



AAAI-02
Edmonton/Alberta
IAAI-02

Program & Exhibit Guide

EIGHTEENTH NATIONAL CONFERENCE ON
ARTIFICIAL INTELLIGENCE (AAAI-02)

FOURTEENTH CONFERENCE ON INNOVATIVE APPLICATIONS
OF ARTIFICIAL INTELLIGENCE (IAAI-02)

July 28-August 1, 2002

Shaw Conference Centre and Westin Edmonton Hotel

Edmonton, Alberta, Canada

SPONSORED BY THE AMERICAN ASSOCIATION FOR ARTIFICIAL INTELLIGENCE

Cosponsored by

ACM/SIGART, Alberta Informatics Circle of Research Excellence (iCORE),
Defense Advanced Research Projects Agency (DARPA), NASA Ames Research Center,
NSF's Directorate for Computer and Information Science and Engineering (CISE), Naval Research Laboratory

In cooperation with

The University of Alberta

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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 Eighteenth National Conference on Artificial Intelligence and the Fourteenth Conference on Innovative Applications of Artificial Intelligence.

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Berthe Y. Choueiry, *University of Nebraska-Lincoln* and Janyce Wiebe, *University of Pittsburgh*

A complete listing of the AAAI-02 and IAAI-02 Program Committee members appears in the conference proceedings.

Sponsoring Organizations

AAAI gratefully acknowledges the generous contributions of the following organizations to AAAI-02:

- ACM/SIGART
- Alberta Informatics Circle of Research Excellence (iCORE)
- Defense Advanced Research Projects Agency (DARPA)
- NASA Ames Research Center
- NSF's Directorate for Computer and Information Science and Engineering (CISE)
- Naval Research Laboratory
- University of Alberta

AAAI Recognition Award

The AAAI Awards will be presented by Tom Mitchell, AAAI President, and Bruce Buchanan, AAAI Past President and Awards Committee Chair, on Wednesday, July 31, at 8:15 AM in Exhibit Hall C of the Shaw Conference Centre. Recipients will be announced in the AAAI-02 Program Addendum. The awards will be given in the following three categories:

Classic Paper Award

The 2002 AAAI Classic Paper Award will be given to the author of the most influential paper(s) from the Third National Conference on Artificial Intelligence, held in 1983 in Washington, DC.

Distinguished Service Award

The AAAI Distinguished Service Award recognizes one individual each year for extraordinary service to the AI community.

The AAAI Effective Expository Writing Award

The 2002 AAAI Effective Expository Writing Award was established in 2000 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 non-trivial content, but the award is primarily for the exposition.

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 the eight newly elected Fellows for 2002:

- Kevin D. Ashley, *University of Pittsburgh*
- Michael Gelfond, *Texas Tech University*
- Eric Horvitz, *Microsoft Research*
- Henry E. Kyburg, Jr., *University of Rochester and UWF/Institute for Human & Machine Cognition*
- Michael I. Jordan, *University of California, Berkeley*
- Sarit Kraus, *Bar-Ilan University and University of Maryland*
- Stephen H. Muggleton, *Imperial College of Science, Technology and Medicine*
- Katia P. Sycara, *Carnegie Mellon University*

The 2002 Fellows Recognition Dinner will be held Tuesday, July 30, from 7:30 - 10:00 PM in the

Drawing Room of the Fairmont Hotel Macdonald. 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 one paper that exemplifies high standards in technical contribution and exposition. During the blind review process, members of the Program Committee recommended which papers to consider for the Outstanding Paper Award. A subset of the Senior Program Committee, carefully chosen to avoid conflicts of interest, reviewed all such papers and selected the winning paper: "On Computing All Abductive Explanations" by Thomas Eiter, Technische Universität Wien and Kazuhisa Makino, Osaka University Program Cochairs Rina Dechter and Michael Kearns will present the authors with their certificates on Tuesday, July 30, at 8:00 AM in Exhibit Hall C of the Shaw Conference Centre.

Presidential Address

Tom M. Mitchell, Fredkin Professor of Computer Science at Carnegie Mellon University, will give the AAAI Presidential Address on "AI and the Impending Revolution in Brain Science" on Wednesday, July 31, 8:30 AM in Exhibit Hall C of the Shaw Conference Centre.

Technical Paper Poster Sessions

The AAAI-02 Technical Poster Sessions will be held on Tuesday, July 30, 5:45 - 8:45 PM, and Wednesday, July 31, 7:00 - 10:00 PM in the Ballroom on the second floor of the Westin Edmonton. Sixty technical papers will be presented each evening, and will be organized according to subject area (maps will be available in the ballroom). All AAAI-02 registrants are encouraged to attend this integral portion of the conference. Refreshments will be available.

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 AB, Shaw Conference Centre on Wednesday, July 31 from 3:00 - 5:30 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.

Receptions, DC-02, and Meetings

Opening Reception

The AAAI-02 Opening Reception will be held Monday, July 29, 7:00 – 10:00 PM, at Fort Edmonton Park (Canada's largest living history park). This event will provide the traditional opportunity for attendees to socialize in a unique setting prior to the beginning of the first day of technical sessions. A variety of hors d'oeuvres and a no-host bar will be available. Admittance to the reception is free to AAAI-02 registrants including transportation to and from the event. A \$40.00 CDN per person fee (\$15.00 CDN for children) will be charged for spouses and other nontechnical conference registrants.

Shuttles will pick up attendees from the Shaw Conference Centre at the south side entrance by the upper level balcony. Shuttles will leave the Conference Centre beginning at 6:30 PM and continue until 7:30 PM. Return from Fort Edmonton will begin at 8:30 PM and the last shuttle will leave at 10:00 PM. Shuttles will depart from Fort Edmonton at the main entrance where attendees were dropped off, and will return them to the conference hotels.

AI Festival

The AI Festival will be held in Exhibit Hall AB of the Shaw Conference Centre, Wednesday, July 31 from 3:00 – 5:30 PM. This event will provide attendees the opportunity to stroll among numerous exciting events — the Mobile Robot Competition and Exhibition, the Intelligent Systems Demos, the IAAI-02 Entrepreneurs Forum, the Student Posters, and a competition between high school Botball competitors and the Robot Building Laboratory participants — all enlivened by refreshments and conversation. Admittance to the festival is free to AAAI-02 registrants. A \$25.00 CDN per person fee (\$8.00 CDN for children) will be charged for spouses and other nontechnical conference registrants. Guest tickets are available in onsite registration.

Doctoral Consortium (DC-02)

The Seventh AAAI/SIGART Doctoral Consortium program will be held on Sunday and Monday, July 28-29 from 8:30am – 5:30 PM in the Saskatchewan Room, second floor of The Westin Edmonton. 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 es-

tablished researchers. The thirteen students accepted to participate in this program will also participate in the Student Poster program on Wednesday, July 31, from 3:00 – 5:30 PM during the AI Festival. All interested AAAI-02 student registrants are invited to observe the presentations and participate in discussions at the workshop. AAAI and ACM/SIGART gratefully acknowledge a grant from NSF's Directorate for Computer and Information Science and Engineering (CISE) that partially supports student travel to the event.

AAAI Business Meeting

The AAAI Annual Business Meeting will be held Thursday, August 1, from 1:00 – 1:30 PM in Salon 6, meeting level, Shaw Conference Centre.

Conference Committee Meeting

The Conference Committee Meeting will be held Thursday, August 1, from 7:30 – 8:30 AM in Salon 1, meeting level, Shaw Conference Centre.

AI Journal Editorial Board Meeting

The AI Journal Editorial Board lunch will be held Tuesday, July 30 from 12:30 – 2:00 PM in Salon 1, Meeting Level, Shaw Conference Centre.

Executive Council Meeting

The AAAI Executive Council Meeting will be held Sunday, July 28, from 9:00 AM – 5:00 PM in Turner Valley, second floor, The Westin Edmonton. Continental breakfast will be available at 8:30 AM.

Program Committee Luncheon

The AAAI-02/IAAI-02 Program Committee Luncheon will be held Tuesday, July 30, 12:30 – 2:00 PM in the River View Room, Pedway Level, Shaw Conference Centre to honor the contributions of all the members of the AAAI-02 and IAAI-02 Program Committees. (By invitation only).

Conference at a Glance

MORNING	AFTERNOON	EVENING
<p><i>SUNDAY, JULY 28</i></p> <p>Registration Tutorial Forum Workshops AAAI/SIGART DC Robot Building Lab</p>	<p>Registration Tutorial Forum Workshops AAAI/SIGART DC Robot Building Lab</p>	<p>Robot Building Lab</p>
<p><i>MONDAY, JULY 29</i></p> <p>Registration Tutorial Forum Workshops AAAI/SIGART DC Robot Building Lab</p>	<p>Registration Tutorial Forum Workshops AAAI/SIGART DC</p>	<p>Opening Reception</p>
<p><i>TUESDAY, JULY 30</i></p> <p>Registration Keynote Address AAAI-02 / IAAI-02 Exhibition / IS Demos Robot Programs / Botball</p>	<p>Registration AAAI-02 / IAAI-02 Program Committee Lunch Exhibition/IS Demos Robot Programs / Botball</p>	<p>AAAI-02 Poster Session AAAI Fellows Dinner</p>
<p><i>WEDNESDAY, JULY 31</i></p> <p>Registration Presidential Address AAAI-02 / IAAI-02 Exhibition / IS Demos Robot Programs / Botball</p>	<p>Registration AAAI-02 / IAAI-02 Exhibition / IS Demos Robot Programs / Botball AI Festival</p>	<p>AAAI-02 Poster Session</p>
<p><i>THURSDAY, August 1</i></p> <p>Registration AAAI-02 / IAAI-02 Robot Workshop</p>	<p>AAAI-02 / IAAI-02 Robot Workshop AAAI Business Meeting</p>	

Tutorial Forum

Tutorial Forum

AAAI-02 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 \$30.00 CDN per syllabus in onsite registration.

Session I: Sunday, July 28

9:00 AM - 1:00 PM

SA1: The State of the Art in Language Modeling

Joshua Goodman and Eugene Charniak
Salon 8, Shaw Conference Centre

SA2: AI in Space: Unique Challenges and Opportunities (Full Day)

Daniel Clancy
Salon 12, Shaw Conference Centre

SA3: Greedy On-Line Planning

Sven Koenig and Anthony Stentz
Salon 10, Shaw Conference Centre

SA4: Aspects of Qualitative Spatial and Temporal Reasoning

Gerard Ligozat, Frank D. Anger, and Hans W. Guesgen
Salon 9, Shaw Conference Centre

Session II: Sunday, July 28

2:00 - 6:00 PM

SP1: Practical Approaches to Handling Uncertainty in Planning and Scheduling

J. Christopher Beck and Thierry Vidal
Salon 10, Shaw Conference Centre

SP2: Collaborative Multi-Agent Systems

Barbara Grosz and Charlie Ortiz
Salon 8, Shaw Conference Centre

SP3: Practical Machine Learning for Software Engineering

Tim Menzies and Gary D. Boetticher
Salon 9, Shaw Conference Centre

Session III: Monday, July 29

9:00 AM - 1:00 PM

MA1: Information Integration on the Web

Craig Knoblock and Subbarao Kambhampati
Salon 12, Shaw Conference Centre

MA2: AI Techniques for Personalized Recommendation (Full Day)

Anthony Jameson, Joseph Konstan and John Riedl
Salon 10, Shaw Conference Centre

MA3: Algorithms for Combinatorial Auctions and Exchanges

Tuomas Sandholm
Salon 8, Shaw Conference Centre

Session IV: Monday, July 29

2:00 - 6:00 PM

MP1: Phase Transitions and Structure in Combinatorial Problems

Tad Hogg, Carla P. Gomes, Toby Walsh, and Weixiong Zhang
Salon 8, Shaw Conference Centre

MP2: Rational Action in Autonomous Agents

Michael Wooldridge and Simon Parsons
Salon 12, Shaw Conference Centre

Robot Building Lab

The Robot Building Laboratory will be held in Salon 2, meeting level, Shaw Conference Centre at the following times:

Sunday, July 28	9:00 AM – 9:00 PM
Monday, July 29	9:00 AM – 1:00 PM
Wednesday, July 31	3:00 PM – 5:30 PM (RBL-02 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 this 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, during the AI Festival on Wednesday afternoon. 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 AAI. Instructors and assistants are from KIPR's trained staff. David Miller is the lead instructor.

Workshop Program

Workshop Program

Attendance at the workshops is limited, and participation is by invitation only. All workshop participants must register for the AAAI-02 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. Workshops will be held in the Shaw Conference Centre and The Westin in Edmonton.

Sunday, July 28

W1: Agent-Based B2B Electronic Commerce Technologies

Organizer: Brian Blake
Consulate Room, The Westin Edmonton
8:30 AM – 6:00 PM

W5: Autonomy, Delegation, and Control: From Inter-Agent to Groups

Organizers: Henry Hexmoor and Rino Falcone
Chairman Room, The Westin Edmonton
8:45 AM – 6:10 PM

W7: Cognitive Robotics (CogRob2002)

Organizers: Chitta Baral and Sheila McIlraith
Salon 11, Shaw Conference Centre
9:00 AM – 6:00 PM

W8: Game Theoretic and Decision Theoretic Agents

Organizers: Piotr Gmytrasiewicz and Simon Parsons
Salon 3, Shaw Conference Centre
9:00 AM – 5:30 PM

W9: Intelligent Integration of Information and Services on the Web

Organizers: Dean Allemang, Eleni Stroulia and John Mylopoulos
Salon 17/18, Shaw Conference Centre
9:00 AM – 4:30 PM

W11: Meaning Negotiation

Organizer: Paolo Bouquet
Salon 15/16, Shaw Conference Centre
8:30 AM – 6:00 PM

W15: Planning with and for Multiagent Systems (two-day)

Organizers: Michael Brenner and Marie desJardins
BC Room, The Westin Edmonton
2:00 – 6:00 PM

W16: Preferences in AI and CP: Symbolic Approaches (two-day)

Organizer: Ulrich Junker
Salon 4, Shaw Conference Centre
9:00 AM – 5:15 PM

W17: Probabilistic Approaches in Search

Toby Walsh and Carla Gomes
Salon 6, Shaw Conference Centre
9:00 AM – 6:00 PM

W19: Semantic Web Meets Language Resources

Organizers: Nancy Ide and Chris Welty
Chancellor Room, The Westin Edmonton
9:00 AM – 6:00 PM

Monday, July 29

W3: Artificial Intelligence for Intelligent Business

Organizers: Daniel E. O’Leary and Alun Preece
Chancellor Room, The Westin Edmonton
8:30 am - 3:00 pm

W4: Automation as Caregiver: The Role of Intelligent Technology in Elder Care (W4)

Organizer: Karen Haigh
Salon 11, Shaw Conference Centre
8:30 AM – 6:00 PM

W6: Coalition Formation in Dynamic Multiagent Environments

Organizers: Leen-Kiat Soh and Charlie Ortiz
Consulate Room, The Westin Edmonton
8:45 AM – 4:30 PM

W10: Intelligent Situation-Aware Media and Presentations (ISAMP)

Organizer: Rainer Malaka and Antonio Krueger
Salon 17/18, Shaw Conference Centre
9:30 AM – 6:00 PM

W13: Multi-Agent Modeling and Simulation of Economic Systems

Organizers: Koichi Kurumatani, Shu-Heng Chen and Azuma Ohuchi
Salon 6, Shaw Conference Centre
8:55 AM – 5:00 PM

W14: Ontologies for the Semantic Web

Organizers: Adam Pease, Richard Fikes, and Jim Hendler
Salon 15/16, Shaw Conference Centre
9:00 AM – 5:30 PM

W15: Planning with and for Multiagent Systems (two-day)

Organizers: Michael Brenner and Marie desJardins
BC Room, The Westin Edmonton
9:00 AM – 6:00 PM

W16: Preferences in AI and CP: Symbolic Approaches (two-day)

Organizer: Ulrich Junker
Salon 4, Shaw Conference Centre
9:00 AM – 1:00 PM

W18: Real-Time Decision Support and Diagnosis Systems

(Joint Workshop with KDD-02 and UAI hosted by AAAI-02)
Organizers: Haipeng Guo, Eric Horvitz, William H. Hsu, and Eugene Santos Jr.
Salon 3, Shaw Conference Centre
8:30 AM – 6:00 PM

W20: Spatial and Temporal Reasoning

Organizers: Hans W. Guesgen, Frank D. Anger, and Gerard Ligozat
Chairman Room, The Westin Edmonton
9:00 AM – 5:00 PM

Thursday, August 1

W12: Mobile Robotic Competition and Exhibition Workshop

Organizer: Bill Smart
Salon 3, Shaw Conference Centre
9:00 AM – 5:00 PM

Invited Talks

All AAAI-02 invited presentations will be held in Exhibit Hall C, assembly level, Shaw Conference Centre. IAAI-02 invited presentations will be held in Salon 8, meeting level, Shaw Conference Centre.

