Twenty-Sixth AAAI Conference on Artificial Intelligence (AAAI-12)

Twenty-Fourth Conference on Innovative Applications of Artificial Intelligence (IAAI-12)

Third Symposium on Educational Advances in Artificial Intelligence (EAAI-12)

July 22 – 26, 2012
Sheraton Centre Toronto Hotel
Toronto, Ontario, Canada

Sponsored by the
Association for the Advancement of Artificial Intelligence

Cosponsored by the *AI Journal*, Steve Kuhn (Pine River Capital), National Science Foundation, Microsoft Research, Cornell Institute for Computational Sustainability, Google, Inc., University of Rochester, GE Global Research, IBM Research, NICTA, ACM/SIGART, Barbara J. Grosz, David E. Smith, and Videolectures.net

Conference Program

Conference at a Glance

Morning	Afternoon	Evening
Sunday, July 22 Tutorial Forum Workshops AAAI/SIGART DC	 Tutorial Forum Workshops AAAI/SIGART DC	
Monday, July 23 Tutorial Forum Workshops AAAI/SIGART DC EAAI-12	 AAAI Business Meeting Tutorial Forum Workshops AAAI/SIGART DC EAAI-12 Poker Symposium	 Opening Reception AI Video Competition
Tuesday, July 24 AAAI / IAAI Opening Ceremony Awards / Presidential Address ACM Turing Award Lecture AAAI-12 / IAAI-12/ EAAI-12 Robotics Fair / Exhibits General Game Playing Competition	 Invited Talks AAAI-12 / IAAI-12/ EAAI-12 Foucault / Chomsky TV Debate Robotics Fair / Exhibits General Game Playing Competition	 Poster Reception *(Students, EAAI, Poker)* Fellows Dinner
Wednesday, July 25 Invited Talks / AAAI Turing Lecture AAAI-12 / IAAI-12 Robotics Fair / Exhibits General Game Playing Competition	 Invited Talks AAAI-12 / IAAI-12 Robotics Fair / Exhibits General Game Playing Competition	 Turing: Hello Hi There AAAI-12 Banquet
Thursday, July 26 Invited Talks AAAI-12 / IAAI-12 Hello Hi There Q&A Robotics Fair Exhibits	 AAAI-12 / IAAI-12 Robotics Fair	

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Acknowledgments

The Association for the Advancement of Artificial Intelligence acknowledges and thanks the following individuals for their generous contributions of time and energy to the successful creation and planning of the Twenty-Sixth AAAI Conference on Artificial Intelligence and the Twenty-Fourth Conference on Innovative Applications of Artificial Intelligence. (A complete listing of the AAAI-12, IAAI-12, and EAAI-12 Program Committee members appears in the conference proceedings.)

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Mauro Birattari (IRIDIA, Université Libre de Bruxelles, Belgium)
Rehan O'Grady (IRIDIA, Université Libre de Bruxelles, Belgium)

Awards

All AAAI-12, IAAI-12, and AAAI Special Awards will be presented Tuesday, July 24, 8:15–9:00 AM, in the Grand Ballroom on the Lower Concourse of the Sheraton.

AAAI-12 Awards

The AAAI-12 Awards will be presented by Program Cochairs Jörg Hoffmann and Bart Selman.

AAAI-12 Outstanding Paper Awards

Learning SVM Classifiers with Indefinite Kernels
Suicheng Gu, Yuhong Guo

Document Summarization Based on Data Reconstruction
Zhanying He, Chun Chen, Jiajun Bu, Can Wang, Lijun Zhang, Deng Cai, Xiaofei He

Honorable Mentions

Knapsack Based Optimal Policies for Budget-Limited Multi-Armed Bandits
Long Tran-Thanh, Archie Chapman, Alex Rogers, Nicholas R. Jennings

Predicting Disease Transmission from Geo-Tagged Micro-Blog Data
Adam Sadilek, Henry Kautz, Vincent Silenzio

Outstanding Program Committee Members

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Scott Sanner (NICTA, Australia)

Kiri Wagstaff (Jet Propulsion Laboratory, USA)

IAAI-12 Deployed Applications Awards

The eight IAAI-12 Deployed Application Awards will be announced by the IAAI-12 Chair Markus Fromherz and Cochair Hector Munoz-Avila. Please 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-12 and *AI Magazine,* and will be presented by David B. Leake, editor-in-chief, *AI Magazine.* The 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 2012 award will be presented to Steve Minton (InferLink Corporation) for seminal contributions in scheduling, planning, and machine learning, advancement of real-world AI systems through public and private organizations, and leadership in new dissemination methods for AI research. The lecture will be held Wednesday, July 25, 10:20 AM, in Dominion South on the second floor of the Sheraton.

IJCAI-*JAIR* Best Paper Prize

The IJCAI-*JAIR* Best Paper Prize, which will be presented by Shlomo Zilberstein, editor-in-chief of *JAIR,* is awarded to an outstanding paper published in *JAIR* in the preceding five calendar years. Funding for the award is provided by the International Joint Conferences on Artificial Intelligence. The award is presented to:

Compiling Uncertainty Away in Conformant Planning Problems with Bounded Width
H. Palacios and H. Geffner, JAIR 35: 623-675, 2009.

Runner-up:

Optimal Value of Information in Graphical Models
A. Krause and C. Guestrin, JAIR 35: 557-591, 2009.

AAAI Honors and Special Awards

AAAI Honors and Special Awards will be presented by Eric Horvitz, Awards Committee Chair and AAAI Past President, Henry Kautz, AAAI President, and Manuela Veloso, incoming AAAI President.

9:00 AM–10:00 AM
TUESDAY, JULY 24

AAAI Presidential Address

Revisiting the Dream

Henry Kautz, University of Rochester

Introduction by Eric Horvitz (Microsoft Research)

For much of its history, the field of AI has been in retreat from the most ambitious goals of its founders. Rather than attempting to understand and replicate general intelligence, research concentrated on smaller, better-defined perceptual and reasoning tasks over limited domains. We are now at a point, however, where the subfields are coming together again, and the idea of achieving the old dream of AI is no longer fanciful. We are entering an age of computerized personal servants, self-driving vehicles, the universal natural language translator, and the solution to the mysteries of the brain. The merging of human and machine intelligence will drive progress on problems across science, industry, and education. Kautz will recap some of the transformative events we have witnessed over the past few years, and describe a vision of the near future that is both realistic and more wildly optimistic than most serious scientists would have dared imagine a decade ago.

Henry Kautz is chair of the Department of Computer Science at the University of Rochester. He performs research in knowledge representation, satisfiability testing, pervasive computing, and assistive technology. His academic degrees include an A.B. in mathematics from Cornell University, an M.A. in creative writing from the Johns Hopkins University, an M.Sc. in computer science from the University of Toronto, and a Ph.D. in computer science from the University of Rochester. He was a researcher and department head at Bell Labs and AT&T Laboratories until becoming a professor in the Department of Computer Science and Engineering of the University of Washington in 2000. He left Seattle in 2006. He is president (2010–2012) of the Association for the Advancement of Artificial Intelligence, a Fellow of the Association for the Advancement of Artificial Intelligence, a Fellow of the American Association for the Advancement of Science, and a recipient of the IJCAI Computers and Thought Award.

