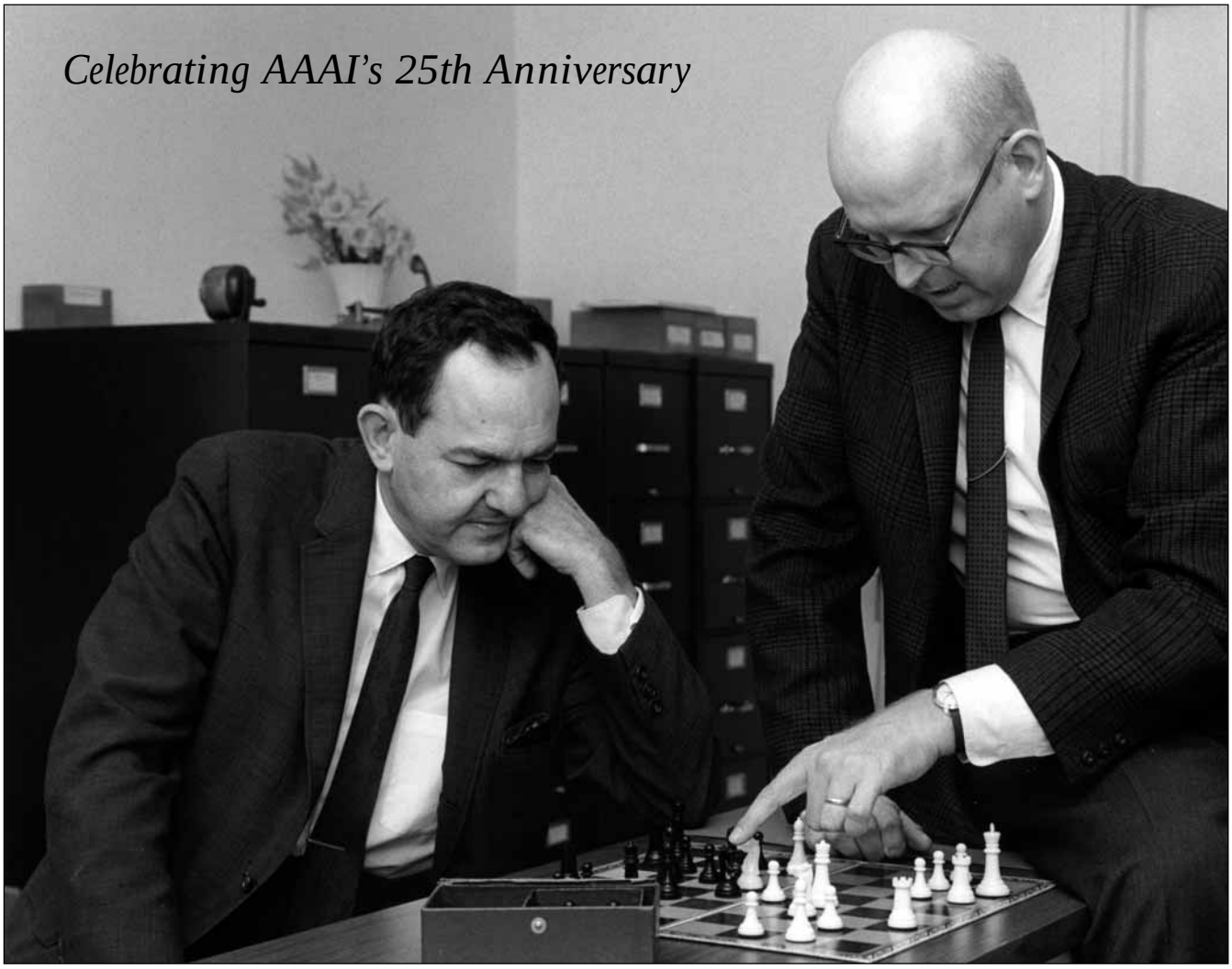

Courtesy, Carnegie Mellon University Archives / The Allen Newell and Herbert Simon Collections

Conference Program

Twentieth National Conference on Artificial Intelligence (AAAI-05) Seventeenth Conference on Innovative Applications of Artificial Intelligence (IAAI-05)

July 9 – 13, 2005
Westin Convention Center Pittsburgh
Pittsburgh, Pennsylvania

Sponsored by the
American Association for Artificial Intelligence

Cosponsored by Colognet, DARPA, Michael Genesereth, Google, IBM Research, Intelligent Information Systems Institute, Cornell University, Intel Corporation, Microsoft Research, National Science Foundation, Naval Research Laboratory, ACM/SIGART, & Yahoo! Research Labs

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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 Twentieth National Conference on Artificial Intelligence and the Seventeenth Conference on Innovative Applications of Artificial Intelligence.

AAAI Conference Committee Chair
James Hendler, *University of Maryland*

AAAI-05 Program Cochairs
Manuela Veloso, *Carnegie Mellon University*
Subbarao Kambhampati, *Arizona State University*

IAAI-05 Program Chair and Cochair
Neil Jacobstein, *Teknowledge Corporation*
Bruce Porter, *University of Texas at Austin*

AAAI-05 Workshop Cochairs
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AAAI-05 Tutorial Forum Cochairs
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Qiang Yang, *Hong Kong University of Science and Technology*

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Avi Pfeffer, *Harvard University*

AAAI/SIGART Doctoral Consortium Chair
Kiri Wagstaff, *Jet Propulsion Laboratory*

AAAI-05 Intelligent Systems Demonstrations Cochairs
Biplav Srivastava, *IBM India Research Labs*
Belinda Thom, *Harvey Mudd College*

AAAI-05 Robot Competition Cochairs
Sheila Tejada, *University of New Orleans*
Paul E. Rybski, *Carnegie Mellon University*

Game Playing Competition Chair
Michael Genesereth, *Stanford University*

AAAI-05 Sponsorship Chair
Carla Gomes, *Cornell University*

A complete listing of the AAAI-05 and IAAI-05 program committee members appears in the conference proceedings.

Sponsoring Organizations

AAAI gratefully acknowledges the generous contributions of the following organizations to AAAI-05:

- Cognet
- DARPA
- Michael Genesereth
- Google
- IBM Research
- Intelligent Information Systems Institute, Cornell University
- Intel Corporation
- Microsoft Research
- National Science Foundation
- Naval Research Laboratory
- ACM/SIGART
- Yahoo! Research Labs

Awards

Awards will be presented on Monday, July 11, and Tuesday, July 12, from 8:30 – 9:00 AM, in the Allegheny Ballroom

AAAI-05 Outstanding Paper Award

The outstanding paper award will be presented by AAAI-05 program chairs Manuela Veloso and Subbarao Kambhampati to Vincent A. Cicirello, Drexel University and Stephen F. Smith, Carnegie Mellon University for their paper "The Max K- Armed Bandit: A New Model of Exploration Applied to Search Heuristic Selection."

AAAI-05 Outstanding Program Committee Award

This award will be presented by AAAI-05 program chairs Manuela Veloso and Subbarao Kambhampati to Joerg Hoffmann, Max-Planck-Institute for Computer Science.

AAAI-05 Outstanding Senior Program Committee Member Award

This award will be presented by AAAI-05 program chairs Manuela Veloso and Subbarao Kambhampati to Gaurav Sukhatme, University of Southern California

IAAI-05 Deployed Applications Awards

IAAI-05 awards will be announced by IAAI-05 chair Neil Jacobstein and cochair Bruce Porter. See the schedule for paper titles. Certificates will be presented during paper sessions.

Robert S. Engelmore Memorial Award and Lecture

The Robert S. Engelmore Award is sponsored by IAAI-05 and *AI Magazine*. It will be presented by Neil Jacobstein, IAAI-05 chair, and David Leake, editor-in-chief, *AI Magazine*. This award and lecture was established in 2003 to honor Dr. Engelmore's extraordinary service to AAAI, *AI Magazine*, and the AI applications community, and his contributions to applied AI. The 2005 award will be presented to James Hendler, University of Maryland, for two decades of technical and government leadership in artificial intelligence, as well as pioneering research on agent-based systems and the semantic web. The lecture will be held Wednesday, July 13, 9:00 AM, in the Cambria room.

Classic Paper Award

The 2005 AAAI Classic Paper Award will be presented by AAAI president Ronald J. Brachman and AAAI President, and AAAI past president and awards committee chair Tom Mitchell. This award is given to the authors of the most influential papers from the Fifth National Conference on Artificial Intelligence, held in 1986 in Philadelphia, Pennsylvania. The 2005 award winners are Steve Hanks and Drew McDermott for their paper "Default Reasoning, Nonmonotonic Logics, and the Frame Problem" and David Haussler for his paper "Quantifying the Inductive Bias in Concept Learning (extended abstract)."

Distinguished Service Award

The AAAI Distinguished Service Award recognizes one individual each year for extraordinary service to the AI community. The 2005 award winner is Nils Nilsson of Stanford University for a lifetime of service to artificial intelligence, including seminal scientific contributions

to pattern recognition, heuristic search, planning, robotics and expert systems, pioneering achievements in scientific publishing and skilled exposition in many influential textbooks, and service to the AI and computer science communities in many key leadership roles including president of AAAI. This award will be presented by Ronald J. Brachman, AAAI president, and Tom Mitchell, AAAI past president and awards committee chair.

General Game Playing Competition Award

The AAAI General Game Playing Competition is designed to test the abilities of general game playing systems by comparing their performance on a variety of games. The competition will consist of two phases: a qualification round and a runoff competition during AAAI. A $10,000 award will be presented to the winning entrant. AAAI gratefully acknowledges the generous contribution of Michael Genesereth, who has made this award possible. This award will be presented by Ronald J. Brachman, AAAI aresident and Michael Genesereth, competition chair.

2005 AAAI 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 four newly elected Fellows for 2005:

- Usama M. Fayyad, *Yahoo, Inc.*
- Raymond J. Mooney, *University of Texas at Austin*
- Andrew W. Moore, *Carnegie Mellon University*
- David E. Smith, *NASA Ames Research Center*

The 2005 Fellows Recognition Dinner will be held Monday, July 11, from 7:30 – 10:00 PM in the Westmoreland Room of the Westin Hotel. A reception will begin at 7:30 PM, followed by dinner at 8:00 PM (by invitation only).

Sister Conference Track

This new program will feature representatives from AI sister conferences who will summarize the highlights of their most recent conferences. Participating conferences include AAMAS 2004, ACL-2003, AIIDE-05, CogSci 2004, CP 2004, ICAPS-2005, ICCBR 2003, ICML-2004, ISWC-2004, IUI-2005, KCAP-2003, KDD-2004, KR-2004, SAT 2004, and UAI-2004. Please check technical program schedule for presentation times.

Keynote Address

Marvin Minsky, *MIT Media Laboratory*

Marvin Minsky is the Toshiba Professor of Media Arts and Sciences, and a professor of electrical engineering and computer science, at the Massachusetts Institute of Technology. His research has led to both theoretical and practical advances in artificial intelligence, cognitive psychology, neural networks, and the theory of Turing Machines and recursive functions. He has made major contributions in the domains of symbolic graphical description, computational geometry, knowledge representation, computational semantics, machine perception, symbolic and connectionist learning. In 1959, Minsky and John McCarthy founded what became the MIT Artificial Intelligence Laboratory, and his long tenure as its codirector placed his imprint upon the entire field of artificial intelligence. Minsky is a Fellow of AAAI, and served as AAAI president from 1981-1982.

Presidential Address

AAAI President Ronald J. Brachman,
Corporation for National Research Initiatives

(AA)AI: More than the Sum of its Parts

Recent thinking has it that AI, once a vibrant, broadly-encompassing field with a grand shared vision of creating intelligent machines, has devolved into a loosely connected set of distinct specialty areas with little communication or mutual interest between them. To the extent that this is true, it is a disappointing development and leads one to wonder about the necessity and value of AAAI. But, Brachman argues, the consequences are actually far worse: because of the nature of intelligence when embedded in the real world, the centrifugal force on the field is likely to thwart the very mission that drives it. Brachman will wander through some thinking on the role of systems integration, the value and challenge of architecture, and some promising developments in large projects that are helping to increase the centripetal force on AI. Brachman concludes by discussing why AAAI is more essential than ever.

Opening Reception

The AAAI-05 Opening Reception will be held Sunday, July 10, 7:00 – 8:00 PM in the Allegheny Ballroom. 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-05 registrants. A $30.00 per person fee ($10.00 for children) will be charged for spouses and other nontechnical conference registrants.

AAAI-05 Poster / Demonstration Session

A conference-wide poster and demonstration session will be held on Tuesday, July 12 from 6:30 – 9:30 PM and will feature AAAI-05 Technical Posters, Student Abstract Posters, Doctoral Consortium Posters, Intelligent Systems Demonstrations, Robot Competition Events, and Exhibitors. (For a complete listing of posters, please refer to pages 14–15.) The accompanying reception will include a light dinner buffet and a no-host bar. Admittance to the reception is free to AAAI-05 registrants. A $30.00 per person fee ($10.00 for children) will be charged for spouses and other nontechnical conference registrants.

Workshop Program

Attendance at the workshops is limited. All workshop participants must register for the AAAI-05 technical program.