Tuesday, July 30

8:30 – 9:30 AM

AAAI Keynote Address

Probabilistic AI and Information Retrieval

Michael I. Jordan, Department of Electrical Engineering and Computer Science & Department of Statistics, University of California, Berkeley

Exhibit Hall C, Assembly Level, Shaw Conference Centre

Much progress has been made in recent years in the area of information retrieval, in particular as embodied in Internet search engine technology. Much progress has also been made in probabilistic, graph-theoretic AI. What are the possibilities for bringing these two lines of research together — for viewing large-scale information retrieval as a core enabling technology for AI systems, and for asking IR systems to exhibit true inferential capabilities. Jordan will discuss research aimed at bridging the AI/IR gap.

9:00 – 10:30 AM

IAAI Invited Talk

Robot-Assisted Urban Search and Rescue at the WTC: Where's the AI?

Robin R. Murphy, Computer Science and Engineering, University of South Florida

Salon 8, Meeting Level, Shaw Conference Centre

On September 11, 2001, the Center for Robot-Assisted Search and Rescue responded within six hours to the WTC disaster; this is the first known use of robots for USAR. The University of South Florida was one of the four robot teams, and only academic institution. The USF team participated on-site in the search efforts from September 12 through 22, collecting and archiving data on the use of robots.

This talk will provide an overview of the use of robots for USAR as well as discuss what AI techniques were available, what was actually used, and why. It will also summarize the key lessons learned from the robotics efforts at the WTC. The lessons learned cover the areas of platforms and mobility, sensors and sensing strategies, control, and human-robot interactions. Possibly the most pervasive lesson learned is that robots for USAR must be considered from an “information technology” perspective, where platforms, sensors, control schemes, networks, and interfaces must all be

co-evolved to ensure the information extracted by the robots is truly usable by the rescue community.

Extensive video footage of the site and “robot’s eye” views will be shown.

Wednesday, July 31

8:30 – 9:30 AM

AAAI Presidential Address

AI and the Impending Revolution in Brain Science

Tom M. Mitchell, Carnegie Mellon University

Exhibit Hall C, Assembly Level, Shaw Conference Centre

Tom M. Mitchell is the Fredkin Professor of Computer Science at Carnegie Mellon University. He is author of the textbook *Machine Learning*, a member of the National Research Council’s Computer Science and Telecommunications Board, and President of the AAAI. Mitchell’s research over the years has dealt with theoretical and practical issues in machine learning. During 2000-2001 he served as Chief Scientist at WhizBang! Labs, a company that employs machine learning to extract detailed factual information from text. Since returning to Carnegie Mellon, his research has focused on functional Magnetic Resonance Imaging of the human brain. Mitchell is the Founding Director of CMU’s Center for Automated Learning and Discovery, an interdisciplinary research center specializing in machine learning and data mining.

11:55 AM – 12:45 PM

AAAI Invited Panel

AAAI Mobile Robot Competition

Moderators: Holly Yanco, University of Massachusetts Lowell and Tucker Balch, Georgia Institute of Technology

Exhibit Hall C, Assembly Level, Shaw Conference Centre

Panelists: Peter Bonasso, Metrica; David Miller, University of Oklahoma and KIPR; Alan Schultz, Naval Research Laboratory; and Reid Simmons, Carnegie Mellon University

11:10 AM – 12:40 PM

IAAI Invited Panel

Pioneering AI Businesses I: A 20-Year Review

Moderator: Neil Jacobstein, Chairman, President & CEO of Teknowledge Corporation

Salon 8, Meeting Level, Shaw Conference Centre

Panelists: Ed Feigenbaum, Professor of Computer Science and Coscientific Director of the Knowledge Systems Laboratory, Stanford University; Mark Fox, Professor of Industrial Engineering, University of Toronto and Chairman & CEO, Novator Systems; Amos Barzilay, General Partner (United States), Walden International

Several AI-based businesses started in the early 1980s. They underwent a classic boom

and bust cycle. Hype exceeded expectations, and some investors and technologists lost patience. However, history shows that in cases of disruptive technological innovation, forecasts are usually too optimistic in the short run, and too conservative in the long run. Is that the case with AI businesses? This panel of AI entrepreneurs will review the technology base and history of pioneering AI businesses, extract lessons learned, and identify future opportunities. Companies discussed will include IntelliCorp, Teknowledge, Inference, Syntelligence, Carnegie Group, Cycorp, and others. An interactive question and answer session with panel members will follow brief presentations from each panelist.

2:00 – 3:30 PM

IAAI-02 Invited Panel

Pioneering AI Businesses II: Recent Startups

Moderator: Craig Knoblock, Research Associate Professor, University of Southern California, Co-founder and Chief Scientist, Fetch Technologies

Salon 8, Meeting Level, Shaw Conference Centre

Panelists: Tom Mitchell, Fredkin Professor of Computer Science, Carnegie Mellon University, Former Chief Scientist and VP at WhizBang; Yoav Shoham, Associate Professor, Stanford University, Co-founder and Chairman, TradingDynamics (ARBA) and Cariocas; Daniel Weld, Professor, University of Washington, Co-founder of Netbot, AdRelevance, Nimble Technology, and Asta Networks, Venture Partner, Madrona Venture Group

This panel will focus on the process of starting an AI company. The challenges in creating a new company include how to apply a technology to address a specific market need and how to run a successful business. The speakers on this panel are AI researchers that have been involved in recent startups. Some of the issues the panelists will discuss include how to go from a technology to a business, how to get funding for a company, and what pitfalls to watch out for. An interactive question and answer session with panel members will follow brief presentations from each panelist.

2:15 – 3:15 PM

AAAI Invited Talk

Perspectives on Artificial Intelligence Planning

Hector Geffner, ICREA — Universitat Pompeu Fabra (Barcelona)

Exhibit Hall C, Assembly Level, Shaw Conference Centre
Planning has always been a key area in Artificial Intelligence. In its general form, planning is concerned with the automatic synthesis of action strategies (plans) from a description of actions, sensors, and goals. Planning thus contrasts with two other approaches to intelligent behavior: the programming approach, where action strategies are defined by hand, and the

learning approach, where action strategies are inferred from experience.

Different assumptions about the nature of actions, sensors, and costs lead to various forms of planning: (1) Planning with complete information and deterministic actions, (2) planning with non-deterministic actions and sensing, and (3) planning with temporal and concurrent actions, etc. Most work so far has been devoted to “classical” planning (see point 1 above), where significant changes have taken place in the last few years. On the methodological side, the area has become more empirical with experimental evaluation being routine; on the technical side, approaches based on heuristic or constrained-based search have taken over blind-search approaches.

In this talk, Geffner will provide a coherent picture of planning in AI while trying to convey some of the current excitement in the field. He’ll make emphasis on the mathematical models that underlie various forms of planning, and the ideas that have been found most useful computationally.

3:30 – 4:30 PM

Collocated with the AI Festival

IAAI-02 AI Entrepreneurs Forum

Exhibit Hall AB, Assembly Level, Shaw Conference Centre

This forum will provide an open and informal setting for AI pioneers, technologists, entrepreneurs, venture capitalists, legal, and intellectual property experts to network and discuss issues in starting and running AI-based companies.

Thursday, August 1

8:30 – 9:30 AM

AAAI-02/IAAI-02 Joint Invited Talk

Human Level “Strong” AI: The Prospects and Implications

Raymond Kurzweil, KurzweilAI.net (Kurzweil Accelerating Intelligence Network)

Exhibit Hall C, Assembly Level, Shaw Conference Centre
Three-dimensional molecular computing will provide the hardware for human-level “strong” AI well before 2030. The more important software insights will be gained in part from the reverse-engineering of the human brain, a process well under way. Once nonbiological intelligence matches the range and subtlety of human intelligence, it will necessarily soar past it because of the continuing acceleration of information-based technologies, as well as the ability of machines to instantly share their knowledge. The implication will be

an intimate merger between the technology-creating species and the evolutionary process it spawned.

2:15 – 3:15 PM

AAAI Invited Talk

Dimension Reduction that Preserves Information and Neural Coding

Naftali Tishby, The Hebrew University

Exhibit Hall C, Assembly Level, Shaw Conference Centre

Many cognitive functions, such as prediction, feature extraction, noise filtering, and learning, can be viewed as special cases of one principle: compression while preserving information. This information theoretic principle was turned into a computational paradigm: the information bottleneck method. This variational method yielded several novel learning and data analysis algorithms, with many applications to information retrieval as well as to

analysis of neural coding in several neurobiological systems that were carried in Tishby's lab. In this talk Tishby will focus on a new approach to data dimensionality reduction that stems from this principle. Here he searches for low dimensional (nonlinear) reduction of co-occurrence (or contingency) tables that preserve the (mutual) information in the table. He gives a new alternate-projection algorithm for achieving such a reduction and shows its convergence to an optimal set of information preserving features. This approach is particularly useful when the data is not naturally quantized but rather represented by low dimension continuous features. Such a reduction may have interesting biological implications. (Based on joint work with Amir Globerson and Noam Slonim.)

Get *All* the AAAI and IAAI Conference Proceedings, Plus *AI Magazine*, on CD-ROM SPECIAL RATES!

AAAI 2000 / IAAI 2000 Conference Proceedings CD-ROM

This CD-ROM set consists of all the papers from the 2000 National Conferences on Artificial Intelligence, as well as the 2000 Innovative Applications of Artificial Intelligence Conferences. The single CD contains approximately 260 technical papers in PDF format, and is readable by most Windows (1998 and later), Macintosh, and many UNIX platforms.

1 CD (\$45.00 CDN — AAAI members; \$175.00 CDN nonmembers)

AAAI 1998–99, IAAI 1998–99, KDD 1995–98 CD-ROM Set

This CD-ROM set consists of all the papers from the 1998 and 1999 National Conferences on Artificial Intelligence, as well as the 1998 and 1999 Innovative Applications of Artificial Intelligence Conferences. Included also on this CD are the 1995, 1996, 1997, and 1998 Knowledge Discovery and Data Mining Conference papers. The single CD contains approximately 260 technical papers in PDF format, and is readable by most Windows, Macintosh, and many UNIX platforms.

1 CD (\$45.00 CDN — AAAI members; \$175.00 CDN nonmembers)

AAAI 1980–97, IAAI 1993–97 CD-ROM Set

This archival CD-ROM set consists of all the papers from the 1980, 1982, 1983, 1984, 1986, 1987, 1988, 1990, 1991, 1992, 1993, 1994, 1996, and 1997 AAAI National Conferences, as well as the papers from the 1993, 1994, 1995, 1996, and 1997 Innovative Applications of Artificial Intelligence Conferences. The set consists of more than 2,200 papers in PDF format, and is readable by most Windows, Macintosh, and many UNIX platforms.

1 CD (\$95.00 CDN — AAAI members; \$250.00 CDN nonmembers)

***AI Magazine* 1980–2001 CD-ROM Set**

This new CD-ROM consists of all the articles from *AI Magazine* published between 1980 and 2001. The single CD is readable by most Windows (1998 and later), Macintosh, and many UNIX platforms.

1 CD (\$45.00 CDN — AAAI members; \$175.00 CDN nonmembers)

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Tuesday, July 30—AAAI-02 Sessions

(All AAAI-02 sessions will be held in Hall C.)

8:00 - 8:30 AM

AAAI-02 Opening Remarks and Outstanding Paper Award Presentation
Rina Dechter and Michael Kearns, AAAI-02 Program Cochairs

IAAI-02 Awards Presentation
Steve Chien and John Riedl, IAAI-02 Chair and Cochair

8:30 - 9:30 AM

Keynote Address

Probabilistic AI and Information Retrieval
Michael I. Jordan, University of California, Berkeley
Introduction: *Rina Dechter and Michael Kearns*

9:30 - 10:45 AM

Probabilistic Reasoning

Session Chair: *David McAllester*
A Distance Measure for Bounding Probabilistic Belief Change
Hei Chan and Adnan Darwiche

Visual Exploration and Incremental Utility Elicitation
Jim Blythe

A Graphical Criterion for the Identification of Causal Effects in Linear Models
Carlos Brito and Judea Pearl

10:45 - 11:15 AM

Break

11:15 AM - 12:30 PM

Planning

Session Chair: *Weixiong Zhang*
Plan Evaluation with Incomplete Action Descriptions
Andrew Garland and Neal Lesh
Symbolic Heuristic Search for Factored Markov Decision Processes
Zhengzhu Feng and Eric A. Hansen
Algorithms for a Temporal Decoupling Problem in Multi-Agent Planning
Luke Hunsberger

12:30 - 2:00 PM

Lunch Break

AAAI-02/IAAI-02 Program Committee Lunch
(by invitation only)

2:00 - 3:15 PM

Learning I

Session Chair: *Peter Stone*
Polynomial-Time Reinforcement Learning of Near-Optimal Policies
Karèn Pivazyan and Yoav Shoham
Minimum Majority Classification and Boosting
Philip M. Long
Data Perturbation for Escaping Local Maxima in Learning
Gal Elidan, Matan Ninyo, Nir Friedman, and Dale Shuurmans

3:15 - 3:45 PM

Break

3:45 - 5:25 PM

Constraint Satisfaction/Search

Session Chair: *Weixiong Zhang*
A New Algorithm for Optimal Bin Packing
Richard E. Korf
PROMPTDIFF: A Fixed-Point Algorithm for Comparing Ontology Versions
Natalya F. Noy and Mark A. Musen
Node and Arc Consistency in Weighted CSP
Javier Larrosa
Model Induction: A New Source of CSP Model Redundancy
Y.C. Law and J.H.M. Lee

5:45 - 8:45 PM

Poster Session I

Ballroom, Westin Edmonton

Tuesday, July 30—IAAI-02 Sessions

(All IAAI-02 sessions will be held in Salon 8, unless otherwise noted.)

8:00 - 8:30 AM

AAAI-02 Opening Remarks and Outstanding Paper Award Presentation
Rina Dechter and Michael Kearns, AAAI-02 Program Cochairs

IAAI-02 Awards Presentation
Steve Chien and John Riedl, IAAI-02 Chair and Cochair
(Hall C)

8:45 - 9:00 AM

IAAI-02 Opening Remarks
Steve Chien and John Riedl, IAAI-02 Chair and Cochair

9:00 - 10:30 AM

Invited Talk

Robot Assisted Urban Search and Rescue at the WTC:
Where's the AI?
Robin Murphy, University of South Florida
Introduction: *David Kortenkamp*

10:30 - 11:00 AM

Break

11:00 AM - 12:30 PM

Perception and Monitoring

Session Chair: *David Kortenkamp*
Applying Perceptually Driven Cognitive Mapping to
Virtual Urban Environments (Emerging Technology)
Randall W. Hill, Jr., Changhee Han, and Michael van Lent
MiTAP, Text and Audio Processing for Bio-Security: A Case Study
(Deployed Application)
*Laurie Damianos, Jay Ponte, Steve Wohlever, Florence Reeder, David Day,
George Wilson, and Lynette Hirschman*
Computational Vulnerability Analysis for Information Survivability
(Emerging Technology)
Howard Shrobe

12:30 - 2:00 PM

Lunch

2:00 - 3:30 PM

Planning and Scheduling

Session Chair: *Steve Chien*
Staff Scheduling for Inbound Call Centers and Customer Contact Centers
(Deployed Application)
*Alex Fukunaga, Ed Hamilton, Jason Fama, David Andre,
Ofer Matan, and Illah Nourbakhsh*
Getting from Here to There: Interactive Planning and
Agent Execution for Optimizing Travel (Emerging Technology)
*José Luis Ambite, Greg Barish, Craig A. Knoblock,
Maria Muslea, Jean Oh, and Steven Minton*
UTTSExam: A Campus-Wide University Exam-Timetabling System
(Deployed Application)
Andrew Lim, Juay-Chin Ang, Wee-Kit Ho, and Wee-Chong Oon

3:30 - 3:50 PM

Break

3:50 - 5:20 PM

Knowledge Formation and Management

Session Chair: *Bob Englemore*
Knowledge Formation and Dialogue Using the KRAKEN Toolset
(Emerging Technology)
*Kathy Panton, Pierluigi Miraglia, Nancy Salay, Robert C. Kahlert,
David Baxter, and Roland Reagan*
A Web-Based Ontology Browsing and Editing System (Emerging Technology)
*Jérôme Thoméré, Ken Barker, Vinay Chaudhri, Peter Clark, Michael Eriksen,
Sunil Mishra, Bruce Porter, and Andres Rodriguez*
WhyNot: Debugging Failed Queries in Large Knowledge Bases
(Emerging Technology)
Hans Chalupsky and Thomas A. Russ