2012 AAAI Fellows Recognition

Each year, the Association for the Advancement of 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 six newly elected Fellows for 2012, who will be honored during the annual Fellows dinner on Tuesday, July 24:

Murray S. Campbell
(IBM T. J. Watson Research Center, USA)
Boi V. Faltings
(Swiss Federal Institute of Technology, Switzerland)
Yolanda Gil
(USC/Information Sciences Institute, USA)
Peter F. Patel-Schneider
Francesca Rossi
(Università degli Studi di Padova, Italy)
Peter H. Stone
(The University of Texas at Austin, USA)

Senior Member Recognition

AAAI is pleased to announce the 2012 AAAI senior members, who are being recognized for their long-term participation in AAAI and their distinction in the field of artificial intelligence.

Adele Howe *(Colorado State University, USA)*
Edward P. Katz
(Carnegie Mellon University Silicon Valley, USA)
Kevin Knight *(USC Information Sciences Institute, USA)*
Barry O'Sullivan *(University College Cork, Ireland)*

Classic Paper Award

The 2012 AAAI Classic Paper award honors the following authors of paper(s) deemed most influential from the Eleventh National Conference on Artificial Intelligence, held in 1993 in Washington, DC.

2012 AAAI Classic Paper Award

Learning Interface Agents
Pattie Maes and Robyn Kozierok

Honorable Mentions

Arc-Consistency and Arc-Consistency Again
Christian Bessiere and Marie-Odile Cordier
Automatically Constructing a Dictionary for Information Extraction Tasks
Ellen Riloff

Distinguished Service Award

The AAAI Distinguished Service award recognizes one individual each year for extraordinary service to the AI community. The 2012 recipient is Anthony G. Cohn, University of Leeds, for contributions to the discipline of artificial intelligence through sustained service in professional societies, conferences, journals, and funding agencies around the world.

For information about the special competition awards, please see the section on AAAI-12 Competitions elsewhere in this program.

AAAI-12 Social Events

Opening Reception

The AAAI-12 Opening Reception will be held Monday, July 23, 6:00–7:00 PM in the Grand Ballroom of the Sheraton. This event will provide the traditional opportunity for attendees to socialize in a relaxed 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-12 technical registrants. A $65.00 per person fee ($30.00 for children) will be charged for guests and other nontechnical conference registrants. The reception will be followed by the AI Video Competition award ceremony.

AAAI-12 Poster Session Reception

A poster session featuring Student Abstracts, Doctoral Consortium Abstracts, EAAI-12 posters, and Poker Competition posters will be held on Tuesday, July 24, 5:30–7:30 PM in the Sheraton Hall on the Lower Concourse of the Sheraton. (For a complete listing of posters, please refer to page 11.) The accompanying reception will include a light reception and a no-host bar. Admittance to the reception is free to AAAI-12 registrants. A $50.00 per person fee ($25.00 for children) will be charged for spouses and other nontechnical conference registrants.

AAAI-12 Banquet

The AAAI-12 Banquet will be held Wednesday evening, July 25, 8:00 PM–11:00 PM at the landmark CN Tower in Toronto. 360, the Restaurant at the CN Tower, one of Toronto's finest, features unforgettable food combined with a magnificent revolving view of Toronto more than 351 meters (1,151 feet) below. The CN Tower is a short 15-minute walk from the Sheraton. The banquet fee includes a reception and one complimentary beverage, as well as a three-course, sit-down dinner with wine. A limited number of tickets are available in onsite registration for $85.00 per person.

Special Meetings

AAAI Business Meeting

The AAAI Annual Business meeting will be held Monday, July 23, 1:15–1:45 PM, Civic Ballroom, Second Floor, Sheraton Centre Toronto Hotel.

AAAI Conference Committee Meeting

AAAI Conference Committee meeting will be held Wednesday, July 25, 7:45–8:45 AM, Kenora, Second Floor, Sheraton Centre Toronto Hotel.

AAAI Executive Council Meeting

The AAAI Executive Council meeting will be held Monday, July 23, 9:00 AM–4:00 PM, Kenora, Second Floor, Sheraton Centre Toronto Hotel. Continental breakfast will be available at 8:30 am.

AAAI Publications Committee Meeting

The AAAI Publications Committee meeting will be held Wednesday, July 25, 7:45–8:45 AM, Wentworth, Second Floor, Sheraton Centre Toronto Hotel.

AI Magazine Editorial Board Meeting

The *AI Magazine* Editorial Board meeting will be held Wednesday, July 25, 12:15–1:15 PM, Wentworth, Second Floor, Sheraton Centre Toronto Hotel.

AI Journal Editorial Board Meeting

The *AI Journal* Editorial Board meeting will be held Tuesday, July 24, 12:00–1:15 PM, Kenora, Second Floor, Sheraton Centre Toronto Hotel.

JAIR Advisory/Editorial Board Meeting

The *JAIR* Editorial Board meeting will be held Wednesday, July 25, 12:30–1:30 PM, Trattoria Mercatto, Toronto Eaton Centre, third level, 220 Yonge Street.

AAAI-12 Turing Centenary Celebration

In honor of the A.M. Turing Centenary, AAAI-12 will feature several special events, including the ACM A.M. Turing Award Lecture, the inaugural AAAI Turing Lecture, and a performance of *Hello Hi There.*

10:20–11:20 AM
TUESDAY, JULY 24

ACM A. M. Turing Award Lecture

The Mechanization of Causal Inference: A "Mini Turing Test" and Beyond

Judea Pearl (University of California, Los Angeles)
(Open to all registrants and ACM members)

Introduction by Calvin C. (Kelly) Gotlieb (University of Toronto)

Judea Pearl, professor of computer science at the University of California, Los Angeles, was recently named the recipient of the 2011 ACM A. M. Turing Award for fundamental contributions to artificial intelligence through the development of a calculus for probabilistic and causal reasoning. In his award lecture, Pearl will review concepts, principles, and mathematical tools that were found useful in applications involving causal and counterfactual reasoning. This semantical framework gives rise to a coherent and friendly calculus that unifies several approaches to causation and resolves long-standing problems in the empirical sciences. The mechanization of counterfactual reasoning amounts to passing a mini "Turing test" in causal conversations. Its application in the empirical sciences unveils several opportunities and limitations of the "big-data" enterprise.

Judea Pearl is a professor of computer science and statistics at the University of California, Los Angeles. He is a graduate of the Technion, Israel, and joined the faculty of UCLA in 1970, where he currently directs the Cognitive Systems Laboratory and conducts research in artificial intelligence, causal inference and philosophy of science. Pearl has authored three books: *Heuristics* (1984), *Probabilistic Reasoning* (1988), and *Causality* (2000, 2009), and is member of the National Academy of Engineering, and the American Academy of Arts and Science. He is the recipient of the 2008 Benjamin Franklin Medal for Computer and Cognitive Science and the 2011 David Rumelhart Prize from the Cognitive Science Society. In 2012 he received the Technion's Harvey Prize and the ACM A. M. Turing Award.

9:00–10:00 AM
WEDNESDAY, JULY 25

AAAI Turing Lecture

The Origin of Computable Numbers: A Tale of Two Classics

Christos Papadimtriou (University of California, Berkeley)
Introduction by Toby Walsh (NICTA and University of New South Wales, Australia)

Turing, like Darwin, transformed scientific and human culture through a singularly disruptive work written in a brilliantly self-conscious style. I shall recount the stories of these two classics, concluding with certain unexpected connections between computational ideas and evolution.

Christos Papadimtriou is the C. Lester Hogan Professor of Electrical Engineering and Computer Science, Computer Science Division, University of California at Berkeley. Before joining Berkeley in 1996 he taught at Harvard, MIT, Athens Polytechnic, Stanford, and the University of California, San Diego. He has written five textbooks and many articles on algorithms and complexity, and their applications to optimization, databases, AI, economics, evolution, and the Internet. He holds a PhD from Princeton (1976), and honorary doctorates from ETH (Zurich), Athens Polytechnic, and the Universities of Macedonia, Athens, Cyprus, and Patras. He is a member of the Academy of Sciences of the US, the American Academy of Arts and Sciences, and the National Academy of Engineering, and a fellow of the ACM. His novel *Turing* (a novel about computation) was published by The MIT Press in 2003, and his graphic novel *Logicomix* (with Apostolos Doxiadis) was translated in more than 25 languages.