Saturday, July 9

W1: **Contexts and Ontologies: Theory, Practice and Applications**
Organizers: Pavel Shvaiko and Deborah McGuinness, Washington, second level, 8:30 AM – 7:00 PM

W3: **Exploring Planning and Scheduling for Web Services, Grid and Autonomic Computing**
Organizers: Biplav Srivastava and Jim Blythe. Somerset West, second level, 8:30 AM – 5:30 PM

W4: **Human Comprehensible Machine Learning**
Organizer: Dan Oblinger. Fayette, second level, 9:00 AM – 4:05 PM

W5: **Inference for Textual Question Answering**
Organizer: Sanda M. Harabagiu, Somerset East, second level, 8:30 AM – 5:30 PM

W14: **Spoken Language Understanding**
Organizer: Gokhan Tur. Armstrong, second level, 8:45 AM – 5:15 PM

Sunday, July 10

W2: **Educational Data Mining**
Organizer: Joseph E. Beck. Fayette, second level, 8:30 AM – 5:30 PM

W7: **Integrating Planning into Scheduling**
Organizer: Mark Boddy. Washington, second level, 8:30 AM – 5:30 PM

W8: **Learning in Computer Vision**
Organizer: Bir Bhanu. Executive Boardroom, 26th floor, 8:30 AM – 5:30 PM

W9: **Link Analysis**
Organizers: Dunja Mladenic, Natasha Milic-Frayling, and Marko Grobelink. Westmoreland East, second level, 8:30 AM – 5:30 PM

W11: **Modular Construction of Human-Like Intelligence**
Organizer: Kristinn R. Thorisson. Somerset West, second level, 9:00 AM – 5:45 PM

W12: **Multiagent Learning**
Organizer: Eduardo Alonso. Somerset East, second level, 8:45 AM – 5:00 PM

W13: **Question Answering in Restricted Domains**
Organizer: Diego Molla Aliod. Armstrong, second level, 8:30 AM – 5:30 PM

Wednesday, July 13

W10: **Mobile Robotic Competition and Exhibition Workshop**
Chair: Jeff Forbes. Washington, second level, 12:00 – 5:30 PM

AAAI/SIGART Doctoral Consortium

The Tenth AAAI/SIGART Doctoral Consortium program will be held on Saturday, July 9, 8:30 AM – 5:00 PM, and Sunday July 10, 8:45 AM – 6:00 PM in Allegheny I on the third level of the Westin. The Doctoral Consortium provides an opportunity for a group of Ph.D. students to discuss and explore their research interests and career objectives in an interdisciplinary workshop together with a panel of established researchers. The sixteen students accepted to participate in this program will also participate in the Poster Session on Tuesday evening. All interested AAAI-05 student registrants are invited to observe the presentations and participate in discussions at the workshop. AAAI and ACM/SIGART gratefully acknowledge grants from the National Science Foundation and Microsoft that provide partial funding for this event.

Meetings

The AAAI business meeting is open to all AAAI members. All other meetings are by invitation only.

AAAI Business Meeting

The AAAI Annual Business Meeting will be held Wednesday, July 13, 12:30 – 1:00 PM, Somerset Room, Westin Hotel.

AAAI Conference Committee

The Conference Committee Meeting will be held Wednesday, July 13, 7:45 – 8:45 AM, Fayette Room, Westin Hotel.

AAAI Publications Committee

The Publications Committee meeting will be held Tuesday, July 12, 12:30 – 1:50 PM, Harvest Lounge, Westin Hotel.

AI Magazine Editorial Board

The *AI Magazine* Editorial Board Meeting will be held Monday, July 11, 12:30 – 1:50 PM, Harvest Lounge, Westin Hotel.

Executive Council Meeting

The AAAI Executive Council Meeting will be held Sunday, July 10, 9:00 AM – 5:00 PM, Butler Room, Westin Hotel. Continental breakfast will be available at 8:30 AM.

Sister Conference Speaker Luncheon

The Sister Conference Speaker Luncheon will be held Tuesday, July 12, 12:30 – 1:50 PM, Armstrong Room, Westin Hotel.

AAAI-05 Student Blog

AAAI05blog is a student run blog that will describe and document AAAI-05 and IAAI-05 from a student's perspective. A small group of student bloggers attending the conferences will post daily items describing their observations, experiences, reactions, thoughts and questions. Pictures from the conference will be uploaded to linked photo blog. Other students attending AAAI are welcome to participate by adding their own observations via comments attached to posts and photographs. The blog url is http://aaai05blog.blogspot.com/.

Fourth Americas School on Agents and Multiagent Systems

The Fourth Americas School on Agents and Multiagent Systems will be held July 7 – 10 at Carnegie Mellon University and the Westin Hotel. This program is aimed at orienting new graduate students in the field of agents and multiagent systems. The program will consists of two days of lectures by internationally recognized researchers in agents and multiagent systems, followed by two days of AAAI-05 tutorials. Americas Program Chairs are Pragnesh Jay Modi and Paul Scerri, Carnegie Mellon University. The event is sponsored by the International Foundation for Multiagent Systems (IFMAS), the American Association for Artificial Intelligence (AAAI), and the Robotics Institute (CMU/RI).

Morning	Afternoon	Evening
	Saturday, July 9	
Registration Tutorial Forum Workshops AAAI/SIGART DC	Registration Tutorial Forum Workshops AAAI/SIGART DC	
	Sunday, July 10	
Registration Tutorial Forum Workshops AAAI/SIGART DC	Registration Tutorial Forum Workshops AAAI/SIGART DC	Opening Reception
	Monday, July 11	
Registration AAAI-05 Keynote Address AAAI-05 & IAAI-05 Sister Conference Highlights Games Competition Exhibits & Robots	Registration Invited Talks AAAI-05 & IAAI-05 Sister Conference Highlights Games Competition Exhibits & Robots	AAAI Fellows Dinner
	Tuesday, July 12	
Registration Presidential Address IAAI–05 Invited Talk AAAI-05 & IAAI –05 Sister Conference Highlights Exhibits & Robots	Registration Invited Talks AAAI-05 & IAAI-05 Sister Conference Highlights Exhibits & Robots	Posters & IS Demos and Reception Robot Finals
	Wednesday, July 13	
Registration AAAI-05 / IAAI-05 Invited Talks IAAI-05 RSE Lecture Exhibits	AAAI-05 / IAAI-05 Invited Talks AAAI Business Meeting Robot Workshop	

Tutorial Forum

AAAI-05 technical registrants may attend up to four consecutive tutorials and receive one copy of the comprehensive AAAI-05 Tutorial Forum Notes for a small additional registration fee. Tutorial attendees may redeem their tutorial syllabi tickets at the proceedings distribution area. All tutorials will be held in the Westin.

Session I: Saturday, July 9

9:00 AM – 1:00 PM

SA1: **Advances in Word Sense Disambiguation**
Rada Mihalcea & Ted Pedersen. Westmoreland East, second level

SA2: **Building Intelligent Agents Using SOAR** *(full day)*
John E. Laird. Westmoreland West, second level

SA3: **Downsizing Data for High Performance in Learning — Introduction to Feature Selection Methods**
Huan Liu & Robert Stine. Cambria, second level

SA4: **Multiagent Planning: A Survey of Research and Applications**
Bradley J. Clement & Keith Decker. Westmoreland Central, second level

Session II: Saturday, July 9

2:00 – 6:00 PM

SP1: **Market Clearing Algorithms**
Tuomas Sandholm. Westmoreland Central, second level

SP2: **Pyro: A Tool for Teaching Robotics and AI**
Douglas Blank & Holly Yanco. Westmoreland East, second level

SP3: **Exploiting Structure and Randomization for Large-Scale Constraint Reasoning**
Carla Gomes, Martin Sachenbacher, & Brian Williams. Cambria, second level

Session III: Sunday, July 10

9:00 AM – 1:00 PM

UA1: **Empirical Methods for Artificial Intelligence**
Paul Cohen. Allegheny II, third level

UA2: **Robotics for Beginners: Using Robot Kits to Teach Agents and AI** *(full day)*
Elizabeth Sklar & Simon Parsons. Westmoreland West, second level

UA3: **The Semantic Web**
Deborah L. McGuinness & Mike Dean. Allegheny III, third level

UA4: **Sensor Networks: New Challenges and Opportunities for AI**
Carlos Guestrin. Cambria, second level

UA5: **Where Do Heuristics Come From? (Using Abstraction to Speed Up Search)**
Robert C. Holte. Westmoreland Central, second level

Session IV: Sunday, July 10

2:00 – 6:00 PM

UP1: **Bioinformatics & Machine Learning — An Introduction and Our Success Stories**
Jinyan Li & Limsoon Wong. Westmoreland Central, second level

UP2: **Intelligent User Interfaces: An Introduction**
Mark T. Maybury. Allegheny II, third level

UP3: **Systematic Bounding Techniques for Combinatorial Optimization**
Sharlee Climer & Weixiong Zhang. Cambria, second level

UP4: **Text Analytics: Theory and Practice**
Ronen Feldman. Allegheny III, third level

AAAI-05 / IAAI-05 Invited Talks

AAAI-05 invited talks will be held in Allegheny I and Westmoreland. IAAI-05 invited talks will be held in Cambria, unless noted otherwise.

Monday, July 11

AAAI-05 Keynote Address

Marvin Minsky, *MIT Media Laboratory*
Allegheny Ballroom, 9:00 – 10:00 AM

IAAI-05 Invited Talk

AI Meets Web 2.0: Building the Web of Tomorrow Today

Jay Martin Tenenbaum, *CommerceNet*
Cambria, second level, 1:50 – 2:50 PM

Imagine an Internet-scale knowledge system where people and intelligent agents can collaborate on solving complex problems in business, engineering, science, medicine, and other endeavors. Its resources include semantically tagged Web sites, wikis and blogs, as well as social networks, vertical search engines and a vast array of Web services from business processes to AI planners and domain models. Research prototypes of decentralized knowledge systems have been demonstrated for years, but now, thanks to the Web and Moore's law, they appear ready for prime time. Tenenbaum will introduce the architectural concepts for incrementally growing an Internet-scale knowledge system, and describe early commercial deployments in manufacturing and healthcare.

AAAI-05 Invited Talk

From Knowledge to Intelligence— Building Blocks and Applications

Chitta Baral, *Arizona State University*
Allegheny I, third level. 5:30 – 6:30 PM

Acquiring knowledge and reasoning with knowledge is central to manifestation of intelligence. Thus from the early days of AI there has been a quest for developing knowledge representation formalisms and corresponding reasoning mechanisms. In this talk Baral will present recent advances in this front, in particular in the development of large support structures around some of the formalisms and their use in application domains such as space shuttles, molecular interaction in cells, and textual question answering.

AAAI-05 Invited Talk

Multiagent Learning in Games

Amy Greenwald, *Brown University*
Westmoreland, second level. 5:30 – 6:30 PM

What is the outcome of multiagent learning in games? Convergence can be slippery: no-regret learning in repeated games converges only to a set of equilibria, while value iteration in Markov games can converge to a cycle. Greenwald will describe these findings and present the theory of stochastic stability as a

means of characterizing the dynamics of multiagent learning in games.

Tuesday, July 12

AAAI Presidential Address

(AA)AI: More than the Sum of its Parts

Ronald J. Brachman, *Corporation for National Research Initiatives*
Allegheny Ballroom. 9:00 – 10:00 AM

IAAI-05 Invited Talk

From AI Winter to AI Spring: Can a New Theory of Neocortex Lead to Truly Intelligent Machines?

Jeff Hawkins, *Founder, Numenta, Inc.*
Allegheny III, third level. 10:20 – 11:20 AM

In his recent book *On Intelligence*, Hawkins proposed that the neocortex can be understood as a hierarchical sequence memory. Since the book was written, the theory has been formalized as a modified belief propagation network. Prototype implementations can solve previously intractable vision recognition problems. However the theory is not a theory of "vision" but a theory of cortex and therefore is applicable to many difficult AI problems. Hawkins will describe the basics of the theory, demonstrate a working prototype, and discuss its potential impact on the AI community. In February Hawkins formed a new company, Numenta, Inc. to promote and develop this technology.

AAAI-05 Invited Talk

How Can AI and Robotics Help Us Understand Social Animal Behavior?

Tucker Balch, *Georgia Institute of Technology*
Allegheny I, third level, 1:50 – 2:50 PM

Animal behavior, especially social insect behavior, is a well-known, rich source of inspiration for intelligent system design. In this talk Balch asks the inverse question: "How can AI contribute to the understanding of social animal behavior?" He will present several successful examples, including work at his lab and elsewhere.

AAAI-05 Invited Talk

May All Your Plans Succeed!

Dana S. Nau, *University of Maryland*
Westmoreland, second level, 1:50 – 2:50 PM

Automated planning technology has become mature enough to be useful in applications that range from game-playing to control of space vehicles. In this talk, Nau will discuss where automated-planning research has been, where it is likely to go, some directions to aspire to, and some major challenges.

Wednesday, July 13

AAAI-05 Invited Talk

Representation Policy Iteration: A Unified Framework for Learning Behavior and Representation

Sridhar Mahadevan, *University of Massachusetts, Amherst*
Allegheny I, third level, 9:00 – 10:00 AM

Mahadevan discusses a longstanding intellectual puzzle in AI: How can agents bootstrap the learning of novel representations from experience, freeing the human designer from having to specify this knowledge? He describes a novel class of adaptive planning algorithms—representation policy iteration—which can simultaneously learn representations and value functions.

