kortenkamp, *NASA Johnson Space Center/Metrica Inc.*

Introduction by Alan Schultz, Naval Research Laboratory

Mobile robots pose a unique challenge to artificial intelligence researchers. In recent years, successes in mapping and navigation have led to new challenges in human-robot interaction, multiple robots, mobile manipulation and learning. This talk will discuss these successes and challenges within the context of the AAAI-2000 Mobile Robot competition.

2:00 – 3:00 PM

AAAI 2000 Invited Talk:

Structure, Duality, and Randomization: Common Themes in AI and OR

Carla Pedro Gomes, *Cornell University*

Introduction by Henry Kautz, University of Washington

Both the artificial intelligence (AI) community and the operations research (OR) community are interested in developing techniques for solving hard combinatorial problems. OR has built heavily on mathematical programming formulations such as integer and linear programming, while AI has developed constraint-based search and inference methods. Recently, we have seen a convergence of ideas, drawing on the individual strengths of these paradigms. Problem structure, duality, and randomization are overarching themes in the study of AI and OR approaches. Gomes will compare and contrast the different views from AI and OR on these topics, highlighting potential synergistic benefits.

IAAI 2000 Invited Talk:

Intelligence in "Artificial" Wireless

Bertrand du Castel, *Schlumberger Ltd*

Meeting Room 9C, third level, Austin Convention Center

Introduction by Reid Smith, Schlumberger Ltd

The background of the presentation is a perspective on the development of wireless technology from 2000 to 2010. The foreground of the presentation is a contrasted understanding of intelligence in "natural" wireless (human communication) versus "artificial" wireless (communication between devices).

3:10 – 4:10 PM

AAAI 2000 Invited Talk:

Missed Perceptions: AI Versus the Funding Agencies

James Hendler, *University of Maryland & DARPA*

Introduction by Dana Nau, University of Maryland

The relationship between the AI community and the funding establishment has often been very strained. In this talk, Hendler examines the reality of this and explores what we, as individuals and as a community, can do to improve our interaction with funding agencies.

Wednesday, August 2

9:00 – 10:00 AM

AAAI 2000 Invited Talk:

Conceptual Indexing: Practical Large-Scale AI for Efficient Information Access

William A. Woods, *Sun Microsystems Laboratories*

Introduction by Ron Brachman, AT&T Labs — Research

Finding information is a problem shared by people and intelligent systems. This talk describes an experiment combining both human and machine aspects in a knowledge-based system to help people find information in text. This system is the first to demonstrate a substantial improvement in information retrieval performance by using linguistic and world knowledge. It is also an example of practical subsumption technology on a large scale and with domain-independent knowledge. Results from this experiment are relevant to general problems of knowledge-based reasoning with large-scale knowledge bases.

10:30 – 11:30 AM

AAAI / IAAAI 2000 Joint Invited Talk:

Human-level AI's Killer Application: Interactive Computer Games

John E. Laird, *University of Michigan*

Introduction by Paul Rosenbloom, University of Southern California

Over the last thirty years, there has been little progress in developing AI systems that integrate the varied intellectual capabilities of humans. In this talk, Laird proposes that interactive computer games can provide the unifying application area for research and development of integrated human-level AI.

11:40 AM – 12:40 PM

AAAI 2000 Invited Talk:

Decision Making under Uncertainty: Operations Research Meets AI (Again)

Craig Boutilier, *University of Toronto*

Introduction by Daphne Koller, Stanford University

Models for sequential decision making under uncertainty (e.g., Markov decision processes, or MDPs) have been studied in operations research for decades. The recent incorporation of ideas from many areas of AI, including planning, probabilistic modeling, machine learning, and knowledge representation, have made these models much more widely applicable. In this talk, Boutilier will survey recent advances within AI in the use of fully- and partially-observable MDPs as a modeling tool, and the development of computationally-manageable solution methods. He will place special emphasis on algorithms that exploit specific problem structure and approximation techniques.

2:00 – 3:00 PM

AAAI 2000 Invited Talk:

Eye Movements and Spoken Language Comprehension: Bridging the Language-as-Action and Language-as-Product Traditions

Michael K. Tanenhaus, *University of Rochester*

Eye movements allow one to monitor real-time language processing in natural situations at a remarkably fine temporal grain. Tanenhaus will present an overview of research using this approach focusing on (1) word recognition in continuous speech and (2) the role that contextually-dependent representations play in reference resolution and syntactic ambiguity resolution.

3:10 – 4:10 PM

AAAI 2000 Invited Talk:

Design and Analysis of Heuristic Evaluation Functions

Richard E. Korf, *University of California, Los Angeles*

Introduction by Jonathan Schaeffer

Korf will discuss recent progress in heuristic search, which has lead to optimal solutions to Rubik's Cube and the 5x5 TwentyFour Puzzle, problems with state spaces of size 1019 and

Invited Talks

1025, respectively. Korf will also present a new theory that allows us to accurately predict the performance of heuristic search algorithms.

4:30 – 5:50 PM

AAAI 2000 Invited Talk:

Machines Reasoning about Machines

J. Strother Moore, *University of Texas at Austin*

Introduction by Daniel G. Bobrow, Xerox Palo Alto Research Center

Can machines reason about machines? The answer is "yes" and the question is of more than just philosophical interest. Today's microprocessors are extraordinarily complex machines; manufacturers are turning to mechanized reasoning tools to help them analyze sophisticated designs. These tools have their roots in early AI research.

Thursday, August 3

9:00 – 10:00 AM

AAAI 2000 Invited Talk:

Modeling High-Dimensional Data Distributions by Combining Simple Experts

Geoffrey Hinton, *University College London, UK*

Introduction by David L. Waltz, NEC Research Institute

It is possible to combine multiple non-linear probabilistic models of the same data by multiplying the probability distributions together and then renormalizing. This is a very efficient way to model data that simultaneously satisfies many different constraints. Hinton will describe an efficient way to fit a "Product of Experts" to data and show that this produces excellent models.

10:30 – 11:30 AM

AAAI 2000 Invited Talk:

Why Do We Need a Body Anyway?

Justine Cassell, *MIT Media Lab*

Embodiment is all the rage: humanoid agents, robots with eyelashes. It brings back those glory days of AI when "human-like" was a goal in and of itself. But do bodies serve any use in today's AI? In this talk Cassell will support the use of embodiment in certain domains and demonstrate with a series of implemented systems. But she will argue that unless we understand the "affordances" of the body — for face-to-face conversation, for situating intelligence, for establishing trust and other kinds of interactional glue — then an embodied systems will never be more than just another pretty face.

11:40 – 12:40 PM

AAAI 2000 Invited Talk:

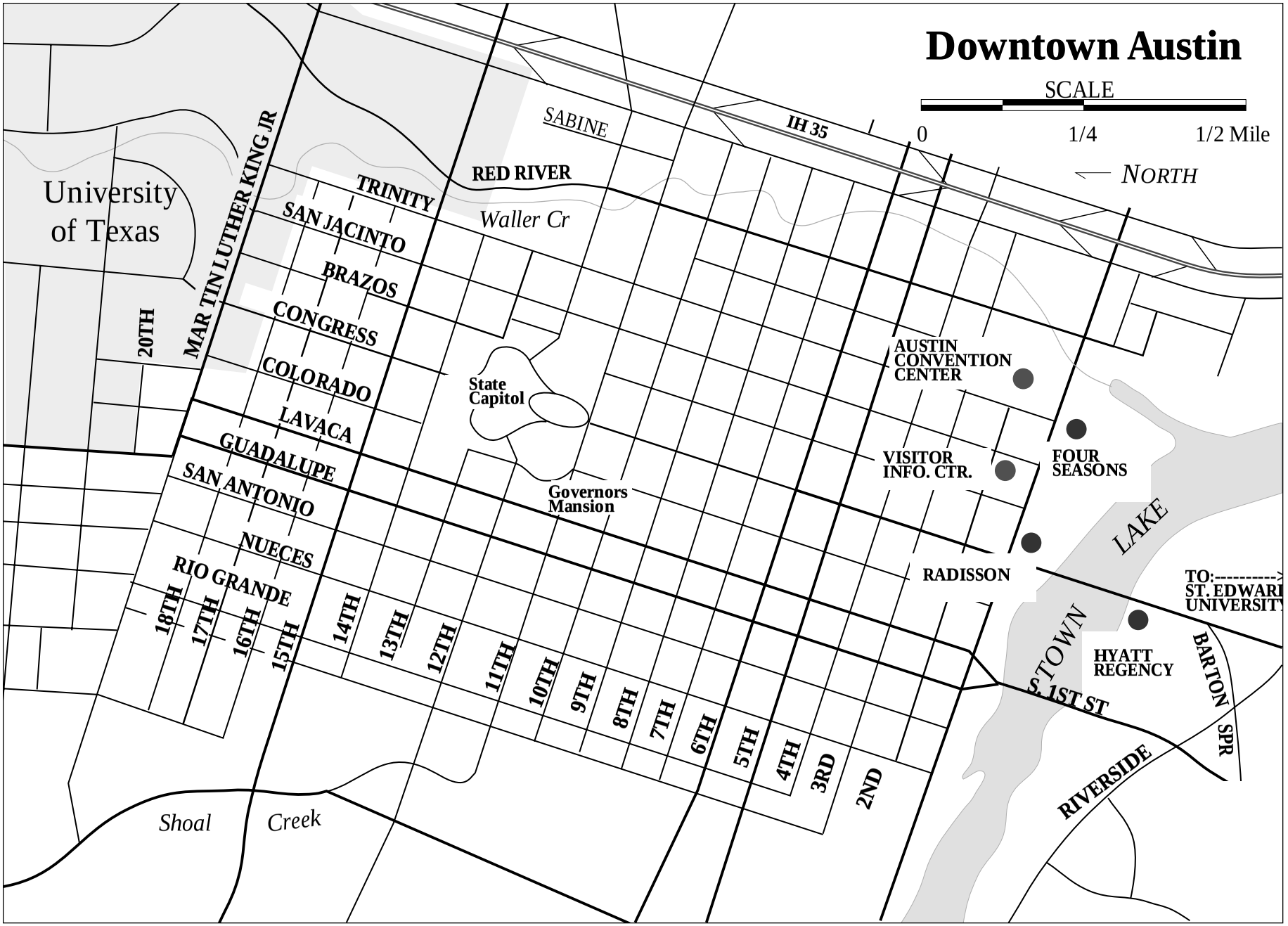
The Games Computers (and People) Play

Jonathan Schaeffer, *University of Alberta*

Introduction by Richard E. Korf

The development of high-performance game-playing programs has been one of the major successes of AI research. The results have been outstanding but, with the one notable exception (Deep Blue), they have not been widely disseminated. This talk will discuss the past, present and future of the development of game-playing programs.

The research emphasis in the past has been on high performance for two-player perfect-information games. The research emphasis of the present encompasses multi-player imperfect/non-deterministic information games. And what of the future? There are some surprising changes of direction occurring that will result in games being more of an experimental testbed for mainstream AI research.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8/1	8:30 – 10:00 AM	10:30 – 11:30 AM	11:40 AM – 12:40 PM
Ballroom A	**Welcome and Opening Remarks** **Outstanding Paper Award Presentation** Henry Kautz & Bruce Porter, AAAI Program Cochairs **Presentation of IAAI Awards** Robert Engelmore and Haym Hirsh, IAAI Program Cochairs **Presentation of AAAI Special Awards** David L. Waltz, AAAI Past President ***Presidential Address:* Creativity at the Meta-Level** Bruce G. Buchanan, University of Pittsburgh	**Invited Talk: Unconventional Vision Sensors** Shree K. Nayar, Columbia University	**Invited Talk: Artificial Intelligence and Mobile Robots: Successes and Challenges** David Kortenkamp, NASA Johnson Space Center/Metrica Inc. Introduction by Alan Schultz
Meeting Room 8	**All AAAI 2000 / IAAI 2000 Technical Sessions will be held in the Austin Convention Center**	**Agent Communication** Session Chair: Martha Palmer **Collective Intelligence and Braess' Paradox** Kagan Tumer and David Wolpert **Semantics of Agent Communication Languages for Group Interaction** Sanjeev Kumar, Marcus J. Huber, David R. McGee, and Philip R. Cohen, and Hector J. Levesque **Agent Capabilities: Extending BDI Theory** Lin Padgham and Patrick Lambrix	**Logics for KR** Session Chair: Peter Patel-Schneider **A Consistency-Based Model for Belief Change: Preliminary Report** James P. Delgrande and Torsten Schaub **Towards a Logic-Based Theory of Argumentation** Philippe Besnard and Anthony Hunter **A Conjunctive Query Language for Description Logic Aboxes** Ian Horrocks and Sergio Tessaris
Meeting Room 9A&B		**SAT 1** Session Chair: Vinay Chaudhri **Integrating Equivalency Reasoning into Davis-Putnam Procedure** Chu Min Li **On 2-SAT and Renamable Horn** Alvaro del Val **Generating Satisfiable Problem Instances** Dimitris Achlioptas, Carla Gomes, Henry Kautz, and Bart Selman	**Machine Learning – Formal Analyses** Session Chair: Dale Schuurmans **Restricted Bayes Optimal Classifiers** Simon Tong and Daphne Koller **A Unified Bias-Variance Decomposition for Zero-One and Squared Loss** Pedro Domingos **Toward a Theory of Learning Coherent Concepts** Dan Roth and Dmitry Zelenko
Meeting Room 10B		**Machine Learning - Decision Trees** Session Chair: Robert Holte **Intuitive Representation of Decision Trees Using General Rules and Exceptions** Bing Liu, Minqing Hu, and Wynne Hsu **Generalizing Boundary Points** Tapio Elomaa, University of Helsinki; Juho Rousu **A Quantitative Study of Small Disjuncts** Gary M. Weiss and Haym Hirsh	**CBR & Genetic Algorithms** Session Chair: David Aha **Assessing Relevance with Extensionally Defined Principles and Cases** Bruce M. McLaren and Kevin D. Ashley **Dynamic Representations and Escaping Local Optima** Laura Barbulescu, Jean-Paul Watson, and L. Darrell Whitley **Dynamic Case Creation and Expansion for Analogical Reasoning** T. Mostek, K. Forbus, and C. Meverden
Meeting Room 10A			
Meeting Room 9C		**IAAI 2000** Session Chair: Neil Jacobstein **AI for the Web — Ontology-Based Community Web Portals (Emerging Technology)** Steffen Staab, Jürgen Angele, Stefan Decker, Michael Erdmann, Andreas Hotho, Alexander Maedche, Hans-Peter Schnurr, Rudi Studer, and York Sure **PTV: Intelligent Personalised TV Guides (Deployed Application)** Paul Cotter and Barry Smyth	**IAAI 2000** Session Chair: Neil Jacobstein **The TheaterLoc Virtual Application (Emerging Technology)** Greg Barish, Craig A. Knoblock, Yi-Shin Chen, Steven Minton, Andrew Philpot and Cyrus Shahabi **Assentor®: An NLP-Based Solution to E-mail Monitoring (Deployed Application)** Chinatsu Aone, Mila Ramos-Santacruz, and William J. Niehaus