6:30–7:30 PM
WEDNESDAY, JULY 25

Special Performance

Hello Hi There

Concept and Direction: Annie Dorsen
Grand Ballroom E, Lower Concourse

11:20 AM–12:10 PM
THURSDAY, JULY 26

***Hello Hi There* Question and Answer Session**

Annie Dorsen
Huron, Second Floor

2:25–4:15 PM
WEDNESDAY, JULY 25

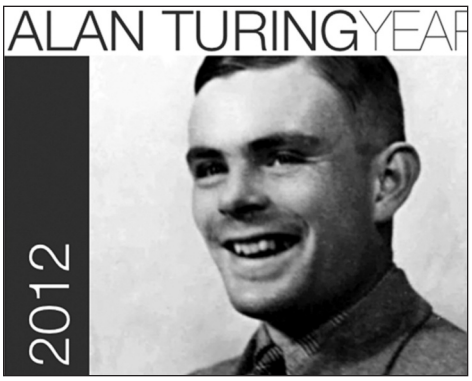
Special Screening

TV Debate between Foucault and Chomksy

Conference Room D/E, Second Floor

Hello Hi There uses a famous television debate between the philosopher Michel Foucault and linguist and activist Noam Chomsky from the 1970s as inspiration and material for a dialogue between two custom-designed chatbots. In every performance, these computer programs, designed to mimic human conversations, generate a new — as it were, improvised — live text. The original television debate will itself be screened before the performance at 2:25–4:15 PM.

As Chomsky and Foucault debate language, creativity, the roots of scientific discovery and the nature of political power, the chatbots talk on, endlessly circling the questions of the debate, and frequently veering off into unexpected, at times nonsensical, digressions. Purposely low-tech, the chatbots remind us of the optimism of the late 1960s and early 1970s, when natural language programming was thought to soon crack the code of human language production. This optimism in the face of repeated failure echoes the dynamic in the politics of Chomsky and Foucault — reflecting a similarly fading optimism in the possibility of people to remake our world.



AAAI-12 Student Programs

AAAI Fellow / Student Lunches

First held in 2006, this program provides an opportunity for a small number of students to chat with a AAAI Fellow over an informal lunch during the conference. Sign-up sheets are available at the onsite registration desk in the Sheraton. Students should meet their designated Fellow in onsite registration on their assigned day.

AAAI/SIGART Doctoral Consortium (DC-12)

The Seventeenth AAAI/SIGART Doctoral Consortium program will be held on Sunday and Monday, July 22–23, in Huron on the second floor of the Sheraton. 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 fifteen students accepted to participate in this program will also participate in the AAAI-12 Poster Session. All interested AAAI-12 student registrants are invited to observe the presentations and participate in discussions at the workshop. AAAI and SIGART gratefully acknowledge grants from the National Science Foundation, Microsoft Research, and David E. Smith, which provide partial funding for this event.

Please see agents.sci.brooklyn.cuny.edu/aaai12dc/program.html for the complete schedule.

Sunday, July 22

9:00 AM–9:10 AM
Opening and Welcome

9:10 AM–10:30 AM
Ethan Burns, Hadi Hosseini

10:50 AM–12:10 PM
Chayan Chakrabarti, Katrina Samperi

1:40 PM–3:00 PM
Alexandra Coman, Saleha Raza

3:20 PM–4:40 PM
Adam Haber, Jennifer Buehler

4:45 PM–6:00 PM
Panel Session 1

7:00 PM
DC Dinner

Monday, July 23

9:00 AM–10:20 AM
Shiwali Mohan, Nathan Gilbert

10:50 AM–11:30 AM
Lihi Dery

11:30 AM–12:10 PM
Discussion: Embarking on a Research Career

1:40 PM–3:00 PM
Baylor Wetzel, Joshua Eckroth

3:20 PM–4:40 PM
Scott Niekum, Christian Muise

4:45 PM–6:00 PM
Panel Session 2

AI Video Competition Awards

The Sixth AI Video Competition (www.aivideo.org) Awards Ceremony will be held immediately after the opening reception on Monday, July 23, 7:00–8:00 PM, in Vide, Lower Concourse Level. Authors of award-winning videos will be presented with "Shakeys." Oscarlike trophies named in honor of SRI's Shakey robot and its pioneering video. Award winning videos will be screened at the ceremony.

The objective of this competition is to communicate to the world the fun of pursuing research in AI, and illustrate the impact of some of our applications. Submitters were asked to create narrated videos of 1-5 minutes in length. The submissions were reviewed by an international program committee, led by cochairs Marco Dorigo, Mauro Birattari, and Rehan O'Grady, all of IRIDIA, Université Libre de Bruxelles. Awards will be presented in the following categories: Best Video, Best Short Video, and Best Student Video. AAAI gratefully acknowledges the generous contributions of the *AI Journal* Review Board for its sponsorship.

AAAI Seventh Annual General Game Playing Competition

The AAAI General Game Playing Competition will be held Tuesday – Wednesday, July 24–25, in the Grand Ballroom Foyer, Lower Concourse. This year's AAAI competition is designed to test the abilities of general game players by comparing their performance on a variety of previously unseen games. The competition will consist of two phases. On Monday, July 23, players will participate in preliminary rounds. On Tuesday, July 24, the top four finishers from the preliminary rounds will participate in semifinal and final rounds to determine an overall winner. (Note that, unlike competitions in previous years, there was no competition phase prior to the conference.) See games.stanford.edu for details.

Computer Poker Competition and Symposium

The Computer Poker Competition and Symposium will be held Monday, July 23 in Conference C, Mezzanine Level. The Poster Session will be held Tuesday, July 24, in Sheraton Hall, Lower Concourse.

The AAAI Annual Computer Poker Competition, now in its seventh year, showcases state-of-the-art intelligent programs for playing poker. This is the premiere venue for demonstrating poker-playing software systems, as exemplified by the previous years' competitions. The poker variants considered in the 2012 competition will be Texas Hold'em poker. The competition will build on the success of the previous years' two-player (heads-up) competitions, with both limit and no-limit betting structures, and last year's three-player limit competition. With many interesting challenges in all three categories, we expect this year's competition to continue to spur the development of new techniques.

The accompanying 2012 Computer Poker Symposium at AAAI will provide a forum where researchers studying Computer Poker and other games of imperfect information can share current research and gather ideas about how to improve the state of the art and advance AI research in these areas. In recent years, poker has emerged as an important, visible challenge problem for the field of AI. Just as the development of world-class chess-playing programs was considered an important milestone in the development of intelligent computing, poker is increasingly being seen in the same way. Several important features differentiate poker from other games: the presence of imperfect information (due to hidden cards), stochastic events, and the desire to maximize utility instead of simply winning. Hence, traditional AI game-playing techniques do not apply and novel methods are required. The Computer Poker Symposium will consist of a series of oral presentations, followed by a poster session and discussion. The results of the 2012 AAAI Annual Computer Poker Competition will also be announced during the Symposium. Poster authors will present their work at the AAAI-12 poster reception on Tuesday evening, July 24.

AAAI thanks Poker Competition Cochairs Jonathan Rubin and Eric Jackson for all their efforts in making this event possible, as well as David Parkes, who serves as the impartial "arbiter" for the competition. AAAI gratefully acknowledges the generous contributions of the Steven Kuhn, Pine River Capital, for his sponsorship.