Wednesday, July 31—AAAI-02 Sessions

8:15 AM

AAAI Special Awards Presentation
*Tom Mitchell, AAAI President and Bruce Buchanan,
AAAI Past President and Awards Committee Chair*

8:30 - 9:30 AM

AAAI Presidential Address

AI and the Impending Revolution in Brain Science
Tom M. Mitchell, Carnegie Mellon University
Introduction: *Bruce G. Buchanan, AAAI Past President*

9:30 - 10:45 AM

Representation and Reasoning / Robot Application

Session Chair: *Richard Korf*
AAAI-02 Outstanding Paper
On Computing all Abductive Explanations
Thomas Eiter and Kazuhisa Makino
Measuring Inconsistency in Knowledge via Quasi-Classical Models
Anthony Hunter
FastSLAM: A Factored Solution to the Simultaneous Localization
and Mapping Problem
Michael Montemerlo, Sebastian Thrun, Daphne Koller, and Ben Wegbreit

10:45 - 11:05 AM

Break

11:05 AM - 11:55 AM

Robot Applications

Session Chair: *Dieter Fox*
Watch Their Moves: Applying Probabilistic Multiple Object Tracking
to Autonomous Robot Soccer
Thorsten Schmitt, Michael Beetz, Robert Hanek, and Sebastian Buck
Experiences with a Mobile Robotic Guide for the Elderly
*Michael Montemerlo, Joelle Pineau, Nicholas Roy, Sebastian Thrun,
and Vandt Verma*

11:55 AM - 12:45 PM

Invited Panel

AAAI Mobile Robot Competition
Moderators: *Holly Yanco, University of Massachusetts Lowell
and Tucker Balch, Georgia Institute of Technology*
Introduction: *Michael Kearns*
Panelists: *Peter Bonasso, Metrica; David Miller, University of Oklahoma
and KIPR; Alan Schultz, Naval Research Laboratory; and
Reid Simmons, Carnegie Mellon University*

12:45 - 2:00 PM

Lunch Break

2:00 - 3:00 PM

Invited Talk

Perspectives on Artificial Intelligence Planning
Hector Geffner, ICREA - Universitat Pompeu Fabra (Barcelona)
Introduction: *Rina Dechter*

3:00 - 5:30 PM

AI Festival

7:00 - 10:00 PM

Poster Session II

Ballroom, Westin Edmonton

Wednesday, July 31—IAAI-02 Sessions

8:15 AM

AAAI Special Awards Presentation
*Tom Mitchell, AAAI President and Bruce Buchanan,
AAAI Past President and Awards Committee Chair*
(Hall C)

8:30 - 9:30 AM

AAAI Presidential Address

AI and the Impending Revolution in Brain Science
Tom M. Mitchell, Carnegie Mellon University
Introduction: *Bruce G. Buchanan, AAAI Past President*
(Hall C)

9:40 - 10:40 AM

Learning and Design

Session Chair: *John Riedl*
A Structure Based Configuration Tool: Drive Solution Designer – DSD
(Deployed Application)
*Christoph Ranze Thorsten Scholz, Thomas Wagner, Andreas Günter,
Otthein Herzog, Oliver Hollmann, Christoph Schlieder, and Volker Arlt*
An Analogy Ontology for Integrating Analogical Processing and
First-Principles Reasoning (Emerging Technology)
Kenneth D. Forbus, Thomas Mostek, and Ron Ferguson

10:40 - 11:10 AM

Break

11:10 AM - 12:40 PM

Invited Panel

Pioneering AI Businesses I: A 20-Year Review
Moderator: *Neil Jacobstein, Teknowledge Corporation*

12:40 - 2:00 pm

Lunch

2:00 - 3:30 PM

Invited Panel

Pioneering AI Businesses II: Recent Startups
Moderator: *Craig Knoblock, University of Southern California and
Fetch Technologies*

3:00 - 5:30 PM

AI Festival

(Hall AB)

3:30 - 4:30 PM

IAAI-02 AI Entrepreneurs Forum

Collocated with AI Festival

Thursday, August 1—AAAI-02 Sessions

8:30 - 9:30 AM

AAAI-02/IAAI-02 Joint Invited Talk

Human Level "Strong" AI: The Prospects and Implications
Raymond Kurzweil, KurzweilAI.net (Kurzweil Accelerating Intelligence Network)
Introduction: *Neil Jacobstein*

9:30 - 10:45 AM

Learning II

Session Chair: *David McAllester*

State Abstraction for Programmable Reinforcement Learning Agents
David Andre and Stuart J. Russell

Learning Temporal, Relational, Force-Dynamic Event Definitions from Video
Alan Fern, Jeffrey Mark Siskind, and Robert Givan

Bootstrap Learning for Place Recognition
Benjamin Kuipers and Patrick Beeson

10:45 - 11:05 AM

Break

11:05 AM - 12:45 PM

Multiagent Systems

Session Chair: *Peter Stone*

(Im)possibility of Safe Exchange Mechanism Design
Tuomas Sandholm and XiaoFeng Wang

Multi-Agent Algorithms for Solving Graphical Games
David Vickrey and Daphne Koller

Reinforcement Learning of Coordination in Cooperative Multi-Agent Systems
Spiros Kapetanakis and Daniel Kudenko

Complexity of Manipulating Elections with Few Candidates
Vincent Conitzer and Tuomas Sandholm

12:45 - 2:00 PM

Lunch

2:00 - 3:00 PM

Invited Talk

Dimension Reduction that Preserves Information and Neural Coding
Naftali Tishby, The Hebrew University
Introduction: *Michael Kearns*

3:00 - 3:20

Break

3:20 - 5:00 PM

Satisfiability

Session Chair: *Tuomas Sandholm*

Enhancing Davis Putnam with Extended Binary Clause Reasoning
Fahiem Bacchus

Comparing Phase Transitions and Peak Cost in
PP-Complete Satisfiability Problems
Delbert D. Bailey, Victor Dalmau, and Phokion G. Kolaitis

Learning for Quantified Boolean Logic Satisfiability
Enrico Giunchiglia, Massimo Narizzano, and Armando Tacchella

Dynamic Restart Policies

Henry Kautz, Eric Horvitz, Yongshao Ruan, Carla Gomes, and Bart Selman

Thursday, August 1—IAAI-02 Sessions

8:30 - 9:30 AM

AAAI-02/IAAI-02 Joint Invited Talk

Human Level "Strong" AI: The Prospects and Implications
Raymond Kurzweil, KurzweilAI.net (Kurzweil Accelerating Intelligence Network)
Introduction: *Neil Jacobstein*
(Hall C)

9:30 - 10:30 AM

Kurzweil Q&A Session
(Salon 8)

10:30 - 11:00 AM

Break

11:00 AM - 12:30 PM

Internet

Session Chair: *Neil Jacobstein*

The 2001 Trading Agent Competition (Emerging Technology)
Michael P. Wellman, Amy Greenwald, Peter Stone, and Peter R. Wurman

RightNow eService Center: Internet Customer Service Using a Self-Learning
Knowledge Base (Deployed Application)
Stephen D. Durbin, Doug Warner, J. Neal Richter, and Zuzana Gedeon

A Decision-Support System for Quote Generation (Deployed Application)
Richard Goodwin, Rama Akkiraju, and Fred Wu

12:30 - 2:00 PM

Lunch

2:00 - 3:30 PM

Military Applications

Session Chair: *Russell Knight*

Toward Practical Knowledge-Based Tools for Battle Planning and Scheduling
(Emerging Technology)
*Alexander Kott, Larry Ground, Ray Budd, Lakshmi Rebbapragada,
and John Langston*

AI on the Battlefield: An Experimental Exploration (Emerging Technology)
Robert Rasch, Alexander Kott, and Kenneth D. Forbus

Development and Deployment of a Disciple Agent for Center of Gravity
Analysis (Deployed Application)
*Gheorghe Tecuci, Mihai Boicu, Dorin Marcu, Bogdan Stanescu, Christina Boicu,
Jerry Comello, Antonio Lopez, James Donlon, and William Cleckner*

Intelligent Control of Auxiliary Ship Systems (Emerging Technology)
*David Scheidt, Christopher McCubbin, Michael Pekala, Shon Vick,
and David Alger*

Poster Session I

Tuesday, July 29 (5:45 - 8:45 PM)

Constraint Satisfaction / Search

The Yard Allocation Problem

Ping Chen, Zhaohui Fu, and Andrew Lim

Searching for Backbones and Fat: A Limit-Crossing Approach with Applications

Sharlee Climer and Weixiong Zhang

Generating Random Solutions for Constraint Satisfaction Problems

Rina Dechter, Kalev Kask, Eyal Bin and Roy Eneke

Graph Coloring with Quantum Heuristics

Alex Fabrikant and Tad Hogg

Preference-Based Search and Multi-Criteria Optimization

Ulrich Junker

Human-Guided Tabu Search

Gunnar W. Klau, Neal Lesh, Joe Marks, and Michael Mitzenmacher

Node and Arc Consistency in Weighted CSP

Javier Larrosa

Integrating Local Search and Network Flow to Solve the Inventory Routing Problem

Hoang Chuin Lau, Qizhang Liu, and Hirotaka Ono

Model Induction: A New Source of CSP Model Redundancy

Y.C. Law and J.H.M. Lee

Learning

Contentful Mental States for Robot Baby

Paul R. Cohen, Tim Oates, Carole R. Beal, and Niall Adams

Data Perturbation for Escaping Local Maxima in Learning

Gal Elidan, Matan Ninio, Nir Friedman, and Dale Shuurmans

Pruning and Dynamic Scheduling of Cost-Sensitive Ensembles

Wei Fan, Fang Chu, Haixun Wang, and Philip S. Yu

Specific-to-General Learning for Temporal Events

Alan Fern, Robert Givan, and Jeffrey Mark Siskind

Structural Extension to Logistic Regression: Discriminative

Parameter Learning of Belief Net Classifiers

Russell Greiner and Wei Zhou

Bootstrap Learning for Place Recognition

Benjamin Kuipers and Patrick Beeson

Reinforcement Learning for POMDPs Based on Action Values and Stochastic Optimization

Theodore J. Perkins

Polynomial-Time Reinforcement Learning of Near-Optimal Policies

Karen Pivazyan and Yoav Shoham

Hierarchical Latent Class Models for Cluster Analysis

Nevin L. Zhang

Markov Decision Processes

A POMDP Formulation of Preference Elicitation Problems

Craig Boutilier

Context-Specific Multiagent Coordination and Planning with Factored MDPs

Carlos Guestrin, Shobha Venkataraman, and Daphne Koller

Nearly Deterministic Abstractions of Markov Decision Processes

Terran Lane and Leslie Pack Kaelbling

The Size of MDP Factored Policies

Paolo Liberatore

Greedy Linear Value-Approximation for Factored

Markov Decision Processes

Relu Patrascu, Pascal Poupart, Dale Schuurmans, Craig Boutilier and Carlos Guestrin

Multiagent Systems I

Complexity of Manipulating Elections with Few Candidates

Vincent Conitzer and Tuomas Sandholm

A Logic-Based Model of Intentions for Multi-Agent Subcontracting

John Grant, Sarit Kraus, and Donald Perlis

Reinforcement Learning of Coordination in

Cooperative Multi-Agent Systems

Spiros Kapetanakis and Daniel Kudenko

The Design of Collectives of Agents to Control

Non-Markovian Systems

John W. Lawson and David H. Wolpert

(Im)possibility of Safe Exchange Mechanism Design

Tuomas Sandholm and XiaoFeng Wang

Multi-Agent Algorithms for Solving Graphical Games

David Vickrey and Daphne Koller

Distributed Breakout Revisited

Weixiong Zhang and Lars Wittenburg

Natural Language Processing

Learning Pattern Rules for Chinese Named Entity Extraction

Tat-Seng Chua and Jimin Liu

Language Modeling for Soft Keyboards

Joshua Goodman, Gina Venolia, Keith Steury, and Chauncey Parker

CobotDS: A Spoken Dialogue System for Chat

Michael Kearns, Charles Isbell, Satinder Singh, Diane Litman, and Jessica Howe

Exploiting Auditory Fovea in Humanoid-Human Interaction

Kazuhiro Nakadai, Hiroshi G. Okuno, and Hiroaki Kitano

Towards CST-Enhanced Summarization

Zhu Zhang, Sasha Blair-Goldensohn, and Dragomir R. Radev

Planning

Planning with a Language for Extended Goals

Ugo Dal Lago, Marco Pistore, and Paolo Traverso

Symbolic Heuristic Search for Factored Markov

Decision Processes

Zhengzhu Feng and Eric A. Hansen

Plan Evaluation with Incomplete Action Descriptions

Andrew Garland and Neal Lesh

Algorithms for a Temporal Decoupling Problem in

Multi-Agent Planning

Luke Hunsberger

D*Lite

Sven Koenig and Maxim Likhachev

Speeding Up the Calculation of Heuristics for

Heuristic Search-Based Planning

Yaxin Liu, Sven Koenig and David Furcy

Iterative-Refinement for Action Timing Discretization

Todd W. Neller

A Logical Measure of Progress for Planning

Aarati Parmar

Probabilistic and Causal Reasoning

Visual Exploration and Incremental Utility Elicitation

Jim Blythe

A Graphical Criterion for the Identification of Causal Effects in

Linear Models

Carlos Brito and Judea Pearl

A Distance Measure for Bounding Probabilistic Belief Change

Hei Chan and Adnan Darwiche

Strategies for Determining Causes of Events

Mark Hopkins

Tree Approximation for Belief Updating

Robert Mateescu, Rina Dechter, and Kalev Kask

Accuracy vs. Efficiency Trade-offs in Probabilistic Diagnosis

Irina Rish, Mark Brodie, and Sheng Ma

A General Identification Condition for Causal Effects

Jin Tian and Judea Pearl

A New Characterization of the Experimental Implications of

Causal Bayesian Networks

Jin Tian and Judea Pearl

Satisfiability

Enhancing Davis Putnam with Extended Binary Clause Reasoning

Fahiem Bacchus

Comparing Phase Transitions and Peak Cost in PP-Complete

Satisfiability Problems

Delbert D. Bailey, Victor Dalmau, and Phokion G. Kolaitis

Inference Methods for a Pseudo-Boolean Satisfiability Solver

Heidi E. Dixon and Matthew L. Ginsberg

Automated Discovery of Composite SAT Variable-Selection

Heuristics

Alex Fukunaga

Learning for Quantified Boolean Logic Satisfiability

Enrico Giunchiglia, Massimo Narizzano, and Armando Tacchella

An Adaptive Noise Mechanism for WalkSAT

Holger H. Hoos

Vision

Detection and Classification of Motion Boundaries

Richard Mann and Allan D. Jepson

Recognizing Multitasked Activities from Video Using Stochastic

Context-Free Grammar

Darnell Moore and Irfan Essa

The OD Theory of TOD: The Use and Limits of Temporal

Information for Object Discovery

Brandon C. S. Sanders, Randal C. Nelson, and Rahul Sukthankar

Poster Session II

Wednesday, July 30 (7:00 - 10:00 PM)

Constraint Satisfaction / Search

Scheduling Contract Algorithms on Multiple Processors

Daniel S. Bernstein, Theodore J. Perkins, Shlomo Zilberstein, and

Lev Finkelstein

Multiple-Goal Search Algorithms and their Application to Web

Crawling

Dmitry Davidov and Shaul Markovitch

Reducing Search Space in Local Search for Constraint Satisfaction
H. Fang, Y. Kilani, J.H.M. Lee, and P.J. Stuckey

Optimal Schedules for Parallelizing Anytime Algorithms: The Case of Independent Processes
Lev Finkelstein, Shaul Markovich, and Ehud Rivlin

Optimal Depth-First Strategies for And-Or Trees
Russell Greiner, Ryan Hayward, and Michael Molloy

A New Algorithm for Optimal Bin Packing
Richard E. Korf

Memory-Efficient A* Heuristics for Multiple Sequence Alignment
Matthew McNaughton, Paul Lu, Jonathan Schaeffer, and Duane Szafron

PROMPTDIFF: A Fixed-Point Algorithm for Comparing Ontology Versions
Natalya F. Noy and Mark A. Musen

On Preference-Based Search in State Space Graphs
Patrice Perny and Olivier Spanjaard