10:00 – 10:30 Coffee Break

Tuesday, August 1

AAAI / IAAI Tuesday Technical Sessions

Tuesday, August 1

12:40 – 2:00 Lunch Break

2:00 – 3:00 PM

Invited Talk: Structure, Duality, and Randomization: Common Themes in AI and OR
Carla Pedro Gomes, Cornell University
Introduction by Henry Kautz

Machine Learning – Applications I

Session Chair: Ken Barker

Self-Supervised Learning for Visual Tracking and Recognition of Human Hand
Ying Wu and Thomas S. Huang

Recognizing End-User Transactions in Performance Management
Joseph L. Hellerstein, T. S. Jayram, and Irina Rish

Automatic Invention of Integer Sequences
Simon Colton, Alan Bundy, and Toby Walsh

Nonmonotonic Reasoning I

Session Chair: Michael Gelfond

A Flexible Framework for Defeasible Logics
G. Antoniou, D. Billington, G. Governatori, and M. J. Maher

Computing Circumscriptive Databases by Integer Programming: Revisited
Ken Satoh and Hidenori Okamoto

A Demand-Driven Algorithm for Generating Minimal Models
Rachel Ben-Eliyahu – Zohary

Robot Programming

Session Chair: Manfred Huber

cc-Golog: Towards More Realistic Logic-Based Robot Controllers
Henrik Grosskreutz and Gerhard Lakemeyer

Decision-Theoretic, High-Level Agent Programming in the Situation Calculus
Craig Boutilier, Ray Reiter, Mikhail Soutchanski, and Sebastian Thrun

Property Mapping: A Simple Technique for Mobile Robot Programming
Illah R. Nourbakhsh

IAAI Invited Talk

Session Chair: Reid Smith

IAAI Invited Talk: Intelligence in "Artificial" Wireless
Bertrand du Castel, Schlumberger Ltd

3:10 – 4:10 PM

Invited Talk: Missed Perceptions: AI vs. the Funding Agencies
James Hendler, University of Maryland & DARPA
Introduction by Dana Nau

Dynamic Perl Systems: Diagnosis and Testing

What Sensing Tells Us: Towards a Formal Theory of Testing for Dynamical Systems
Sheila A. McIlraith and Richard Scherl

Bayesian Fault Detection and Diagnosis in Dynamic Systems
Uri Lerner, Ronald Parr, Daphne Koller, and Gautam Biswas

Back to the Future for Consistency-Based Trajectory Tracking
James Kurien and P. Pandurang Nayak

SAT Tractability

Session Chair: Michael Littman

A Game-Theoretic Approach to Constraint Satisfaction
Phokion G. Kolaitis and Moshe Y. Vardi

Tractable Classes for Directional Resolution
Alvaro del Val

Counting Models Using Connected Components
Roberto J. Bayardo Jr. and J. D. Pehoushek

Machine Learning Applications II

Session Chair: Tom Fawcett

Unsupervised Learning and Interactive Jazz/Blues Improvisation
Belinda Thom

ATMOSPHERE — Automatic Track Mining and Objective Satellite Pattern Hunting System Using Enhanced RBF and EGDLM
Raymond S. T. Lee and James N. K. Liu

Memory-Based Forecasting for Weather Image Patterns
K. Otsuka, T. Horikoshi, S. Suzuki, & H. Kojima

IAAI 2000

Session Chair: Reid Smith

Exploiting a Thesaurus-Based Semantic Net for Knowledge-Based Search (Emerging Technology)
Peter Clark, John Thompson, Heather Holmback, and Lisbeth Duncan

Integrating a Spoken Language System with Agents for Operational Information Access (Emerging Technology)
Jody Daniels

4:10 – 4:30 Coffee Break

Tuesday, August 1

4:30 – 5:50 PM

Multi-Agent Systems / Abduction

Non-Deterministic Social Laws
Michael H. Coen

A Mechanism for Group Decision Making in Collaborative Activity
Luke Hunsberger and Massimo Zancanaro

The Complexity of Restricted Consequence Finding and Abduction
Alvaro del Val

Compilability of Abduction
Paolo Liberatore and Marco Schaerf

Local Search and Temporal Reasoning

Session Chair: Enrico Giunchiglia

Local Search Characteristics of Incomplete SAT Procedures
Dale Schuurmans and Finnegan Southey

Local Search with Constraint Propagation…
Narendra Jussien and Olivier Lhomme

An Interval Algebra for Indeterminate Time
Wes Cowley and Dimitris Plexousakis

Disjunctive Temporal Reasoning in Partially Ordered Models of Time
Mathias Broxvall and Peter Jonsson

Robot Navigation

Session Chair: Daphne Koller

Appearance-Based Obstacle Detection …
Iwan Ulrich and Illah Nourbakhsh

Monte Carlo Localization…
S. Thrun, D. Fox, and W. Burgard

Performance Comparison of Landmark Recognition Systems…
Tom Duckett and Ulrich Nehmzow

Coordination for Multi-Robot Exploration…
R. Simmons, D. Apfelbaum, W. Burgard, D.Fox, M. Moors, S. Thrun and H. Younes

Natural Language: Dialogue and MT

Session Chair: James Lester

Cognitive Status and Form of Reference in Multimodal Human-Computer Interaction
Andrew Kehler

Translating with Scarce Resources
Y. Al-Onaizan, U. Germann, U. Hermjakob, K. Knight, P. Koehn, D. Marcu, and K. Yamada

Predicting and Adapting to Poor Speech…
Diane J. Litman and Shimei Pan

Estimating Word Translation Probabilities…
Philipp Koehn and Kevin Knight

IAAI 2000

Session Chair: Bob Engelmore

Applying Learnable Evolution Model to Heat Exchanger Design (Deployed Application)
Kenneth A. Kaufman and Ryszard S. Michalski

A Case-Based Reasoning Application for Engineering Sales Support Using Introspective Reasoning (Emerging Technology)
Ian Watson

Technical Paper Poster Session, Texas Ballroom, Hyatt Regency Hotel

7:00 – 10:00 PM

8/2	8:45 – 10:00 AM		10:30 – 11:30 AM	11:40 AM – 12:40 PM
Ballroom A	**Presentation of CRA Outstanding Undergraduate Awards** Tim Finin, University of Maryland Sponsored by Mitsubishi Electric Research Lab **Invited Talk: Conceptual Indexing: Practical Large-Scale AI for Efficient Information Access** William A. Woods, Sun Microsystems Laboratories Introduction by Ron Brachman		**AAAI-2000 / IAAI-2000 Joint Invited Talk: Human-level AI's Killer Application: Interactive Computer Games** John E. Laird, University of Michigan Introduction by Paul Rosenbloom	**Invited Talk: Decision Making under Uncertainty: Operations Research Meets AI (Again)** Craig Boutilier, University of Toronto Introduction by Daphne Koller
Meeting Room 8	**Game Theory** Session Chair: Lyle Ungar **Coordination Failure and Congestion in Information Networks** A. M. Bell, W. A. Sethares and J. A. Bucklew **Deliberation in Equilibrium: Bargaining in Computationally Complex Problems** Kate Larson and Tuomas Sandholm **Social Choice Theory and Recommender Systems: Analysis of the Axiomatic Foundations of Collaborative Filtering** David Pennock, Eric Horvitz, and C. Lee Giles		**Planning Efficiency** Session Chair: Jim Blythe **An Iterative Algorithm for Synthesizing Invariants** Jussi Rintanen **Discovering State Constraints in DISCOPLAN: Some New Results** Alfonso Gerevini and Lenhart Schubert **Extracting Effective and Admissible State Space Heuristics from the Planning Graph** XuanLong Nguyen and Subbarao Kambhampati	**User Modeling** Session Chair: Diane Litman **ADVISOR: A Machine Learning Architecture for Intelligent Tutor Construction** Joseph E. Beck, Beverly Park Woolf, and Carole R. Beal **Predicting UNIX Command Lines: Adjusting to User Patterns** Benjamin Korvemaker and Russell Greiner **Predicting Future User Actions by Observing Unmodified Applications** Peter Gorniak and David Poole
Meeting Room 9A&B	**Scheduling** Session Chair: Neal Lesh **TCBB Scheme: Applications to Single Machine Job Sequencing Problems** Sakib A. Mondal and Anup K. Sen **Solving a Supply Chain Optimization Problem Collaboratively** Hoong Chuin Lau, A. Lim, and Qi Zhang Liu **Iterative Flattening: A Scalable Method for Solving Multi-Capacity Scheduling Problems** Amedeo Cesta, Angelo Oddi, and Stephen Smith	10:00 – 10:30 Coffee Break	**QR/Spatial Reasoning** Session Chair: Peter Clark **STA: Spatio-Temporal Aggregation with Applications to Analysis of Diffusion-Reaction Phenomena** Iván Ordóñez and Feng Zhao **Describing Rigid Body Motions in a Qualitative Theory of Spatial Regions** B. Bennett, A. Cohn, P. Torrini, and S. Hazarika **GeoRep: A Flexible Tool for Spatial Representation of Line Drawings** Ronald W. Ferguson and Kenneth D. Forbus	**Search I** Session Chair: Robert Holte **Localizing A*** Stefan Edelkamp and Stefan Schrödl **Change Detection in Heuristic Search** Eyke Hüllermeier **A* with Partial Expansion for Large Branching Factor Problems** Takayuki Yoshizumi, Teruhisa Miura, and Toru Ishida
Meeting Room 10B	**Understanding Temporal Sequences** **Graph Construction and Analysis as a Paradigm for Plan Recognition** Jun Hong **On the Recognition of Abstract Markov Policies** Hung H. Bui, Svetha Venkatesh, and Geoff West, Curtin **Multivariate Clustering by Dynamics** Marco Ramoni, Paola Sebastiani, and Paul Cohen	Wednesday, August 2	**Planning and Robotics** Session Chair: Sebastian Thrun **Multi-Fidelity Robotic Behaviors: Acting with Variable State Information** Elly Winner and Manuela Veloso **Active Audition for Humanoid** Kazuhiro Nakadai, Tino Lourens, Hiroshi G. Okuno, and Hiroaki Kitano **Gridworlds as Testbeds for Planning with Incomplete Information** Craig Tovey and Sven Koenig	**Data Integration & Mining** Session Chair: Nicholas Kushmerick **Learning the Common Structure of Data** Kristina Lerman and Steven Minton **Answering Queries Using Views over Description Logics Knowledge Bases** Diego Calvanese, Giuseppe De Giacomo, and Maurizio Lenzerini **A Mutually Beneficial Integration of Data Mining and Information Extraction** Un Yong Nahm and Raymond J. Mooney
Meeting Room 10A			**Probabilistic & Decision-Theoretic Algorithms** Session Chair: Ian Horrocks **Semantics and Inference for Recursive Probability Models** Avi Pfeffer and Daphne Koller **Making Rational Decisions Using Adaptive Utility Elicitation** U. Chajewska, D. Koller, and R. Parr **Sampling Methods for Action Selection in Influence Diagrams** Luis E. Ortiz and Leslie Pack Kaelbling	
Meeting Room 9C	**IAAI 2000** Session Chair: Ted Senator **Rapid Development of a High Performance Knowledge Base for Course of Action Critiquing (Emerging Technology)** Gheorghe Tecuci, Mihai Boicu, Dorin Marcu, Michael Bowman, Florin Ciucu, and Cristian Levcovici **Defining and Using Ideal Teammate and Opponent Agent Models (Emerging Technology)** Peter Stone, Patrick Riley and Manuela Veloso			**IAAI 2000** Session Chair: Haym Hirsh **Nurse Rostering at the Hospital Authority of Hong Kong (Deployed Application)** Andy Hon Wai Chun, Steve Ho Chuen Chan, Garbbie Pui Shan Lam, Francis Ming Fai Tsang, Jean Wong, and Dennis Wai Ming Yeung **A Campus-Wide University Examination Timetabling Application (Emerging Technology)** Andrew Lim, Ang Juay Chin, Ho Wee Kit, and Oon Wee Chong