AAAI 2012 Symposium on Educational Advances in AI (EAAI-12)

EAAI-12, which will be held in the Essex Ballroom on the Mezzanine level, provides a venue for researchers and educators to discuss pedagogical issues and share resources related to teaching AI and using AI in education across a variety of curricular levels (K-12 through postgraduate training), with a natural emphasis on undergraduate and graduate teaching and learning. The symposium will explore how to more effectively teach AI, as well as how themes from AI may be used to enhance education more broadly. EAAI-12 features a technical program, a poster program as part of the poster reception on Tuesday evening, and a "Model AI" session highlighting innovative, ready-to-adopt materials. EAAI-12 is included in the AAAI-12 technical registration fee, but an EAAI-12 only registration option is also available.

EAAI Schedule

All EAAI sessions will be held in the Essex Ballroom, Mezzanine Level.

Monday, July 23

9:30 AM–10:30 AM

Opening and Invited Talk
David Kauchak, EAAI-12 Chair

EAAI-12 Invited Talk
ml-class.org: Teaching Machine Learning to 100,000 Students
Andrew Ng (Stanford University and Coursera)

Last year, Stanford University offered three online courses, which anyone in the world could enroll in and take for free. Students were expected to submit homework, meet deadlines, and were awarded a "Statement of Accomplishment" only if they met a high grading bar. Ng's machine learning class had over 100,000 enrolled students. He will report on the outcome of this bold experiment in distributed education, and will also describe his experience teaching one of these classes and leading the development of the platform used to teach two of the classes. Ng will describe the key technology and pedagogy ideas used, ranging from easy-to-create video chunks, to a scalable online question and answer forum where students can get their questions answered quickly, to sophisticated autograded homework.

10:30 AM–11:00 AM

Coffee Break

11:00 AM–12:00 PM

Educational Robotics Panel
Zachary Dodds, Keith O'Hara, and Simon Parsons

12:00 PM–1:50 PM

Lunch Break

1:50 PM–2:30 PM

Teaching Problem-Solving in Algorithms and AI
Lisa Torrey

An Undergraduate Course in the Intersection of Computer Science and Economics
Vincent Conitzer

2:30 PM–3:30 PM

Model AI Assignments Session

Music Genre Classification
Douglas Turnbull

Vitro—A Simulation and Visualization Framework to Engage Learning: Reversi Model Assignment Exemplar
Laura E. Brown, John Earnest, Jason Hiebel

Solving the Dice Game Pig: An Introduction to Dynamic Programming and Value Iteration
Todd W. Neller

3:30 PM–4:00 PM

Coffee Break

4:00 PM–5:00 PM

Poster Spotlights and Open Mic

Pedagogical Explorations in Computational Perception for Performance
Keith J. O'Hara

Teaching Aspects of Constraint Satisfaction Algorithms Via a Game
Ioannis Hatzilygeroudis, Foteini Grivokostopoulou, Isidoros Perikos

Teaching Localization in Probabilistic Robotics
Fred G. Martin, James Dalphond, Nat Tuck

Incorporating Computational Sustainability into AI Education through a Freely-Available, Collectively-Composed Supplementary Lab Text
Douglas H. Fisher, Bistra Dilkina, Eric Eaton, Carla Gomes

Lightning Talks
Open microphone presentations

6:00 PM–7:00 PM

AAAI-12 Opening Reception

Tuesday, July 24

8:15 AM–9:00 AM

AAAI-12/IAAI-12 Opening Ceremony
Grand Ballroom, Lower Concourse

9:00 AM–10:00 AM

AAAI Presidential Address: Revisiting the Dream
Henry Kautz (University of Rochester)

10:00 AM–10:20 AM

Coffee Break

10:20–11:20 AM

AAAI-12/IAAI-12 Joint Invited Talk / ACM A.M. Turing Award Lecture:
The Mechanization of Causal Inference: A "Mini Turing Test" and Beyond
Judea Pearl (University of California, Los Angeles)

11:20 AM–12:20 PM

EAAI-12 Teaching and Mentoring Workshop Keynote:
Incorporating Fresh Ideas into a Traditional Approach to Teaching AI (and Beyond)
Christine Alvarado (Harvey Mudd College/UC San Diego)

12:20 PM–1:25 PM

Lunch Break

1:25 PM–2:25 PM

AI and Sustainability Panel
Panelists: Bistra Dilikina, Eric Eaton, and Manuela Veloso

This panel will explore the concepts of sustainability and AI from an educational standpoint as well as the development of AI-educational resources in sustainability domains.

2:25 PM–3:25 PM

Teaching and Mentoring Workshop I: Teaching AI Working Sessions
A discussion on how to engage and excite students when teaching AI concepts. Small groups will consider and share lecture materials, demos, student projects, and other teaching methodologies.

3:25 PM–4:15 PM

Teaching and Mentoring Workshop II: Presentations and Review
The small groups from the previous session, will present their ideas and approaches to teaching. A summary discussion and documentation of the information will follow.

4:15 PM–4:30 PM

Coffee Break

4:30 PM–5:30 PM

Funding Opportunities in AI and Education
Presenter: Jeffrey Forbes (NSF)

AAAI-12 Subarea Spotlights Track

AAAI is pleased to announce the Subarea Spotlights Track, a new addition to the conference program featuring three talk categories. *"What's hot in ..." talks* sumarize the state of the art in a particular area. Talks will explain the main research trends of the last 5–10 years. *Best-paper talks* from a broad cross-section of area conferences will highlight recent strong research results in each area. *"Challenges in ..." talks,* summarizing important challenges in a particular area, will outline a vision on where the area should evolve.

AAAI welcomes an amazing line-up of speakers for the Subarea Spotlights track, representing each of the following areas of research: constraint programming, games, human-computer interaction, knowledge representation, machine learning, multiagent systems, planning, robotics, SAT, search, the semantic web, and vision. Please see the technical program on pages 15–24 for schedule information.

Workshop Program

Registration for a workshop requires a supplemental fee for AAAI-12 technical registrants. Individuals who do not wish to participate in any other AAAI-12 programs or events may elect the workshop only registration fee.

Sunday and Monday, July 22-23 (Two Day Workshop)

W3: Cognitive Robotics
Cochairs: Wolfram Burgard, Kurt Konolige, Maurice Pagnucco, and Stavros Vassos
Conference G, Mezzanine Level
9:00 AM–5:00 PM

Sunday, July 22

W6: Intelligent Techniques for Web Personalization and Recommendation
Cochairs: Dietmar Jannach, Sarabjot Singh Anand, Bamshad Mobasher, and Alfred Kobsa
Conference H, Mezzanine Level
9:15 AM–5:00 PM

W7: Multiagent Pathfinding
Cochairs: Kostas Bekris, Ariel Felner, Roni Stern, and Nathan Sturtevant
Conference B, Mezzanine Level
9:00 AM–6:00 PM

W9: Problem Solving Using Classical Planners
Cochairs: Héctor Palacios, Patrik Haslum, and Jorge Baier
Conference F, Mezzanine Level
9:00 AM–6:00 PM

Monday, July 23

W1: Activity Context Representation: Techniques and Languages
Chair: Lokendra Shastri
Conference F, Mezzanine Level
8:30 AM–6:00 PM

W4: Grounding Language for Physical Systems
Cochairs: Cynthia Matuszek, Stefanie Tellex, Dieter Fox, and Luke Zettlemoyer
Conference B, Mezzanine Level
9:00 AM–5:45 PM

W5: Human Computation (HCOMP 2012)
Chair: Yiling Chen
Conference D/E, Mezzanine Level
8:55 AM–5:30 PM

W8: Neural-Symbolic Learning and Reasoning
Cochairs: Artur d'Avila Garcez, Pascal Hitzler, and Luis C. Lamb
Wentworth, Second Floor
9:15 AM–6:00 PM

W10: Semantic Cities
Cochairs: Biplav Srivastava, Freddy Lécué, and Anupam Joshi
Kent, Second Floor
8:30 AM–5:15 PM

Tutorial Forum

AAAI-12 technical registrants may attend up to four consecutive tutorials.