An Average-Case Analysis of Graph Search
Anup K. Sen, Amitava Bagchi, and Weixiong Zhang

Knowledge Representation I

On Computing all Abductive Explanations
Thomas Eiter and Kazuhisa Makino

Measuring Inconsistency in Knowledge via Quasi-Classical Models
Anthony Hunter

A Hoare-Style Proof System for Robot Programs
Yongmei Liu

Representing and Reasoning about Mappings between Domain Models
Jayant Madhavan, Philip A. Bernstein, Pedro Domingos, and Alon Y. Halevy

A Regression Based Adaptation Strategy for Case-Based Reasoning
David Patterson, Niall Rooney, and Mykola Galushka

Cluster Ensembles – A Knowledge Reuse Framework for Combining Partitionings
Alexander Strehl and Joydeep Ghosh

Knowledge Representation II: Logic Programming

Logic Programming with Ordered Disjunction
Gerhard Brewka

A Three-Valued Characterization for Strong Equivalence of Logic Programs
Pedro Cabalar

ASSAT: Computing Answer Sets of a Logic Program by SAT Solvers
Fangzhen Lin and Yuting Zhao

Learning

State Abstraction for Programmable Reinforcement Learning Agents
David Andre and Stuart J. Russell

Progressive Rademacher Sampling
Tapio Elomaa and Matti Kääriäinen

Learning Temporal, Relational, Force-Dynamic Event Definitions from Video
Alan Fern, Jeffrey Mark Siskind, and Robert Givan

Minimum Majority Classification and Boosting
Philip M. Long

Content-Boosted Collaborative Filtering for Improved Recommendations
Prem Melville, Raymond J. Mooney, and Ramadass Nagarajan

Constructive Adaptive User Interfaces – Composing Music Based on Human Feelings
Masayuki Numao, Shoichi Takagi, and Keisuke Nakamura

Constrained Formulations and Algorithms for Stock-Price Predictions Using Recurrent FIR Neural Networks
Benjamin W. Wah and Minglun Qian

Rule-Based Anomaly Pattern Detection for Detecting Disease Outbreaks
Weng-Keen Wong, Andrew Moore, Gregory Cooper, and Michael Wagner

Extended Isomap for Pattern Classification
Ming-Hsuan Yang

Markov Decision Processes

Segmenting Time Series with a Hybrid Neural Networks — Hidden Markov Model
Laura Firoiu and Paul R. Cohen

On Policy Iteration as a Newton's Method and Polynomial Policy Iteration Algorithms
Omid Madani

Efficient Utility Functions for Ceteris Paribus Preferences
Michael McGeachie and Jon Doyle

Piecewise Linear Value Function Approximation for Factored MDPs
Pascal Poupart, Craig Boutilier, Relu Patrascu, and Dale Schuurmans

Bayesian Networks for Speech and Image Integration

Sven Wachsmuth and Gerhard Sagerer

Value Iteration Working with Belief Subset
Weixiong Zhang and Nevin L. Zhang

Multiagent Systems II: Auctions

Solving Concisely Expressed Combinatorial Auction Problems
Craig Boutilier

Partial-Revelation VCG Mechanism for Combinatorial Auctions
Wolfram Conen and Tuomas Sandholm

Bidding Clubs in First-Price Auctions
Kevin Leyton-Brown, Yoav Shoham, and Moshe Tennenholtz

Truthful Approximation Mechanisms for Restricted Combinatorial Auctions
Ahuva Mu'alem and Noam Nisan

Structural Leverage and Fictitious Play in Sequential Auctions
Weili Zhu and Peter R. Wurman

Multiagent Systems III: Game Theory

Vote Elicitation: Complexity and Strategy-Proofness
Vincent Conitzer and Tuomas Sandholm

Dispersion Games: General Definitions and Some Specific Learning Results /
Trond Grenager, Rob Powers, and Yoav Shoham

Competitive Safety Analysis
Moshe Tennenholtz

Planning II: Actions & Temporal Reasoning

Reasoning about Actions in a Probabilistic Setting
Chitta Baral, Nam Tran, and Le-Chi Tuan

A Method for Metric Temporal Reasoning
Mathias Broxvall

Non-Markovian Control in the Situation Calculus
Alfredo Gabaldon

Robotics

Robust Global Localization Using Clustered Particle Filtering
Adam Milstein, Javier Nicolás Sánchez, and Evan Tang Williamson

Experiences with a Mobile Robotic Guide for the Elderly
Michael Montemero, Joelle Pineau, Nicholas Roy, Sebastian Thrun, and Vandit Verma

FastSLAM: A Factored Solution to the Simultaneous Localization and Mapping Problem
Michael Montemero, Sebastian Thrun, Daphne Koller, and Ben Wegbreit

Watch Their Moves: Applying Probabilistic Multiple Object Tracking to Autonomous Robot Soccer
Thorsten Schmitt, Michael Beetz, Robert Hanek, and Sebastian Buck

CD*: A Real-Time Resolution Optimal Re-Planner for Globally Constrained Problems
Anthony Stentz

Satisfiability

A Compiler for Deterministic, Decomposable Negation Normal Form
Adnan Darwiche

A Mixture-Model for the Behaviour of SLS Algorithms for SAT
Holger H. Hoos

SetA*: An Efficient BDD-Based Heuristic Search Algorithm
Rune M. Jensen, Randal E. Bryant, and Manuela M. Veloso

Dynamic Restart Policies
Henry Kautz, Eric Horvitz, Yongshao Ruan, Carla Gomes, and Bart Selman

Using Weighted MAX-SAT Engines to Solve MPE
James D. Park

Easy Predictions for the Easy-Hard-Easy Transition
Andrew J. Parkes

The Interface between P and NP: COL, XOR, NAE, 1-in-k, and Horn SAT
Toby Walsh

Web and Information Extraction

A Maximum Entropy Approach to Information Extraction from Semi-Structured and Free Text
Hai Leong Chieu and Hwee Tou Ng

Reviewing the Design of DAML+OIL: An Ontology Language for the Semantic Web
Ian Horrocks, Peter F. Patel-Schneider, and Frank van Harmelen

Stochastic Link and Group Detection
Jeremy Kubica, Andrew Moore, Jeff Schneider, and Yiming Yang

Exhibit Program

Exhibition

The exhibition will be held in Exhibit Hall AB on the assembly level of the Shaw Conference Centre, Tuesday, July 30 and Wednesday, July 31. Admittance is restricted to badged conference attendees. Vendor-issued guest passes must be redeemed at the Exhibitor Registration Desk, in the registration area, on the assembly level of the Shaw Conference Centre. 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 \$25.00 CDN per person (\$8.00 CDN for children) at onsite registration.

Exhibit Hours

Tuesday, July 30: 10:00 AM – 5:30 PM
Wednesday, July 31: 10:00 AM – 3:00 PM
3:00 PM – 5:30 PM (AI Festival)

Exhibitors

- AAI Press
- ActivMedia Robotics
- *AI Topics*
- Applied AI Systems, Inc.
- Elsevier Science
- Franz Inc.
- iCORE
- iRobot Corp., Research Robots Division
- Kluwer Academic Publishers
- KurzweilAI.net
- The MIT Press
- Morgan Kaufmann Publishers
- NASA Ames Research Center
- Sony Electronics Inc., Entertainment Robotic America
- Springer-Verlag New York, Inc.

Booth #100

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Booth #208

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Email: robots@activmedia.com

Web: www.activmedia.com

ActivMedia Robots team of compatible systems offers various scales, terrain capabilities, payloads and human interfaces, used by thousands of roboticists around the globe. These cross-Linux/WIN platforms feature powerful ARIA developer software plus integrated mapping, Saphira gradient navigation, scheduling, and multitude of plug-n-play accessories. We take care of the basics so you can focus on what's new and exciting in your research. ActivMedia Robots accessories include inertial correction, integrated laser mapping and navigation, active PTZ vision, color-tracking and surveillance, GPS, tilt-skew, bumpers, grippers, fixed IR, arms, active PTZ stereovision, sonar and more. Come see us in action!

Booth # 203

AI TOPICS — the AAI Pathfinder

Webmaster: Jon Glick

Website: www.aaai.org/aitopics

E-mail: aitopics@aaai.org

AI TOPICS has something for everyone. Having started as a dynamic online library sponsored by the American Association for Artificial Intelligence for students, teachers, journalists, and others in need of basic, introductory information about what artificial intelligence is and what AI scientists do, our recent expansion of the "AI in the news" feature has broadened the site's scope such that *everyone* who is interested in the exciting field of artificial intelligence now has a great reason to visit AI TOPICS. And because we are dedicated to serving you, we hope that you take advantage of this opportunity to stop by Booth #203 to take a guided tour of the website, to share your comments, concerns, ideas and suggestions, or to just catch up on the latest AI news.

Booth #309

Applied AI Systems, Inc.

3232 Carp Road, RR 2
Ontario, Canada K0A 1L0

Applied AI Systems, Inc. (AAI) will be demonstrating Khepera II, Koala, and GAIA robots and Webots simulation software, along with many options and accessories. Discuss new features of recently released Khepera II with knowledgeable engineers who are users of the robots. Videos of other larger robots and their applications such as transportation for the elderly, intelligent wheelchairs for the disabled, movement of heavy materials autonomously in construction or farming industry, and intelligent camera to detect and warn of dangerous

situations (e.g., landslide or illegal behavior (e.g., garbage dumping) will be shown).

Booth #114

Elsevier Science

655 Avenue of the Americas
New York, NY 10010

Elsevier Science is the market leader of scientific publications. All books and journals in the field of artificial intelligence, expert systems and knowledge-based systems will be on display. Also available from our booth, some of Elsevier's electronic initiatives including the Computer Science Preprint Server (www.computer-sciencepreprints.com)—the permanent web archive and rapid distribution medium for research articles in the field of computer science—and the new to launch Computer Science Portal (www.computer-scienceweb.org). ComputerScienceWeb offers full text articles from leading computer science journals and integrated services to facilitate research in all fields of computer science.

Booth #221

Franz Inc.

1995 University Avenue
Ste #275
Berkeley, CA 94704

Franz Inc. produces Allegro CL® 6.2, a complete, cross-platform development environment powered by Common Lisp/CLOS. Allegro CL's dynamic object-oriented technology allows developers to create leading edge, mission-critical applications that are robust, scaleable, and easy to evolve and deploy. Allegro CL is ideal for Dynamic Servers, Manufacturing scheduling and control, IC design & synthesis, Knowledge Management and Data Mining. Other Franz Inc. products include AllegroServe®, a dynamic web-enabling Lisp Web Server, Allegro ORBLink®, a CORBA-compliant ORB, and AllegroStore®, a persistent object database.

Booth #106

iCORE

Contact: Mary Anne Moser
3608 33 Street NW
Calgary, AB, T2L 2A6 Canada
Tel: 403-949-3306
Fax: 403-949-3320
email: moser@netera.ca

The Informatics Circle of Research Excellence (iCORE) was created three years ago to develop and support excellent university-based research in information and communications technology (ICT) in Alberta. Its goal is to po-

sition Alberta as a leader in information and communications technology by establishing and funding top research teams.

Ten new exceptional chairs and their research teams are well under way. iCORE intends to fund the establishment of over a dozen more new chairs at Alberta universities over the next several years. iCORE also supports nearly 90 ICT-related graduate students at universities around Alberta through a separate scholarship program.

Booth #207

iRobot Corporation, Research Robots Division

37 Wilton Road
Milford, NH 03055
603-654-3400
www.irobot.com

Inspire. Encourage. Enable.

iRobot's team of dedicated engineers, software developers and production specialists embrace creativity innovative thinking and cutting-edge technology to design and build a growing family of versatile, rugged, fully integrated mobile robot systems. The revolutionary Mobility™ Robot Integration Software and rFLEX™ Robot Control Architecture drive the entire family of research robot platforms, providing seamless, top-to-bottom integration along with clear, intuitive migration paths among platforms. iRobot's mission is to provide robot development tools that inspire, encourage and enable advances in robotics. Stop by to see these great red machines in action.

Booth #108

Kluwer Academic Publishers

101 Philip Drive
Norwell, MA 02061

Kluwer Academic Publishers, a leading publisher of scientific books and journals, invites attendees to visit our display and browse through our latest publications. Pick up a sample copy of our wide array of artificial intelligence journals including *Machine Learning*, *Autonomous Robots*, and *Data Mining and Knowledge Discovery*. Also, receive a 20% discount on all Kluwer titles on display. For more details on all our publications visit www.wkap.nl

Booth #120

KurzweilAI.net

15 Walnut St.
Suite 200
Wellesley Hills, MA 02481

Exhibit Program

KurzweilAI.net is the web home of today's big thinkers and newsmakers examining the confluence of accelerating revolutions shaping our future world and the inside story on new technological and social realities. It focuses especially on the exponential growth of intelligence, both biological and machine, and the merger of the two in a post-humanist future. Visit us on the web at KurzweilAI.net

Booth #102

The MIT Press

Five Cambridge Center
Cambridge, MA 02142
Tel: 800-56-0343
Fax: 617-253-1709
Email: mitpress-orders@mit.edu
Web: mitpress.mit.edu

MIT Press is one of the leading publishers in the field of artificial intelligence. We are pleased to offer a wide range of our recent publications at a conference discount of 20%.

Booth #112

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Morgan Kaufmann is dedicated to publishing distinguished books for artificial intelligence researchers and students. Our list of AI publications reflects the classical disciplines within AI including representation and reasoning, machine learning, natural language processing, intelligent systems, computer vision, planning and uncertainty as well as emerging areas such as agents, data mining and evolutionary computation. We publish textbooks, surveys of areas and methods, programming guides, and select research volumes and proceedings. *New, just in time for AAAI 2002, Exploring Artificial Intelligence in the New Millennium.*

Booth #200

NASA Ames Research Center

Contact: Robert Duffy
M/S 269-1
Moffett Field, CA 94035-1000
Tel: 650-604-3591

The Information Sciences Directorate of NASA Ames Research Center is a world-class creator of innovative, intelligent, high performance and reliable information technologies for NASA's space and aeronautics missions.

The NASA booth features information on the development of autonomous technologies for robotic spacecraft and an overview of NASA's Intelligent Systems Program. The IS Program directs research in automated reasoning, human-centered computing and intelligent data understanding that will lead to the advanced computer science and information technologies essential to NASA's missions of exploration in the 21st Century. The NASA booth will also feature a demonstration of the Personal Rover Project, a collaborative effort between NASA and Carnegie Mellon University.

Booth #215

Sony Electronics Inc., Entertainment Robotic America

Contact: John DeCuir
16450 West Bernardo Drive
San Diego, CA 92127
Tel: 858-942-3818
Fax: 858-942-9080

Sony is pleased to offer the OPEN-R™ SDK (Software Development Kit) for AIBO® Entertainment Robots. OPEN-R is the standard interface for Sony's entertainment robot system. This interface greatly expands the capabilities of entertainment robots. The OPEN-R SDK is a cross-development environment based on GCC (C++) which you can use to make non-commercial software applications for AIBO (ERS-210, ERS-220, ERS-210A, and ERS-220A). The tools are free of charge! Please visit us at www.aibo.com/openr/ to access tools, documentation, and a bulletin board where you can collaborate with other developers.

Booth #213

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Save 20% on artificial intelligence books from Springer-Verlag! From the Lecture Notes in Computer Science series to the upcoming title *Agent Technology*, Springer has established a reputation for publishing essential books and resources in artificial intelligence and agents.

Intelligent Systems Demonstrations

The Intelligent Systems Demonstrations will be held in Exhibit Hall AB of the Shaw Conference Centre and will be open to registered conference attendees during exhibit hours. The IS demos program returns to AAAI-02 for its fourth year. Continuing advances in artificial intelligence research are making it possible to develop intelligent systems in a wide range of application areas. The AAAI-02 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. Previous year's demonstrations have included speech- and gesture-based systems, AI-based simulators and game-playing systems, several systems using AI on the world wide web for e-commerce and other applications, and even AI pets. 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 afternoon, and the tentative individual demonstration schedule for Tuesday and Wednesday is listed below.