AAAI-05 Invited Talk

Faceted Metadata in Search Interferences

Marti Hearst, *University of California, Berkeley*
Westmoreland, second level, 9:00 – 10:00 AM

In the feverish debate about how to improve search, the flexible use of metadata has been winning advocates. Hearst will describe the advantages and pitfalls of using faceted metadata for integrated browsing and search of large information collections. This opens up an exciting opportunity for AI techniques to truly help improve search, since methods are needed for automated creation of categories and their labels, and assignment of items to categories, for a wide range of media types including text, audio, images, and video.

Robert S. Engelmore Memorial Award and Lecture

Knowledge as Power: A View from the Semantic Web

James A. Hendler, *University of Maryland*
Cambria second level, 9:00 – 10:00 AM

The emerging semantic web focuses on bringing KR-like capabilities to Web applications in a Web-friendly way. The ability to put knowledge on the Web, share it, and reuse it through standard Web mechanisms provides new and interesting challenges to Artificial Intelligence. In this talk, Hendler explores the similarities and differences between the Semantic Web and traditional AI knowledge representation systems, and sees if he can validate the analogy "the semantic web is to KR as the Web is to hypertext."

IAAI-05 Invited Talk

Real World Applications of Genetic Programming: Circuits, Optics, Dynamic System Control

Martin A. Keane, *Genetic Programming Inc.*
Cambria, second level, 1:50 – 2:50 PM

Genetic programming has delivered a progression of qualitatively more substantial results in synchrony with five approximately order-of-magnitude increases in the expenditure of computer time. In this talk Keane will discuss the most recent results: real world results in the use of genetic programming in the design of electronic circuits, optical systems and controllers for dynamic systems including examples in each field of the functional replication of recently patented inventions.

	Allegheny I	Westmoreland	Butler
	Allegheny Ballroom **8:30 – 10:00 AM: AAAI-05 Welcome and Opening Remarks / Paper Award Presentations** *(Manuela Veloso and Subbarao Kambhampati, AAAI-05 Program Cochairs)* **IAAI-05 Welcome / Deployed Application Award Announcements (***Neil Jacobstein and Bruce Porter, Program Cochairs)* **AAAI Special Award Presentations (***Tom Mitchell, Awards Committee Chair and Ron Brachman, AAAI President)* **9:00 – 10:00 AM: AAAI-05 Keynote Address (***Marvin Minsky, MIT Media Laboratory)*		
10:20 – 11:20 AM	Machine Learning 1 *Chair: Marie desJardins* **Discriminative Model Selection for Belief Net Structures** *Yuhong Guo and Russ Greiner* **nFOIL: Integrating Naïve Bayes and FOIL** *Niels Landwehr, Kristian Kersting, and Luc De Raedt* **Online Query Relaxation via Bayesian Causal Structures Discovery** *Ion Muslea and Thomas J. Lee*	Planning 1 *Chair: Mark Boddy* **State Agnostic Planning Graphs and the Application to Belief-Space Planning** *William Cushing and Daniel Bryce* **Genome Rearrangement and Planning** *Esra Erdem and Elisabeth Tillier* **Conformant Planning for Domains with Constraints—A New Approach** *Tran Cao Son, Phan Huy Tu, Michael Gelfond, and A. Ricardo Morales*	Multiagent Systems 1 *Chair: Makoto Yokoo* **Supporting Collaborative Activity** *Meirav Hadad, Gilad Armon-Kest, Gal A. Kaminka, and Sarit Kraus* **OAR: A Formal Framework for Multi-Agent Negotiation** *Jiaying Shen, Ingo Weber, and Victor Lesser* **Distributing Coalitional Value Calculations Among Cooperative Agents** *Talal Rahwan and Nicholas R. Jennings*
11:30 – 12:30 PM	Constraint Satisfaction 1 *Chair: Weixiong Zhang* **Generalized NoGoods in CSPs** *George Katsirelos and Fahiem Bacchus* **Constrained Decision Diagrams** *Kenil C. K. Cheng and Roland H. C. Yap* **A Fast Arc Consistency Algorithm for n-ary Constraints** *Olivier Lhomme and Jean-Charles Régin*	Natural Language Processing 1 *Chair: Raymond Mooney* **Scaling Up Word Sense Disambiguation via Parallel Texts** *Yee Seng Chan and Hwee Tou Ng* **Exploiting Subjectivity Classification to Improve Information Extraction** *Ellen Riloff, Janyce Wiebe, and William Phillips* **Capturing Expression Using Linguistic Information** *Özlem Uzuner and Boris Katz*	Multi-Robot Systems *Chair: Ashley Stroupe* **Coordination and Adaptation in Impromptu Teams** *Michael Bowling and Peter McCracken* **Robust and Self-Repairing Formation Control for Swarms of Mobile Agents** *Jimming Cheng, Winston Cheng, and Radhika Nagpal* **Heterogeneous Multirobot Coordination with Spatial and Temporal Constraints** *Mary Koes, Illah Nourbakhsh, and Katia Sycara*
1:50 – 2:50 PM	Vision / Challenge *Chair: Michael Littman* **Tool Use for Autonomous Agents** *Robert St. Amant and Alexander B. Wood* **A Computational Model of the Cerebral Cortex** *Thomas Dean* **Samuel Meets Amarel: Automating Value Function Approximation Using Global State Space Analysis** *Sridhar Mahadevan*	Temporal Reasoning *Chair: Karen Myers* **Temporal Dynamic Controllability Revisited** *Paul Morris and Nicola Muscettola* **Anytime, Complete Algorithm for Finding Utilitarian Optimal Solutions to STPPs** *Bart Peintner and Martha E. Pollack* **Exploiting the Structure of Hierarchical Plans in Temporal Constraint Propagation** *Neil Yorke-Smith*	Knowledge Acquisition and Information Retrieval *Chair: Eyal Amir* **Searching for Common Sense: Populating Cyc™ from the Web** *Cynthia Matuszek, Michael Witbrock, Robert C. Kahlert, John Cabral, David Schneider, Purvesh Shah, and Doug Lenat* **Impact of Linguistic Analysis on the Semantic Graph Coverage and Learning of Document Extracts** *Jure Leskovec, Natasa Milic-Frayling, Marko Grobelnik* **An Analysis of Knowledge Collected from Volunteer Contributors** *Timothy Chklovski and Yolanda Gil*
3:00 – 4:00 PM	Information Integration *Chair: Huan Liu* **Constraint-Based Entity Matching** *Warren Shen, Xin Li, and AnHai Doan* **A Constraint Satisfaction Approach to Geospatial Reasoning** *Martin Michalowski and Craig A. Knoblock* **Solving Everyday Physical Reasoning Problems by Analogy Using Sketches** *Matthew Klenk, Kenneth D. Forbus, Emmett Tomai, Hyeonkyeong Kim, and Brian Kyckelhahn*	Planning 2 *Chair: Reid Simmons* **Planning for Stream Processing Systems** *Anton Riabov and Zhen Liu* **Coordinating Agile Systems through the Model-based Execution of Temporal Plans** *Thomas Léauté and Brian C. Williams* **Prottle: A Probabilistic Temporal Planner** *Iain Little, Douglas Aberdeen, and Sylvie Thiébaux*	Auctions and Market-Based Systems 1 *Chair: Bernardine Dias* **Profit Sharing Auction** *Sandip Sen, Teddy Candale, and Susnata Basak* **Approximating Revenue-Maximizing Combinatorial Auctions** *Anton Likhodedov and Tuomas Sandholm* **A New Strategy-Proof Greedy-Allocation Combinatorial Auction Protocol and Its Extension to Open Ascending Auction Protocol** *Takayuki Ito, Makoto Yokoo, Atsushi Iwasaki, and Shigeo Matsubara*
4:20 – 5:20 PM	Machine Learning 2 *Chair: John Langford* **Towards Learning Stochastic Logic Programs from Proof-Banks** *Luc De Raedt, Kristian Kersting, and Sunna Torge* **The Regularized EM Algorithm** *Haifeng Li, Keshu Zhang, and Tao Jiang* **Discovering Domain-Specific Composite Kernels** *Thomas Briggs and Tim Oates*	Constraint Satisfaction 2 *Chair: Toby Walsh* **Finding Diverse and Similar Solutions in Constraint Programming** *E. Hebrard, B. Hnich, B. O'Sullivan, and T. Walsh* **SAT-Based Versus CSP-Based Constraint Weighting for Satisfiability** *Duc Nghia Pham, John Thornton, Abdul Sattar, and Abdelraouf Ishtaiwi* **Generating Hard Satisfiable Formulas by Hiding Solutions Deceptively** *Haixia Jia, Cristopher Moore, and Doug Strain*	Multiagent Learning *Chair: Michael Littman* **Efficient No-Regret Multiagent Learning** *Bikramjit Banerjee and Jing Peng* **Agent-Organized Networks for Multi-Agent Production and Exchange** *Matthew E. Gaston and Marie desJardins* **Optimal Efficient Learning Equilibrium: Imperfect Monitoring in Symmetric Games** *Ronen I. Brafman and Moshe Tennenholtz*
5:30 – 6:30 PM	Invited Talk Session **From Knowledge to Intelligence — Building Blocks and Applications** *Chitta Baral*	Invited Talk Session **Multiagent Learning in Games** *Amy Greenwald* **7:30 – 10:00 PM** **Fellows Dinner** *(by invitation only)*	

Fayette	Somerset	Cambria (IAAI)
Coffee breaks will be held at 10:00 – 10:20 AM and 4:00 – 4:20 PM. The lunch break will be held from 12:30 – 1:50 PM.		
Nonmonotonic and Common-Sense Reasoning *Chair: Mirek Truszczynski* **An Axiomatic Account of Formal Argumentation** *Martin Caminada and Leila Amgoud* **Cumulative Effects of Concurrent Actions on Numeric-Valued Fluents** *Esra Erdem and Alfredo Gabaldon* **Practical First-Order Argumentation** *Philippe Besnard and Anthony Hunter*	Sister Conference Highlights *Chair: Adele Howe* **KDD 1:** *Johannes Gehrke* **KDD-2004: The Tenth ACM SIGKDD International Conference on Knowledge Discovery and Data Mining** **ICAPS 1:** *Karen Myers* **ICAPS-2005: The International Conference on Automated Planning and Scheduling** **UAI 1:** *Joe Halpern* **UAI-2004: The Twentieth Conference on Uncertainty in Artificial Intelligence**	Emerging Application **A Multi-Agent Simulator for Teaching Police Allocation** *Vasco Furtado and Eurico Vasconcelos* Emerging Application **A Knowledge-Based Approach to Network Security: Applying Cyc in the Domain of Network Risk Assessment** *Blake Shepard, Cynthia Matuszek, C. Bruce Fraser, William Wechtenhiser, David Crabbe, Zelal Güngördü, John Jantos, Todd Hughes, Larry Lefkowitz, Michael Witbrock, Doug Lenat, and Erik Larson*
Automated Reasoning *Chair: Miroslav Velev* **Compact Propositional Encodings of First-Order Theories** *Deepak Ramachandran and Eyal Amir* **Propositional Fragments for Knowledge Compilation and Quantified Boolean Formulae** *Sylvie Coste-Marquis, Daniel Le Berre, Florian Letombe, and Pierre Marquis* **Recommender Systems: Attack Types and Strategies** *Michael P. O'Mahony, Neil J. Hurley, and Guénolé C. M. Silvestre*	Sister Conference Highlights *Chair: Adele Howe* **KDD 2:** *Johannes Gehrke* **KDD-2004: The Tenth ACM SIGKDD International Conference on Knowledge Discovery and Data Mining** **ICAPS 2:** *Karen Myers* **ICAPS-2005: The International Conference on Automated Planning and Scheduling** **AIIDE 1:** *John Laird* **AIIDE-05: First Conference on Artificial Intelligence and Interactive Digital Entertainment**	Deployed Application **Loads–n-Limits and Release-n-Sequence: The "Brains" behind WEPS** *Paul S. Cerkez* Emerging Application **Managing the Life Cycle of Plans** *Biplav Srivastava, Jussi Vanhatalo, and Jana Koehler*
Human-Computer Interaction *Chair: Donald Patterson* **Mathematical Domain Reasoning Tasks in Natural Language Tutorial Dialog on Proofs** *Christoph Benzmüller and Quoc Bao Vo* **A Decision Theoretic Model for Stress Recognition and User Assistance** *Wenhui Liao, Weihong Zhang, Zhiwei Zhu, and Qiang Ji* **An Analysis of Procedure Learning by Instruction** *Jim Blythe*	Sister Conference Highlights *Chair: Hector Munoz-Avila* **CogSci 1:** *Ken Forbus* **CogSci 2004: The Twenty-Sixth Annual Meeting of the Cognitive Science Society** **ICCBR 1:** *Kevin Ashley* **ICCBR 2003: The Fifth International Conference on Case-Based Reasoning** **KCAP 1:** *John Gennari* **KCAP-2003: The Second International Conference on Knowledge Capture**	IAAI-05 Invited Talk **AI Meets Web 2.0: Building The Web of Tomorrow Today** *Jay Martin Tenenbaum*
Vision, Music, Speech *Chair: Belinda Thom* **Learning Static Object Segmentation from Motion Segmentation** *Michael G. Ross and Leslie Pack Kaelbling* **Modeling Form for On-line Following of Musical Performances** *Bryan Pardo and William Birmingham* **Spotting Subsequences Matching an HMM Using the Average Observation Probability Criteria with Application to Keyword Spotting** *Marius Calin Silaghi*	Sister Conference Highlights *Chair: David Aha* **CogSci 2:** *Ken Forbus* **CogSci 2004: The Twenty-Sixth Annual Meeting of the Cognitive Science Society** **ICCBR 2:** *Kevin Ashley* **ICCBR 2003: The Fifth International Conference on Case-Based Reasoning** **KCAP 2:** *John Gennari* **KCAP-2003: The Second International Conference on Knowledge Capture**	Emerging Application **Markov Decision Processes for Control of a Sensor Network-based Health Monitoring System** *Anand Panangadan, Syed Muhammad Ali, and Ashit Talukder* Emerging Application **Activity Recognition from Accelerometer Data** *Nishkam Ravi, Nikhil Dandekar, Preetham Mysore, and Michael L. Littman*
Markov Decision Processes 1 *Chair: Sven Koenig* **Planning and Execution with Phase Transitions** *Håkan L. S. Younes* **Efficient Maximization in Solving POMDPs** *Zhengzhu Feng and Shlomo Zilberstein* **Error Bounds for Approximate Value Iteration** *Rémi Munos*	Sister Conference Highlights **CP 1:** *Toby Walsh* **CP 2004: The Tenth International Conference on Principles and Practice of Constraint Programming** **ISWC 1:** *Sheila McIlraith* **ISWC-2004: The Third International Semantic Web Conference**	