Wednesday, August 2

12:40 – 2:00 Lunch Break

2:00 – 3:00 PM

Invited Talk: Eye Movements and Spoken Language Comprehension: Bridging the Language-as-Action and Language-as-Product Traditions
Michael K. Tanenhaus, University of Rochester

SAT II

Session Chair: Toby Walsh

Redundancy in Random SAT Formulas
Yacine Boufkhad and Olivier Roussel

Solving Advanced Reasoning Tasks Using Quantified Boolean Formulas
Uwe Egly, Thomas Eiter, Hans Tompits, and Stefan Woltran

An Efficient Global-Search Strategy in Discrete Lagrangian Methods for Solving Hard Satisfiability Problems
Zhe Wu and Benjamin W. Wah

Reinforcement Learning

Session Chair: Richard Sutton

Localizing Search in Reinforcement Learning
Greg Grudic and Lyle Ungar

Inter-Layer Learning Towards Emergent Cooperative Behavior
Shawn Arseneau, Wei Sun, Changpeng Zhao, and Jeremy R. Cooperstock

Empirical Evaluation of a Reinforcement Learning Spoken Dialogue System
Satinder Singh, Michael Kearns, Diane J. Litman, and Marilyn A. Walker

Nonmonotonic Reasoning II

Session Chair: Vladimir Lifschitz

Total Knowledge
Ian Pratt-Hartmann

Preference-Based Search for Scheduling
Ulrich Junker

DATALOG with Constraints — An Answer-Set Programming System
Deborah East and Miroslaw Truszczynski

IAAI 2000

Session Chair: Haym Hirsh

LifeCode™ – A Natural Language Processing System for Medical Coding and Data Mining (Deployed Application)
D. Heinze, M. Morsch, R. Sheffer, Jr., M. Jimmink, M. Jennings, W. Morris, and A. Morsch

DMML: An XML Language for Interacting with Multi-Modal Dialog Systems (Emerging Technology)
Nanda Kambhatla, Malgorzata Budzikowska, Sylvie Levesque, Nicolas Nicolov, Wlodek Zadrozny, Charles Wiecha, and Julie MacNaught

3:10 – 4:10 PM

Invited Talk: Design and Analysis of Heuristic Evaluation Functions
Richard E. Korf, University of California, Los Angeles
Introduction by Jonathan Schaeffer

Combinatorial Auctions I

Session Chair: Ronald Parr

Solving Combinatorial Auctions Using Stochastic Local Search
Holger H. Hoos and Craig Boutilier

An Algorithm for Multi-Unit Combinatorial Auctions
Kevin Leyton-Brown, Yoav Shoham, and Moshe Tennenholtz

Improved Algorithms for Optimal Winner Determination in Combinatorial Auctions…
Tuomas Sandholm and Subhash Suri

Natural Language: Semantics

Session Chair: Chris Manning

Class-Based Construction of a Verb Lexicon
Karin Kipper, Hoa Trang Dang, and Martha Palmer

Learning Subjective Adjectives from Corpora
Janyce M. Wiebe

The Automatic Interpretation of Nominalizations
Maria Lapata

Signals to Symbols

Session Chair: Benjamin Kuipers

Anchoring Symbols to Sensor Data…
Silvia Coradeschi and Alessandro Saffiotti

A Method for Clustering the Experiences of a Mobile Robot that Accords with Human Judgments
Tim Oates, Matthew D. Schmill, and Paul R. Cohen

Visual Event Classification via Force Dynamics
Jeffrey Mark Siskind

IAAI 2000

Session Chair: Ted Senator

SciFinance: A Program Synthesis Tool for Financial Modeling (Deployed Application)
Robert L. Akers, Ion Bica, Elaine Kant, Curt Randall, and Robert L. Young

The Emergence Engine: A Behavior Based Agent Development Environment for Artists (Deployed Application)
Eitan Mendelowitz

4:10 – 4:30 Coffee Break

Wednesday, August 2

4:30 – 5:50 PM

Invited Talk: Machines Reasoning about Machines
J. Strother Moore, University of Texas at Austin
Introduction by Daniel G. Bobrow

Combinatorial Auctions II

Session Chair: Daphne Koller

Iterative Combinatorial Auctions…
David C. Parkes and Lyle H. Ungar

Preventing Strategic Manipulation in Iterative Auctions: Proxy Agents and Price-Adjustment
David C. Parkes and Lyle H. Ungar

Robust Combinatorial Auction Protocol against False-Name Bids
M. Yokoo, Y. Sakurai, and S. Matsubara

Some Tractable Combinatorial Auctions
Moshe Tennenholtz

Cognitive Modeling

Session Chair: Ron Ferguson

Reading a Robot's Mind…
Tetsuo Ono and Michita Imai

Modeling Classification & Inference Learning
Bradley C. Love, Arthur B. Markman, and Takashi Yamauchi

Self-Organization of Innate Face Preferences…
James A. Bednar and Risto Miikkulainen

A Self-Organizing Neural Network for Contour Integration through Synchronized Firing
Yoonsuck Choe and Risto Miikkulainen

Text Summarization and Generation

Session Chair: Ken Barker

Statistics-Based Summarization…
Kevin Knight and Daniel Marcu

The Rules Behind Roles: Identifying Speaker Role in Radio Broadcasts
R. Barzilay M. Collins, J. Hirschberg, & S. Wittaker

Generation of Ideologically-Biased Historical Documentaries
M. Mateas, P. Vanouse, and S. Domike

Preserving Ambiguities in Generation…
Kevin Knight and Irene Langkilde

Actions

Session Chair: Vladimir Lifschitz

Maintainability: A Weaker Stabilizability…
M. Nakamura, C. Baral, and M. Bjäreland

From Causal Theories to Successor State Axioms and STRIPS-Like Systems
Fangzhen Lin

(De)Composition of Situation Calculus Theories
Eyal Amir

Modeling Actions with Ramifications…
Michael Thielscher

IAAI 2000

Session Chair: Sam Uthurusamy

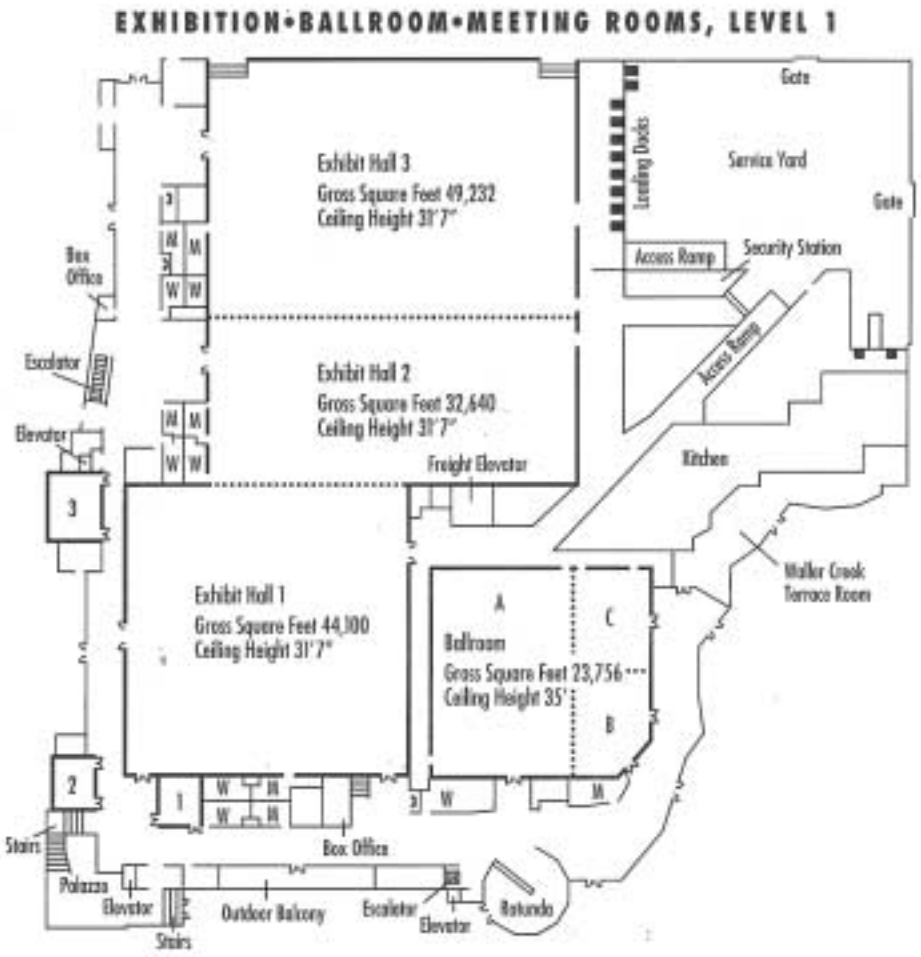
An Expert System for Recognition of Facial Actions and their Intensity (Deployed Application)
M. Pantic and L. J. M. Rothkrantz

ICARUS: Intelligent Content-Based Retrieval of 3D Scene (Emerging Technology)
Raffaella Colaci and Marco Schaerf

6:00 – 10:00 PM — AI Festival, Exhibit Hall 1, Austin Convention Center

8/3	9:00 – 10:00 AM	10:00 – 10:30 Coffee Break	10:30 – 11:30 AM	11:40 AM – 12:40 PM
Ballroom A	**Invited Talk: Modelling High-Dimensional Data by Combining Simple Experts** Geoffrey Hinton, University College London, UK Introduction by David L. Waltz		**Invited Talk: Why Do We Need a Body Anyway?** Justine Cassell, MIT Media Lab	**Invited Talk: The Games Computers (and People) Play** Jonathan Schaeffer, University of Alberta Introduction by Richard Korf
Meeting Room 8	**Game Playing** Session Chair: Richard Korf **On Pruning Techniques for Multi-Player Games** Nathan R. Sturtevant and Richard E. Korf **Combining Knowledge and Search to Solve Single-Suit Bridge** Ian Frank, David Basin, and Alan Bundy **The Game of Hex: An Automatic Theorem Proving Approach to Game Programming** Vadim V. Anshelevich		**Planning with Incomplete Information I** Session Chair: Jim Blythe **Towards Feasible Approach to Plan Checking under Probabilistic Uncertainty: Interval Methods** Raúl Trejo, Vladik Kreinovich, and Chitta Baral **Acquiring Problem-Solving Knowledge from End Users: Putting Interdependency Models to the Test** Jihie Kim and Yolanda Gil **Execution of Temporal Plans with Uncertainty** Paul Morris and Nicola Muscettola	**Planning with Incomplete Information II** Session Chair: Sheila McIlraith **Open World Planning in the Situation Calculus** Alberto Finzi, Fiora Pirri, and Ray Reiter **Planning as Satisfiability in Nondeterministic Domains** Paolo Ferraris and Enrico Giunchiglia **A Logic for Planning under Partial Observability** A. Herzig, J. Lang, D. Longin, and T. Polacsek
Meeting Room 9A&B	**Distributed CSP/SAT** Session Chair: Berthe Choueiry **MarketSAT: An Extremely Decentralized (but Really Slow) Algorithm for Propositional Satisfiability** William E. Walsh and Michael P. Wellman **A Distributed Algorithm to Evaluate Quantified Boolean Formulae** R. Feldmann, B. Monien, and S. Schamberger **Asynchronous Search with Aggregations** Marius Calin Silaghi, Djamila Sam-Haroud, and Boi Faltings		**Search II** Session Chair: Matt Ginsberg **Depth-First Branch-and-Bound versus Local Search: A Case Study** Weixiong Zhang **Speeding up the Convergence of Real-Time Search** David Furcy and Sven Koenig **Divide-and-Conquer Frontier Search Applied to Optimal Sequence Alignment** Richard E. Korf and Weixiong Zhang	**CSP Modeling** Session Chair: Roberto Bayardo **Solving the Round Robin Problem Using Propositional Logic** Ramón Béjar and Felip Manyà **Using Auxiliary Variables and Implied Constraints to Model Non-Binary Problems** Barbara Smith, Kostas Stergiou, and Toby Walsh **RealPlan: Decoupling Causal and Resource Reasoning in Planning** Biplav Srivastava
Meeting Room 10B	**Ontologies** Session Chair: Ron Ferguson **PROMPT: Algorithm and Tool for Automated Ontology Merging and Alignment** Natalya Fridman Noy and Mark Musen **Dynamic Ontologies on the Web** Jeff Heflin and James Hendler **Using Prior Knowledge: Problems and Solutions** Vinay K. Chaudhri, Mark E. Stickel, Jerome F. Thomere, and Richard J. Waldinger		**Learning for Information Extraction** Session Chair: Raymond Mooney **Information Extraction with HMM Structures Learned by Stochastic Optimization** Dayne Freitag and Andrew McCallum **Boosted Wrapper Induction** Dayne Freitag and Nicholas Kushmerick **Selective Sampling with Redundant Views** Ion Muslea, Steven Minton, and Craig A. Knoblock	**Interactive Intelligent Systems** Session Chair: Mary Califf **Interactive Training for Synthetic Characters** Song-Yee Yoon, Robert C. Burke, Bruce M. Blumberg, and Gerald E. Schneider **Human-Guided Simple Search** D. Anderson, E. Anderson, N. Lesh, J. Marks, B. Mirtich, D. Ratajczak, and K. Ryall **Cobot in LambdaMOO: A Social Statistics Agent** Charles Lee Isbell, Jr., Michael Kearns, Dave Kormann, Satinder Singh, and Peter Stone
	AAAI Thursday Technical Sessions	Thursday, August 3		