Demonstrations Schedule

Tuesday, July 30

- 10:00 AM: JYAG & IDEY: A Template-Based Generator and Its Authoring Tool (Booth D314). *Songsak Channarukul, Susan W. McRoy, and Syed S. Ali*
- 11:00 AM: Constructive Adaptive User Interfaces – Composing Music Based on Human Feelings (Booth D417). *Masayuki Numao, Shoichi Takagi, and Keisuke Nakamura*
- 1:00 PM: An Automated Negotiator for an International Crisis (Booth D320). *Penina Hoz-Weiss, Sarit Kraus, Jonathan Wilkenfeld and Tara E. Santmire*
- 2:00 PM: SpeechWeb: A Web of Natural-Language Speech Applications (Booth D419). *Richard Frost*
- 3:00 PM: UTTSEExam: A University Examination Timetable Scheduler (Booth D312). *Andrew Lim, Juay-Chin Ang, Wee-Kit Ho, and Wee-Chong Oon*

4:00 PM: Disciple-RKF/COG: Agent Teaching by Subject Matter (Booth 413) *Gheorghe Tecuci*

Wednesday, July 31

- 10:00 AM: Multi-ViewPoint Clustering Analysis Tool (Booth D318) *Mala Mehrotra Pragati*
- 11:00 AM: FlexBot, Groo, Patton and GhostBot: Research using Computer Games as a Platform (Booth D316) *Aaron Khoo, Robin Hunicke, Greg Dunham, Nick Trienens, and Muon Van*
- 1:00 PM: Fuzzy Neural Networks in a Palm Environment (Booth D421) *Samuel Moyle and Michael Watts*
- 2:00 PM: Research Applications of the MAGNET Multi-Agent Contracting Testbed (Booth D415) *John Collins and Maria Gini*
- 3:00 PM: AI Festival (all demos available)

Demo Descriptions

Booth D320

An Automated Negotiator for an International Crisis

Penina Hoz-Weiss, Sarit Kraus, Jonathan Wilkenfeld and Tara E. Santmire, Bar-Ilan University, Ramat Gan, Israel and University of Maryland, College Park
 We present an automated agent that can negotiate efficiently with humans in bilateral negotiations with time constraints and the possibility of opting out. The negotiation is conducted using a semiformal language. The model used in constructing the agent is based on a formal analysis of the scenario using game theoretic methods and heuristics for argumentation. The agent receives messages sent by humans, analyzes them and responds. It also initiates discussion on one or more parameters of an agreement. The specific scenario concerns a crisis between Spain and Canada over access to a fishery.

The human players are provided with a DSS to analyze the scenario and compare the utility points associated with various outcomes, and with a language editor to facilitate the composition of messages. In the demo, we will present the support tools for the humans and then demonstrate a negotiation session between the agent and a human. Audience members will have an opportunity to negotiate with the agent.

Booth D417

Constructive Adaptive User Interfaces – Composing Music Based on Human Feelings

Masayuki Numao, Shoichi Takagi, and Keisuke Nakamura, Department of Computer Science, Tokyo Institute of Technology

We demonstrate a method to locate relations and constraints between a music score and its impressions, by which we show that machine learning techniques may provide a powerful tool for composing music and analyzing human feelings. The demonstration introduces two user interfaces, which are capable of predicting feelings and creating new objects based on seed structures, such as spectrums and their transition for sounds that have been extracted and are perceived as favorable by the test subject. The interfaces first collect a person's feelings for some pieces, based on which they extract a common musical structure causing a specific feeling. One arranges an existing song to fit such a structure causing a specified feeling. Another composes a new piece.

Booth D413

Disciple-RKF/COG: Agent Teaching by Subject Matter

Gheorghe Tecuci, Learning Agents Lab, George Mason University

Disciple-RKF/COG is a learning agent shell that can perform many knowledge engineering tasks, and can be used to develop knowledge based systems by subject matter experts, with limited assistance from knowledge engineers. The expert and the agent engage into a mixed-initiative reasoning process during which the expert is teaching the agent his problem solving expertise, and the agent learns from the expert, building, verifying, and improving its knowledge base.

The demonstration will show how a trained Disciple agent helps the students at the US Army War College to learn about Center of Gravity analysis. Then, the main part of the demo will show how this Disciple agent was taught the problem solving expertise of a military expert. The demonstration will conclude with a presentation of several ontology import and development tools of Disciple-RKF/COG that are used by a knowledge engineer to perform knowledge base development tasks that are currently beyond the capabilities of a subject matter expert.

Booth D316

FlexBot, Groo, Patton and GhostBot: Research using Computer Games as a Platform

Aaron Khoo, Robin Hunicke, Greg Dunham, Nick Trienens, and Muon Van, Northwestern University

This is a demonstration of FlexBot, a research platform built using the Half-Life game engine, and three systems based on the FlexBot architecture. Groo, our resident Half-Life bot, uses behavior-based techniques to make critical decisions in real time. Patton is a recently constructed system for monitoring and controlling bot teams in Half-Life using remote devices such as PDAs. GhostBot is part of a system designed to monitor a player's behavior in a game and adjust the environment to facilitate a smooth, yet challenging play experience.

The demonstration is designed to show FlexBot in action and to exhibit the flexibility, efficiency and overall ease with which the FlexBot architecture supports a variety of AI research tasks. During the demo, conference attendees will be able to observe FlexBot agents in action, as well as play games against them.

Booth D421

Fuzzy Neural Networks in a Palm Environment

Samuel Moyle and Michael Watts, Department of Information Science, University of Otago

Booth D314

JYAG & IDEY: A Template-Based Generator and Its Authoring Tool

Songsak Channarukul, Susan W. McRoy, and Syed S. Ali, University of Wisconsin-Milwaukee

JYAG is the Java implementation of a real-time, general-purpose, template-based generation system (YAG, Yet Another Generator). JYAG enables interactive applications to adapt natural language output to the interactive context without requiring developers to write all possible output strings ahead of time or to embed extensive knowledge of the grammar of the target language in the application. Currently, designers of interactive systems who might wish to include dynamically generated text face a number of barriers; for example designers must decide (1) How hard will it be to link the application to the generator? (2) Will the generator be fast enough? (3) How much linguistic information will the application need to provide in order to get reasonable quality output? (4) How much effort will be required to write a generation grammar that covers all the potential outputs of the applica-

tion? The design and implementation of our template-based generation system, JYAG, is intended to address each of these concerns. A template-based approach to text realization requires an application developer to define templates to be used at generation time; therefore, the tasks of authoring and testing templates are inevitable. JYAG provides predefined templates. Developers may also define their templates to fit the requirements of a domain-specific application. Those templates might be totally new or they can be a variation of existing templates. Even though developers can author a template by manually editing its textual definition in a text file, it is more convenient and efficient if they can perform such tasks in a graphical, integrated development environment. The integrated development environment for YAG (IDEY) provides these services as a tool for JYAG's templates authoring, testing, and managing. IDEY's graphical interface reduces the amount of time needed for syntax familiarization through direct manipulation and template visualization. It allows a developer to test newly constructed templates easily.

Booth D318

Multi-ViewPoint Clustering Analysis Tool

Mala Mehrotra Pragati, Synergetic Research Inc. The multi-viewpoint clustering analysis (MVP-CA) technology uses clustering analysis techniques to group rules of a knowledge base that share significant common properties. We demonstrate a research prototype tool that enables knowledge engineers and subject matter experts (SMEs) to familiarize themselves rapidly with the terms and concepts in a knowledge base, to exploit and reuse preexisting knowledge, and to merge and align concepts across different knowledge bases reliably and efficiently.

Booth D415

Research Applications of the MAG-NET Multi-Agent Contracting Testbed

John Collins and Maria Gini, University of Minnesota
MAGNET is a testbed for exploring decision processes and agent interactions in the domain of multi-agent contracting. Experimental research in this area requires a simulation environment that is sufficiently rich to be easily adapted to a variety of experimental purposes, while being sufficiently straightforward to support clear conclusions. Two different demonstrations will be available. One uses a user interface to help visualize the domain and the agent's

decision processes. The other shows how the open-source MAGNET system can be configured to support experimentation with deliberation scheduling and winner determination.

Booth D419

SpeechWeb: A Web of Natural-Language Speech Applications

Richard Frost, Department of Computer Science, University of Windsor, Canada

The demonstration shows an enhanced natural-language speech browser navigating a web of remote hyperlinked applications. The browser recognizes relatively complex spoken input such as "which moon that was discovered by Hall does not orbit mars?" and sends such input to a remote interpreter that is accessed through the Internet. Users can ask to move from one application to another in a manner that is analogous to following a hyperlink on a regular web page. The browser runs on a regular PC and uses off-the-shelf IBM ViaVoice speech-recognition software. The input is spoken through a wireless microphone giving hands-free, eyes-free, access to remote data sources. The demonstration illustrates application of a new semantics for natural-language processing that accommodates arbitrarily-nested quantification and negation, and also a new technique for improving speech-recognition accuracy.

Booth D312

UTTSExam: A University Examination Timetable Scheduler

Andrew Lim, Juay-Chin Ang, Wee-Kit Ho, Wee-Chong Oon, School of Computing, National University of Singapore

UTTSExam is a university examination timetable-scheduling program, customized for the National University of Singapore (NUS). The display comprises informational posters and two notebooks running the Registrar and Faculty versions of UTTSExam respectively.

The demonstration begins with an explanation of the NUS timetabling problem, including: information on NUS; statistics of the actual data; scheduling strategy and the reasoning behind it; the combined method scheduling algorithm. This is followed by a demonstration of the software and scheduling process, including: scheduling of the faculty timetables; merging of the faculty timetables; conflict resolution. The demonstration systems will be loaded with actual data from semester 1 of the 2001/2002 academic year in NUS.

Robot Programs & Schedule

Robot Competition & Exhibition

The Eleventh Robot Competition and Exhibition will be held in Exhibit Hall AB on the assembly level of the Shaw Conference Centre, and will be open to registered conference attendees during exhibit hours. This series of events brings together teams from colleges, universities and other research laboratories to compete, and also to demonstrate state-of-the-art research in robotics and AI. The goals of the Competition and Exhibition are to (1) foster the sharing of research ideas and technology; (2) allow research groups to showcase their achievements; (3) encourage students to enter the fields of robotics and AI; and (4) increase awareness of the field.

Competition

The competition allows teams to show off their best attempts at solving common tasks in a competitive environment. Teams compete for place awards as well as for technical innovation awards, which reward particularly interesting solutions to problems. There will be three contest events this year: Robot Host, Robot Rescue, and the Robot Challenge.

Exhibition

The exhibition gives researchers an opportunity to demonstrate state-of-the-art research in a less structured environment. Exhibits are scheduled throughout the exhibition hall hours.

Workshop

The robot events culminate with a workshop where participants describe the research behind their entries.

Schedule

Tuesday, July 30

10:00 AM – 5:30 PM

- Robot Challenge: Throughout Shaw Conference Centre
- Robot Exhibition: Exhibit Hall AB
- Robot Rescue: Exhibit Hall AB
- Robot Host: Information Kiosk, during breaks outside Exhibit Hall AB

Wednesday, July 31

10:00 AM – 5:30 PM

- Robot Rescue: Exhibit Hall AB

- Robot Exhibition: Exhibit Hall AB
11:55 AM – 12:45 PM
- AAAI Invited Panel on the Robot Competition and Exhibition
3:00 PM – 5:30 PM
- Robot Host: Robot Server, during AI Festival
5:00 PM – 5:30 PM
- Awards Ceremony: Exhibit Hall AB, during AI Festival

Thursday, August 1

9:00 AM – 5:00 PM

- Robot Workshop (by invitation only), Salon 5, Meeting Level

Robot Competition and Exhibition Teams

Joint Challenge Competitors

Carnegie Mellon University, Naval Research Laboratory, Metrica, Northwestern University, and Swarthmore College

Robot: GRACE

CMU Team: Reid Simmons, Greg Armstrong, Allison Bruce, Dani Goldberg, Adam Goode, Illah Nourbakhsh, Nicholas Roy, Brennan Sellner, David Silver, Chris Urmson

NRL Team: Alan Schultz, Myriam Abramson, William Adams, Amin Atrash, Magda Bugajska, Mike Coblenz, Dennis Perzanowski

Metrica Team: David Kortenkamp, Bryn Wolfe

Northwestern Team: Ian Horswill, Robert Zubeck

Swarthmore Team: Bruce Maxwell

GRACE (Graduate Robot Attending Conference) is a multi-institutional, cooperative effort consisting of Carnegie Mellon University, the Naval Research Laboratory, Metrica, Northwestern University, and Swarthmore College. This year's goal is to integrate software from the various institutions onto a common hardware platform and attempt to do the complete AAAI Robot Challenge task autonomously, from beginning to end. The focus will be on multi-modal human robot interaction (speech and gesture), human-robot social interaction, task-level control in the face of a dynamic and uncertain environment, map-based navigation, and vision-based interaction.

Interacting naturally with humans, GRACE will find its way from the convention entrance to the registration area. It will query bystanders for directions to the registration desk and navigate there based on those directions. Along the way, it will interact with other con-

feres and will ride in the elevator, using an electronic altimeter to determine when it is on the right floor. It will use color vision to find the registration sign, and use laser and stereo vision to queue itself and wait in line. It will interact with the volunteer at the registration booth, and use map-based navigation to travel to the Exhibition Hall. Finally, it will present a talk about itself (see Program addendum for time and place).

Exhibitor

Carnegie Mellon University (Robotics Institute)

Robot: The Personal Rover Project

Team Leader: Illah Nourbakhsh

Team Members: Emily Falcone, Rachel Gockley, Eric Porter, Illah Nourbakhsh

The Personal Rover Project, funded by NASA/Ames Autonomy programs, aims to develop an affordable, highly competent mobile rover that will serve as a scientific and creative outlet for children. This rover is novel in its use of leading-edge microprocessor technology to enable very high robot competence at very low price point. An on-board CMUcam vision system tracks colorful objects using just a Ubicom microprocessor and a CMOS imaging sensor. A network of on-board PIC microprocessors, called Cerebellum, provide sensor interfaces as well as fine-grained motor control using back-EMF speed sensing. An on-board StrongARM processor provides 802.11b networking as well as time-critical visual-motor feedback loops. Finally, using a movable Center of Mass mechanism, the Personal Rover is able to traverse steps greatly exceeding its wheel diameter.

During AAAI we plan to demonstrate both the step traversal and vision-based navigation competencies of the Personal Rover. In addition to achieving these technological competencies, the Personal Rover Project also focuses on interaction design in order to produce a compelling human-robot interface through a series of formative evaluations. We will also demonstrate such interaction interfaces, painting a picture of how the Rover can be a tool for conducting simple science experiments in and around the home.

Rescue Competitor

Carnegie Mellon University (Robotics Club)

Robot: Tartan Swarm

Tartan Swarm is a low-cost multirobot approach to human detection. Each robot is

based on a simple modular diff-drive platform, mounted with a heterogeneous array of sensors. Sensor types include both vision and pyroelectric sensing. Successful human detection is communicated through two channels: a low-bandwidth channel to ward off neighboring robots; and a coded radio broadcast, indicating success and believed relative location. This signal is received by a rescue workstation. Individual robots accomplish their tasks autonomously, using distinct search strategies. Collective behavior is observed through simple success-based interactions.

Tartan Swarm is a simple, low-cost, educational project of the undergraduate Carnegie Mellon Robotics Club

Exhibitor

Columbia University

Robot: RoboCupJunior

Team Leader: Elizabeth Sklar

Team Member: Simon Parsons

RoboCupJunior is a project-oriented educational initiative that sponsors local, regional and international robotic events for students. This year marks the third year of international competition, with a tournament being held in conjunction with RoboCup 2002 – RoboCupJunior 2002 will include over 60 teams of high school and middle school students from more than a dozen countries world-wide. Teams build and program autonomous mobile robots to play soccer, perform dances and simulate rescue scenarios.

We have also used the RoboCupJunior motif as the theme for undergraduate classes in AI, robotics and programming. The soccer and rescue contests have been extremely motivating and challenging for college students with a variety of backgrounds and skill levels.

Our exhibition will introduce RoboCupJunior to the AAAI audience, in search of mentors for teams of young students as well as educators looking for a new twist on standard undergraduate curriculum.

Exhibitor

Dartmouth University

Robot: Crystal Robots

Team Leaders: Robert Fitch and Daniela Rus

A robot designed for a single purpose can perform some specific task very well, but it will perform poorly on a different task, in a different environment. This is acceptable if the environment is structured; however if the task is in an unknown environment, then a robot with the ability to change its shape to suit the environment and the required functionality

Robot Teams

will be more likely to succeed than a fixed-architecture robot. We wish to create more versatile robots by using self-reconfiguration: hundreds of small modules will autonomously organize and reorganize as geometric structures to best fit the terrain on which the robot has to move, the shape of the object the robot has to manipulate, or the sensing needs for the given task. For example, the robot could synthesize a snake shape to travel through a narrow tunnel, and then morph into a six-legged insect to navigate on rough terrain upon exit.