	Allegheny I	Westmoreland	Butler
	Allegheny Ballroom **8:30 – 9:00 AM:** **AAAI-05 Program Committee Award Presentations** *(Manuela Veloso and Subbarao Kambhampati, Program Cochairs)* **General Game Playing Competition Award Presentation (***Ronald J. Brachman, AAAI President & Michael Genesereth, Competition Chair)* **9:00 – 10:00 AM:** **AAAI Presidential Address (***Ronald J. Brachman)*		
10:20 – 11:20 AM	Reinforcement Learning 1 *Chair: Michael Rosenstein* **Giving Advice about Preferred Actions to Reinforcement Learners Via Knowledge-Based Kernel Regression** *Richard Maclin, Jude Shavlik, Lisa Torrey, Trevor Walker, and Edward Wild* **Improving Action Selection in MDP's via Knowledge Transfer** *Alexander A. Sherstov and Peter Stone* **Reasoning about Intended Actions** *Chitta Baral and Michael Gelfond*	Search *Chair: Shlomo Zilberstein* **External-Memory Pattern Databases Using Structured Duplicate Detection** *Rong Zhou and Eric A. Hansen* ***AAAI-05 Outstanding Paper:*** **The Max K- Armed Bandit: A New Model of Exploration Applied to Search Heuristic Selection** *Vincent A. Cicirello and Stephen F. Smith* **Large-Scale Parallel Breadth-First Search** *Richard E. Korf and Peter Schultze*	Constraint Satisfaction 3 *Chair: Miroslav Velev* **SymChaff: A Structure-Aware Satisfiability Solver** *Ashish Sabharwal* **DC-SSAT: A Divide-and-Conquer Approach to Solving Stochastic Satisfiability Problems Efficiently** *Stephen M. Majercik and Byron Boots* **Weighted Super Solutions for Constraint Programs** *Alan Holland and Barry O'Sullivan*
11:30 – 12:30 PM	Machine Learning 3 *Chair: Pedro Domingos* **Spectral Clustering of Biological Sequence Data** *William Pentney and Marina Meila* **Data-Driven MCMC for Learning and Inference in Switching Linear Dynamic Systems** *Sang Min Oh, James M. Rehg, Tucker Balch, and Frank Dellaert* **Analogical Learning of Visual/Conceptual Relationships in Sketches** *Kenneth D. Forbus, Jeffrey Usher, and Emmett Tomai*	Temporal Reasoning 2 *Chair: Eyal Amir* **Extending Continuous Time Bayesian Networks** *Karthik Gopalratnam, Henry Kautz, and Daniel S. Weld* **Augmenting Disjunctive Temporal Problems with Finite-Domain Constraints** *Michael D. Moffitt, Bart Peintner, and Martha E. Pollack* **Functional Specification of Probabilistic Process Models** *Avi Pfeffer*	Auctions and Market-Based Systems 2 *Chair: Bernadine Dias* **Solving the Auction-Based Task Allocation Problem in an Open Environment** *David Sarne and Sarit Kraus* **Mechanism Design for Single-Value Domains** *Moshe Babaioff, Ron Lavi, and Elan Pavlov* **Combinatorial Auctions with *k*-wise Dependent Valuations** *Vincent Conitzer, Tuomas Sandholm, and Paolo Santi*
1:50 – 2:50 PM	Invited Talk Session **How Can AI and Robotics Help Us Understand Social Animal Behavior?** *Tucker Balch, Georgia Institute of Technology*	Invited Talk Session **May All Your Plans Succeed!** *Dana S. Nau, University of Maryland*	
3:00 – 4:00 PM	Knowledge Representation *Chair: Michael Gelfond* **Only-Knowing: Taking It Beyond Autoepistemic Reasoning** *Gerhard Lakemeyer and Hector J. Levesque* **Issues in Reasoning about Interaction Networks in Cells: Necessity of Event Ordering Knowledge** *Nam Tran, Chitta Baral, and Carron Shankland* **Prioritized Component Systems** *Gerhard Brewka, Ilkka Niemelä, and Miroslaw Truszczynski*	Activity Recognition *Chair: Donald Patterson* **Unsupervised Activity Recognition Using Automatically Mined Common Sense** *Danny Wyatt, Matthai Philipose, and Tanzeem Choudhury* **Large-Scale Localization from Wireless Signal Strength** *Julie Letchner, Dieter Fox, and Anthony LaMarca* **Multiple Agent Event Detection and Representation in Videos** *Asaad Hakeem and Mubarak Shah*	Game Theory *Chair: Eugene Nudelman* **Approximate Strategic Reasoning through Hierarchical Reduction of Large Symmetric Games** *Michael P. Wellman, Daniel M. Reeves, Kevin M. Lochner, Shih-Fen Cheng, and Rahul Suri* **Coalitional Games in Open Anonymous Environments** *M. Yokoo, V. Conitzer, T. Sandholm, N. Ohta, and A. Iwasaki* **Mixed-Integer Programming Methods for Finding Nash Equilibria** *Tuomas Sandholm, Andrew Gilpin, and Vincent Conitzer*
4:20 – 5:20 PM		Machine Learning 4 *Chair: Drew Bagnell* **Unsupervised and Semi-Supervised Multi-Class Support Vector Machines** *Linli Xu and Dale Schuurmans* **Semi-Supervised Sequence Modeling with Syntactic Topic Models** *Wei Li and Andrew McCallum* **A Hybrid Generative/Discriminative Approach to Semi-Supervised Classifier Design** *Akinori Fujino, Naonori Ueda, and Kazumi Saito*	Case-Based Reasoning **Competence Driven Case-Base Mining** *Rong Pan, Qiang Yang, Jeffrey Junfeng Pan, and Lei Li* **Complexity-Guided Case Discovery for Case Based Reasoning** *Stewart Massie, Susan Craw, and Nirmalie Wiratunga* **Interactive Knowledge Validation and Query Refinement in CBR** *Monica H. Ou, Geoff A. W. West, Mihai Lazarescu, and Chris Clay*
5:30 – 6:30 PM	**6:30 – 9:30 PM—Allegheny Ballroom** **AAAI-05 Poster/Demo Session** **Please see page 14 – 15 for complete list of posters.**	Natural Language Processing 2 *Chair: Raymond Mooney* **Clustering and Classifying Person Names by Origin** *Fei Huang, Stephan Vogel, and Alex Waibel* **A Probabilistic Classification Approach for Lexical Textual Entailment** *Oren Glickman, Ido Dagan, and Moshe Koppel* **Automatic Text Summarization of Newswire: Lessons Learned from the Document Understanding Conference** *Ani Nenkova*	Game Playing and Multiagent Systems *Chair: Richard Korf* **Effective Short-Term Opponent Exploitation in Simplified Poker** *Bret Hoehn, Finnegan Southey, Robert C. Holte, and Valeriy Bulitko* **Search versus Knowledge for Solving Life and Death Problems in Go** *Akihiro Kishimoto and Martin Müller* **The Semantics of Potential Intentions** *Xiaocong Fan and John Yen*

Fayette	Somerset	Cambria (IAAI)
Coffee breaks will be held at 10:00-10:20 AM and 4:00 – 4:20 PM. The lunch break will be held from 12:30 – 1:50 PM.		
Logic Programming *Chair: Michael Gelfond* **Properties of Programs with Monotone and Convex Constraints** *Lengning Liu and Miroslaw Truszczynski* **Using SAT and Logic Programming to Design Polynomial-Time Algorithms for Planning in Non-Deterministic Domains** *Chitta Baral, Thomas Eiter, and Jicheng Zhao* **A Theory of Forgetting in Logic Programming** *Kewen Wang, Abdul Sattar, and Kaile Su*	Sister Conference Highlights *Chair: Makoto Yokoo* **KR 1:** *Chris Welty* **KR-2004: The Ninth International Conference on the Principles of Knowledge Representation and Reasoning** **ICML 1:** *Russ Greiner* **ICML-2004: The Twenty-First International Conference on Machine Learning** **AAMAS 1:** *Milind Tambe* **AAMAS 2004: The Third International Joint Conference on Autonomous Agents and Multi Agent Systems**	IAAI-05 Invited Talk **AI Winter into Spring: Can a New Theory of Neocortex Lead to Truly Intelligent Machines?** *Jeff Hawkins, Redwood Neuroscience Institute* **This talk will be held in Allegheny III**
Robotics *Chair: Brian Scassellati* **Learning CPG Sensory Feedback with Policy Gradient for Biped Locomotion for a Full-Body Humanoid** *Gen Endo, Jun Morimoto, Takamitsu Matsubara, Jun Nakanishi, and Gordon Cheng* **A Relational Representation for Procedural Task Knowledge** *Stephen Hart, Roderic Grupen, and David Jensen* **Recovery Planning for Ambiguous Cases in Perceptual Anchoring** *M. Broxvall, S. Cordeschi, L. Karlsson, and A. Saffiotti*	Sister Conference Highlights *Chair: Weixiong Zhang* **KR 2:** *Chris Welty* **KR-2004: The Ninth International Conference on the Principles of Knowledge Representation and Reasoning** **ICML 2: TBD** **ICML-2004: The Twenty-First International Conference on Machine Learning**	Emerging Application **Automatically Acquiring Domain Knowledge for Adaptive Game AI Using Evolutionary Learning** *Marc J. V. Ponsen, Héctor Muñoz-Avila, Pieter Spronck, and David W. Aha* Emerging Application **The DEFACTO System: Training Tool for Incident Commanders** *Nathan Schurr, Janusz Marecki, J. P. Lewis, Milind Tambe, and Paul Scerri*
		Emerging Application **Development of a Hybrid Knowledge-Based System for Multiobjective Optimization of Power Distribution System Operations** *Robert J. Sárfi and A. M. G. Solo* Emerging Application **A Learning Architecture for Automating the Intelligent Environment** *G. Michael Youngblood, Diane J. Cook, and Lawrence B. Holder*
Markov Decision Processes 2 *Chair: Haakan Younes* **Geometric Variance Reduction in Markov Chains. Application to Value Function and Gradient Estimation** *Rémi Munos* **Risk-Sensitive Planning with One-Switch Utility Functions: Value Iteration** *Yaxin Liu and Sven Koenig* **Networked Distributed POMDPs** *R. Patrascu, C. Boutilier, R. Das, J. Kephart, G. Tesauro, and W. Walsh*	Sister Conference Highlights *Chair: Yolanda Gil* **ACL 1:** *Dan Roth/Hwee Tou Ng* **ACL-2003: The Forty-first Annual Meeting of the Association for Computational Linguistics** **IUI-2005:** *John Riedl* **2005 International Conference on Intelligent User Interfaces** **SAT 1:** *David Mitchell* **SAT 2004: The Seventh International Conference on Theory and Applications of Satisfiability Testing**	Deployed Application **Scheduling Engineering Works for the MTR Corporation in Hong Kong** *Andy Hon Wai Chun, Dennis Wai Ming Yeung, Garbbie Pui Shan Lam, Daniel Lai, Richard Keefe, Jerome Lam, and Helena Chan* Emerging Application **The Deep Space Network Scheduling Problem** *Bradley J. Clement and Mark D. Johnston*
Multiagent Systems 2 *Chair: Sven Koenig* **A Synthesis of Distributed Constraint Optimization and POMDPs** *Ranjit Nair, Pradeep Varakantham, Milind Tambe, and Makoto Yokoo* **Controversial Users Demand Local Trust Metrics: An Experimental Study on Epinions.com Community** *Paolo Massa and Paolo Avesani* **Cooperative Exploration in the Electronic Marketplace** *David Sarne and Sarit Kraus*	Sister Conference Highlights *Chair: Yolanda Gil* **ACL 2:** *Dan Roth/Hwee Tou Ng* **ACL-2003: The Forty-first Annual Meeting of the Association for Computational Linguistics** **IUI 2:** *John Riedl* **IUI-2005: 2005 International Conference on Intelligent User Interfaces** **SAT 2:** *David Mitchell* **SAT 2004: The Seventh International Conference on Theory and Applications of Satisfiability Testing**	
Planning 3 *Chair: Adele Howe* **Learning Measures of Progress for Planning Domains** *SungWook Yoon, Alan Fern, and Robert Givan* **Learning Planning Rules in Noisy Stochastic Worlds** *Luke S. Zettlemoyer, Hanna M. Pasula, and Leslie Pack Kaelbling* **Lazy Approximation for Solving Continuous Finite-Horizon MDPs** *Lihong Li and Michael L. Littman*		