Sunday Morning, July 22

9:00 AM–1:00 PM

SA1: Agentpalooza: Rapid Creation and Deployment of Embodied Conversational Agents
Andrew Olney, Patrick Hays, and Whitney Cade
Simcoe/Dufferin, Second Floor

SA2: Trading Agents
Michael Wellman and Amy Greenwald
Civic Ballroom North, Second Floor

SA3: Traffic Management and AI
Biplav Srivastava and Anand Ranganathan
Civic Ballroom South, Second Floor

Sunday Afternoon, July 22

2:00 PM–6:00 PM

SP1: Collective Intelligence
Haym Hirsh
Civic Ballroom North, Second Floor

SP2: Probabilistic Matrix and Tensor Block Models for Two-Way and Multi-Way Network Modeling
Zenglin Xu and Alan Qi
Simcoe/Dufferin, Second Floor

SP3: Probabilistic Planning with Markov Decision Processes
Andrey Kolobov and Mausam
Civic Ballroom South, Second Floor

Monday Morning, July 23

9:00 AM–1:00 PM

MA1: A Game Theoretic Approach to Social Networks
Ramasuri Narayanam and Amit A. Nanavati
Civic Ballroom South, Second Floor

MA2: Heuristic Search: The Basics and Beyond
Jordan Thayer and Wheeler Ruml
Simcoe/Dufferin, Second Floor

MA3: Search-Based Planning: Toward High Dimensionality and Differential Constraints
Mihail Pivtoraiko, Maxim Likhachev, and Sven Koenig
Civic Ballroom North, Second Floor

Monday Afternoon, July 23

2:00 PM–6:00 PM

MP1: Entity Resolution: Theory, Practice, and Open Challenges
Lise Getoor and Ashwin Machanavajjhala
Simcoe/Dufferin, Second Floor

MP2: Text Mining from User Generated Content
Ronen Feldman and Lyle Ungar
Civic Ballroom South, Second Floor

MP3: Theory and Practice of Answer Set Programming
Esra Erdem, Joohyung Lee, and Yuliya Lierler
Civic Ballroom North, Second Floor

AAAI-12 / IAAI-12 Invited Presentations

Tuesday, July 24

8:15 AM–9:00 AM

AAAI-12 Opening Ceremony

Welcome and Opening Remarks

Outstanding Award Presentations — Papers, Area Chair, SPC Members, PC Members

Jörg Hoffmann and Bart Selman, AAAI-12 Program Cochairs

IAAI Welcome, Robert S. Engelmore Award, Deployed Application Award Announcements

Markus Fromherz, IAAI-12 Conference Chair, Hector Munoz-Avila, IAAI-12 Program Cochair, and David Leake, *AI Magazine* Editor-in-Chief

IJCAI-JAIR Best Paper Prize

Shlomo Zilberstein, Editor-in-Chief of the *Journal of Artificial Intelligence Research (JAIR)*

Fellows Announcement, Senior Member Recognition, AAAI Classic Paper Awards, Distinguished Service Award

Eric Horvitz, AAAI Past President and Awards Committee Chair, Henry Kautz, AAAI President, and Manuela Veloso, AAAI Incoming President

9:00 AM–10:00 AM

AAAI Presidential Address

Revisiting the Dream

Henry Kautz, University of Rochester

Introduction by Eric Horvitz (Microsoft Research)

(For description, see page 4)

10:20 AM–11:20 AM

ACM A. M. Turing Award Lecture

The Mechanization of Causal Inference: A "Mini Turing Test" and Beyond

Judea Pearl (University of California, Los Angeles)

Introduction by Calvin C. (Kelly) Gotlieb (University of Toronto)

This lecture is open to all conference participants and ACM members. See page 5 for complete details on Turing events.

1:25 PM–2:25 PM

AAAI-12 Invited Talk

Duolingo: Translating the Web with Millions of People

Luis von Ahn (Carnegie Mellon University)

Introduction by Bart Selman (Cornell University)

I want to translate the web into every major language: every web page, every video, and, yes, even Justin Bieber's tweets. With its content split up into hundreds of languages — and with over 50 percent of it in English — most of the web is inaccessible to most people in the world. This problem is pressing, now more than ever, with millions of people from China, Russia, Latin America and other quickly developing regions entering the web. In this talk, I introduce my new project, called *Duolingo,* which aims at breaking the language barrier, and thus making the web truly world wide. We have all seen how systems such as Google Translate are improving every day at translating the gist of things written in other languages. Unfortunately, they are not yet accurate enough for my purpose: Even when what they spit out is intelligible, it's so badly written that I can't read more than a few lines before getting a headache. This is why you don't see machine-translated books. With Duolingo, our goal is to encourage people, like you and me, to translate the web into their native languages.

Wednesday, July 25

9:00–10:00 AM

AAAI Turing Lecture

The Origin of Computable Numbers: A Tale of Two Classics

Christos H. Papadimitriou (University of California, Berkeley)

Introduction by Toby Walsh (NICTA and University of New South Wales, Australia)

(See page 5 for complete details on Turing events.)

10:20–11:20 AM

Robert S. Engelmore Award Lecture

Building AI: Our Shared Enterprise

Steven Minton (President, InferLink Corporation)

Introduction by David Leake (Indiana University)

The past few decades have seen great progress in AI. Most of this progress has resulted from contributions made by teams of scientists and engineers building on the earlier contributions of other teams, rather than from individual "breakthroughs". Ultimately, this is made possible because we share our methods and results. There are many mechanisms that help us build upon previous work, from traditional scholarly journals and conferences, to open source software, to data repositories. In fact, the development of the internet has facilitated new and exciting ways to build communities and to jointly contribute to the development of AI. This talk will discuss new and evolving models for scientific collaboration, approaches for funding nonprofit enterprises, and innovative ways that we can all contribute to the development of AI.

1:25–2:25 PM

AAAI-12 Invited Talk

Automating Biology Using Robot Scientists

Ross D. King (University of Manchester, UK)

Introduction by Henry Kautz (University of Rochester)

A robot scientist is a physically implemented robotic system that applies techniques from artificial intelligence to execute cycles of automated scientific experimentation. A Robot Scientist can automatically execute cycles of: hypothesis formation, selection of efficient experiments to discriminate between hypotheses, execution of experiments using laboratory automation equipment, and analysis of results. We developed the robot scientist Adam to investigate yeast functional genomics. Adam is the first time a machine has discovered novel scientific knowledge. This knowledge is described in a formal argument involving over 10,000 different research units that relates Adam's 6.6 million observations to its conclusions. Our new robot scientist Eve applies the same approach to drug design. Eve has efficiently found "lead compounds" for malaria and other neglected tropical diseases.