Facilities Map



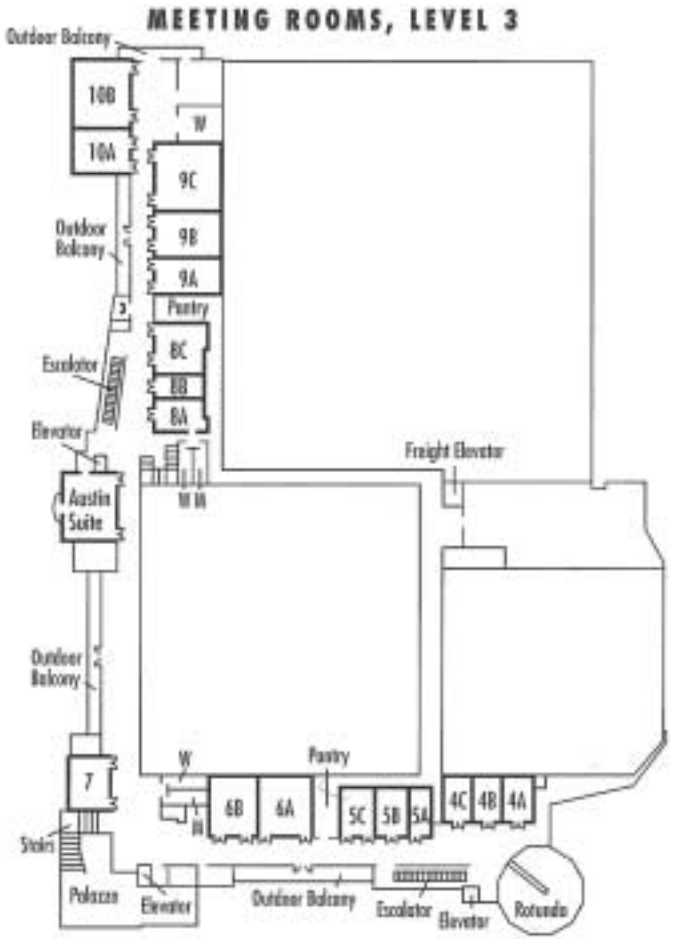


Exhibit Program

Exhibition

The exhibition will be held in Exhibit Hall 1 on the first level of the Austin Convention Center, Tuesday, August 1, and Wednesday, August 2. Admittance is restricted to badged conference attendees. Vendor-issued guest passes must be redeemed at the Exhibitor Registration Desk, in the Palazzo area, on the first level of the Austin Convention Center. Further information regarding access to the Exhibition can be obtained from the Exhibitor Registration Desk. Guest tickets to the AI Festival can be purchased for $20.00 per person ($5.00 for children) at onsite registration.

Exhibit Hours

Tuesday, August 1	10:00 AM–6:00 PM
Wednesday, August 2	10:00 AM–3:00 PM
AI Festival:	6:00–10:00 PM

Exhibitors

- AAAI Press
- ActivMedia Robotics, LLC
- AI Topics – the AAAI Pathfinder Website
- AK Peters, Ltd.
- Elsevier Science
- Institute for Human & Machine Cognition
- Invention Machine Corporation
- IOS Press
- Join us in Edmonton for AAAI-2002!
- KISS Institute for Practical Robotics
- Kluwer Academic Publishers
- The MIT Press
- Morgan Kaufmann Publishers
- Naval Research Laboratory
- *PC AI Magazine*
- Probotics, Inc.
- Real World Interface, A Division of IS Robotics, Inc.
- Springer-Verlag New York, Inc.
- Unmanned Ground Vehicles/Systems Joint Project Office

Special Exhibit

Terminal Time: An AI-Based Interactive Performance

Organizers: Michael Mateas, Carnegie Mellon University; Steffi Domike, Chatham College; and Paul Vanouse, SUNY Buffalo.

Terminal Time is an AI-based interactive artwork, a machine that generates ideologically-biased documentary histories in response to audience feedback. The audience interacts by answering multiple-choice questions via an applause meter. The answers to these questions influence which historical events are chosen from a knowledge base, how these events will be slanted to embody the bias implied in the audience's answers, and how the events will be connected together to form a historical narrative. By creating histories that clearly and instantly respond to changes in audience make-up, Terminal Time raises fundamental questions about the relationship of point of view to constructions of history.

Demonstrations of Terminal Time will be scheduled Tuesday, August 1 – Thursday, August 3 in Meeting Room 2 of the Austin Convention Center, across from the main exhibition hall. A schedule will be posted outside the room.

Booth #100

AAAI Press

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Menlo Park, CA 94025
Voice: 650-328-3123
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The AAAI Press, in partnership with The MIT Press, is the publishing arm of the American Association for Artificial Intelligence. Please stop by the AAAI Press/The MIT Press booth to see many of our books, including new titles by John Fox and Subrata Das, Lucja Iwanska and Stuart Shapiro, and Hillol Kargupta and Phillip Chan.

Booth #112

ActivMedia Robotics, LLC

ActivMedia Robotics
44-46 Concord Street
Peterborough, NH 03458
603-924-9100
Fax: 603-924-9100
E-mail: robots@activmedia.com
Website: www.activrobots.com

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ACTS color-tracking system? There's always something new at ActivMedia.

Booth #203

AI Topics – the AAAI Pathfinder

Jon Glick, Webmaster
Website: www.aaai.org/Pathfinder/pathfinder.html
E-mail: AITopics@aol.com

AI Topics is the web site sponsored by AAAI to provide students, teachers, and the lay public with immediate access to basic, understandable information about AI. You can check it out at the booth or via the AI Topics button at www.aaai.org. We are expanding the site's horizons and would like suggestions and material. Our new Wellspring Initiative will explore the landscape behind the published papers and capture footprints along the paths walked by AI scientists. The goal is to help our audience better understand the dynamics of scientific inquiry and the satisfaction, both personal and professional, that a career in AI can offer. Please stop by with your stories, anecdotes, insights, memorabilia, and of course, any suggestions you may have.

Booth #116

AK Peters, Ltd.

63 South Avenue
Natick, MA 01760
Voice: 508-655-9933

Come see the antics of Rug Warrior Pro, a programmable autonomous robot constructed from a kit available from A K Peters. It complements the highly acclaimed book, *Mobile Robots: From Inspiration to Implementation*, now available in a second revised and expanded edition. In addition to other useful books on robotics, including *Build Your Own Robot* by Karl Lunt and *Service Robots*, the comprehensive and copiously illustrated field guide to new technology, look for *AI for Games and Animation* as well as for a collection of mind-challenging titles.

Booth #200

Institute for Human & Machine Cognition

40 South Alcaniz Street
Pensacola, Florida 32504
Voice: 850-202-4462
Fax: 850-202-4440
Website: www.coginst.uwf.edu

The Institute for the Interdisciplinary Study of Human & Machine Cognition (IHMC) was founded by the Florida legislature in 1989 as an interdisciplinary research unit. Since that time, IHMC has grown into a well-respected research institute with over 70 researchers investigating a broad range of topics related to understanding cognition in both humans and machines, with a particular emphasis on building cognitive prostheses to leverage and amplify human intellectual capacities. Current research areas include computational and philosophical foundations of AI, haptic displays to mitigate spatial disorientation, non-alphanumeric pilot displays, computer-mediated communication and collaboration, computer-mediated learning systems, performance support systems, pedagogically-motivated browsers, human/machine interfaces, neural networks, software agent mobility and security, spatial and temporal reasoning, diagnostic systems, the nature and modeling of expertise, situated cognition, pattern recognition, knowledge discovery and data mining, and other related areas. IHMC researchers receive funding from a wide range of federal, state, and private sources.

Booth #101

Invention Machine Corporation— Powering the Semantic Web™

133 Portland Street
Boston, Massachusetts 02114
Voice: 617-305-9250
E-mail: info@invention-machine.com
Website: www.invention-machine.com

Invention Machine is positioned to help users cut through the clutter of information overload: our semantic processing technology harnesses the power of linguistic reasoning algorithms. Via a 2-click processing and publishing capability, users can automatically build enterprise knowledge portals that present precise solutions to their problems. Our semantic processing technology delivers all the right and relevant answers in the fastest time. Since the company's inception, we've worked with engineering and R&D staffs to help them accelerate their speed to knowledge and handle complicated situations, scattered corporate intellectual property, and increasing electronic content.

Booth #205

IOS Press

Nieuwe Hemweg 6B
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The Netherlands
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Website: www.iospress.nl

IOS Press is a scientific publishing house, publishing books and journals in the field of science, technology, computers and telecommu-

Exhibitors

nication and in the field of biomedicine and health. We publish the book series, Frontiers in Artificial Intelligence and Applications, which has more than 60 titles. Of our 50 journals, 7 journals are devoted to the topics handled at the AAAI conference and another 5 journals have regularly articles on the topics handled at the AAAI conference. To know more about our publications and our company please visit our website, www.iospress.nl.

Booth #105

Join us in Edmonton for AAAI-2002!

AAAI-2000
Edmonton, Alberta, Canada
For information, e-mail: ncai@aaai.org
Website: www.aaai.org/Conferences/National/

Please stop by this booth to learn more about the location of AAAI-2002 and Edmonton, Canada. We hope to see you there!

Booth #307

KISS Institute for Practical Robotics

1818 W. Lindsey, Bldg. D, Suite 100
Norman, OK 73069
Voice: 405-325-7864
Fax: 405-325-7797
E-mail: info@kipr.org
Website: www.kipr.org, www.botball.org

KISS Institute for Practical Robotics is the nation's leading supplier of high quality educational robotics products and programs. KISS Institute has programs for K-12, research robots for universities and professional development classes for everyone else. Stop by our booth and see how robotics education has changed since you were in school and don't miss our interactive display! (Yes, KISS stands for Keep It Simple Stupid.)

Booth #306

Kluwer Academic Publishers

Eleanor Kerrissey, Product Manager
Science and Technology
Kluwer Academic Publishers
101 Philip Drive, Norwell, MA 02061 USA
Voice: 781-871-6600 x 502
Fax: 781-871-6528
E-mail: ekerrissey@wkap.com
Website: www.wkap.nl

Kluwer Academic Publishers, a leading publisher of scientific books and journals, invites you to our display to browse through our latest publications where you will receive a 20% discount. Free sample copies of our journals are available to attendees. For complete information on all our publications, please visit our on-line catalog at http://www.wkap.nl.

Booth #100

The MIT Press

Five Cambridge Center
Cambridge, MA 02142
Voice: (800) 356-0343
Fax: (617) 253-1709
E-mail: mitpress-orders@mit.edu
Website: mitpress.mit.edu

The MIT Press is a leading publisher with a long-term interest in all aspects of AI. At AAAI-2000, we will be displaying our full range of books, including new titles by Rofl Pfeifer, Chris Thornton, Robin Murphy, Rod Brooks, and Mike Wooldridge. We will also have information on a new community-based electronic journal, *The Journal of Machine Learning Research.*

Booth #201

Morgan Kaufmann Publishers

Morgan Kaufmann Publishers
340 Pine Street 6th Floor
San Francisco, CA 94104
Voice: 415-392-2665

Morgan Kaufmann is dedicated to publishing distinguished books for artificial intelligence researchers and students, including graduate and undergraduate level texts, monographs, collected volumes, and conference proceedings. Since its founding in 1984, Morgan Kaufmann has published high-quality books for the artificial intelligence field that are substantially unique, are written by authoritative authors, and reflect our overall commitment to fine book making. We have continued this publishing philosophy with more than 150 books in the AI field, most of which are today considered the definitive works in their fields.

Booth #103

PC AI Magazine

Post Office Box 30130
Phoenix, AZ 85046
Voice: 602-971-1869
Fax: 602-971-2321
E-mail: info@pcai.com
Website: www.pcai.com/pcai/

PC AI Magazine provides the information necessary to help managers, programmers, executives, and other professionals understand the quickly unfolding realm of artificial intelligence (AI) and intelligent applications (IA). *PC AI* addresses the entire range of personal computers including the Mac, IBM, PC, NeXT, Apollo, and more. *PC AI* is an application-oriented magazine designed to give readers useful "hands-on" information. *PC AI* features developments in expert systems, neural networks, object oriented development, and

all other areas of artificial intelligence. Feature articles, product reviews, real-world application stories, and a Buyer's Guide present a wide range of topics in each issue.