	Allegheny I	Westmoreland	Butler
9:00 – 10:00 AM	Invited Talk Session **Representation Policy Iteration: A Unified Framework for Learning Behavior and Representation** *Sridhar Mahadevan, University of Massachusetts, Amherst*	Invited Talk Session **Faceted Metadata in Search Interfaces** *Marti Hearst, University of California Berkeley School of Information Management and Systems*	
10:20 – 11:20 AM	Reinforcement Learning 2 *Chair: Michael Littman* **Online Resource Allocation Using Decompositional Reinforcement Learning** *Gerald Tesauro* **Planning in Models that Combine Memory with Predictive Representations of State** *Michael R. James and Satinder Singh* **Value Functions for RL-Based Behavior Transfer: A Comparative Study** *Matthew E. Taylor, Peter Stone, and Yaxin Liu*	Natural Language Processing 3 *Chair: Hwee Tou Ng* **Cross-Lingual Bootstrapping of Semantic Lexicons: The Case of FrameNet** *Sebastian Padó and Mirella Lapata* **Robust Textual Inference Via Learning and Abductive Reasoning** *Rajat Raina, Andrew Y. Ng, and Christopher D. Manning* **Learning to Transform Natural to Formal Languages** *Rohit J. Kate, Yuk Wah Wong, and Raymond J. Mooney*	Discovery and Learning *Chair: Terry Zimmerman* **Representing Conditional Independence Using Decision Trees** *Jiang Su and Harry Zhang* **Inducing Hierarchical Process Models in Dynamic Domains** *L. Todorovski, W. Bridewell, O. Shiran, and P. Langley* **Incremental Estimation of Discrete Hidden Markov Models Based on a New Backward Procedure** *German Florez-Larrahondo, Susan Bridges, and Eric A. Hansen*
11:30 – 12:30 PM	Constraint Satisfaction 4 *Chair: Mark Boddy* **Performing Bayesian Inference by Weighted Model Counting** *Tian Sang, Paul Beame, and Henry Kautz* **Superstabilizing, Fault-Containing Distributed Combinatorial Optimization** *Adrian Petcu, Boi Faltings* **Exploiting Temporal Flexibility to Obtain High Quality Schedules** *Nicola Policella, Xiaofang Wang, Stephen F. Smith, and Angelo Oddi*	Search and Planning *Chair: Haakan Younes* **Simultaneous Heuristic Search for Conjunctive Subgoals** *Lin Zhu and Robert Givan* **A Domain-Independent System for Case-Based Task Decomposition without Domain Theories** *Ke Xu and Hector Muñoz-Avila* **Cost-Algebraic Heuristic Search** *Stefan Edelkamp, Shahid Jabbar, and Alberto Lluch Lafuente*	Bayesian Networks *Chair: Reid Simmons* **Identifying Direct Causal Effects in Linear Models** *Jin Tian* **A Multifrontal QR Factorization Approach to Distributed Inference Applied to Multirobot Localization and Mapping** *Frank Dellaert, Alexander Kipp, and Peter Krauthausen* **Distribution-Free Learning of Bayesian Network Structure in Continuous Domains** *Dimitris Margaritis*
1:50 – 2:50 PM	Machine Learning 5 *Chair: Pedro Domingos* **Robust Supervised Learning** *J. Andrew Bagnell* **Finite Sample Error Bound for Parzen Windows** *Peng Zhang, Jing Peng, and Norbert Riedel* **Speeding Up Learning in Real-time Search via Automatic State Abstraction** *Vadim Bulitko, Nathan Sturtevant, and Maryia Kazakevich*	Logics *Chair: Mirek Truszczynski* **Strong and Uniform Equivalence in Answer-Set Programming: Characterizations and Complexity Results for the Non-Ground Case** *Thomas Eiter, Michael Fink, Hans Tompits, and Stefan Woltran* **Integrating Description Logics and Action Formalisms: First Results** *Franz Baader, Carsten Lutz, Maja Milicic, Ulrike Sattler, and Frank Wolter* **Diagnosing Terminologies** *Stefan Schlobach*	Diagnosis *Chair: Johan de Kleer* **On Compiling System Models for Faster and More Scalable Diagnosis** *Jinbo Huang and Adnan Darwiche* **Model-Based Monitoring and Diagnosis of Systems with Software-Extended Behavior** *Tsoline Mikaelian, Brian C. Williams, and Martin Sachenbacher* **Diagnosis as Approximate Belief State Enumeration for Probabilistic Concurrent Constraint Automata** *Oliver B. Martin, Brian C. Williams, and Michel D. Ingham*
3:00 – 4:00 PM			

A coffee break will be held at 10:00 – 10:20 AM. The lunch break will be held from 12:30 – 1:50 PM.

	Somerset	Cambria (IAAI)
		Robert S. Engelmore Memorial Award and Lecture **Knowledge as Power: A View from the Semantic Web** *James A. Hendler, University of Maryland*
	Preferences *Chair: Marie desJardins* **Constraint-Based Preferential Optimization** *Steve Prestwich, Francesca Rossi, Kristen Brent Venable, and Toby Walsh* **Optimal Recommendation Sets: Covering Uncertainty over User Preferences** *Robert Price and Paul R. Messinger* **Anyone but Him: The Complexity of Precluding an Alternative** *Edith Hemaspaandra, Lane A. Hemaspaandra, and Jörg Rothe*	Deployed Application **Automating the Underwriting of Insurance Applications** *Kareem S. Aggour and William Cheetham* Deployed Application **Knowledge-based Interactive Selling of Financial Services with FSAdvisor** *Alexander Felfernig and Alfred Kiener*
	Data Mining *Chair: Yiming Yang* **A Maximum Likelihood Framework for Integrating Taxonomies** *Suju Rajan, Kunal Punera, and Joydeep Ghosh* **Enhanced Direct Linear Discriminant Analysis for Feature Extraction on High Dimensional Data** *A. K. Qin, S. Y. M. Shi, P. N. Suganthan, and Marco Loog* **Using Modified Lasso Regression to Learn Large Undirected Graphs in a Probabilistic Framework** *Fan Li and Yiming Yang*	Deployed Application **NESTA: NASA Engineering Shuttle Telemetry Agent** *Glenn S. Semmel, Steven R. Davis, Kurt W. Leucht, Dan A. Rowe, Kevin E. Smith, and Ladislau Bölöni* Deployed Application **CORMS AI: Decision Support System for Monitoring US Maritime Environment** *Haleh Vafaie, Ph.D. and CDR Carl Cecere, USPHS*
	Information Retrieval and Human Computer Interaction *Chair: Rong Jin* **Selection and Ranking of Propositional Formulas for Large-Scale Service Directories** *Ion Constantinescu, Walter Binder, and Boi Faltings* **A Learning-Based Term-Weighting Approach for Information Retrieval** *GuangCan Liu, Yong Yu, and Xing Zhu* **On the Evaluation of Dynamic Critiquing: A Large-Scale User Study** *Kevin McCarthy, Lorraine McGinty, Barry Smyth, and James Reilly*	IAAI-05 Invited Talk **Real-World Applications of Genetic Programming** *Martin Keane*
		Emerging Application **Boosting Sex Identification Performance** *Shumeet Baluja and Henry Rowley* Deployed Application **TEXTAL™: Automated Crystallographic Protein Structure Determination** *Kreshna Gopal, Tod Romo, Erik Mckee, Kevin Childs, Lalji Kanbi, Reetal Pai, Jacob Smith, James Sacchettini, and Thomas Ioerger*

A coffee break will be held at 10:00 – 10:20 AM. The lunch break will be held from 12:30 – 1:50 PM.

AAAI-05 Poster Session

The poster session will be held Tuesday, July 12, in the Allegheny Ballroom, from 6:30 – 9:30 PM.

AAAI-05 Technical Paper Posters

Activity and Plan Recognition

Multiple-Goal Recognition from Low-Level Signals
Xiaoyong Chai and Qiang Yang

A Variational Learning Algorithm for the Abstract Hidden Markov Model
Jeffrey Johns and Sridhar Mahadevan

Activity Recognition through Goal-Based Segmentation
Jie Yin, Dou Shen, Qiang Yang, and Ze-Nian Li

Agents / Multiagent Systems

Team Member Reallocation via Tree Pruning
Noa Agmon, Gal A. Kaminka, and Sarit Kraus

Solving DisCSPs with Penalty Driven Search
Muhammed Basharu, Ines Arana, and Hatem Ahriz

An Extended Protocol for Multiple-Issue Concurrent Negotiation
Jiangbo Dang and Michael N. Huhns

Towards Model-Based Diagnosis of Coordination Failures
Meir Kalech and Gal A. Kaminka

Flexible Teamwork in Behavior-Based Robots
Gal A. Kaminka and Inna Frenkel

Modeling Human Behavior for Virtual Training Systems
Yohei Murakami, Yuki Sugimoto, and Toru Ishida

An Ecological Approach to Agent Population Management
Maxim D. Peysakhov, Robert N. Lass, William C. Regli, and Moshe Kam

Observation-based Model for BDI-Agents
Kaile Su, Abdul Sattar, Kewen Wang, Xiangyu Luo, Guido Governatori, and Vineet Padmanabhan

Stable Service Placement on Dynamic Peer-to-Peer Networks: A Heuristic for the Distributed *k*-Center Problem
Evan A. Sultanik and William C. Regli

Auctions and Market-Based Systems

Expressive Negotiation in Settings with Externalities
Vincent Conitzer and Tuomas Sandholm

Automated Reasoning

The Achilles' Heel of QBF
Carlos Ansotegui, Carla P. Gomes, and Bart Selman

Combining Stochastic and Greedy Search in Hybrid Estimation
Lars Blackmore, Stanislav Funiak, and Brian Williams

Axiom Schemata as Metalevel Axioms: Model Theory
Timothy L. Hinrichs and Michael R. Genesereth

A Discourse Planning Approach to Cinematic Camera Control for Narratives in Virtual Environments
Arnav Jhala and R. Michael Young

Dependency-Directed Reconsideration Belief Base Optimization for Truth Maintenance Systems
Frances L. Johnson and Stuart C. Shapiro

Constraint Satisfaction and Satisfiability

Old Resolution Meets Modern SLS
A. Anbulagan, Duc Nghia Pham, John Slaney, and Abdul Sattar

CSP Properties for Quantified Constraints: Definitions and Complexity
Lucas Bordeaux, Marco Cadoli, and Toni Mancini

Neighborhood Interchangeability and Dynamic Bundling for Non-Binary Finite CSPs
Anagh Lal, Berthe Y. Choueiry, and Eugene C. Freuder

Quick Shaving
Olivier Lhomme

A Framework for Representing and Solving NP Search Problems
David G. Mitchell and Eugenia Ternovska

Generation of Hard Non-Clausal Random Satisfiability Problems
Juan A. Navarro and Andrei Voronkov

Game Theory and Economic Models

A Generalized Strategy Eliminability Criterion and Computational Methods for Applying It
Vincent Conitzer and Tuomas Sandholm

Fast and Compact: On a Simple Class of Congestion Games
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Beau Crawford, Kai Miller, Pradeep Shenoy, and Rajesh Rao

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Tractable Reasoning in First-Order Knowledge Bases with Disjunctive Information
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Alina Beygelzimer, John Langford, and Bianca Zadrozny

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Laura E. Brown, Ioannis Tsamardinos, and Constantin F. Aliferis

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Aron Culotta and Andrew McCallum

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Non-Stationary Policy Learning in 2-Player Zero Sum Games
Steven Jensen, Daniel Boley, Maria Gini, and Paul Schrater

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Laxmi Parida and Naren Ramakrishnan

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A Particle Filtering Based Approach to Approximating Interactive POMDPs
Prashant Doshi and Piotr J. Gmytrasiewicz

Natural Language Processing and Speech Recognition

An Inference Model for Semantic Entailment in Natural Language
Rodrigo de Salvo Braz, Roxana Girju, Vasin Punyakanok, Dan Roth, and Mark Sammons

Unsupervised Multilingual Word Sense Disambiguation via an Interlingua
Kornél Markó, Stefan Schulz, and Udo Hahn

Supervised Ranking for Pronoun Resolution: Some Recent Improvements
Vincent Ng

Word Sense Disambiguation with Semi-Supervised Learning
Thanh Phong Pham, Hwee Tou Ng, and Wee Sun Lee

Dependency Parsing with Dynamic Bayesian Network
Virginia Savova and Leonid Peshkin

Planning and Scheduling

Quasi-Monotonic Segmentation of State Variable Behavior for Reactive Control
Will Fitzgerald, Daniel Lemire, and Martin Brooks

Validating Plans in the Context of Processes and Exogenous Events
Maria Fox, Richard Howey, and Derek Long

Fast Planning in Domains with Derived Predicates: An Approach Based on Rule-Action Graphs and Local Search
Alfonso Gerevini, Alessandro Saetti, Ivan Serina, and Paolo Toninelli