Thursday, July 26

9:00–10:00 AM

AAAI-12 Invited Talk

Learning to Behave by Reading

Regina Barzilay (Massachusetts Institute of Technology)

Introduction by Bart Selman (Cornell University)

In this talk, I will address the problem of grounding linguistic analysis in control applications, such as game playing and robot navigation. We assume access to natural language documents that describe the desired behavior of a control algorithm (such as game strategy guides). Our goal is to demonstrate that knowledge automatically extracted from such documents can dramatically improve performance of the target application. First, I will present a reinforcement learning algorithm for learning to map natural language instructions to

Exhibit Program

Exhibits will be held Tuesday–Thursday, July 24–26, in the Grand Ballroom Foyer.

Exhibit Hours

Tuesday, July 24: 10:00 AM–12:15 PM and 2:30 PM–6:30 PM
Wednesday, July 25: 10:00 AM–12:15 PM and 2:30 PM–6:30 PM
Thursday, July 26 10:00 AM–12:15 PM

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The Institute for Computational Sustainability (ICS), founded in 2008 with support from an expeditions in computing grant from the National Science Foundation, advances research in the emerging field of computational sustainability. The vision of the institute is that computer scientists can — and should — play a key role in increasing the efficiency and effectiveness in the way we manage and allocate our natural resources, while enriching and transforming computer science and related fields. The institute is a joint venture involving scientists from Cornell University, Bowdoin College, the Conservation Fund, Howard University, Oregon State University, and the Pacific Northwest National Laboratory.

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executable actions. This technique has enabled automation of tasks that until now have required human participation — for example, automatically configuring software by consulting how-to guides. Next, I will present a Monte-Carlo search algorithm for game playing that incorporates information from game strategy guides. In this framework, the task of text interpretation is formulated as a probabilistic model that is trained based on feedback from Monte-Carlo search. When applied to the Civilization strategy game, a language-empowered player outperforms its traditional counterpart by a significant margin.

10:20–11:20 AM

IAAI-12 Invited Talk

Recent Progress on Self-Driving Cars

Sebastian Thrun (Stanford University/Google)
Introduction by Markus Fromherz (ACS, a Xerox Company, USA)

This talk provides an update on self-driving car technology developed at Google. Google is on its way to develop technology that can safely control cars that drive in traffic without human attention. In doing so, the team is heavily leveraging AI technology in areas of perception, planning, control, and machine learning. Thrun will discuss these advances, and also reflect on potential applications of this technology.

1:25–2:25 PM

AAAI-12 Invited Talk

How to Grow a Mind: Statistics, Structure and Abstraction

Joshua B. Tenenbaum (Massachusetts Institute of Technology)
Introduction by Bart Selman (Cornell University)

The fields of cognitive science and artificial intelligence grew up together, with the twin goals of understanding human minds and making machines smarter in more humanlike ways. Yet since the 1980s they have mostly grown apart, as cognitive scientists came to see AI as too focused on applications and technical engineering issues rather than big questions of intelligence, while AI researchers came to see cognitive science as too informal and concerned with peculiarities of human minds and brains rather than general principles. Just in the last few years, however, these fields appear poised to reconverge in exciting and deep ways. Cognitive scientists have begun to adopt the toolkit of modern probabilistic AI as a unifying framework for modeling natural intelligence, while many AI researchers are looking beyond immediate applications to some of the big picture questions that originally motivated the field, and both communities are increasingly aware of and even informed by the other's moves in these directions.

AAAI-12 Poster Session

The AAAI-12 Poster Session will be held Tuesday, July 24, from 5:30–7:30 PM. EAAI-12, Student Abstract, Doctoral Consortium, and Poker Competition posters will be included in this poster session, located in Sheraton Hall on the Lower Concourse level. This session will overlap with the final technical paper poster session. In addition, Robotics Fair posters will be available for viewing on the Lower Concourse.

EAAI-12 Posters

Pedagogical Explorations in Computational Perception for Performance
Keith J. O'Hara

Teaching Aspects of Constraint Satisfaction Algorithms Via a Game
Ioannis Hatzilygeroudis, Foteini Grivokostopoulou, Isidoros Perikos

Teaching Localization in Probabilistic Robotics
Fred G. Martin, James Dalphond, Nat Tuck

Incorporating Computational Sustainability into AI Education through a Freely-Available, Collectively-Composed Supplementary Lab Text
Douglas H. Fisher, Bistra Dilkina, Eric Eaton, Carla Gomes

AAAI-12 Student Abstracts

Strategic Advice Provision in Repeated Human-Agent Interactions
Amos Azaria, Zinovi Rabinovich, Sarit Kraus, Claudia V. Goldman, Ya'akov Gal

Temporally Expressive Planning Based on Answer Set Programming with Constraints
Forrest Sheng Bao, Yuanlin Zhang

Improving Convergence of CMA-ES through Structure-Driven Discrete Recombination
Tim Brys, Ann Nowé

Recommending Related Microblogs: A Comparison between Topic and WordNet Based Approaches
Xing Chen, Lin Li, Huifan Xiao, Guandong Xu, Zhenglu Yang, Masaru Kitsuregawa

A Theoretical Framework of the Graph Shift Algorithm
Xuhui Fan, Longbing Cao

Active Learning from Oracle with Knowledge Blind Spot
Meng Fang, Xingquan Zhu, Chengqi Zhang

A New Operator for ABox Revision in DL-Lite
Sibei Gao, Guilin Qi, Haofen Wang

Exploiting Shared Resource Dependencies in Spectrum Based Plan Diagnosis
Shekhar Gupta, Nico Roos, Cees Witteveen, Bob Price, Johan de Kleer

A Market-Based Coordination Mechanism for Resource Planning under Uncertainty
Hadi Hosseini, Jesse Hoey, Robin Cohen

Estimation of Suitable Action to Realize Given Novel Effect with Given Tool Using Bayesian Tool Affordances
Raghvendra Jain, Tetsunari Inamura

Failure Handling in a Planning Framework
Sertac Karapinar, Sanem Sariel-Talay

Informed Initial Policies for Learning in Dec-POMDPs
Landon Kraemer, Bikramjit Banerjee

Real-Time Collaborative Planning with the Crowd
Walter S. Lasecki, Jeffrey P. Bigham, James F. Allen, George Ferguson

Online Sequence Alignment for Real-Time Audio Transcription by Non-Experts
Walter S. Lasecki, Christopher D. Miller, Donato Borrello, Jeffrey P. Bigham

An Investigation of Sensitivity on Bagging Predictors: An Empirical Approach
Guohua Liang

Large Scale Temporal RDFS Reasoning Using MapReduce
Chang Liu, Guilin Qi, Yong Yu

Mining Context-Aware Significant Travel Sequences from Geotagged Social Media
Abdul Majid, Ling Chen, Hamid Turab Mirza, Ibrar Hussain, Gencai Chen

Exploring Mixed-Initiative Interaction for Learning with Situated Instruction in Cognitive Agents
Shiwali Mohan, John E. Laird

Threats and Trade-Offs in Resource Critical Crowdsourcing Tasks over Networks
Swaprava Nath, Pankaj Dayama, Dinesh Garg, Y. Narahari, James Zou

Learning Names for RFID-Tagged Objects in Activity Videos
Ian Perera, James F. Allen

Frugal Coordinate Descent for Large-Scale NNLS
Vamsi K. Potluru

A Bucket Elimination Approach for Determining Strong Controllability of Temporal Plans with Uncontrollable Choices
Pedro Rodrigues Quemel e Assis Santana, Brian C. Williams

CCE: A Coupled Framework of Clustering Ensembles
Zhong She, Can Wang, Longbing Cao

A Testbed for Learning by Demonstration from Natural Language and RGB-Depth Video
Young Chol Song, Henry Kautz

Learning Transformation Rules by Examples
Bo Wu, Pedro Szekely, Craig A. Knoblock

Combining Probabilistic Planning and Logic Programming on Mobile Robots
Shiqi Zhang, Forrest Sheng Bao, Mohan Sridharan