Self-reconfiguring robots are well-suited for tasks in hazardous and remote environments, especially when the environmental model and the task specifications are uncertain. A collection of simple, modular robots endowed with self-reconfiguration capabilities can conform to the shape of the terrain for locomotion by implementing “water-flow” like locomotion gaits, which allow the robots to move by conforming to the shape of the terrain. We have designed and built the Crystal robot—which is capable of autonomous shape changing, locomotion by self-reconfiguration, and self-replication of a big robot into smaller robots—with the same functionality.

Rescue Competitor

Georgia Technical University

Robots: Georgia Tech Yellow Jackets

Team Leader: Tucker Balch

Georgia Tech will compete in the Robot Rescue competition using a cooperative multi-robot system. The robots include an RWI ATRV Mini equipped with 8 DV cameras arranged to provide omnidirectional vision, and four Sony AIBO legged robots. The AIBOs are transported by the ATRV, then released to explore areas where the ATRV cannot reach. The ATRV will provide 3D modeling of the environment as well as localization and tracking of the AIBOs.

Exhibitor

Idaho National Engineering and Environmental Laboratory

Robot: Junior

Team Leader: David Bruemmer

INEEL is working to develop robots that can adjust their level of autonomy on the fly, leveraging their own, intrinsic intelligence to meet whatever level of control is handed down from the user(s). Currently, we have implemented a control architecture with four different levels of autonomy: teleoperation, safe-mode, shared control and full autonomy. Each level of control encompasses a different role

for the operator and makes different demands on the robot and communication infrastructure. To meet this objective we are working towards the following technical goals: (1) sliding autonomy to support changing communication, cognitive, perceptual and action capabilities of the user and robot; (2) self-monitoring and continuous assessment of perception and behavior performance; (3) novel interfaces for robust, mixed-initiative interaction between robots and humans; (4) simultaneous localization and mapping techniques that capture an abstracted representation of the robot’s experience vis-a-vis the task and environment; and (5) sensor-suites and fusion algorithms to enhance perception capabilities for sensing, interpreting, and “understanding” environmental features and humans.

Through these technical efforts, we will enable remote robotic operations to be accomplished by fewer operators with less training. This work will pave the way for a new class of mixed-initiative robots that work with humans as well as for them, accepting high-level tasks with minimal demands on the user.

Challenge Competitor

iRobot Corporation

Robot: CoWorker

Team Members: Mark Dockser and Jim Allard

The CoWorker robot is an internet controlled, wireless, mobile, remote telepresence platform. CoWorker can be accessed from any PC web browser with a high-speed connection (and secure ID and password). The user-friendly interface provides control over where the CoWorker goes, what it sees, what it hears and provides an interface for speaking. There is even a laser pointer so that the user can highlight what she is referring to at the robot’s location. The platform was designed with many available ports (power, serial, PCMCIA) for incorporation of additional hardware including sensors and/or additional cameras.

Our vision for the CoWorker is to meet the needs of industrial users for: (1) remote expert applications; (2) security; and (3) video-conferencing anywhere. By deploying CoWorkers, customers can dramatically reduce travel costs, allow for collaboration anywhere in a company’s wireless network (including the shop floor, cafeteria or any other location), and improve worker safety (by deploying a CoWorker rather than a human to potentially hazardous situations). CoWorker robots are currently in beta applications with a number of Fortune 500 companies.

Host Competitor

Kansas State University

Robot: Borivoj

Team Members: Vojtech Derbek, Jan Kraus, Tomas Tichy, David A. Gustafson

Exhibitor

Kansas State University

Robots: Kansa, Wichita, Coronado and Pike

Team Leader: Eric Matson

Robot teams have advantages over individual robots in accomplishing goals that contain large numbers of tasks. The advantage grows if they have the ability to interchange roles, share responsibility and have some redundant capability. An organization which has the ability to continuously evaluate capabilities and role assignments and reorganize to maximize efficiency will naturally operate at higher levels. Our research is to create a cooperative robotics (CR) reorganization model to dynamically evaluate and reorganize the team in the event of a failure, or suboptimal executing condition. We are currently building a model and system to allow a team of heterogeneous robots to conduct real-time reorganizations while working in a specific task environment.

Challenge Competitor

MIT

Robots: Leo and Erik

Team Leader: John Leonard

Our research addresses the problem of concurrent mapping and localization (CML) for autonomous mobile robots. The problem of CML is stated as follows: starting from an initial position, a mobile robot travels through a sequence of positions and obtains a set of sensor measurements at each position. The goal is for the mobile robot to process the sensor data to produce an estimate of its position while concurrently building a map of the environment. While the problem of CML is deceptively easy to state, it presents many theoretical challenges. The problem is also of great practical importance; if a robust, general-purpose solution to CML can be found, then many new applications of mobile robotics will become possible. During the robot challenge, we will attempt a demonstration of an algorithm for real-time large-scale CML using multiple submaps

Rescue Competitor

The MITRE Corporation

Robots: Moe, Larry, and Curly

Team Members: Zach Eyler-Walker and David Smith
We are developing an approach to coordinat-

ed search using a team of robots controlled by a single human. The robots are semiautonomous and able to share information directly with one another, and with a human via a commander console program.

The robots will perform obstacle avoidance, localization, and low-level route planning autonomously. Mapping, target detection, and goal-directed behavior will be performed via coordination between robots and the human commander.

We are currently using three ActivMedia Pioneer 2-AT robots, each equipped with sonar and a single color camera. We expect to eventually integrate other platforms (e.g. iRobot Packbot) and sensors (e.g. laser rangefinder, pyrosensors, and microphones).

Rescue Competitor

New Roads High School

Robots: Morph Dragon, Ringo

Team Members: The Scarabs, Michael Randall

In 1999, a group of high-school and junior-high students from Los Angeles took on the enormous challenge of competing against some of the top robotics and AI researchers in the world in the RoboCup middle (F2000) league. After over two years of hard work, funded on a shoestring budget (mostly out-of-pocket), the Scarabs robotic team field-tested a color-tracking system at RoboCup 2000 in Melbourne, Australia; designed and built a prototype vehicle and omnidirectional vision system; and successfully demonstrated this vehicle-vision system combination in the AAAI/RoboCup Rescue Robot competition in Seattle, Washington.

The goals of the Scarabs team are to build viable robots at minimal cost; to learn about math, computer science, electronic engineering, physics, AI, system integration, international relations, character development, and teamwork; to have fun (!); and to make a positive difference.

We are fielding two radically different robots: Ringo, an updated version of the prototype we ran in 2001; and Morph-Dragon, a sophisticated six-wheeled robot designed to compete on the Robotica television program. Both robots will use the same vision and control systems. We have upgraded our custom-built omnidirectional vision system with the Axis 2120 Network Camera (www.axis.com). The 2120 features direct connection with a 10/100 MBit Ethernet network and a built-in Linux web server. This allows a single Ethernet cable for video and robot control.

Robot Teams

Exhibitor

Northwestern University

Robot: Rosey the Robot

Team Leader: Christopher Dac Le

The ROBot Self-Explains whY (ROSEY) system attempts to demonstrate a behavior-based robots ability to generate verbal explanations in response to questions about its behavior. Specifically, the robot recognizes a class of why questions that seek reasons for its locomotive behavior such as, “Why are you turning?” ROSEY the Robot will be running around the exhibit hall while fielding such questions, which will be typed in.

ROSEY the Robot represents an instance of a class of what we call self-explanatory robots, which should be able to explain what they’re doing and why they’re doing it. To build such robots, we are exploring how a behavior-based robot can generate explanations by accessing its own internal structures and relating them to its sensory-motor state.

Rescue Competitor

Sharif University of Technology

Robots: EMDAD II, Twins and Magellan Pro

Team Leader: Dr. Amir Hossein Jahangir

Team Members: S. Bayat Sarmadi, G. Asadi, S. Sharifi Tehrani, E. Mozaffaripour, M. Sonee, A. Farahani, H. Khaleghi, N. Honarmand

EMDAD II, Twins and Magellan Pro are the robots used in the competition. These agents are supervised by a central system. Each of the robots searches alone, and when it encounters a suspected object, sends an alarm or a message to the central system. In this case, depending on the received information, the central system will realize whether a victim is present or not, and the process will be kept on till the end of allowed period.

Yellow Arena: A commercial robot, Magellan Pro is used in this arena. The main challenge has been to develop software capable of motion planning and visual navigation.

Orange Arena: Two robots, Twins, are considered for this arena. The mechanical four-wheel platform is based on a mobile toy structure. An industrial small size PC does the information processing. Twins use ultrasonic sensors, IR sensors and IR cameras.

Red Arena: A special robot has been designed for this section namely EMDAD II. The hardware platform of EMDAD II, is a reliable system based on industrial PC104 boards. This hardware system is capable of operating in hostile environments.

Host and Rescue Competitor

Swarthmore College

Robots: Frodo & Gollum

Team Leader: Bruce Maxwell

For the Host Competition, we hope to build some interesting human-robot interactions upon our name-tag reading system that we developed for the 2001 competition. We also hope to have two moving robots this year so that they can converse when they see one another. Our overall goal, however, will be to successfully serve hors d’oeuvres in an unobtrusive and effective manner.

In the Rescue Competition we will be examining issues in semi-autonomous robot systems. Our goal is to permit a single user to successfully manage more than one robot. We will build upon our system from a year ago that identified victims using vision, built maps with paths to found victims, and enabled both teleoperation and completely autonomous robot functioning.

Rescue Competitor

Temasek Polytechnic

Robots: Temasek Search and Rescue Robot

Team Leader: Nadir Ould-Khessal

Civil Defence Search and Rescue robot is an attempt to replace human rescue personnel with tank-like vehicle capable of searching for victims in an unstructured terrain. The dimension of the robot is 502 mm in width, 760 mm in length and 350 mm in height. The estimated weight of the vehicle is 75kg. The front-mounted camera can be rotated up to 360 degree. Civil Defence Search and Rescue Robot is equipped with a Charged Coupled Device (CCD) camera, 24 ultrasonic sonar sensors, wireless RF receiver, wireless audio receiver, and wireless video transmitter, as well as an onboard processing unit

Exhibitor

Universita di Roma “la Sapienza”

Robot: ArmHandOne

Team Members: M. Cialente, A. Finzi, I. Mentuccia, F. Pirri, M. Pirrone, M. Romano, F. Savelli, K. Vona

We have a reconfigurable maze—that is, a maze made of panels that can be suitably arranged. Inside this maze we can position several road signs indicating whether the road is one-way or no-entry, arrows addressing directions for the exit, and so on. We are free to put the road signs inside the maze, that is, the agent performance should not depend on the signs. Furthermore there is a place in the maze in which we can locate a treasure, consisting of

a set of colored blocks, suitably arranged: e.g. forming towers etc. The task for the agent is to get into the maze, find a particular block (e.g. the red block), picking it up (to achieve this the robot might need to move lots of other blocks) and direct itself toward the exit and, finally, exit from the maze.

The robot we are talking about is named Armandone (pronounced “ArmHandOne”), weighing about 4 kg and standing about 40 cm high. It is equipped with a grabber arm, a pantilt binocular head with two cameras, and other sensors. Wireless control can reach 1 km. The novelty of our approach mainly relies in the cognitive architecture we have been building. The architecture is defined on three levels: (1) the cognitive level monitoring sensing and high level control actions, (2) the global level managing the choice of tasks and actions control, and (3) the reactive level managing navigation and localization.

Exhibitor, Challenge and Host Competitor

Universidade de Aveiro, Portugal

Robot: Carl

Team Leader: Luis Seabra Lopes

Team Members: Luis Seabra Lopes, Antonio Teixeira, Mario Rodrigues, Qinghua Wang and three undergraduate students

CARL is an acronym for “communication, action, reasoning and learning in robotics.” The project is therefore concerned with the development of an integrated set of capabilities for robot intelligence. The participation will build upon previously implemented capabilities (multisensor navigation, spoken-language dialog), already demonstrated at the 2001 AAAI Competition. A higher degree of interactivity will hopefully be demonstrated.

For the Challenge competition, Carl will perform only a part of the proposed task. Capabilities developed for the participation of Carl at the Host competition will also be used here. In addition, we may demonstrate on-line learning.

Exhibitor

University of Connecticut

Robots: I Comici Roboti

Team Leader: Karl R. Wurst

Combining Robotics, Puppetry, and Comedy, our troupe of three robots perform a lazzo from the Commedia Dell’Arte. The Italian Comedies of the 16th and 17th centuries had many improvisational pieces called *lazzi*. These were comic interludes inserted by a player if a scene started to drag or his eloquence gave out. I Comici Roboti performs

the Lazzo of the Statue, in which Arlecchino pretends to be a statue who moves when the backs of the other actors are turned.

Our troupe of three robots perform a short script, with each executing its own plan, cueing off the others to keep themselves in sync. A human director observing the performance can affect the overall performance, or the performance of an individual robot. The robots themselves consist of Lego bases, carrying a HandyBoard processor, a two-way radio link, and the puppet body.

Rescue Competitor

University of Manitoba, Winnipeg, Canada

Robots: Keystone Fire Brigade

Team Leader: Jacky Baltes

Team Members: Jacky Baltes, John Anderson

The Keystone Fire Brigade robots are based on the 4 Stooges, a small sized RoboCup team from the University of Auckland. The robots of the 4 Stooges were designed to be robust and versatile enough to be used in a variety of different ways. This has paid off since the robots of the Keystone Fire Brigade are identical to those.

The Keystone Fire Brigade use a small CMOS camera and Thomas Braunl’s Eyebot controller. The Eyebot controller consists of a 35 MHz 68332 processor with 2 MB of static RAM. The design is clearly dated nowadays, but has the advantage that it is comparatively cheap and provides the possibility of directly connecting a CMOS camera to the processor as well as providing the necessary interface to connect motors, servos, gyroscopes, and many other sensors directly to the controller.

Exhibitor

University of Minnesota

Robot: MinDART (Minnesota Distributed Autonomous Robotic System)

Team Leader: Paul E. Rybski

Team Members: Paul E. Rybski, Amy Larson, Chris Flowers-Huebner, Maria Gini

The Minnesota Distributed Autonomous Robot Team (MinDART) is a group of simple and low-cost robots used at the University of Minnesota for research into reactive control strategies. We are interested in studying how environmental and control factors affect the performance of a homogeneous multi-robot team doing a search and retrieval task. Several factors which affect the performance of the team are examined. One factor is the distribution of targets. This is varied from a uniform distribution to having all of the targets clus-

Robot Teams

tered together into one or two small clumps. Another factor that we examine is the size of the team (varying from one to five robots). Finally, the type of search strategy is varied between a completely reactive method to a directed search method that uses the robot's ability to localize itself. Current work includes incorporating the ability for the LEGO robots to communicate amongst themselves using an RF data link and determining under what environmental conditions such communications is useful.

Exhibitor, Host, and Rescue Competitor

University of Rochester

Robot: Mabel the Mobile Table

Team Members: Undergraduate Robot Research Team

We have developed a Java application which we call the "Learn Server." Its purpose is to provide offboard graphical user interfaces and parameter adjustment modules to offboard robotics applications. It allows communication with programs running in multiple languages and on multiple operating systems. Currently the program communicates with the C and C++ languages, in Windows2000, WindowsXP, and Linux. We will be demonstrating this application in the context of our robot host system: Mabel the Mobile Table.

Mabel gives an appropriate multi-modal response to people using a combination of speech, food manipulation, and navigation behaviors. We accomplish this using the Sphinx Speech Recognition System developed by CMU, augmented by a digital filter. We employ a directed speech recognition microphone, which is actively pointed towards the speaker, using face tracking and a pan-tilt-zoom camera. To accomplish language understanding, a specially designed grammar-based parsing technique is under development.

The vision component's purpose is to provide the navigation component with real-time visual percepts including estimated closest patron group, best approach angle in field of view, patron face-region detection and tracking, nametag-region detection scene, and character classification (ANN)

Autonomous navigation control involves creating a robust model for navigating around a crowded room while retaining the ability to return to a base station. We use sonar-based obstacle avoidance for robust navigation. To achieve path planning and execution, we employ a trained waypoint system using wheel counters.

Exhibitor

USC/Information Sciences Institute

Robot: CONRO

Team Leaders: Wei-Min Shen and Behnam Salemi

The CONRO Project has a goal of providing the Warfighter with a miniature reconfigurable robot that can be tasked to perform reconnaissance and search and identification tasks in urban, seashore and other field environments. CONRO will be miniature and is to be made from identical modules that can be programmed to alter its topology in order to respond to environmental challenges such as obstacles. The base topology is simply connected, as in a snake, but the system can reconfigure itself in order to grow a set of legs or other specialized appendages. Each module will consist of a CPU, some memory, a battery, and a micro-motor plus a variety of other sensors and functionality, including vision and wireless connection and docking sensors. Major challenges include packaging, power, and cooling, as well as the major issue of programming and program control.