Booth #206

Probotics, Inc.

Suite 322
700 River Avenue
Pittsburgh, PA 15212
Voice: 888-550-7658 or 412-322-6005
Website: www.personalrobots.com

Come and see Cye-rr—his excellent ded-reckoning allows autonomous operation and automatic return to his recharger. His Map-N-Zap software allows for immediate, accurate motion control, while his OCX or Java interface give you direct access to all his functions. The basic research robot with sports trailer costs $745, a more powerful Cye costs $995. Just add a computer and you are ready to research! With payload up to 50 lbs, speed up to 3 feet per second and easily accessible power supply on board, Cye is flexible and easily extendible. Cye will demonstrate his camera throughout the exhibition.

Booth #118

Real World Interface, A Division of IS Robotics, Inc.

32 Fitzgerald Drive
Jaffrey, NH 03452 USA
Voice: 603-532-6900

RWI's innovative engineers and staff employ cutting-edge technology to design a growing family of rugged, fully-integrated mobile robot systems. The revolutionary Mobility™ Robot Integration Software and rFLEX™ Robot Control System underline RWI's commitment to developing flexible, highly capable hardware, software, development tools and interfaces to support advanced research and commercial/military robotics applications. Stop by to see RWI's newest addition to our line of research robots. The spirited ATRV-Mini will make its debut at AAAI-2000.

Booth #107

Springer-Verlag New York, Inc.

175 Fifth Avenue
New York, NY 10010
Voice: 1-800-SPRINGER
Website: www.springer-ny.com

Visit the Springer booth for a tour de force of books and journals in the AI field. Major new and best-selling books on display include *Intelligent Information Agents* by Klusch, *Agent Technology* by Jennings, *Software Agents For Future Communication Systems* by Hayzelden, and *How To Solve It* by Michalewicz. Take advantage of the 20% conference discount on all books (valid until September 3, 2000). Complimentary sample copies of key journals, such as *AI & Society, Neural Computing and Applications,* and *Artificial Life & Robotics* are available to attendees during exhibit hours.

Booth #207

Unmanned Ground Vehicles / Systems Joint Project Office

USA AMCOM, AMSAM-DSA-UG-A
Redstone Arsenal, AL 35898-8060
Voice: 256-955-6994

Programs of the Unmanned Ground Vehicles / Systems Joint Project Office, are the Family of Tactical Unmanned Vehicles (FTUV), Vehicles Teleoperation (VT) and Robotic Combat Support Systems (RCSS). FTUV is a family of UGV's for reconnaissance, surveillance, and target acquisition and other potential tactical missions. VT provides a Standardized Robotic System kit that gives military units an option to remotely control a wide range of vehicles using teleoperation or semi-autonomous control. RCSS is a robotic anti-personnel obstacle proofing and neutralization system.

Booth #305

University of Alberta Artificial Intelligence Laboratory

Department of Computing Science
University of Alberta
Edmonton, Alberta Canada T6G 2H1
Website: www.cs.ualberta.ca/~ai

The Artificial Intelligence Laboratory is one of the premier AI research groups in Canada. Active research areas include games, belief nets, adaptive user interfaces,scheduling, constraint satisfaction, theorem proving, robotics, and logic programming (see www.cs.ualberta.ca/~ai for more details). Included in the display are two components of the "AI Exploratorium", the first steps toward our vision of an interactive AI educational and research web environment. The Exploratorium is funded by AAAI.

Intelligent Systems Demos

The Intelligent Systems Demonstrations will be held in Exhibit Hall 1 of the Austin Convention Center and will be open to registered conference attendees during exhibit hours. The Intelligent Systems Demonstration program returns to AAAI-2000 for its third year. Continuing advances in AI research are making it possible to develop intelligent artifacts in a wide range of application areas. The AAAI-2000 Intelligent Systems Demonstrations program showcases state-of-the-art AI implementations and provides AI researchers with an opportunity to show their research in action.

The program is intended to highlight innovative contributions to the science of AI with an emphasis on the benefits to be gained from developing and using implemented systems in AI research. Last year's demonstrations included speech- and gesture-based systems, AI-based simulators, several systems using AI on the World-Wide Web, and an AI system for playing interactive video games with and against human players. System builders will be on hand to present their work, and audience interaction with the systems is encouraged as much as possible.

All demonstrations will be available during the AI Festival on Wednesday evening, and the tentative individual demonstration schedule for Tuesday is listed below. Demonstrations will also be available during exhibit hours Wednesday by appointment.

Demonstrations Schedule

Tuesday, August 1

- 11:00 AM: Non-Axiomatic Reasoning System (Version 4.1)
- 11:30 AM: TV Content Recommender System
- 12:00 PM: Qualitative Spatial Interpretation of Course-of-Action Diagrams
- 12:30 PM: Customer Coalitions in the Electronic Marketplace
- 1:00 PM: Playing Hex with Hexy
- 1:30 PM: Untangle Digital Library
- 2:00 PM: The Systems Engineering Process Activities Methodology and Tool Suite
- 2:30 PM: O-Plan: a Web-based AI Planning Agent
- 3:00 PM: Adaptive User Interfaces through Dynamic Design Automation
- 3:30 PM: Automated Theory Formation in Mathematics
- 4:00 PM: Sensible Agents: Demonstration of Dynamic Adaptive Autonomy
- 4:30 PM: User Interface Softbots
- 5:00 PM: Matchmaking to Support Intelligent Agents for Portfolio Management
- 5:30 PM: The Chimaera Ontology Environment

Wednesday, August 2

- 10:00 AM – 3:00 PM: Demos Available by Appointment
- 6:00 PM – 10:00 PM: AI Festival: All Demos Available

Booth #D12

Adaptive User Interfaces through Dynamic Design Automation

Robin R. Penner (robin@iterativity.com)
Iterativity / University of Minnesota
College of Mechanical Engineering
111 Church Street SE, Minneapolis, MN 55455
Erik S. Steinmetz (erik@iterativity.com)
Iterativity / University of Minnesota
Dept. of Computer Science and Engineering
200 Union Street SE, Minneapolis, MN 55455
Chris Johnson (chris.l.johnson@honeywell.com)
Honeywell Technology Center
Human Centered Systems
3660 Technology Drive
Minneapolis, MN 55418

DIG (Dynamic Interaction Generation) is a tool that addresses the difficulty of supporting human usability in large, diverse control systems such as building environmental and security systems. DIG uses models of domain, task, and presentation knowledge to automatically design and present interfaces specialized to a user's current role and task, the current situation, and the capabilities of the current display hardware. In this demonstration, DIG will convert a real-life building management configuration into a dynamic interface that building managers can operate using either a standard PC or a Palm Pilot.

Booth #D3

Automated Theory Formation in Mathematics

Simon Colton and Alan Bundy
University of Edinburgh Division of Informatics
80 South Bridge, Edinburgh EH1 1HN UK
simonco@dai.ed.ac.uk
Toby Walsh
University of York Dept. of Computer Science,
Heslington, York Y010 5DD United Kingdom

The HR program forms theories in various mathematical domains. The theories contain concepts, examples, conjectures, theorems and proofs and can be formed from just the axioms of the domain. We first demonstrate HR forming theories in graph theory, group theory and

number theory. Following this we demonstrate HR's interaction with the encyclopedia of integer sequences and give examples of how this has led to possibly new mathematical conjectures. To end the demonstration, we detail two online implementations of HR, the Integer Sequence Generator and a multi-agent version of HR. Both of these are available to use at http://machine-creativity.com

Booth #D15

The Chimaera Ontology Environment

Deborah McGuinness (contact), Richard Fikes, James Rice, and Steve Wilder
Knowledge Systems Laboratory, Gates Building 2A, Room 241 Stanford University Stanford, CA 94305
E-mail: dlm@ksl.stanford.edu
Voice: 650-723-9770

Ontologies have become central components in many applications including search, e-commerce, configuration and, arguably, every large web site (at least for organization and navigation). As ontologies become larger, more distributed, and longer-lived, the need for ontology creation and maintenance environments grows. In our work with ontologies and tool environments over the last few years, we have observed growing needs for automated support of two tasks: (1) merging multiple ontologies and (2) diagnosing (and evolving) ontologies. Chimaera is an ontology environment aimed at supporting these two tasks.

Booth #D11

Customer Coalitions in the Electronic Marketplace

M. Tsvetovat, K. Sycara, Y. Chen and J. Ying, The Robotics Institute, Carnegie Mellon University

In the last few years, the electronic marketplace has witnessed an exponential growth in worth and size, and projections are for this trend to intensify in coming years. While the Internet offers great possibilities for creation of spontaneous communities, this potential has not been explored as a means for creating economies of scale among similar-minded customers. This demonstration will illustrate the economic incentives behind formation of buying clubs and achievement of effect of economies of scale within temporary agent coalitions. The demonstration will also focus on coalition formation mechanisms for creation of such buying clubs. The demonstration will start by showing the protocol and scenarios in coalition formation, and presenting the economic models that show how both suppliers and customers can benefit from advent of such buying clubs (i.e. incentives to create buying clubs), which are critical in any real-world system. We will proceed by demonstrating a multi-agent system that implements formation of buying clubs based on the above mentioned mechanisms. Conference attendees would be able to interact with the system using a web-based interface, and form buying clubs for procurement of technical books. This system would be used to collect empirical data on user's reactions to different coalition formation scenarios in a real-world setting, as well as data on economic incentives in a situation that maximally approaches real world deployment of such a system.

Booth #D16

Matchmaking to Support Intelligent Agents for Portfolio Management

Massimo Paolucci, Zhendong Niu, Katia Sycara, Constantine Domashnev, Sean Owens, and Martin Van Velsen, The Robotics Institute, Carnegie Mellon University, Pittsburgh, PA
E-mail: {paolucci, niu, katia, dconst, owens, vvelsen}@cs.cmu.edu

A-Match is a matchmaking system that allows agents to enter and exit the system dynamically. It employs a Matchmaker to support agents in the system in their exchange of services. A-Match lets human users interact with the Matchmaker. Through the A-Match users find agents that can provide needed services or advertise new agents. The functionality of the A-Match is displayed in the context of the Warren System, a system that supports the user to manage its own stock portfolio.

Booth #D10

Non-Axiomatic Reasoning System (Version 4.1)

Pei Wang, Intelligenesis Corporation
Center for Research on Concepts and Cognition, Indiana University

NARS (Non-Axiomatic Reasoning System) is an intelligent reasoning system. It can answer questions according to the knowledge originally provided by its user. What makes it different from conventional reasoning systems is its ability to learn from its experience and to work with insufficient knowledge and resources. The NARS 4.1 demo is a Java applet. It comes with help information and simple examples to show how the system does deduction, induction, abduction, analogy, belief revision, membership evaluation, relational inference, backward inference, new concept formation, and so on, in a unified manner. The demo also allows the user to create new exam-

ples to test the system, as well as to see the internal structure and process when the system is running. The on-line help information contains links to relevant publications.

Booth #D9

O-Plan: A Web-based AI Planning Agent

Austin Tate, Jeff Dalton and John Levine
Artificial Intelligence Applications Institute
Division of Informatics, The University of Edinburgh, 80 South Bridge, Edinburgh, EH1 1HN, UK

O-Plan is an AI planning agent working over the WWW. There are a number of demonstrations ranging from a simple "single shot" generation of Unix systems administration scripts through to comprehensive use of AI technologies across the whole planning lifecycle in military and civilian crisis situations The applications are derived from actual user requirements and domain knowledge. The AI planning technologies demonstrated include domain knowledge elicitation, rich plan representation and use, hierarchical task setwork planning, detailed constraint management, goal structure-based plan monitoring, dynamic issue handling, plan repair in low and high tempo situations, interfaces for users with different roles, management of planning and execution workflow The featured demonstrations, and others, are available at www.aiai.ed.ac.uk/~oplan/isd/

Booth #D6

Playing Hex with Hexy

Vadim V. Anshelevich, Vanshel Consulting
1200 Navaho Trail
Richardson, Texas 75080
E-mail: vanshel@earthlink.net

You can play Hex with Hexy—the strongest Hex-playing computer program. The game of Hex was independently invented by Piet Hein and a Nobel Prize laureate John Nash. With simple rules and deep underlying mathematical beauty, Hex has a strategic complexity comparable to that of Chess and Go. Instead of massive game-tree search technique, Hexy uses a new approach, which emphasizes deep hierarchical analysis of relatively few game positions. This approach is described in the paper "The Game of Hex: An Automatic Theorem Proving Approach to Game Programming," selected as an Outstanding Paper of AAAI-2000.

Booth #D4

Qualitative Spatial Interpretation of Course-of-Action Diagrams

Ronald W. Ferguson (contact), Robert A. Rasch, Jr., William Turmel, and Kenneth D. Forbus, Northwestern University and Battle Command Battle Lab, Ft. Leavenworth
Northwestern University, ILS,
Suite 300, 1890 Maple Ave., Evanston, IL 60201
Voice: 847-491-4790
E-mail: ferguson@cs.nwu.edu

We demonstrate qualitative spatial reasoning techniques in a real-world diagrammatic reasoning task: Course-of-Action (COA) diagrams. COA diagrams are military planning diagrams that use a large, composable symbology to depict units' tasks and movements. We demonstrate two COA diagrammatic reasoners built using our qualitative spatial reasoner, GeoRep. The first system uses GeoRep to interpret individual COA glyphs. The second system takes knowledge-enriched COA glyphs and represents critical geographic relationships. This latter system was used as a geographic knowledge server in a recent DARPA initiative, during which it answered dozens of geographic queries about many different COA diagrams.