Matching State-Based Sequences with Rich Temporal Aspects
Aihua Zheng, Jixin Ma, Jin Tang, Bin Luo

AAAI-12 Doctoral Consortium Abstracts

Capabilities in Heterogeneous Multi-Robot Systems
Jennifer Buehler

Planning under Time Pressure
Ethan Burns

Enriching Chatter Bots with Semantic Conversation Control
Chayan Chakrabarti

Solution Diversity in Planning
Alexandra Coman

Abductive Metareasoning for Truth-Seeking Agents
Joshua Eckroth

Acquiring Domain Specific Knowledge and Coreference Cues for Coreference Resolution
Nathan Gilbert

A Multi-Agent Control Architecture for a Rescue Robot
Adam Haber

Dynamic Multiagent Resource Allocation: Integrating Auctions and MDPs for Real-Time Decisions
Hadi Hosseini

Learning Actions and Action Verbs from Human-Agent Interaction
Shiwali Mohan

Generalizing and Executing Plans
Christian Muise

Iterative Voting under Uncertainty for Group Recommender Systems (Research Abstract)
Lihi Naamani-Dery

Complex Task Learning from Unstructured Demonstrations
Scott Niekum

Building Collaborative Strategies via Imitation
Saleha Raza

Large-Scale Mapping and Navigation in Virtual Worlds: Thesis Summary
Katrina Samperi

Effects of Representation on Solving Complex Spatial-Temporal Problems
Baylor Wetzel

AAAI-12 Poker Symposium Posters

Combining Various Strategies in a Poker Playing Multi-agent System
Bojan Butolen and Milan Zorman

Tartanian5: A Heads-Up No-Limit Texas Hold'em Poker-Playing Program
Sam Ganzfried and Tuomas Sandholm

Slumbot: An Implementation of Counterfactual Regret Minimization on Commodity Hardware
Eric Jackson

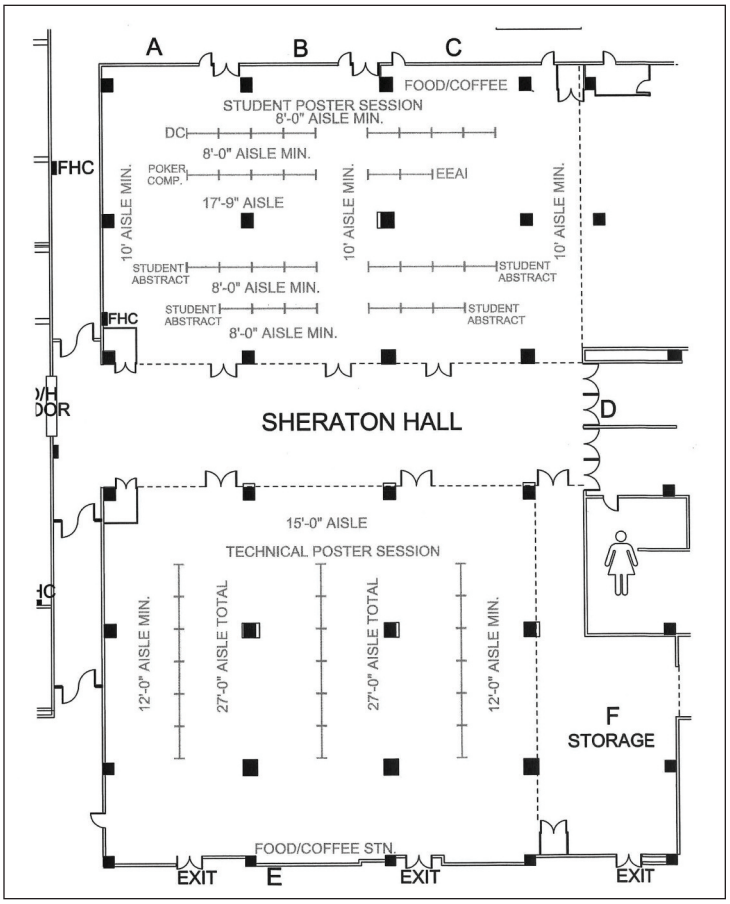
The Spewy Louie Poker Bot
Jon Parker and Chris Wacek

2012 AAAI Computer Poker Competition
Jonathan Rubin and Eric Jackson

Sartre3: A Case-Based Multi-Player Poker Agent
Jonathan Rubin and Ian Watson

TBC
Neill Sweeney and David Sinclair

TBC
University of Alberta Poker Research Group



Registration

Conference registration is located on the Concourse Level of the Sheraton Centre Toronto Hotel, beginning Sunday, July 22. Registration hours are:

Sunday, July 22	7:30 AM–5:00 PM
Monday, July 23	7:30 AM–5:00 PM
Tuesday, July 24	8:00 AM–5:00 PM
Wednesday, July 25	8:30 AM–5:00 PM
Thursday, July 26	8:30 AM–12:00 PM

Only checks drawn on U.S. banks, U.S. currency, VISA, MasterCard, American Express, and traveler's checks will be accepted.

Registration Fees

All fees quoted are in US dollars. The AAAI-12/IAAI-12 technical program registration includes admission to all technical paper and poster sessions, invited talks, EAAI-12, exhibits, demos, and competitions, the opening reception, and a copy of the AAAI-12/IAAI-12/EAAI-12 conference proceedings on CD (the hardcopy proceedings is available at additional cost). 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	$855	Student Member	$340
Regular Nonmember	$1025	Student Nonmember	$445

AAAI Platinum Fees

(Platinum fees include a one year new or renewal membership in AAAI)

Regular One-Year	$995	Regular Three-Year	$1275
Student	$410	Regular Five-Year	$1555

Symposium on Educational Advances in Artificial Intelligence (EAAI-12)

The AAAI-12/IAAI-12 technical program registration includes participation in EAAI-12 for invited participants and other interested individuals. Although there is no additional cost for this event, registration is required. For nontechnical registrants, an EAAI-only rate is offered.

EAAI-12 only:	Regular	$755	Student	$240

Tutorial Forum

The AAAI-12/IAAI-12 technical program registration includes participation in up to four consecutive tutorials. Although there is no additional cost for this event, registration is required.

Workshop Program

Registration includes admittance to one workshop and the AAAI-12 Workshop Technical Report CD. Please note that W3 is a two-day workshop.

Workshop with technical program		*Workshop Only (no technical program)*	
Regular	$195	Regular	$355
Student	$175	Student	$225
Regular 2-Day	$300	Regular 2-Day	$430
Student 2-Day	$265	Student 2-Day	$315

AAAI Banquet (Wednesday, July 25)

A limited number of onsite tickets are available.

$85.00 per person

Opening Reception (Monday, July 23)

Adult Guest	$65.00	Child	$30.00

Poster Session Reception (Tuesday, July 24)

Adult Guest	$50.00	Child	$25.00

Proceedings in Hard Copy

Copies of the hardcopy proceedings are available for purchase in onsite registration, and will be mailed after the conference (late summer). The calculated shipping cost is approximate, and will be recalculated at the time of shipment. If different, you will be notified before shipment.

Special Conference Rate: $95.00 (normally $250.00)

Proceedings CD

Extra copies of the AAAI-12 / IAAI-12 Proceedings CD are available in onsite registration.

AAAI-12 Proceedings CD $25.00

Workshop Technical Report CDs

A limited number of CD containing all of the AAAI-12 workshop technical reports is available for purchase in onsite registration.

Workshop Technical Report CD $25.00

General Information

ADA Devices

The staff at the Sheraton Centre Toronto Hotel is committed to ensuring that they meet and exceed all of the requirements for the Americans with Disabilities Act. The staff is trained to accommodate guests with special needs.