New Admissible Heuristics for Domain-Independent Planning
Patrik Haslum, Blai Bonet, and Héctor Geffner

Using Domain-Configurable Search Control for Probabilistic Planning
Ugur Kuter and Dana Nau

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Éric Beaudry, Yannick Brosseau, Carle Côté, Clément Raïevsky, Dominic Létourneau, Froduald Kabanza, and François Michaud

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Rahul Biswas and Sebastian Thrun

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Yang Gu

Controlling Tiny Multi-Scale Robots for Nerve Repair
Tad Hogg and David W. Sretavan

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Benjamin Kuipers

Semantic Place Classification of Indoor Environments with Mobile Robots Using Boosting
Axel Rottmann, Óscar Martínez Mozos, Cyrill Stachniss, and Wolfram Burgard

Learning to Prevent Failure States for a Dynamically Balancing Robot
Jeremy Searock and Brett Browning

Autonomous Color Learning on a Mobile Robot
Mohan Sridharan and Peter Stone

Mobile Robot Mapping and Localization in Non-Static Environments
Cyrill Stachniss and Wolfram Burgard

Improving Simultaneous Mapping and Localization in 3D Using Global Constraints
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Anna Yershova, Benjamín Tovar, Robert Ghrist, and Steven M. LaValle

Search

An Algorithm Better than AO*?
Blai Bonet and Héctor Geffner

Backbones and Backdoors in Satisfiability
Philip Kilby, John Slaney, Sylvie Thiébaux, and Toby Walsh

Domain-Dependent Parameter Selection of Search-based Algorithms Compatible with User Performance Criteria
Biplav Srivastava and Anupam Mediratta

Partial Pathfinding Using Map Abstraction and Refinement
Nathan Sturtevant and Michael Buro

Semantic Web, Information Retrieval, and Extraction

WebCrow: A Web-Based System for Crossword Solving
Marco Ernandes, Giovanni Angelini, and Marco Gori

Query Translation Disambiguation as Graph Partitioning
Yi Liu and Rong Jin

A Graph Theoretical Foundation for Integrating RDF Ontologies
Octavian Udrea, Yu Deng, Edna Ruckhaus, and V.S. Subrahmanian

AAAI-05 Student Abstract Posters

Machine Learning and Its Application at Nooksack Falls Hydroelectric Station
Scott Alexander and Jianna Zhang

Helicopter Routing for Maintaining Remote Sites in Alaska Using a Genetic Algorithm
Nicholas Armstrong-Crews and Kenrick Mock

Autonomous Subgoal Discovery and Hierarchical Abstraction for Reinforcement Learning Using Monte Carlo Method
Mehran Asadi and Manfred Huber

Mixed-Initiative Approach to Collaboration in the Mathematical Domain
Nadya Belov and Joshua Shaffer

On Predicting User Intent
Nadya Belov

DR-Prolog:A System for Reasoning with Rules and Ontologies on the Semantic Web
Antonis Bikakis and Grigoris Antoniou

Genre Classification of Web Documents
Elizabeth Sugar Boese and Adele Howe

Rule Refinement by Domain Experts in Complex Knowledge Bases
Cristina Boicu, Gheorghe Tecuci, and Mihai Boicu

Use of Expert Knowledge for Decision Tree Pruning
Jingfeng Cai and John Durkin

Learning Support Vector Machines from Distributed Data Sources
Cornelia Caragea, Doina Caragea, and Vasant Honavar

Boosting Semantic Web Data Access Using Swoogle
Li Ding and Tim Finin

Towards Exploiting Duality in Approximate Linear Programming for MDPs
Dmitri Dolgov and Edmund Durfee

Manufacturing Processes Recognition of Machined Mechanical Parts using SVMs
Cheuk Yiu Ip and William C. Regli

An Automated Distributed Meeting Scheduler for FCVW Plug-in
Hsiang-Hwa Koo and Elhadi Shakshuki

Description Logic-Ground Knowledge Integration and Management
Joseph Kopena

Continuous Speech Recognition Using Modified Stack Decoding Algorithm
David Lee

Qualitative Dimensions in Question Answering: Extending the Definitional QA Task
Lucian Vlad Lita, Andrew Hazen Schlaikjer, WeiChang Hong, and Eric Nyberg

A Learning Support Method in Qualitative Simulation-Based Economic Education
Tokuro Matsuo, Takayuki Ito, and Toramatsu Shintani

Evolving AI Opponents in a First-Person-Shooter Video Game
C. Adam Overholtzer and Simon D. Levy

A Framework for Bayesian Network Mapping
Rong Pan and Yun Peng

Minimizing Environmental Swings with a Recurrent Neural Network Control System
Sam Skrivan, Jianna Zhang, and Debra Jusak

Autonomous Learning of Tool Affordances by a Robot
Alexander Stoytchev

Heuristics for Agent Routing and Itinerary Optimization on Dynamic Networks
Evan A. Sultanik

Approximate Inference of Bayesian Networks through Edge Deletion
Julie Thornton

Towards Truthful Mechanisms for Binary Demand Games: A General Framework
Weizhao Wang and Xiang-Yang Li

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Leveraging Language into Learning
Jacob Beal

Dissertation in Progress: An Empirical Analysis of the Costs and Benefits of Naturalness in Spoken Dialog Systems
Ellen Campana

Learning Source Descriptions for Web Services
Mark James Carman

Computational Aspects of Mechanism Design
Vincent Conitzer

On Boosting Semantic Web Data Access
Li Ding

Dynamic Regime Identification and Prediction Based on Observed Behavior in Electronic Marketplaces
Wolfgang Ketter

Adaptive Modeling and Planning for Reactive Agents
Mykel J. Kochenderfer

Self-Emergence of Structures in Gene Expression Programming
Xin Li

Concurrent Hierarchical Reinforcement Learning
Bhaskara Marthi

Discourse Factors in Multi-Document Summarization
Ani Nenkova

Structure Learning for Statistical Relational Models
Jennifer Neville

Towards Competence in Autonomous Agents
Özgür Simsek

Rover Science Autonomy: Probabilistic Planning for Science-Aware Exploration
Trey Smith

Natural Language Generation for Text-to-Text Applications Using an Information-Slim Representation
Radu Soricut

Planning for Geospatial Data Integration
Snehal Thakkar

Improving Reinforcement Learning Function Approximators via Neuroevolution
Shimon Whiteson

Game Playing Competition

The Game Playing Competition will be held in the Washington Room on Sunday from 6:00 – 9:00 PM and Monday from 10:00 AM – 6:00 PM.

General game players are computer systems able to accept formal descriptions of arbitrary games and able to play those games effectively without human intervention. General game playing systems are characterized by their use of general cognitive information-processing technologies (such as knowledge representation, reasoning, learning, and rational behavior). Unlike specialized game playing systems (such as Deep Blue), they do not rely on algorithms designed in advance for specific games.

The Competition

The AAAI competition is designed to test the abilities of general game playing systems by comparing their performance on a variety of games. The competition consists of two phases: a qualification round and a runoff competition.

In the qualification round, entrants play several different types of games, including single player games (such as maze search) and multiplayer games (such as tic-tac-toe or some variant of chess), including games with both competitors and cooperators. In some cases, the game is exhaustively searchable (as in tic-tac-toe); in other cases, this is not possible (as in chess). Players have to handle all of these possibilities. Entrants are evaluated on the basis of consistent legal play and ability to attain winning positions; the best advance to the second round.

In the runoff round, the best of the qualifiers are pitted against each other in a series of games of increasingly complexity. The entrant to win the most games in this round will be the winner of the overall competition.

Note that, prior to the competition, players are told nothing about the games to be played. The rules of all games are transmitted to the players electronically at the beginning of each game. A general game playing system must be able to read the rules for each game, receive runtime information from the game manager, and inform the manager of its moves.

Exhibit Program

The Exhibit Program will be held in the Second level rotunda from Monday, July 11 to Wednesday, July 13.

Exhibit Hours

Monday, July 11	9:00 AM – 6:00 PM
Tuesday, July 12	9:00 AM – 6:00 PM
Wednesday, July 13	9:00 AM – 12:00 PM

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Morgan Kaufmann, an imprint of Elsevier, began publishing its prestigious list of AI publications more than 20 years ago. New and recently published titles include Davies: *Machine Vision, 3/e;* Brachman and Levesque: *Knowledge Representation and Reasoning;* Hoos and Stützle: *Stochastic Local Search Foundations and Applications;* and Ghallab, Nau, and Traverso: *Automated Planning: Theory and Practice.*

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We all hear that intelligent robots will be commonplace in our everyday lives. They will be helpers, mentors, and rescuers. So how do we get to this future? Everyone here knows the key is advances in AI, computer science, and technology. How can RoadNarrows help? Well to start, students and researchers need good tools. As a distributor for K-Team and Cyberbotics for over two years, RoadNarrows has been learning what researchers and educators would like: inexpensive robots, open software interfaces, standardized hardware modules, and solid documentation. This is the future we see for RoadNarrows. We welcome your comments.

AAAI-05 Intelligent Systems Demonstrations

The Intelligent Systems Demonstrations program will be held in the Allegheny Ballroom on Tuesday, July 12, from 6:30 – 9:30 PM

Continuing advances in AI research are making it possible to develop intelligent systems in a wide range of application areas. The AAAI-05 Intelligent Systems Demonstrations program showcases state-of-the-art AI implementations and provides AI researchers with an opportunity to show applications of 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. This year's demonstrations cover an impressive range of domains: natural language understanding, robotics, game-playing, cognitive aides, semantic web, bioinformatics, automated deduction, musical indexing, intelligent system design aides, and much more. System builders will be on hand to present their work—all that is needed to make this evening a big success is your active exploration of these interactive systems!

The AI Technologies of the Philadelphia Area Urban Wireless Network Testbed

Gustave Anderson, Andrew Burnheimer, Vincent Cicirello, David Dorsey, Chris Dugan, Iris Howley, Moshe Kam, Joseph Kopena, Rob Lass, Kris Malfettone, Andy Mroczkowski, Gaurav Naik, Max Peysakhov, Brian Pyles, William Regli, Evan Sultanik, James Thiel, Kyle Usbeck, Dan Venutolo, and Marc Winners, *Drexel University*

Drexel University researchers, with cooperation from local public protector organizations, are developing a Philadelphia Area Urban Wireless Network Testbed—a live testbed for research in distributed AI in resource-constrained, dynamic communications environments. In the Demonstrations Program, we will demo the AI technologies developed as part of this effort.

Building Applications Using End to End Composition of Web Services

Vikas Agarwal, Girish Chafle, Koustuv Dasgupta, Neeran Karnik, Arun Kumar, Ashish Kundu, Anupam Mediratta, Sumit Mittal and Biplav Srivastava, *IBM India Research Laboratory, New Delhi, India*

We present the first integrated work in composing web services end to end from specification to deployment for building large scale applications. The control flow of the plan (workflow) is generated using planning techniques based on specifications that will change slowly (like the specification of the composite service) while the data flow of the workflow is generated based on factors that are quite dynamic (such as quality of service).

DiamondHelp: A Collaborative Task Guidance Framework for Complex Devices

Charles Rich, Candy Sidner, Neal Lesh, Andrew Garland, Shane Booth, and Markus Chimani, *Mitsubishi Electric Research Laboratories*

DiamondHelp is a reusable Java framework for building collaborative task guidance systems for complex devices, such as digitally enabled home appliances. DiamondHelp combines a generic conversational interface, adapted from online chat programs, with an application-specific direct manipulation interface. DiamondHelp provides "a things to say" mechanism for use without spoken language understanding; it also supports extensions to take advantage of speech technology. DiamondHelp's software architecture factors all application-specific content into two modular plug-ins, one of which includes Collagen and a task model.

Evolution of an Empathetic Digital Entity: Phase One

Margaret Manella Kozak, *Dominican University, River Forest, Illinois*

This presentation reveals the first phase of a multidisciplinary approach designed to create an evolving digital entity capable of human empathy. The digital entity, ZOE (zero one entity), acquires empathetic understanding through a progressive series of experiences that gener-

ate body-based and emotive-based feelings in a digitally simulated coordinate space.

Identifying Similar Words and Contexts in Natural Language with SenseClusters

Ted Pedersen and Anagha Kulkarni, *University of Minnesota, Duluth*

SenseClusters is a freely available intelligent system that clusters together similar contexts in natural language text. Thereafter it assigns identifying labels to these clusters based on their content. In addition, SenseClusters can be used to identify sets of related words. It is a purely unsupervised approach that is language independent, and uses no knowledge other than what is available in raw un-annotated corpora.

Language-Independent Extractive Summarization

Rada Mihalcea, *University of North Texas*

TextRank is an unsupervised system for language-independent extractive summarization that relies on an innovative application of iterative graph-based ranking algorithms to graphs encoding the cohesive structure of texts. An important characteristic of the system is that it does not rely on any language-specific knowledge resources or any manually constructed training data, and thus it is highly portable to new languages or domains.

A Learning and Reasoning System for Intelligence Analysis

Mihai Boicu, Gheorghe Tecuci, Cindy Ayers *US Army War College*, Dorin Marcu, Cristina Boicu, Marcel Barbulescu, Bogdan Stanescu, William Wagner, Vu Le, Denitsa Apostolova, Adrian Ciubotariu, *George Mason University*

This demo presents Disciple-LTA, a personal cognitive assistant that can acquire expertise in intelligence analysis directly from intelligence analysts (with limited assistance from a knowledge engineer), can train new analysts, and can help analysts solve problems through mixed-initiative reasoning. Disciple-LTA illustrates a systematic approach to intelligence analysis based on the task-reduction and solution-composition.