Booth #D13

Sensible Agents: Demonstration of Dynamic Adaptive Autonomy

K. S. Barber, A. Goel, D. C. Han, J. Kim, D. N. Lam, T. H. Liu, C. E. Martin, and R. McKay
The Laboratory for Intelligent Processes and Systems (LIPS), The University of Texas at Austin
24th and Speedway, Austin, TX 78712
Website: www.lips.utexas.edu
E-mail: barber@mail.utexas.edu

Sensible Agents are designed for domains with a high level of dynamism and uncertainty demanding organizational structure adaptation for the agents (e.g. hierarchical, peer group, etc.) in which responsibilities to plan for and execute goals are allocated. In dynamic situations, it is unreasonable to expect a single organizational structure to be appropriate at all times. Sensible Agents use dynamic adaptive autonomy (DAA) to reorganize themselves during runtime to solve different problems. DAA allows agents to dynamically form, modify, and dissolve goal-oriented problem-solving agreements with other agents in a robust and flexible manner. The Sensible Agent Testbed provides a well-defined infrastructure and facilities for repeatable operation and experimentation where distributed agents can be defined, initialized, run, and analyzed using a rich reporting feature.

Booth #D7

The Systems Engineering Process Activities (SEPA) Methodology and Tool Suite

K. Suzanne Barber, Thomas Graser, Paul Grisham, Stephen Jernigan, and Sutirtha Bhattacharya
The Laboratory for Intelligent Processes and Systems (LIPS), The University of Texas at Austin
24th and Speedway, Austin, TX 78712
Website: www.lips.utexas.edu
E-mail: barber@mail.utexas.edu

The SEPA methodology and supporting tool suite facilitates development of software system designs from evolving requirements. SEPA creates traceable, comprehensible, and extensible system designs based on requirements from system clients and domain experts. User inputs are refined by: (1) merging models representing inputs from multiple sources, (2) distinguishing between inputs relating to implementation-specific requirements and those relating to domain knowledge such as business processes and data, and (3) constructing an object-oriented, implementation-independent reference architecture based on domain requirements. Software system design creation is supported by (1) user-assisted specification of technology components for utilization in system designs, (2) providing a framework for evaluating technology components inclusion and integration within a system design considering both implementation-specific and domain-specific requirements.

Booth #D8

TV Content Recommender System

Srinivas Gutta, Kaushal Kurapati, KP Lee, Jacquelyn Martino, John Milanski, J. David Schaffer and John Zimmerman
Philips Research, 345 Scarborough Road
Briarcliff Manor, NY 10510
E-mail: Srinivas.Gutta@philips.com

The plethora of content available to the consumer has become overwhelming. Increasing amounts of information are being disseminated through terrestrial broadcast, satellite, and cable leading to an information overload. Common modes of searching for TV programs currently in existence include: TV-guide, PreVue channel and rudimentary search tools available through satellite dish TV programming service. These tools are general-purpose in nature and are not specifically tailored to the individual viewer's taste. Towards that end we advance in this paper a recommender system that searches for TV programs based on their likes/dislikes through implicit personalization techniques.

Booth #D5

Untangle: A New Ontology for Card Catalog Systems

Christopher Welty and Jessica Jenkins
Vassar College Computer Science Department
Poughkeepsie, NY 12604-0462
E-mail: weltyc@cs.vassar.edu
Website: untangle.cs.vassar.edu/

The ontology used by most card catalog and bibliographic systems is based on a now outdated assumption that users of the systems would be looking for books on shelves, and therefore only books were first-class objects, with people, organizations, etc. as simple attributes. This limited the ability of a user to browse. A new ontology for card catalog systems is demonstrated that shows how persons, organizations, conferences, etc., as first-class objects with attributes and relations of their own, create a rich space of background information that helps users find what they are looking for.

Booth #D14

User Interface Softbots

Robert St. Amant and Luke S. Zettlemoyer
Department of Computer Science
North Carolina State University
EGRC-CSC Box 7534
Raleigh, NC 27695-7534

Human-computer interaction (HCI) and artificial intelligence (AI) share a long history of research. Recently the concept of agent has sparked a common interest. We have developed a novel class of agents we call interface softbots, or ibots, that exist within in the rich, often complex environment of the graphical user interface. These ibots utilize image processing of the screen buffer and generation of keyboard and mouse events to perform actions directly in the user interface as a human user would. We will demonstrate several implemented ibots executing tasks ranging from playing Solitaire to performing file manipulation.

Ninth Annual AAAI Mobile Robot Competition and Exhibition

The Robot Competition and Exhibition will be held in Exhibit Hall 1 on the first level of the Austin Convention Center, and will be open to registered conference attendees during exhibit hours. This series of events brings together teams from universities and other research laboratories to compete, and also to demonstrate cutting edge research in robotics and artificial intelligence.

The Mobile Robot Competition and Exhibition serves AI-robotics researchers, and the larger AI community by promoting innovative research through events which appeal to media and sponsors, while conducting these events in a format that facilitates comparison of approaches and integration of multiple AI methodologies. Our goals are to:

- Foster the sharing of research ideas and technology
- Allow research groups to showcase their achievements
- Encourage students to enter the fields of robotics and AI
- Increase awareness of the field

This year, the Competition and Exhibition is comprised of three separate events.

Contest

Hors d'Oeuvres Anyone? Robot Interaction Event

This event will take place during the AI Festival on Wednesday evening in the exhibit hall. The objective of this competition is to act as service robots, serving hors d'oeuvres to attendees at the reception. Each contestant is encouraged to explicitly and unambiguously demonstrate interaction with the spectators. In keeping with the IJCAI panel on "The Next Big Thing", more natural modes of communication are necessary for society's acceptance of robots. Furthermore, this helps distinguish the AAAI competition from other competitions. Robots will be allowed to touch attendees! Specifically, in their attempt to serve food, a robot may "nudge" a person in order to get through a crowd and serve food to other groups of people. In addition to emphasizing interaction with attendees, manipulation is encouraged, either by refilling serving trays autonomously, or in physically handing out the food or flyers to the attendees.

Urban Search and Rescue Competition

Robots must enter a fallen structure, find and identify victims, possibly deliver a small package (representing water and a device to allow human rescuers to talk to the victim) near the victim, possibly determine severity of injury, and help human rescuers determine the location of the victims. The robot must then exit the structure. Robots will be judged in one of three categories based on basic ability to handle increasingly difficult scenarios.

Challenge

In addition to the contest and exhibit, we have the Robot Challenge. In this event, a particularly challenging task is defined, which is well beyond current capabilities, will require multiple years to solve, and should encourage larger teams and collaborative efforts. The challenge task is defined by a long-term committee of researchers. Currently the task is for a robot to be dropped off at the front door of the conference venue, register itself as a student volunteer, perform various tasks as assigned, and talk at a session. The challenge will require integration of many areas of artificial intelligence as well as robotics. Teams will be in the main conference areas attempting to solve parts of this problem. Awards for the challenge will be given for technical innovations in various AI technology areas, but no place awards will be given. In particular, awards for integration of AI techniques will be awarded.

Awards

This year, in addition to certificates, we will have awards of mobile robots for several categories. In each of the two competition events, a robot will be awarded to the first and second place teams' home institutions. In addition, two awards will be given for the best integration across multiple AI techniques, the Ben Wegbreit Award for Integrative Technologies, and the Nils Nilsson Award for Integrative Technologies. Teams from both the contest and the challenge are eligible for these awards. The awards consist of Amigobots (ActivMedia Robotics), Megallen mobile robots (Real World Interface), and a Koala Robot (K-Team).

Exhibition

The exhibition gives researchers an opportunity to demonstrate state-of-the-art research in a less structured environment. Exhibits are scheduled throughout normal exhibit hall hours. In addition to live exhibits, a video proceedings will be shown.

Robot Event Judges & Chairs

- General Chair
  Alan C. Schultz, Naval Research Laboratory
- Competition Cochair
  Lisa Meeden, Swarthmore College
- Challenge Cochair
  Tucker Balch, Carnegie Mellon University
- Exhibition Cochairs
  Marc Böhlen and Vandi Verma, Carnegie Mellon University
- Steering Committee Chair
  David Kortenkamp, Metrica Trac Labs

Mobile Robot Competition Workshop

Organizer: Alan C. Schultz
Thursday, August 3
10:00 AM – 3:00 PM
Meeting room 6A, Austin Convention Center

Robot Competition and Exhibition Teams

Exhibitor

ActivMedia Robotics

Robot: PeopleBot
Team Members: Michael Trosen and Christopher Newton

Exhibitor

Carnegie Mellon University

Robot: The Minnow Multi-Robot Team
Team Advisor: Tucker Balch
Team Members: Rosemary Emery, Ashley Stroupe, Rande Shern
The Minnow project at CMU is building and studying teams of robots operating in dynamic and uncertain environments. The multi-robot team is able to accomplish cooperative tasks using a layered behavior-based architecture. Our robots are fully autonomous with wireless communication and color vision. Onboard control is provided by TeamBots, Java-based software running on a Linux microcomputer. Color images are captured by a miniature color video camera and a video capture card. Real-time color blob detection is provided by CMVision.

Exhibitor

Carnegie Mellon University

Robot: Robot Volley Ball
Team Leader: Dan Vogel

Exhibitor

Georgia Institute of Technology

Robot: Learning Tasks from Demonstration
Team Advisor: Christopher Atkeson
Team Leader: Darrin Bentivegna
Humans can begin to learn a task by observing the task being performed. This can provide a jumpstart to becoming proficient at the task. Can robots also learn to do a task by observing a performance of the task? This research explores ways for agents to use observed data to reduce the learning time needed to perform a task. Last year we showed some preliminary research in this area. This year we will demonstrate further research in the Labyrinth game environment. An agent has learned the beginnings of how to play the game in the virtual environment from observing a human player. It then goes on to increase its performance through repeated trials. The learning algorithms will be adapted for an actual Labyrinth game that has been equipped with servomotors, allowing a computer to operate the game like a human player. Sensors are installed on the playing board so its attitude can be measured. A computer vision system allows the computer to observe the movement of the ball. Visitors will have the opportunity to play the virtual and hardware versions of the game. While playing on the virtual version the agent will collect data. The agent can then attempt to play the game using the collected data.

Exhibitor

Havinga Software

Robot: Snuf
Exhibitor: Jaap Havinga
Snuf is a simple autonomous mobile robot constructed of mainly second-hand components. Snuf is capable of gathering small building blocks on the floor, and bring these to a predefined position, while avoiding collisions with other objects. No special operating re-

quirements are needed, other than a smooth floor. The Snuf project is a personal initiative. Its body is a simple aluminum ground-plate, on which two geared stepper motors have been mounted. Together with a 12V NiCd accu the ground-plate is fully occupied. On top of this construction a i386DX board (own design) is located. Several sensors are used: a front bumper and a rotating stereo ultra-sound transmitter/receiver for object detection. Snuf displays its deeper thoughts on a small LCD screen. Programs are written in C++. The binaries are downloaded to Snuf using a serial connection. After booting the program by a remotely controlled kernel, the robot can be detached from the PC and will function autonomously. An object-oriented controlling system implements a state machine approach. One state machine is used for goal specification, and another state-machine is used for object avoidance. This approach gives the flexibility to extend functionality easily, and add features like learning and probabilistic behavior.

USAR and Hors d'oeuvres Anyone? Competitor

Kansas State University

Team Leader: David Gustafson

Exhibitor

K-Team S.A.

Robots: Koala, Khepera, K-Alice
Team Leader: Olivier Carmona

K-Team manufactures a family of autonomous mobile robots and a general mobile system controller board for use in Education, Research and Industry. All of our products feature Swiss-made reliability, modularity, a multi-tasking operating system, compatibility with a wide range of development environments (GNU C, Matlab and LabView), and free support.

Challenge

Northwestern University

Team Leader: Ian Horswill

Exhibitor

Polytechnic University

Robot: Redbot, a six legged robot
Team Leader: Eugene Agresta

Exhibitor

Probotics, Inc.

Robot: Cye II, a personal robot
Team Leader: Stuart Fairley
Team Members: Henry Thorne and Stephan Roth

Hors d'oeuvres Anyone? Competitor, and Challenge

Swarthmore College

Team Leader: Bruce Maxwell

USAR and Hors d'oeuvres Anyone? Competitor

University of Arkansas

Team Leader: Doug Blank

Exhibitor

University of Minnesota

Robot: Scout
Team Advisors: Nikos Papanikolopoulos, Maria Gini and Richard Voyles
Team Members: Paul Rybski, Sascha Stoeter and Dean Hougen

This research presents a new kind of robot called the Scout. The Scout is a small, mobile sensor platform designed for reconnaissance and surveillance tasks. Scouts are extremely small (4 cm wide and 11 cm long) yet are readily deployable, have multiple mobility modes, have multiple sensing capabilities, and can transmit and receive data and instructions. The two mobility modes of the scout include rolling along flat surfaces using its two wheels and hopping over small (~20cm) obstacles using a spring-loaded "tail". The Scout is designed to be deployed either by tossing or launching it into the area in which it is to operate. Due to their small size and limited computational power, Scouts have restricted autonomous capabilities. They are thus used as part of a larger heterogeneous system, including humans and other robots, where their control programs are executed on more powerful computers. These computers can either be a PC worn by a human or a larger robot. Because of the detachment of the controllers from the robot's bodies, the system as a whole is extremely flexible, allowing multiple Scouts to be shared by a single controller.