Exhibitor

University of Texas at Dallas

Robot: Identity Emulation (IE), Facial Expression Robot

Robot Team Members: David Hanson, Marshall Thompson, Giovanni Pioggia

Our facial expression robot uses biomimetic structures, aesthetic design principles, and recent breakthroughs in elastomer material sciences to enact a sizable range of natural humanlike facial expressions. This application of robotics will rise in relevance as humans and robots begin to have more face-to-face encounters in the coming years. My team and I are also working on imbuing our robot with several forms of interactive intelligence, including human-form and facial-expression recognition, and natural language interaction. It is anticipated that an integration of mechanics, sociable intelligence, and design aesthetics will yield the most effective human computer interface robots.

Rescue Competitor

Utah State University

Robots: Blue Swarm 2 and Blue Swarm Sentinel

Team Members: Asti Bhatt, Brandon Boldt, Scott Skousen, and Dan Stormont

The Blue Swarm 2 is made up of six modified remote-control cars. They operate autonomously using a simple subsumption architecture. They will sense the location of victims and send out a signal which can be re-

ceived by one or more Blue Swarm Sentinels. The Blue Swarm Sentinel is a modified radio-controlled tank that operates either manually or autonomously to locate victims, locate Blue Swarm robots that have located a victim, or locate obstacles. The Sentinel reports information back to the rescuer GUI via a bi-directional RF link. Both types of robots are controlled by Parallax BASIC Stamps.

Exhibitor

Utah State University

Robot: Blue Swarm 3

Team Leader: Dan Stormont

Blue Swarm 3 is the next generation of Blue Swarm robots. The Blue Swarm 3 will be built to compete in the Urban Search and Rescue competition in 2003. The current plan is to build robust, legged robots that communicate with each other and with a handheld terminal (PalmPilot) using IR links. The exhibit will demonstrate some prototypes of the robots that will be developed for Blue Swarm 3.

Rescue Competitor

YSC (Iran)

Robot: Hanif 1, Hanif 2 (Snake Robot), Hanif 3 (Tracked Robot)

Team Leader: Navid Ghaffarzadegan

Team Members: Mohammad Hossein Taghavi, Amir Salman Avestimehr, Sadegh Dabiri, Arezu Motevalizadeh, Hadi Emamifar, Ali Sharifi, Peiman Shariat Panahy, Sareh Ebrahimi, Mohammad Hossein Fardad, Ali Azimi, Sina Rastad, Mohammad Najmzadeh

Because of the geographical placement of Iran, every year earthquakes are both common and fatal. Thus, working on robots that could help rescuers in detecting victims is a necessary task. Our aim in this project is to design, construct, and control an autonomous robot that could move around in an unstructured environment and detect victims in hazard areas. Our team is divided into three subteams: the mechanical engineering students group, the software engineering students group, and the hardware engineering students group. Current research includes dynamical analysis of mobile plates; path planning and victim detection using image processing; positioning of mobile robots; design, fabrication, and control of snake robots; design, fabrication, and control of rovs; and mechanical use of smart materials—especially SMA.

National Botball Exhibition

No, the graduate students haven't gotten younger! AAAI is pleased to host the National Botball Exhibition, 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 score points by moving your colored ping pong balls from inside a moveable goal into the basket or into the end-zone. Robots are required to start by themselves and shut down after 90 seconds.

These robots were completely designed, built, and programmed by students from a kit of over 2000 parts. Students first compete in one of 12 regional tournaments and then advance to the National Botball Tournament, held in Norman, Oklahoma in early July. The best of the best from that tournament will be showcasing their robots at AAAI this year. For more information about the Botball program, please see www.botball.org.

Event Schedule

Tuesday, July 30

10:00 AM - 12:00 PM: Botball Practice Rounds

1:00 PM - 4:00 PM: Botball Mini-Tournament

4:00 PM: Team Programming Challenge

Wednesday, July 31

10:00 AM - 12:00 PM: Botball Practice Rounds with new programming

1:00 PM - 3:00 PM: Botball Seeding Rounds

3:00 PM - 5:30 PM: Botball Mini-Tournament (Botball Students & RBL Participants)

Registration

Registration

Conference registration is located on the assembly level of the Shaw Conference Centre, beginning Sunday, July 28. Registration hours are:

Sunday, July 28	7:30 AM – 6:00 PM
Monday, July 29	7:30 AM – 6:00 PM
Tuesday, July 30	7:30 AM – 5:30 PM
Wednesday, July 31	8:00 AM – 5:30 PM
Thursday, August 1	8:00 AM – 2:00 PM

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

Registration Fees

The AAAI-02/IAAI-02 technical program registration fee includes admission to the technical plenary and poster sessions, the Exhibition Program, the Tutorial Forum, the Workshop Program (by invitation only), the Opening Reception, the AI Festival, and the AAAI-02/IAAI-02 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 the student rate. Onsite technical program fees are in Canadian Dollars and are as follows:

<i>Regular Member:</i>	\$1,070 CDN
<i>Regular Nonmember:</i>	\$1,225 CDN
<i>Student Member:</i>	\$345 CDN
<i>Student Nonmember:</i>	\$455 CDN

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-02 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 \$230.00 CDN for members or nonmembers, and \$115.00 CDN 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. Exhibit hall programs include vendor exhibits, the Intelligent Systems Demonstrations, the Botball Exhibition 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.

All passes are good for Tuesday and Wednesday, July 30-31

<i>Exhibits Only Adult:</i>	\$15.00 CDN
<i>Exhibits Only Adult w/Festival:</i>	\$38.00 CDN
<i>Exhibits Only Child w/Festival:</i>	\$8.00 CDN

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 or IAAI sessions.

Baggage Holding

There is no baggage holding area at the Shaw Conference Centre. Please check your luggage with the bellman at your hotel after you have checked out. Neither the AAAI, the Shaw Conference Centre, the Weston Edmonton, the Fairmont Hotel Macdonald, the Crowne Plaza Chateau Lacombe, nor the University of Alberta accept liability for the loss or theft of any suitcase, briefcase, or other personal belongings brought to the site of AAAI-02/IAAI-02.

Banking

The closest banks and automated teller machines (ATM) are below. The ATM networks available are Discover, MasterCard, Visa, Cirrus, Honor and Plus. The banks can also exchange all major foreign currencies.

Canadian Western Bank

10303 Jasper Avenue
423-8801
Monday – Wednesday and Friday, 9:30 AM - 4:30 PM, Thursday, 9:30 AM - 5:00 PM

Royal Bank

10107 Jasper Avenue
448-6611
Monday – Friday, 9:30 AM - 4:00 PM,

TD Canada Trust

148 Edmonton Centre
448-8000
Monday – Friday, 9:30 AM - 4:00 PM,

Business Centers

The following business centers are available:

Shaw Conference Centre

Banquet Office located outside of Exhibit Hall A. Services include faxing and photocopying in small quantities.

Westin Edmonton Concourse Level:

Monday – Friday, 8:00 AM - 5:30 PM
414-5700. Copy center and business services.

Staples Business Depot

Edmonton Core, 10330 – 101 Street
Monday – Friday, 8:00 AM - 9:00 PM; Saturday, 9:00 AM - 6:00 PM; Sunday, 11:00 AM - 5:00 PM
424-4114. Copy center and business services.

Career Information

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

Child Care Services

For information about childcare services, you may contact Jan Pat Management Program in Edmonton at 448-1883. They have babysitting services and KidScenes for families traveling to the city for conferences. (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 on the meeting level of the Shaw Conference Centre, Sunday, July 28 and Monday, July 29, & 10:30 – 11:00 AM and 3:30 – 4:00 PM. Coffee will also be served in the ballroom foyer of the Westin Edmonton during these times.

Coffee will be served in the foyer on the assembly level of the Shaw Conference Centre Tuesday, July 30, 10:30 – 11:15 AM and 3:15 – 3:50 PM, Wednesday, July 31, 10:40 – 11:10 AM, and Thursday, August 1, 10:30 – 11:05 AM and 3:00 – 3:20 PM.

Copy Services

Copy service is available in the banquet office located outside of Exhibit Hall A. Also see Business Centers.

Currency

Canadian dollars will be required for onsite registration, exhibits only passes, and tutorial syllabi purchases. Approximate rates of exchange at press time were:

CDN \$1.00 = 0.65 US Dollars
CDN \$1.00 = 0.44 British Pounds
CDN \$1.00 = 82 Japanese Yen
CDN \$1.00 = 0.69 Euros

General Information

Dining

Edmonton dining information is available in the *Edmonton Where Magazine*, which has been included with your registration materials. A concession stand (coffee, pastry items, candy, etc.) will be open on the assembly level during normal business hours, Sunday, July 28 – Thursday, August 1. The Shaw Conference Centre is connected via Pedway to Canada Place, which has a food court, open 7:30 AM – 4:30 PM, 7 days a week.

Handicapped Facilities

The Shaw Conference Centre, The Westin Edmonton, the Fairmont Hotel Macdonald, and the Crowne Plaza Chateau Lacombe are all equipped with handicapped facilities.

Housing

For information regarding hotel reservations, please contact the hotels directly. For student housing, please contact University of Alberta at 492-4281 or 800-615-4807 (Canada only).

Information Desk

An information desk/message desk will be staffed during registration hours, Sunday through Thursday, July 28 – August 1. It is located near the registration area, on the assembly level of the Shaw Conference Centre. Messages will be posted on the message boards adjacent to the desk. The telephone number for leaving messages only is (780) 917-7881. Paging attendees is not possible.

Internet Room

Internet access is available in Salon 5 of the Shaw Conference Centre. The internet room will be open Sunday, July 28 - Wednesday, July 31, 8:00 AM – 5:30 PM; and Thursday 8:30 AM – 3:30 PM. As a courtesy, please limit your access time to 10 minutes if others are waiting.

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 assembly level of the Shaw Conference Centre. Attendee lists will not be distributed.

Message Center

See Information Desk

Parking

The Westin Edmonton charges \$16.00 CDN per day for self-parking and \$21.00 for valet parking per day. The Crowne Plaza Chateau Lacombe charges \$7.49 CDN per day for self-parking and \$10.70 CDN for valet parking per day. The Fairmont Hotel Macdonald charges \$8.00 CDN for self-parking or valet for up to 4 hours and \$19.95 CDN for more than 4 hours.

The City of Edmonton provides over 1,600 convenient parking stalls within a 5-minute walk from the Shaw Conference Centre. The Library, Canada Place and City Hall Parkades provide pedway connections to the Centre. Parking is also available at the City Market and on-street meters in the vicinity.

- Canada Place Parkade: 9700 Jasper Avenue. Entrance at 97 Street North of Jasper Ave.
- Library Parkade: 10165 – 100 Street. Entrance on 99 Street (Citadel) & 100 Street
- City Hall Parkade: 1 Sir Winston Churchill Square. Entrance on 99 Street
- City Market Surface Lot: 10165 – 97 Street. Entrance on 101 and 102 Avenue

Rates: GST included, \$1.25 CDN per half hour or part thereof.

Monday-Friday

6:00 AM-6:00 PM	\$10.00 maximum
6:00 PM-1:00 AM	\$2.00 maximum
Daily Maximum	\$15.00

Saturday and Sunday

Midnight to 6:00 PM	
first 3 hours	\$1.00 maximum
Parking thereafter	\$1.25/half hour
6:00 PM-1:00 AM	\$2.00 maximum
Daily Maximum	\$10.00

Press

All members of the media are requested to register in the Press Room, on the meeting level of the Shaw Conference Centre in Salon 20. Press badges will only be issued to individuals with approved credentials. The Press Room will be open during the following hours.

Sunday, July 28	9:00 AM - 5:00 PM
Monday, July 29	8:00 AM - 5:00 PM
Tuesday, July 30	8:00 AM - 5:00 PM
Wednesday, July 31	8:00 AM - 5:00 PM
Thursday, August 1	8:00 AM - 12:00 PM

A volunteer will be on duty during these 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 assembly level of the Shaw Conference Centre.

Proceedings

Each registrant for the AAAI-02/IAAI-02 technical program will receive a ticket with the registration materials for one copy of the conference proceedings. During registration hours on Sunday, July 28, Monday, July 29 and until 10:00 AM on Tuesday, July 30, Proceedings tickets can be redeemed at the AAAI Press Proceedings desk, located in AAAI onsite registration on the assembly level of the Shaw Conference Centre. After 10:00 AM on Tuesday, the Proceedings ticket may be redeemed at the MIT Press booth #104, located in Exhibit Hall AB of the Shaw Conference Centre, during exhibit hours. Limited Proceedings will be available at the AAAI Press Proceedings desk again on Thursday, August 1 from 8:30 – 1:00 PM. Extra Proceedings may be purchased at the conference site at the above locations. Thursday, August 1, will be the last day to purchase extra copies of the Proceedings on site.

We strongly recommend that you redeem your Proceedings ticket onsite. (See “Proceedings Shipping” if you do not want to carry your Proceedings with you.) Your ticket can be redeemed by mailing the ticket with your name, complete shipping address and e-mail to:

AAAI, Attn: AAAI-02 Proceedings
445 Burgess Drive, Suite 100
Menlo Park, California 94025 USA

Postage must be prepaid with a check drawn on a US bank or MasterCard/Visa and expiration date. USA: \$25.00; for orders outside USA: \$55.00 for regular air mail, \$105.00 for FedEx. Please allow eight to twelve weeks to receive your proceedings.

Proceedings on CD-ROM

Each registrant for the AAAI-02/IAAI-02 technical program will receive a ticket with the registration materials for one copy of the conference CD-ROM. During registration hours on Sunday and Monday, July 28-29 and until 10:00 AM on Tuesday, July 30, CD-ROM tickets can be redeemed at the AAAI Press Proceedings desk, located in AAAI onsite registration on the assembly level of the Shaw Conference Centre. After 10:00 AM on Tuesday, the CD-ROM ticket may be redeemed at the Registration Desk. Extra CD-ROM tickets may be purchased in onsite registration. Thursday, August 1 will be the last day to purchase extra

copies of the conference CD-ROM onsite. **Registrants must pick up their conference CD-ROM's onsite.** (AAAI cannot redeem tickets after the conference.)

Proceedings Shipping

Goodkey Show Services at the Shaw Conference Centre can arrange for shipping services. Contact: Calvin Goodkey at 426-2211.

Speaker Ready Room

The Speaker Ready Room will be located in Salon 19 on the assembly level of the Shaw Conference Centre. 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 28 – Tuesday, July 30, and Thursday, August 1; 8:00 AM – 3:00 PM on Wednesday, July 31.

Invited speakers are asked to come to Salon 19 one-day prior to their speech. Representatives from AV Headquarters will be available during the times listed above to confirm your audiovisual needs, and assist with the preparation of your materials, if necessary.

Taxes/Rebate of Taxes

A federal tax (GST) of 7% is now applied to most goods and services in Canada. A harmonized sales tax (HST) is added to all goods and services. Nonresident visitors can apply for a GST/HST rebate on most goods purchased for use outside Canada as well as on short-term accommodations. Rebates can be claimed in person at participating Canadian Duty Free Shops at border crossings or airports, or by completing and mailing the rebate form. A nonresident visitor qualifies for a tax refund if the following conditions are met: you are not a resident of Canada; you purchased eligible goods, short term accommodation or both; you paid GST/HST on these purchases; you have original receipts; the total of your purchase amounts (before taxes) for eligible goods and accommodations must be at least \$200 CDN; each individual receipt for eligible goods shows a minimum total purchase (before taxes) of \$50 CDN; the goods are removed from Canada within 60 days of the date they were purchased. Retailers have forms available.

Telephones

Public telephones for domestic and interna-

General Information

tional calls are located throughout the Shaw Conference Centre on all levels.

Tipping

In general, a tip of 10-20 % is given to waiters, waitresses, taxi drivers, etc. Bellhops, doormen, porters, etc. at hotels, airports and railway stations are generally paid \$1.00 per item.

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 Air Canada as the official carrier and Avis Rent A Car as the official car rental agency for AAAI-02/IAAI-02. If you need to change your airline or car rental reservations, please call Stellar Access, our official travel agency at 858-805-6109 and reference AAAI Event #1889. Web: www.stellaraccess.com

Airport Shuttle

Sky Shuttle is the official carrier to and from Edmonton International Airport. They offer frequent service to and from the conference hotels. The one-way fare is \$13.00 CDN; round trip is \$20.00 CDN. For more information, consult www.edmontonairports.com/gtr/skyshutt.htm, or call 888-438-2342.