MADbot: A Motivated and Goal Directed Robot

Alex Coddington, Maria Fox, Jonathan Gough, Derek Long, and Ivan Serina

In most work in plan generation and execution the assumption has been made that the goals being addressed by the planning system (and executive) are imposed externally and that once a plan has been constructed to achieve these goals the activity of the planner can cease. Similarly, once the plan has been successfully executed and a state satisfying the externally imposed goals has been reached, it has been assumed that the planning and execution behaviors will suspend until a new goal set and consequent plan has been imposed. These assumptions do not hold for fully autonomous systems, which are capable of directing their own behavior and prioritizing their own goals. The problem we are most concerned with is determining how goals arise during the autonomous behavior of a system.

MGLAIR Agents in Virtual and Other Graphical Environments

Stuart C. Shapiro, Josephine Anstey, David E. Pape, Trupti Devdas Nayak, Michael Kandefer, and Orkan Telhan, *University at Buffalo, The State University of New York*

The Trial The Trail is an interactive drama running on an immersive Virtual Reality system, in which a human participant interacts with several SNePS/MGLAIR actor-agents. Other agents to be demonstrated include FevahrCassie, a self-aware simulated robot that understands and uses a fragment of English, and a wumpus world agent.

Optimal Rhode Island Hold'em Poker

Andrew Gilpin and Tuomas Sandholm

Rhode Island Hold'em Poker is a game that has been proposed as a testbed for AI research. Our research advances in equilibrium computation have enabled us to solve for the equilibrium for this game. Features of the equilibrium include techniques such as bluffing, slowplaying, and check-raising. Participants will compete with our optimal opponent and will experience these strategies firsthand.

The Proteome Analyst Suite of Automated Function Prediction Tools

B. Poulin, D. Szafron, P. Lu, R. Greiner, D. Wishart, R. Eisner, A. Fyshe, B. Pearcy, and L. Pireddu, *Department of Computing Science, University of Alberta*

Proteome Analyst (PA) is a publicly available, high-throughput, web- based system for automatically predicting the function and properties of proteins. Biologists use PA to make predictions based on sequence information. Using sequence analysis and machine learning, PA gives high accuracy and broad coverage for both molecular function and subcellular localization predictions.

Proving Theorems of Type Theory Automatically with TPS

Peter B. Andrews, *Department of Mathematical Sciences, Carnegie Mellon University*

We demonstrate and discuss how the TPS automated theorem proving system proves theorems of type theory, which is also known as higher-order logic and includes first-order logic. In a practical sense, type theory is richer and more expressive than first-order logic. Notations used by TPS, which are very close to traditional notations of logic and mathematics, are explained.

QuOnto: Querying Ontologies

Andrea Acciarri, Diego Calvanese, Giuseppe De Giacomo, Domenico Lembo, Maurizio Lenzerini, Mattia Palmieri, and Riccardo Rosati

QuOnto is a query answering system over ontologies based on the DL-lite description logic. It provides three basic functionalities: (1) specification of the intensional level of the ontology (TBox), (2) specification of the extensional level of the ontology (ABox), and (3) query answering over the ontology. To the best of our knowledge, this is the first system exhibiting the ability to effectively answer complex queries over ontologies.

Remote Supervisory Control of a Humanoid Robot

Michael T. Rosenstein, *Massachusetts Institute of Technology;* Andrew H. Fagg, *University of Oklahoma;* Robert Platt Jr., John D. Sweeney, and Roderic A. Grupen, *University of Massachusetts Amherst*

Participants have the opportunity to perform grasping and manipulation tasks with a humanoid robot located hundreds of miles away. In particular, we demonstrate the benefits of an assistive interface that injects artificial intelligence in key places, without seizing higher-level control from a human operator.

SenseRelate::TargetWord — A Generalized Framework for Word Sense Disambiguation

Siddharth Patwardhan, *University of Utah;* Satanjeev Banerjee, *Carnegie Mellon University;* Ted Pedersen, *University of Minnesota, Duluth*

SenseRelate::TargetWord is a freely available Perl package that assigns a meaning to a given target word that appears in natural language text. It selects the sense of the target word that is most related to its neighbors in the text according to measures of similarity and relatedness based on the lexical database WordNet.

SAGA-ML: An Active Learning System for Semiautomated Gameplay Analysis

Finnegan Southey and Robert C. Holte

We present SAGA-ML (semi-automated gameplay analysis by machine learning), an active learning system for blackbox

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(Available in Registration)

software testing, and SoccerViz, a vizualizer for Electronic Arts' FIFA Soccer. SAGA-ML samples the blackbox, learning a model of its behaviour that is used to both select new samples, and summarize the behaviour for developers.

Solo: A Cognitive Orthosis

Richard Simpson; *University of Pittsburgh, VA Pittsburgh Healthcare System;* Edmund LoPresti, *AT Sciences;* Debra Schreckenghost, *Metrica, Inc.;* Ned Kirsch, *University of Michigan;* and Steve Hayashi, *VA Pittsburgh Healthcare System*

Solo is a cognitive assistive device, which provides support in remembering when to perform tasks, executing the steps in a task, and recovering from unexpected events. The system includes an interface for clients to receive reminders, an interface for caregivers to enter information about the client's scheduled tasks, and a cognition manager that provides reminders and task guidance at appropriate times.

Song Search and Retrieval by Tapping

Geoff Peters, Caroline Anthony, Michael Schwartz, *Simon Fraser University*

Content-based song searching is useful when metadata such as the song title is not known. This demo uses an interactive Java applet that allows a user to tap the rhythm of a song's melody to retrieve the song's name. Rhythmic contours are matched using a minimum edit distance algorithm. Our demo is available to try online at cgi.sfu.ca/~gpeters/tapper/tapper .cgi

Swoogle: Searching for Knowledge on the Semantic Web

Tim Finin, Li Ding, Rong Pan, Anupam Joshi, Pranam Kolari, Akshay, Java and Yun Peng, *University of Maryland, Baltimore County*

Swoogle is a crawler-based semantic web indexing and retrieval service with information on approximately 350K semantic web documents containing over 65M triples. We'll demonstrate Swoogle's use in finding relevant ontologies, terms and data; collecting and querying a set of documents; ranking documents and terms; analyzing how classes and properties are being used; and navigating the semantic web via richer semantic links.

The TaskTracer System

Simone Stumpf, Xinlong Bao, Anton Dragunov, Thomas G. Dietterich, Jon Herlocker, Kevin Johnsrude, Lida Li, and Jian-Qiang Shen, *Oregon State University*

Knowledge workers face continual costs as they switch between tasks to retrieve and create information. The TaskTracer project at Oregon State University has developed a system that operates in the Microsoft Windows environment which records in detail how tasks are completed by tracking most interactions with desktop applications as well as tracking phone calls. In this demonstration we show how we have applied machine learning in this environment by developing components that intelligently leverage recorded details to reduce costs.

TIELT: A Testbed for Gaming Environments

Matthew Molineaux and David W. Aha

Many AI researchers want to test the utility of their systems in complex task environments defined by (such as real-time strategy) gaming simulators or simulators of computer generated forces. Also, many developers of commercial and military gaming simulators seek behaviors that can be supported by these systems. However, these integrations require great effort. We will demonstrate the late Alpha version of TIELT, a testbed designed to fill these needs.

Using the GEMS System for Cancer Diagnosis and Biomarker Discovery from Microarray Gene Expression Data

Alexander Statnikov, Ioannis Tsamardinos and Constantin F. Aliferis, *Discovery System Laboratory, Department of Biomedical Informatics, Vanderbilt University*

We demonstrate a system GEMS for automated development and evaluation of high-quality cancer diagnostic models and biomarker discovery from microarray gene expression data. The development of GEMS was informed by a rigorous algorithmic evaluation. The system was evaluated in cross-dataset applications and using new microarray datasets. GEMS is freely available for noncommercial use from www.gems-system.org

Fourteenth Annual AAAI Mobile Robot Competition and Exhibition

The Fourteenth Annual Robot Competition and Exhibition will be held in the foyers of the Westin and at the opening reception. The finals will take place during the Poster/Demo session. The competition brings together more than twenty teams from universities, colleges, and research laboratories to compete and demonstrate cutting edge, state of the art research in robotics and artificial intelligence.

Robot Challenge

The goal of the Robot Challenge is to work toward the development an interactive social robot. Toward that end, the challenge requires a robot participate in the AAAI conference. Aspects of conference participation goals include locating the conference registration desk, registering for the conference, performing volunteer duties, and presenting a talk (and answering questions) at a prescribed time and location. Additionally, the robot should socially interact with other conference participants.

Scavenger Hunt

Robots search the conference hotel area for a checklist of given objects such as people or information located at specific locations or at a specific time. This task will require robots to navigate and map a dynamic area with moving objects andpeople in order to acquire objects and satisfy a checklist.

Open Interaction

The goal of this event is to entertain people using robots and provide AI and robotics researchers a refreshing venue for demonstrating AI techniques for interactive, entertainment, and social robots. Some of the topics include navigation, cognitive modeling, perception, emotional state modeling, natural language processing, and human-robot interaction.

The Robot Exhibition

The mission of the Robot Exhibition is to demonstrate state of the art research in a less structured environment than the competition events. The exhibition gives researchers an opportunity to showcase current robotics and embodied-AI re-

search that does not fit into the competition tasks.

Workshop

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

General Cochairs

Bill Smart, *Washington University in St. Louis*
Sheila Tejada, *University of New Orleans*

Challenge Chair

Ashley Stroupe, *Jet Propulsion Laboratory*

Exhibition Chairs

Education: Lloyd Greenwald, *Drexel University*
Research: Magdalena Bugajska, *Naval Research Labs*

Open Interaction Event Chair

Ashley Stroupe, *Jet Propulsion Lab*

Scavenger Hunt Chair:

Doug Blank, *Bryn Mawr College*

Workshop Chair

Jeffrey Forbes, *Duke University*

Robot Teams

***Team:* Academic Autonomy**

Swarthmore College
Contact: Bruce Maxwell
Events: Open Interaction and Exhibition

We will be demonstrating a social robot with an emotional model that controls the characteristics of physical actions. The robot will wander through the crowd, looking for people and identifying the color of their shirts. Different shirt colors will affect the emotional state of the robot, causing it to modify its physical behavior based on its emotional state. In addition to the emotional model, the robot will also be demonstrating the use of the Vioa-Jones Harr-wavelet based face detector implemented in the OpenCV open source computer vision project.

***Team:* Claytronics/DPR**

Carnegie Mellon University and Intel Pittsburgh Research
Contact: Seth Goldstein
Event: Exhibition

***Team:* CMDash '05**

Carnegie Mellon University
Contact: Paul Rybski
Event: Exhibition

CMDash'05 is the current US Open champion in the RoboCup legged league. As part of our exhibit, we will demonstrate the robust and efficient sensing, behaviors, teamwork, localization, world modeling, and locomotion techniques used by this team of AIBO robots. We will also be illustrating how we use the CMDash'05 codebase as part of the CMRoboBits: Creating an Intelligent Robot course. CMRoboBits is taught in the Computer Science Department at CMU and emphasizes learning robotic concepts from the standpoint of the complete robot system (the sensing/cognition/actuation loop).

***Team:* Drexel Autonomous Systems Lab**

Drexel University
Contact: Paul Oh
Events: Exhibition

The Drexel Autonomous Systems Lab (DASL) will showcase a six-foot robotic blimp. The team (Shreyansh Shah, Bill Morgan, and Jason Collins) recently participated in the 2005 Indoor Flying Robot Competition. This year's challenge involved autonomous line following and teleoperated search-and-rescue components. A wireless camera, rescue tag release mechanism and ground control image processing are featured.

***Team:* Griffins**

Canisius College
Contact: Debra Burhans
Events: Exhibition

We are in the process of expanding the role of robotics in the computer science curriculum at Canisius College. Starting with independent study projects, this past semester we included a robotics unit in a newly developed course on intelligent systems. Our demonstration includes some of the robots developed by students as well as information about our current efforts to introduce robots into a breadth-first introductory course and our architecture course.

***Team:* HMC Hammer**

Harvey Mudd College
Contact: Zachary Dodds
Events: Scavenger Hunt and Exhibition

***Team:* Human Emulation Robots**

Hanson Robotics, Fedex Institute of Technology, ARRI, and UTD
Contact: David Hanson
Events: Open Interaction and Exhibition

This team will show an android that is a portrait of late science-fiction writer Philip K Dick, the mind behind *Blade Runner*. This android incorporates the latest machine vision and speech recognition technologies, as rich data steams processed by deep, natural language AI. The robot displays its states using mechanically animated facial expressions. We obtain extremely realistic humanlike facial expressions using our innovations in advanced polymers, mechanical systems, and bioinspired design.

***Team:* Kansas State University**

Contact: David Gustafson
Event: Exhibition

The Kansas State University team is a multi-disciplinary team consisting of two graduate students and three undergraduates. The team will be using an ActivMedia P3AT for the scavenger hunt. The team has developed a flexible infrastructure for efficient off-board processing of vision, localization, and control information.