Challenge Competitor

University of Sherbrooke

Robot: Hercules
Team Advisor: Michaud Francois
Team Leader: Dominic Létourneau
Team Members: Dominic Létourneau, Jonathan Audet, François Michaud

Hercules is a Pioneer 2 AT robot equipped with 16 sonars, a gripper, a compass, a pan-tilt-zoom camera, a charging connector and an onboard computer. Our goal is to participate in the Robot Challenge, attempting to make Hercules attend the AAAI Conference. We plan to use a symbol recognition approach to guide the robot to the registration desk using signs. The goals of the robot will be managed using

the concept of artificial emotions to regulate social behavior. The robot should be able to move around in the crowd, recognize dignitaries (by their colored tag), possibly recharging itself if required, go to a conference room and give a short presentation, using Internet and HTML, about the whole experience.

Hors d'ouevres, Anyone? Competition

University of South Florida

Robots: Butler and Leguin
Team Advisor: Christine Lisetti, Robin Murphy
Team Leader: *Russ Tardif*
Team Members: Aaron Gage, Liam Irish, Russ Tardif
Emotional Waiters: Our entry uses two heterogeneous robots: one is the primary server capable of interacting with the audience and operating under sensor failures, the second is an assistant who brings refills upon request. The individual personalities and interactions between the two robots is based on emotions. For example, if the waiter gets frustrated by the assistant's tardiness in bringing a refill, she may stop serving and go to meet the assistant. If the waiter's sensors are turned off and sensing degrades, this is reflected in her body and vocal expression.

USAR Competition

University of South Florida

Robot: Fontana
Team Advisor: Robin Murphy
Team Leader: Jenn Casper
Team Members: Jenn Casper, Jeff Hyams, Mark Micire
Urban Search and Rescue Cowboys: Our entry uses a combination of search heuristics identified by our work with Fire Rescue departments and studies in foraging and searching in the ethological and cognitive literature. The robot first partitions the hot zone into a preference ordering of areas to search based on the semantics of the site (places where victims are thought to have been at the time of the collapse, places where the structure supports survival, etc.). It then visits each area and performs a systematic search. As it transits between areas, it conducts a less rigorous opportunistic search.

USAR Competition

University of South Florida

Robots: Fontana, Bujold, TBA
Team Advisor: Robin Murphy
Team Leader: Jenn Casper
Team Members: Jenn Casper, Jeff Hyams, Mark Micire
Urban Search and Rescue: This exhibition will discuss lessons learned to date from our work with Fire Rescue departments. We will demonstrate various sensors, including a miniature thermal sensor from the Army Night Vision Lab, suitable for detecting victims.

Exhibitor

University of Southern California

Robot: Adonis
Team Members: Chad Jenkins and Maja Mataric
Motor control is a complex problem and imitation is a powerful mechanism for acquiring new motor skills. In this project, we describe primitives, a biologically-inspired notion for a basis set of perceptual and motor routines. Primitives serve as a vocabulary for classifying and imitating observed human movements. We demonstrate how a model of imitation can be implemented using such primitives. Furthermore, we present approximate motion reconstruction from a set of visual data taken from typically imitated tasks, such as aerobics, dancing, and athletics.

Exhibitor

University of Texas

Robot: Vulcan
Team Leader: Emilio Remolina

Challenge Competitor

Utah State University

Robot: Blue Swarm
Team Advisor: Kevin Moore
Team Leader: Dan Stormont
The Blue Swarm is six modified toy cars designed to work together as a robotic swarm. They are being developed as part of a multiphase project to investigate various approaches to extremely low-cost planetary exploration. For this competition, the Blue Swarm will have the first iteration of control hardware installed. This hardware uses the subsumption architecture, as pioneered by Rodney Brooks, implemented in analog circuitry. The robots will be executing a random walk algorithm to validate simulation work already completed. If the simulation results are validated by the swarm's performance in this competition, the swarm will be upgraded with a reinforcement learning algorithm based on the Dyna-Q algorithm described by Sutton and Barto in the book Reinforcement Learning, implemented with a microcontroller. The final iteration of control hardware and software will also be installed on a swarm of legged robots for use in less structured environments.

Botball Tournament

High School National Botball Tournament

No, the graduate students haven't gotten younger! Once again AAAI is pleased to host the National Botball Tournament, featuring top robots built by middle and high school students from across the country. Botball is a game in which robots attempt to achieve a specified goal, in an exciting head to head, double elimination tournament.

The goal of Botball is to get middle and high school students involved in the creative side of technology—to get our upcoming workforce excited about technology, robotics, and AI. Botball involves embodied agent computer programming (in C), mechanical design, science, math, and teamwork.

In this year's tournament, teams either play the black ball or white ball side. The challenge is to get the most of your colored ping pong balls into the tray, winning extra points if the tray ends up on your side of the table. Bonus points are awarded if the robot ends up in the tray as well.

We will start out with a seeding round, at which time robots run unopposed—a prime opportunity to show off their best moves. During the regular one-on-one matches, teams are notified three minutes before the round as to which side they will play. Robots are required to start by themselves and shut down after 90 seconds.

Last year's tournament featured Fembot, the robot built by the all-girls team from Oak Grove High School versus Minataurus from Menlo-Atherton High School in a stunning finals match that had the crowds cheering. We expect even more excitement this year.

These robots were completely designed, built, and programmed by students from a kit of over 2000 parts. The Botball contest will be open to AAAI attendees during regular exhibit hours.

Event Schedule

(The Wednesday schedule may vary depending upon the number of teams.)

Tuesday, August 1

10:00 AM: Team Registration
1:30 PM: Seeding Rounds
5:00 PM: Adjourn

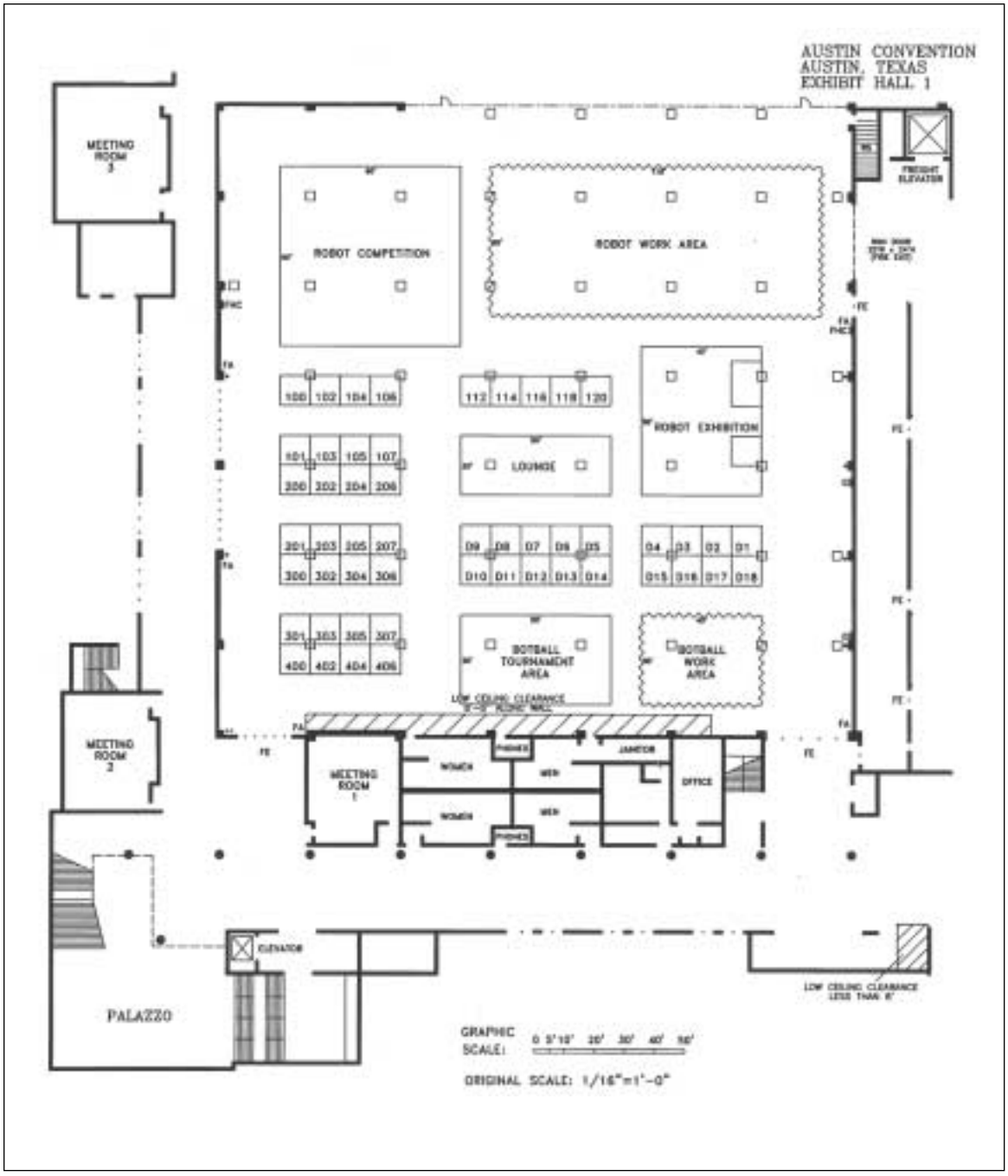
Wednesday, August 2

10:00 AM: Open for Team Set Up
12:30 PM: Double Elimination Rounds
3:00 PM: Finals
AI Festival: Botball Awards Presentations

Team Participants

- Bishop Kenny High School
- Dibble High School
- Duncan Fletcher High School
- E. H. Cary Middle School
- Eisenhower High School
- Episcopal High School of Houston
- Farmington Harrison High School
- Foothill High School
- Garber High School
- Glen Burnie Senior High School
- Independence High School
- Kingston High School
- Langley High School
- Mandarin High School
- Menlo Atherton High School
- Norman High School
- Norman-Area Home Schoolers
- North Bethesda Middle School #2
- North Garland HS
- Oak Ridge High School
- Paxon School for Advanced Studies
- Perry Traditional Academy
- Rose-Hulman (home school and catch-all)
- Santa Teresa High School
- South Vermillion MS
- Sunrise Christian Academy
- Tennyson High School
- Terre Haute North HS
- Terre Haute South HS
- Thomas Jefferson High School for Science & Technology
- Tilden Middle School
- TownView Science & Engineering Magnet
- W. T. White High School
- Wakefield HS
- Western Heights High School
- Westwood Montessori School
- Wootton HS

Exhibit Map


AUSTIN CONVENTION
AUSTIN, TEXAS
EXHIBIT HALL 1
MEETING ROOM 2
ROBOT COMPETITION
ROBOT WORK AREA
FREIGHT ELEVATOR
ROBOT EXHIBITION
LOUNGE
BOTBALL TOURNAMENT AREA
BOTBALL WORK AREA
LOW CEILING CLEARANCE
MEETING ROOM 1
WOMEN
MEN
JANITOR
OFFICE
ELEVATOR
PALAZZO
LOW CEILING CLEARANCE LESS THAN 8'
GRAPHIC SCALE:
ORIGINAL SCALE: 1/16"=1'-0"

Registration

Conference registration will take in the Palazzo area on the first level of the Austin Convention Center, beginning Sunday, July 30. Registration hours are:

Sunday, July 30	7:30 AM – 6:00 PM
Monday, July 31	7:30 AM – 6:00 PM
Tuesday, August 1	8:00 AM – 6:00 PM
Wednesday, August 2	8:00 AM – 6:00 PM
Thursday, August 3	8:30 AM – 12:00 PM

Only checks drawn on US banks, VISA, MasterCard, American Express, government purchase orders, traveler's checks, and US currency will be accepted. We cannot accept foreign currency or checks drawn on foreign banks.

Registration Fees

The AAAI-2000/IAAI-2000 technical program registration fee includes admission to all technical paper and poster sessions, invited talks and panels, the Exhibition Program, the Intelligent Systems Demos, the Robot Competition and Exhibition, the Botball Tournament, the Student Abstract Poster Session, the Tutorial Forum (including SP5), the Workshop Program (by invitation only), the opening reception, the AI Festival, and the AAAI-2000/IAAI-2000 Conference Proceedings. Tutorial Forum attendees may register for up to four consecutive tutorials, and will receive the corresponding syllabi. Students must present proof of full-time student status to qualify for student rate. Onsite technical program fees are:

Regular Member	$520	Regular Nonmember	$605
Student Member	$170	Student Nonmember	$235

Workshop Program

Workshop registration is limited to those active participants determined by the organizer prior to the conference. All workshop participants must register for the AAAI-2000 technical program. Registration onsite for a workshop is possible with the prior permission of the corresponding workshop organizer.