Taxi

Taxis are available at Edmonton International Airport. The approximate fare from the airport to downtown Edmonton is \$41.00 CDN.

Bus

Greyhound Bus: For information on fares and scheduling, call 1-800-661-8747. The downtown Edmonton Greyhound terminal is located at 10324 - 103 Street.

City Transit System

The Edmonton Transit System includes Buses, LRT (Light Rail Transit) and DATS (Disabled Adult Transit Service). They can be contacted at 496-1611 or www.gov.edmonton.ab.ca/transit. The fares are \$2.00 CDN. The station closest to the Shaw Conference Center is Central and is located at 100th Street and Jasper Avenue.

Train

Via Rail – The Via Rail station is located within a 15-minute drive of downtown Edmonton. The toll free number in Canada is, 1-800-561-8630. www.viarail.ca.

Tutorial Syllabi

Extra copies of AAAI-02 tutorial syllabi will be available for purchase in AAAI onsite registration in the Shaw Conference Centre, beginning Tuesday, July 30. Supplies are limited. The cost is \$25.00 CDN per syllabus. Preregistration tutorial syllabi tickets may be redeemed in the tutorial rooms.

Visitor Information

Edmonton Tourism welcomes you to Edmonton! They are located in the Shaw Conference Centre and are open Monday through Friday, 8:00 AM – 4:30 PM.

Edmonton Tourism
9797 Jasper Avenue
Edmonton, Alberta, Canada T5J 1N9
Telephone: 426-4715

Volunteer Station

The volunteer station will be located in the registration area on the assembly level of the Shaw Conference Centre. All volunteers should check in at the beginning of their shifts with the volunteer at the booth prior to their shifts. The volunteer meeting will be held Saturday, July 27 at 4:00 PM in the registration area.

Disclaimer

In offering Avis Rent A Car, Canada Air, Crowne Plaza Chateau Lacombe, The Fairmont Hotel Macdonald, Shaw Conference Centre, University of Alberta, The Westin Edmonton, 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-02/IAAI-02 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.

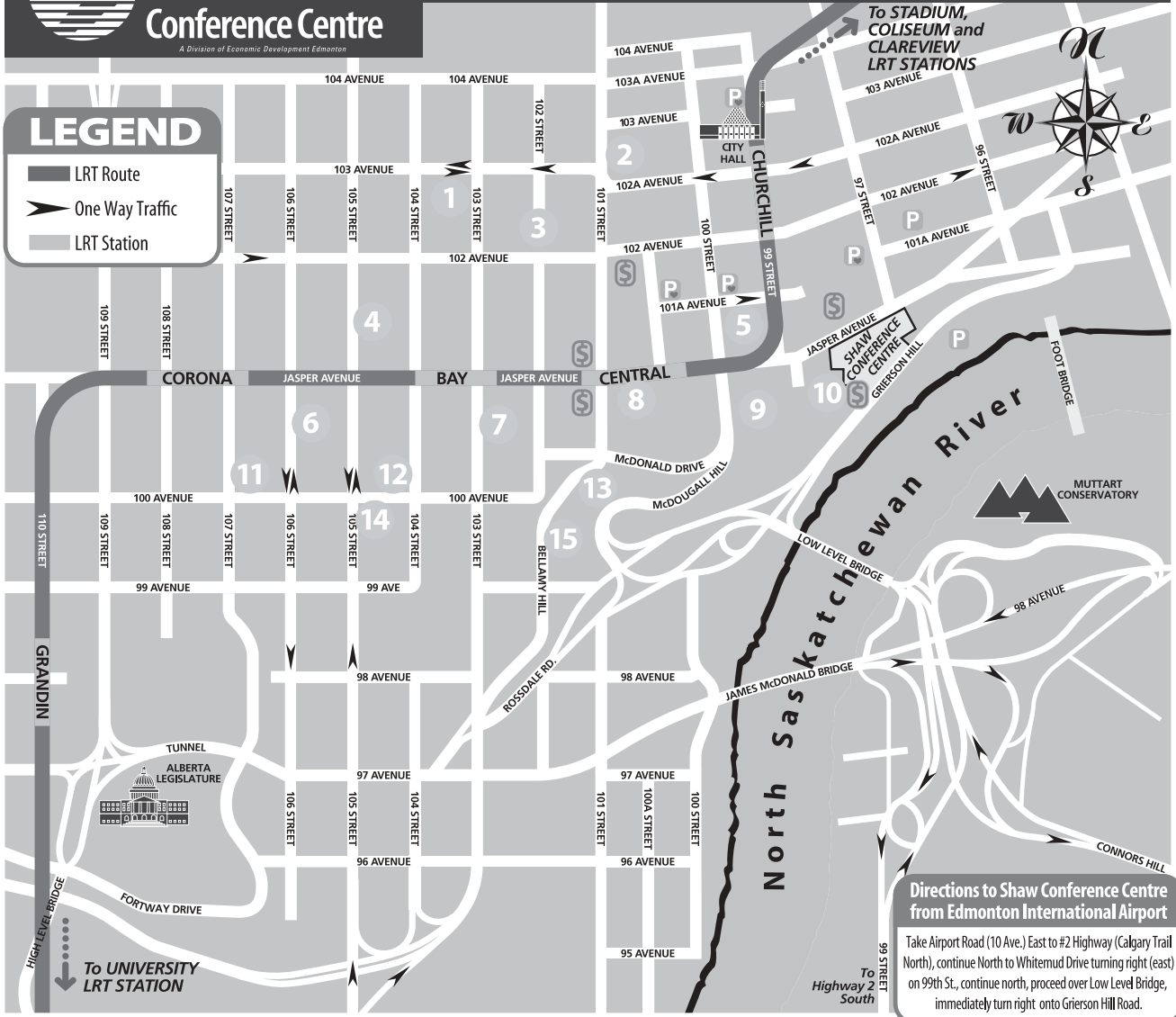


SHAW
Conference Centre
A Division of Economic Development Edmonton

Need Directions? Call our switchboard at (780) 421-9797

LEGEND

- LRT Route
- One Way Traffic
- LRT Station



Directions to Shaw Conference Centre from Edmonton International Airport

Take Airport Road (10 Ave.) East to #2 Highway (Calgary Trail North), continue North to Whitemud Drive turning right (east) on 99th St., continue north, proceed over Low Level Bridge, immediately turn right onto Grierson Hill Road.

RESTAURANTS

- Baraka Cafe**
10168 Jasper Avenue
(780) 423-1819
- Bistro Praha Gourmet Cafe**
10168 - 100A Street
(780) 424-4218
- Cafe Select**
10018 - 106 Street
(780) 423-0419
- Chance Restaurant**
10150 - 101 Street
(780) 424-0400
- The Creperie**
10220 - 103 Street
(780) 420-6656
- Donna at the Citadel**
Citadel Theatre
10177 - 99 Street
(780) 429-3338
- Four Rooms Restaurant**
137 Edmonton Centre
(780) 426-4767
- Hardware Grill**
9698 Jasper Avenue
(780) 423-0969
- Harvest Room**
Fairmont Hotel Macdonald
10065 - 100 Street
(780) 429-6424
- Hy's Steak Loft**
10013 - 101A Avenue
(780) 424-4444
- LaRonde Revolving Restaurant**
Crowne Plaza - Chateau Lacombe Edm.
10111 Bellamy Hill
(780) 428-6611
- Pradera Cafe and Lounge**
Westin Edmonton Hotel
10325 - 100 Street
(780) 493-8994

- Russian Tea Room**
10312 Jasper Avenue
(780) 426-0000
- Sherlock Holmes Pub**
10012 - 101A Avenue
(780) 426-7784
- Sorrentino's Downtown**
10162 - 100 Street
(780) 424-7500
- Union Bank Inn**
10053 Jasper Avenue
(780) 423-3600
- HOTELS**
- 1 Grand Hotel
- 2 Sheraton Grande Hotel
- 3 Delta Edmonton Centre Suite Hotel
- 4 Coast Edmonton Plaza Hotel

- 5 The Westin
- 6 Days Inn
- 7 Alberta Place
- 8 Union Bank Inn
- 9 Fairmont Hotel Macdonald
- 10 Thornton Court Hotel
- 11 Inn on 7th
- 12 Howard Johnson Plaza
- 13 Crowne Plaza Chateau Lacombe Edmonton
- 14 Comfort Inn & Suites
- 15 Edmonton House Suite Hotel

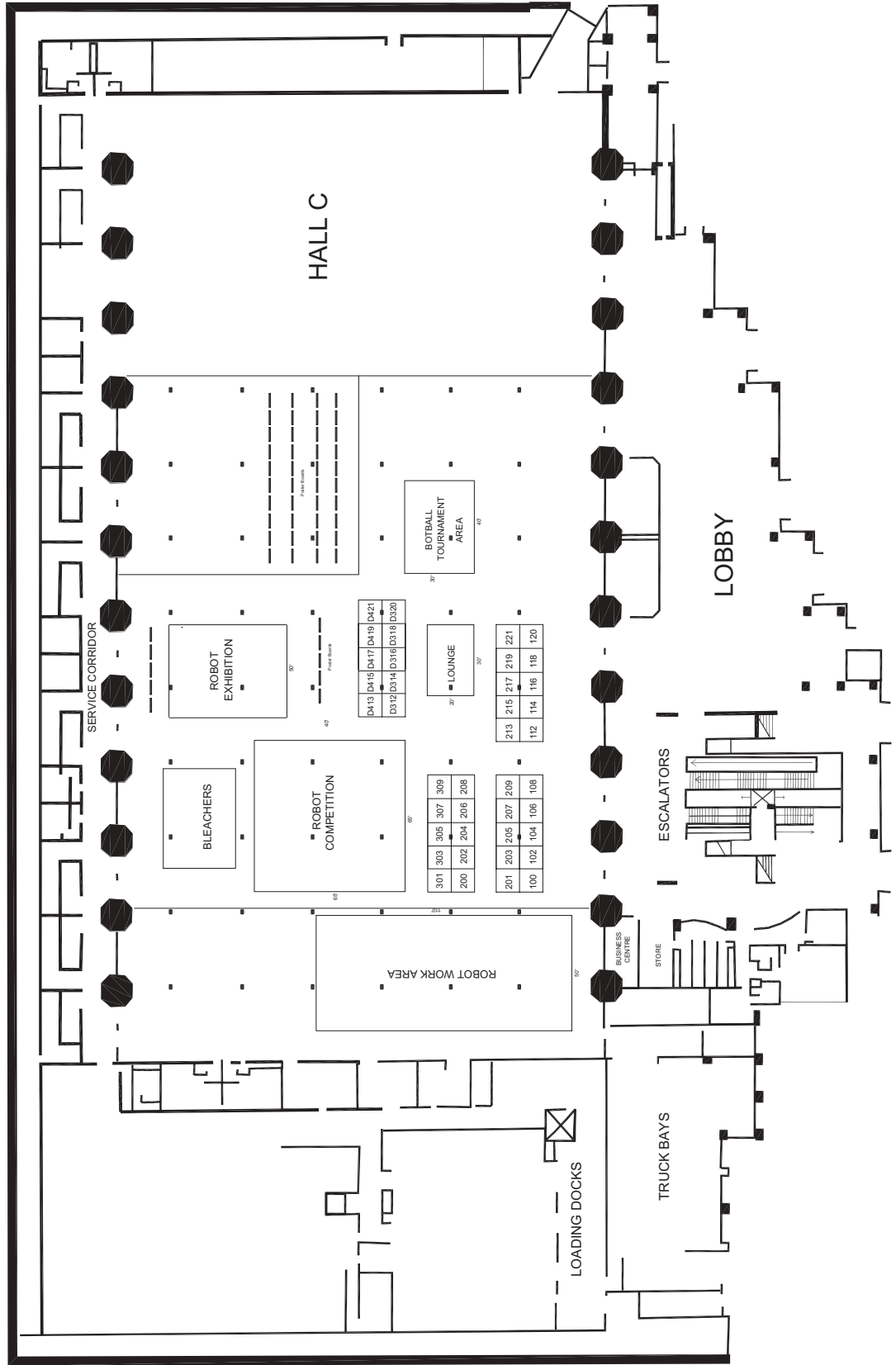
BANK MACHINES

- Shaw Conference Centre**
Assembly Level, 9797 Jasper Avenue
- Canada Place**
Food Court, 9700 Jasper Avenue
- Bank of Montreal**
10199 - 101 Street
- Royal Bank**
10107 Jasper Avenue
- Canadian Imperial**
Bank of Canada (CIBC),
10102 Jasper Avenue

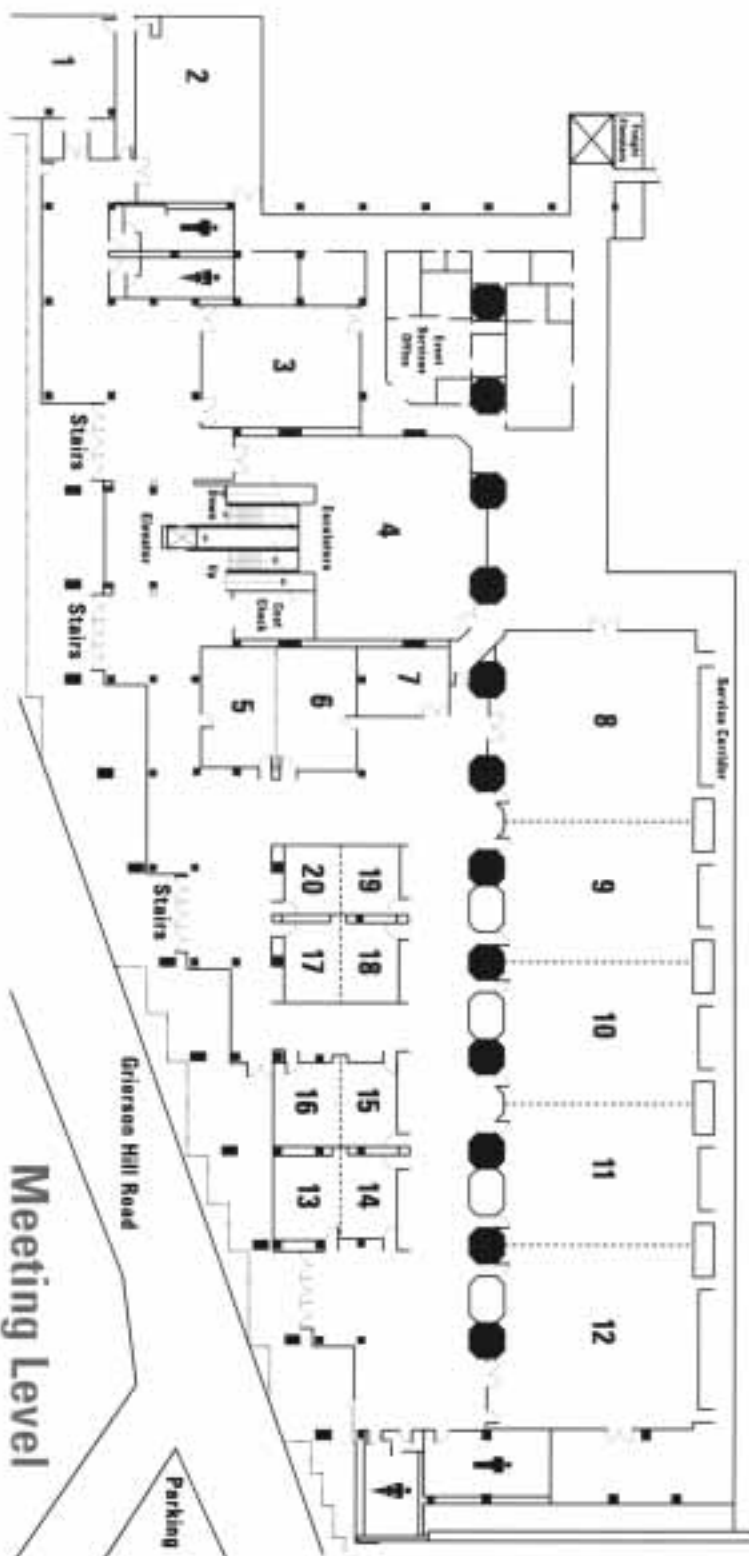
PARKING

- Canada Place Parkade**
9700 Jasper Avenue
- City Market Surface Lot**
10165 - 97 Street
- Library Parkade**
10165 - 100 Street or
Entrance on 99 Street (Citadel) & 100 Street
- Grierson Hill Parking Lot**

Assembly Level Map (Exhibit Area)



Meeting Level Map



SHAW Conference Centre

Edmonton, Alberta, Canada