***Team:* LABORIUS**

University of Sherbrooke
Contact: Francois Michaud
Events: Challenge, Scavenger Hunt, Open Interaction and Exhibition

Our objective is to demonstrate four new robot: Spartacus, an autonomous robot with navigation, vision, and audition (for localization, tracking, and simultaneous separation of sound sources in open environments) capabilities; AZIMUT-2, a modular and omnidirectional platform; Tito, a teleoperated pedagogical robot for autistic children; and Roball, a spherical robot. Spartacus capabilities are going to be demonstrated in the Challenge event, and possibly in the Robot Host and Scavenger Hunt events, while the other three robots are presented as part of the Robot Exhibition.

***Team:* ND Rudy**

University of Notre Dame
Contact: Matthias Scheutz
Events: Open Interaction and Exhibition

Rudy is an interactive affective entertainment robot that uses natural language to interact with people and can carry out simple requests.

***Team:* NRL-MU**

Naval Research Laboratory and University of Missouri-Columbia
Contacts: William Adams (NRL), Alan C. Schultz (NRL), Magdalena Bugajska (NRL), Dennis Perzanowski (NRL), Scott Thomas (NRL), Marjorie Skubic (MU), Derek Anderson (MU), Samuel Blisard (MU), J. Gregory Trafton (NRL), E. Vincent Cross II (NRL)
Events: Open Interaction and Exhibition
Robot Names: Sabretooth, Pyro, Storm, Cyclops

We will exhibit a robot that can play hide and seek using a cognitive model to determine where to hide and where to seek in a similar fashion to humans. Separately, we will exhibit an intuitive sketch in-

terface to a team of mobile robots, which resolves sketched information with the robots' local sensor data.

***Team:* Penn State Abington Robotics**

Contact: Bob Avanzato
Event: Exhibition

***Team:* Pink Team Searching**

Carnegie Mellon University
Contact: Marek Michalowski
Event: Exhibition

The robot GRACE will be playing a game that involves human-robot social interaction, navigation, and interface design. The task will be for Grace to locate and rendezvous with one of our team members, who will be wearing a pink hat. The game can be seen as a social version of "tag" or "Marco Polo," where the robot senses the target not through the modalities of sight or sound, but rather through social interactions with strangers in the environment. The robot will identify humans, approach them, ask for directions, and follow the directions.

***Team:* Pyro**

Bryn Mawr, Swarthmore and UMass Lowell
Contact: Holly Yanco
Events: Scavenger Hunt and Exhibition

Pyro, which stands for Python Robotics, is a Python-based robotics programming environment that enables students and researchers to explore topics in robotics. Pyro provides abstractions that allow robot control programs written for a small robot to be used, without any modifications, to control a much larger robot, even one with different sensors.

***Team:* Stony Brook Robot Design Team**

Stony Brook University
Contacts: Matthew Marge, Nader Alrawahi, Ayman Sawas, Juan Carlos Liberato, Murtaza M. Karim, Manish Muttreja, Zeynep Altinbas, Taurean Dyer, Brain Fink, Carrado Grant, Warren Halbig, Milan Karunaratne, Michael Molloy, Thomas Nasti, G. Oarapather, Sagar Pilania, Betson Thomas, Albert Wu, Huang Yang, Rodney Yeung, and Mohammad Yusuf
Affiliations: Department of Computer Science, Department of Mechanical Engineering, and Department of Electrical and Computer Engineering of Stony Brook University
Events: Scavenger Hunt and Exhibition
Robot Name: NavBot

The Stony Brook Robot Design team has focused on two main areas of research in the creation of NavBot, our new robot created for the Scavenger Hunt Event: navigation and computer vision. The purpose is to create an intelligent machine that is able to navigate the conference floor for specific objects.

***Team:* Tekkotsu Project**

Carnegie Mellon University
Contacts: David S. Touretzky and Ethan J. Tira-Thompson
Event: Exhibition

Tekkotsu ("framework" in Japanese) is an open source application development framework for the Sony AIBO. The Tekkotsu architecture provides a level of abstraction above OPEN-R, and includes a suite of remote monitoring and teleoperation tools written in Java for portability. Tekkotsu is currently used by 20 universities for education, research, and robosoccer.

***Team:* UML Robotics Lab**

University of Massachusetts Lowell
Contact: Holly Yanco
Events: Scavenger Hunt and Exhibition

We will demonstrate human-robot interaction with remote robot systems. The system includes a novel interface, varying autonomy levels and a multicamera vision system.

***Team:* University of Pittsburgh**

Contacts: Richard Simpson, Rory Cooper, Songfeng Guo and Vinod Sharma, *University of Pittsburgh;* Ed LoPresti, AT Sciences; Steve Hayashi, *VA Pittsburgh Healthcare System*
Event: Exhibition

The Smart Wheelchair Component System (SWCS) and Smart Power Assistance Module (SPAM) can be added to commercial wheelchairs from several different manufacturers to convert them into smart wheelchairs. The SWCS is "inserted" into a power wheelchair's control system between the user's input device and the wheelchair's motor controller. The SPAM modifies the signal transmitted to motorized "power assist" wheels developed for manual wheelchairs. Both systems share control of the wheelchair with the operator to provide smooth, collision-free navigation. The wheelchair operator is responsible for choosing when and in which direction the wheelchair moves, while the SWCS or SPAM modifies the speed of travel based on the proximity of obstacles in the wheelchair's current direction of travel.

***Team*: UNO Robotics Team**

University of New Orleans
Contact: Sheila Tejada
Event: Scavenger Hunt and Exhibition

The UNO Robotics team has designed an interface for people to interact and collaborate with a group of heterogenous robots such as Aibos, wheeled robots and blimps. Students will demonstrate their AI class project, which combines AI planning techniques with the human-robot interface. As part of the scavenger hunt and exhibition participants can interact with multiple robots to accomplish a task.

General Information

Admission

Each conference attendee will receive a name badge upon registration. This badge is required for admittance to the technical, tutorial, 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 volumes, and attendance tickets for admittance to the tutorial rooms. Smoking, drinking and eating are not allowed in any of the technical, tutorial, workshop or IAAI sessions.

Banking

An ATM machine is located adjacent to the gift shop in the main lobby of the Westin.

Federal Reserve Bank of Cleveland (Pittsburgh Branch)

717 Grant Street (3 blocks from Westin)

Dollar Bank

Corner of Stanwix Street and Forbes Avenue (6 blocks from Westin)

Parkville Bank

559 Grant Street (4 blocks from Westin)

National City Bank

445 Smithfield Street (5 blocks from Westin)

Business Centers

The following business centers are available in the area:

Westin

Self Service Business Center open 24 hours. Accepts credit card payment.

Kinko's

210 Grant Street (approximately 6 blocks from Westin). Open 24 hours.

Career Information

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

Handicapped Facilities

The Westin Convention Center, Pittsburgh is equipped with handicapped facilities.

Housing

For information regarding hotel reservations, please contact hotels directly. For student housing, please contact Duquesne University at 412-396-5083.

Internet Access

Wireless Internet access is available to AAAI-05 attendees in the lobby areas of the Westin. For access information, please go to onsite registration.

List of Attendees

A list of preregistered attendees of the conference will be available for review at the AAAI Desk in the registration area. Attendee lists will not be distributed.

Parking

Parking is available at the Westin Convention Center, Pittsburgh fro $20.00 per 24 hours with no in and out privileges. Valet parking is $22.00 per 24 hours with in and out privileges.

Printed Materials

Display tables for the distribution of promotional and informational materials of interest to conference attendees will be located in the registration area.

Proceedings CD

Each technical registrant will receive a ticket with the registration materials for one copy of the conference CD. Tickets can be redeemed at the proceedings distribution center, located on the second level of the Westin during registration hours. All tickets must be redeemed onsite by Wednesday, July 13 at 11:00 AM. AAAI cannot mail CDs to registrants after the conference.

Extra copies of the Proceedings CD may be purchased at the Registration Desk for $15.00 each. Supplies are limited.

Restaurants (Westin Outlets)

Orchard Café is open for breakfast and lunch daily from 6:30 AM – 2:00 PM. Cool Bean Coffee offers gourmet blended coffee and other beverages, assorted baked goods and pastries and light lunch items. Open daily from 6:00 AM – 4:00 PM. Brown Bag Deli offers coffee, tea, breakfast sandwiches, assorted pastries and baked goods, and daily lunch specials that includes a homemade soup. Open daily from 6:00 AM – 4:00 PM.

Shipping

The Westin can assist with small deliveries, and can provide shipping labels for FedEx and UPS. Federal Express is also located at Kinko's.

Transportation

Transportation times and fees are provided for your convenience, but are subject to change without notice. Please check with the provider before obtaining service.

Taxi

Taxi service is available at the front entrance to the Westin and at the Airport.

Westin Shuttle Service

The Westin provides complimentary shuttle service around the downtown

Registration

Conference registration is located on the third level of the Westin Convention Center, Pittsburgh, beginning Saturday, July 9. Registration hours are:

Saturday, July 9	7:30 AM – 5:00 PM	Sunday, July 10	7:30 AM – 6:00 PM
Monday, July 11	8:00 AM – 5:30 PM	Tuesday, July 12	8:00 AM – 5:30 PM
Wednesday, July 13	8:30 AM – 12:00 PM		

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

Registration Fees

The AAAI-05/IAAI-05 technical program registration fee includes admission to the technical sessions, the Workshop Program (preregistration only), the Opening Reception, the Poster/Demonstration Session, and the AAAI-05/IAAI-05 Conference Proceedings CD. Students must present proof of full-time student status to qualify for the student rate. Onsite technical program fees are as follows:

Technical Registration Fees

Regular Member	$695
Regular Nonmember	$850
Student Member	$235
Student Nonmember	$315

AAAI Platinum Fees
(Includes one year new or renewal membership in AAAI)

Regular US/Canada	$790
Regular International	$830
Student US/Canada	$270
Student International	$310

Tutorial Forum

Includes admittance to up to four consecutive tutorials and the accompanying tutorial forum notes.

Regular	$100
Student	$25

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-05 technical program.

Opening Reception *(Sunday, July 10)*

Adult Guest $30.00 Child $10.00

Poster/Demo Session Reception *(Tuesday, July 12)*

Adult Guest $30.00 Child $10.00

Registration hours are subject to change.

area, based on availability from 7:00 AM – 11:00 PM, Monday thru Friday. The "Vroom Service" shuttle to and from the Westin sister property (Sheraton Station Square Hotel) allows guests to dine in their restaurant, Pittsburgh Rare, the 2002 winner of Best New Restaurant and third place for Best Steak Restaurant by the readers of *Pittsburgh Magazine.* Guests also have the option to transfer the restaurant charges to their hotel room at the Westin.

Express Shuttle USA

This airport shuttle bus provides convenient transportation between the Westin Convention Center and Pittsburgh International Airport. Pick up and drop off is from the Hotel lobby and outside the baggage claim area of the airport. Shuttle time from the Westin is five minutes past each hour from 6:05 AM – 10:05 PM, Sunday – Friday and 7:05 AM – 4:05 PM, Saturday. The cost is $17.00 one-way, and $32.00 round trip.

City Transit System

The "T" light rail system begins operation at 6:00 AM and runs throughout the day until 11:00 PM. The downtown areas are free. Out of town service and Station Square are between $1.75–$2.25 each way. For more information, visit www.ridegold.com or contact the front desk of the Westin.

Tutorial Forum Syllabi

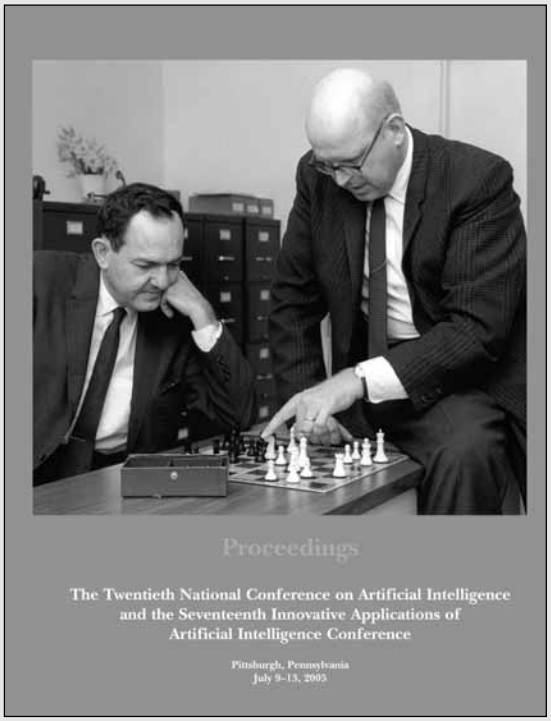
Extra copies of AAAI-05 tutorial syllabi volume will be available for purchase in AAAI onsite registration area, beginning Monday, July 11. Supplies are limited. The cost is $25.00 per volume (includes all tutorials). Preregistration tutorial syllabi tickets may be redeemed at the Proceedings distribution center on the second level of the Westin during registration hours. All tickets must be redeemed onsite by Wednesday, July 13 at 11:00 AM. AAAI cannot mail books to registrants after the conference.

Volunteer Station

The volunteer station will be located in the onsite registration area. All volunteers are required to sign in prior to their shift, and sign out when they finish.

Disclaimer

In offering the Westin Convention Center, Pittsburgh, Duquesne University, Stetson Convention Services, Inc., AVHQ, Pittsburgh International Airport, 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 that 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-05/IAAI-05 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.



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