Robot Building Lab

The robot building lab registration includes admission to the robot building lab and the exhibition program. Fees are $150.00 for members or nonmembers, and $75.00 for students. Attendance is limited and preregistration is required.

Exhibition

Admission to the exhibition hall programs is included in all other types of registration. For individuals interested in admittance to the exhibit hall only, an exhibits only registration is available in onsite registration. The fee is $10.00 for a two-day pass, or $30.00 for a two-day pass plus the AI Festival on Wednesday evening. Exhibit hall programs include vendor exhibits, the Intelligent Systems Demonstrations, the High School National Botball Tournament and the Robot Competition and Exhibition. High-school students are welcome and will be admitted without fee upon presentation of a valid high-school student ID. Children under 12 will also be admitted without fee, but must be accompanied by an adult conference registrant. *Please note:* The AI Festival, which will be held in the exhibit hall, is included in the technical registration fee only. All other attendees must pay an additional fee.

Admission

Each conference attendee will receive a name badge upon registration. This badge is required for admittance to the technical, tutorial, exhibit, IAAI and workshop programs. Workshop attendees will also be checked off a master registration list at individual rooms. Tutorial attendees must present syllabi tickets to receive syllabi. Smoking, drinking and eating are not allowed in any of the technical, tutorial, workshop, IAAI, or exhibit sessions.

Baggage Holding

There is no baggage holding area at the Austin Convention Center. Please check your luggage with the bellman at your hotel after you have checked out. Neither the AAAI, the Austin Convention Center, the Hyatt Regency Austin, the Four Seasons Hotel, nor the Radisson Hotel & Suites Austin accept liability for the loss or theft of any suitcase, briefcase, or other personal belongings brought to the site of AAAI-2000/IAAI-2000.

Banking

The closest bank and automated teller machine (ATM) are located at Bank of America. The ATM networks available are Discover, MasterCard, Visa, Cirrus, Honor and Plus. Bank of America can also exchange all major foreign currencies.

Bank of America
500 Congress Avenue
Austin, Texas 78701
Telephone: (512) 397-2357
or (888) 279-3247
Monday – Friday: 9:00 AM – 4:00 PM
Closed Saturdays and Sundays

There is an automated teller machine (ATM) located on the South side of the Austin Convention Center next to the Southeast entrance of Exhibit Hall 1.

Business Centers

Business Centers are available at the following locations:

- **Kinko's**
  327 Congress Avenue
  (512) 472-4448
  Open 24 Hours
  Services include faxing, copies, laser printing, and other general office services.
- **AVW Department**
  Copy and small business services are available at the AVW Department at the Southeast entrance on the first level of the Austin Convention Center.

Career Information

A bulletin board for job opportunities in the artificial intelligence industry will be made available in the registration area, on the first level of the Austin Convention Center. Attendees are welcome to post job descriptions of openings at their company or institution.

CD-ROM

Each registrant for the AAAI-2000/IAAI-2000 technical program will receive a ticket with the registration materials for one copy of the conference CD-ROM. During registration hours on Sunday, July 30, Monday, July 31 and until 10:00 AM on Tuesday, August 1, CD-ROM tickets can be redeemed at the AAAI Press Proceedings desk, located in AAAI onsite registration on the first level of the Austin Convention Center. After 10:00 AM on Tuesday, the AAAI-2000/IAAI-2000 CD-ROM ticket may be redeemed at the Registration Desk. Extra CD-ROMs may be purchased at the conference site at the above locations. Thursday, August 3, will be the last day to purchase extra copies of the conference CD-ROM on site.

Please note: Registrants *must* pick up their conference CD-ROMs onsite. (AAAI cannot redeem tickets after the conference.)

Child Care Services

For information about child care services, you may contact CoCare at 512-836-2600, Mom's Best Friend at 512-346-2229, or Grannies Nannies at 512-451-8201. (This information is provided for your convenience and does not represent an endorsement of this agency by AAAI. Responsibility for all child care arrangements must be assumed by the parents.)

Coffee Breaks

Coffee will be served in the foyer outside the meeting rooms on the third level, and outside Ballroom A on the first level of the Austin Convention Center, Sunday, July 30 – Wednesday, August 2, 10:00 – 10:30 AM and 4:10 – 4:30 PM. Coffee will be served from 10:00 – 10:30 AM on Thursday, August 3. Coffee breaks at the Hyatt Regency Austin will be served in the Texas Foyer and the Hill Country Foyer, Sunday, July 30 and Monday, July 31 from 10:00 – 10:30 AM and 3:30 – 4:00 PM.

Copy Services

Copy service is available at the AVW Department at the Southeast entrance on the first level of the Austin Convention Center. Also see Business Centers.

Dining

Austin dining information is available in the Austin Visitors Guide Booklet, which has been included with your registration materials. A concession stand will be open in the Ballroom A Foyer on the first level of the Austin Convention Center from, Sunday, July 30 – Thursday, August 3.

Handicapped Facilities

The Austin Convention Center, the Hyatt Regency Austin, the Four Seasons Hotel, and the Radisson Hotel & Suites Austin are all equipped with handicapped facilities.

Housing

For information regarding hotel reservations, please contact the hotels directly. For student housing, please contact St. Edward's University at 464-8809.

Information Desk

An information desk/message desk will be staffed during registration hours, Sunday through Thursday, July 30 – August 3. It is located near the registration area, on the first level of the Austin Convention Center. Messages will be posted on the message boards adjacent to the desk. The telephone number for leaving messages only is (512) 404-4720. Paging attendees is not possible.

Internet

AAAI will be providing internet access in Meeting Room 6B of the Austin Convention Center. The internet room will be open Sunday, July 31 – Wednesday, August 2, 8:00 AM – 6:00 PM; and Thursday 8:00 AM – 12:00 PM. As a courtesy, please limit your access time to 5-10 minutes if others are waiting to use the service.

List of Attendees

A list of preregistered attendees of the conference will be available for review at the AAAI Desk in the registration area on the first level of the Austin Convention Center. Attendee lists will not be distributed.

Message Center

See Information Desk.

Parking

The Hyatt Regency Austin charges $5.00 per day for self-parking and $9.00 for valet parking per day. The Four Seasons Hotel charges $8.66 per day for self-parking and $14.07 for valet parking per day. The Radisson Hotel charges $7.00 for self-parking per day. The Austin Convention Center provides parking for $5.00 per day (with 3 in or out passes). There is also a lot at 4th and Red River Street for $5.00 per day (machine-operated).

Press

All members of the media are requested to register in the Press Room, on the third level of the Austin Convention Center in Meeting Room 5C. Press badges will only be issued to individuals with approved credentials. The Press Room will be open during the following hours.

Monday, July 31	8:00 AM – 5:00 PM
Tuesday, August 1	8:00 AM – 5:00 PM
Wednesday, August 2	8:00 AM – 5:00 PM
Thursday, August 3	8:00 AM – 12:00 PM

An AAAI-2000 volunteer will be on duty dur-

ing press room hours to assist the members of the press and media.

Printed Materials

Display tables for the distribution of promotional and informational materials of interest to conference attendees will be located in the registration area on the first level of the Austin Convention Center.

Proceedings

Each registrant for the AAAI-2000/IAAI-2000 technical program will receive a ticket with the registration materials for one copy of the conference *Proceedings.* During registration hours on Sunday, July 30, Monday, July 31 and until 10:00 AM on Tuesday, August 1, *Proceedings* tickets can be redeemed at the AAAI Press Proceedings desk, located in AAAI onsite registration on the first level of the Austin Convention Center. After 10:00 AM on Tuesday, the AAAI-2000/IAAI-2000 *Proceedings* ticket may be redeemed at the MIT Press booth #100, located in the Exhibition Hall 1 of the Austin Convention Center, during exhibit hours. Limited *Proceedings* will be available at the AAAI Press *Proceedings* desk again on Thursday, August 3 from 8:30–10:00 AM. Extra *Proceedings* may be purchased at the conference site at the above locations. Thursday, August 3, will be the last day to purchase extra copies of the *Proceedings* on site.

The AAAI-2000/IAAI-2000 *Proceedings* can also be redeemed by mailing the ticket with your name, shipping address and e-mail to:

Exhibits
The MIT Press
5 Cambridge Center
Cambridge, MA 02142

Postage must be prepaid with a check or MasterCard/Visa and expiration date. USA: $10.50; for orders outside USA: $25.00 surface or $55.00 for airmail.

Proceedings Shipping

Mail Boxes Etc. on 815-A Brazos can handle all your shipping needs. The hours of operation are Monday – Friday: 9:00 AM – 6:00 PM and Saturday: 10:00 AM – 1:00 PM. Mail Boxes Etc. can be reached at 512-476-5316.

Recording

No audio or video recording is allowed in the Tutorial Forum. Audiotapes of the plenary sessions, invited talks and panels, and the IAAI sessions will be for sale on the first level of the Austin Convention Center. A representative from Sound On Tape will be available to take your order during registration hours, beginning on Tuesday, August 1. Order forms are included with registration materials. Tapes may also be ordered by mail from:

Sound on Tape, Inc.
1800 Stoney Brook, Suite 104
Houston, Texas 77063
Voice:1-800-993-7116 or 713-536-6834
Fax: 713-339-1327
Website: soundontape.com

Speaker Ready Room

The Speaker Ready Room will be located in Meeting Room 5B on the third level of the Austin Convention Center. This room has audio-visual equipment to assist speakers with their preparations. It is important that speakers visit this room to organize their materials. The room will be open from 8:00 AM – 5:00 PM Sunday, July 30 – Wednesday, August 2 and 8:00 AM – 12:00 PM Thursday, August 3.

Invited speakers are asked to come to Meeting Room 5B one day prior to their speech. Representatives from AV Headquarters will be available from 9:00 AM – 5:00 PM, Sunday, July 30 – Wednesday, August 2 and 9:00 AM – 12:00 PM, Thursday, August 3 to confirm your audiovisual needs, and assist with the preparation of your materials, if necessary.

T-Shirts

AAAI-2000 T-shirts will be for sale during registration hours at the registration desk, on the first level of the Austin Convention Center. Supplies are limited. Price: $15.00 each onsite.

Transportation

The following information provided is the best available at press time. Please confirm fares when making reservations.

Airlines and Rental Cars

The American Association for Artificial Intelligence has selected American Airlines and

Continental Airlines as the official co-carriers and Alamo Rent A Car as the official car rental agency for AAAI-2000/IAAI-2000. If you need to change your airline or car rental reservations, please call Conventions in America, our official travel agency at 800-929-4242 and ask for Group #428. E-mail: flycia@stellaraccess.com

Taxi

Taxis are available at Austin Bergstrom International Airport. The approximate fare from the airport to downtown Austin and the Hyatt Regency is $15.00.

Bus

Greyhound Bus—For information on fares and scheduling, call 1-800-231-2222. The Greyhound terminal is approximately 4 miles from downtown.

City Transit System

The local transit company is Capital Metro. The fare is $.50 cents one way. There is also a free service called the Dillo (provided by Capital Metro) in the downtown area. Capital Metro can be contacted at 512-474-1200.

Train

Amtrak—For information on fares and scheduling, call 1-800-872-7245. The Amtrak terminal is approximately one mile from the Austin Convention Center.

Tutorial Syllabi

Extra copies of AAAI-2000 tutorial syllabi will be available for purchase in AAAI onsite registration in the Austin Convention Center, beginning Tuesday, August 1. Supplies are limited. Cost is $15.00 per syllabus. Preregistration tutorial syllabi tickets may be redeemed in the tutorial rooms.

Volunteer Room

The volunteer room is located in Meeting Room 5A on the third level of the Austin Convention Center. Hours are 8:00 AM – 5:00 PM, Sunday, July 30 – Wednesday, August 2 and 8:00 AM – 12:00 PM, Thursday, August 3. Extra volunteer instructions and schedules will be available. All volunteers should check in with Josette Mausisa, AAAI Registrar, in the registration area prior to their shifts. The volunteer meeting will be held Saturday, July 29 at 4:00 PM in Meeting Room 8.

Disclaimer

In offering Alamo Rent A Car, American Airlines, Austin Convention Center, Continental Airlines, Conventions in America, the Four Seasons Hotel, GES Exposition Services, the Hyatt Regency Austin, Radisson Hotel & Suites, and all other service providers (hereinafter referred to as "Supplier(s)" for the National Conference on Artificial Intelligence and the Innovative Applications Conference), AAAI acts only in the capacity of agent for the Suppliers, which are the providers of the service. Because AAAI has no control over the personnel, equipment or operations or providers of accommodations or other services included as part of the AAAI-2000/IAAI-2000 program, AAAI assumes no responsibility for and will not be liable for any personal delay, inconveniences or other damage suffered by conference participants which may arise by reason of (1) any wrongful or negligent acts or omissions on the part of any Supplier or its employees, (2) any defect in or failure of any vehicle, equipment or instrumentality owned, operated or otherwise used by any Supplier, or (3) any wrongful or negligent acts or omissions on the part of any other party not under the control, direct or otherwise, of AAAI.

Austin Area Map