Admission

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

Banking

There is a Bank of Montreal ATM machine located on the Concourse Level in the PATH system. There is also a Currency Exchange booth located in the PATH system about 20 feet from the bottom of the hotel escalator. Scotiabank is located at the corner of Queen St. East and Bay — about 50–60 feet from the east entrance of the hotel.

Business Center/Shipping

The Sheraton Business Centre is located on the Lobby Level and provides services such as photocopying, faxing, secretarial service, shipping, computer use and rentals and office supplies. The business center is open Monday–Friday from 8:00 AM–6:00 PM. Please see the Business Centre regarding costs for services.

Career Information

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

Housing

For information regarding hotel or student housing reservations, please contact the hotel or Ryerson University directly.

Internet Access

AAAI-12 has arranged for complimentary wireless Internet access for all registrants in the Sheraton meeting spaces and guest rooms. Using your Internet browser, connect to "SHERATON_MEETINGS" SSID and you will be automatically redirected to the Sheraton Centre's portal site. Click on the "Connect Now" link to go to the sign on page and enter the following username and password:

Username: AAA71
Password: vasyni

Tip: If your browser's home page is set to your company's intranet site (that is, intranet.mycompany.com), click the "Stop" button and go to a normal website such as www.sheraton.com to be signed on. You will be able to access your intranet site once you have successfully connected.

Overnight guests will be provided with login information for sleeping rooms upon check-in.

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

Covered valet parking is available at the Sheraton for $48.00 (plus tax) CAD per day with in and out privileges.

There are several local downtown Toronto pay parking lots within close proximity of the Sheraton. The parking options include from the half hour to overnight parking. See parking.greenp.com/find-parking/?a=123+Queen+St.+West for locations and rates.

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 CDs

Each technical registrant will receive a ticket with the registration materials for one copy of the conference CD. Tickets can be redeemed in the onsite registration area on the Concourse Level of the Sheraton during registration hours. All tickets must be redeemed onsite by Thursday, July 26 at 11:00 am. AAAI cannot mail CDs to registrants after the conference.

Restaurants

A flyer containing a listing and map of local restaurants is included in the registration bags. Please also see the hotel lobby or concierge for local restaurants and eateries in the area.

Volunteer Check-In 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.

Workshop Technical Reports

Workshop participants will receive a ticket in their registration envelopes, which can be redeemed at assigned meeting rooms for a copy of the AAAI-12 Workshop Program Technical Report Series on CD, containing the papers for all workshops.

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In offering the Sheraton Centre Hotel, Robinson Show Services, Toronto International Airport, and all other service providers (hereinafter referred to as "Supplier(s)" for the AAAI 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 of providers of accommodations or other services included as part of the AAAI-12/IAAI-12 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.

AAAI-12 Robotics Multimedia Fair

AAAI is pleased to present the inaugural AI and Robotics Multimedia Fair at AAAI-12 to be held Tuesday–Thursday, July 24-26 in the Grand Ballroom Foyer, Lower Concourse. The program will consist of contributions to be presented as an illustration of the combination of AI and robotics. The goal is twofold: for researchers and developers to showcase how they view the use or need of AI techniques in robotics systems; and for AI researchers to understand how their interests can reach out to robotics platforms. There will be three types of participation: robot demonstrations, posters, and videos. Contributions will be displayed throughout the technical conference. AAAI thanks Jim Little and Junaed Sattar of the University of British Columbia, and Manuela Veloso of Carnegie Mellon University for their efforts in making this program a reality.

Robotics Fair Participants

Demonstrations

Anchoring AI Courses with Robots and ROS
Zachary Dodds

Methods for Human/Multi-Robot Team Interaction
Elizabeth Sklar

Synthesis of Robust Behaviors through Online Trajectory Optimization
Yuval Tassa

Demonstration and Poster

Lego Plays Chess: A Low-Cost, Low-Complexity Approach to Intelligent Robotics
Debra T. Burhans

Posters

Kangaroo Robots: A Bio-inspired Hierarchical Robotic System for Search and Rescue in Unstructured Environments
Ngo Trung Dung

A Heterogeneous Multi-Robot System for Environmental Monitoring
Malika Meghjani

Speaky 4 Robots: Vocal Human-Robot Interaction
Vittorio Perera

Complimentary Corrective Demonstration for Task Refinement
Manuela Veloso

Weighted Synergy Graphs for Role Assignment in Ad-Hoc Heterogeneous Robot Teams
Manuela Veloso

Automated Generation of Motion for the NAO Humanoid Robot
Manuela Veloso

Experience Guided Mobile Manipulation Planning
Manuela Veloso

CoBot — Mobile Collaborative Service Robots
Manuela Veloso

Videos

Swarmanoid, the Movie
Mauro Birattari

Manipulation Under Uncertainty in Human Environments
Anca Dragan

PR2 Rides the Elevator
Wesley Chan

Underwater Pose Estimation
Ioannis Rekleitis

Quadrocopter Slalom Learning
Schöllig Angela

Learning Kinematic Models for Articulated Objects
Juergen Sturm

Learning to Slide a Magnetic Card Through a Card Reader
Vlad Sukhoy

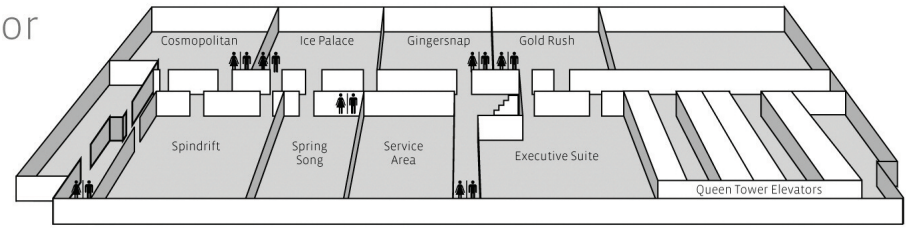
Detecting the Functional Components of Doorbell Buttons
Vlad Sukhoy

Object Categorization in the Sink: Learning Behavior-Grounded Categories with Water
Vlad Sukhoy

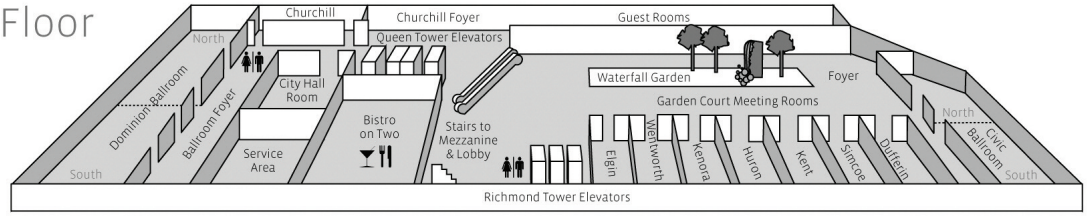
Deploying a Robot Fleet at the Office: Fulfilling User Task Requirements from the Web
Manuela Veloso

ROS Manipulation Stack adapted to HANDLE project platform and Dexterous Manipulation
Guillaume Walck

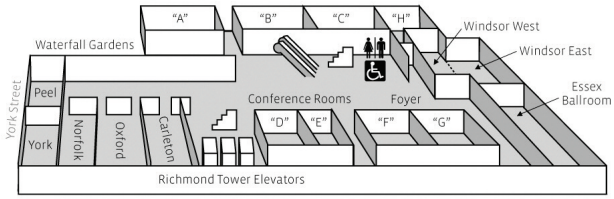
4th Floor



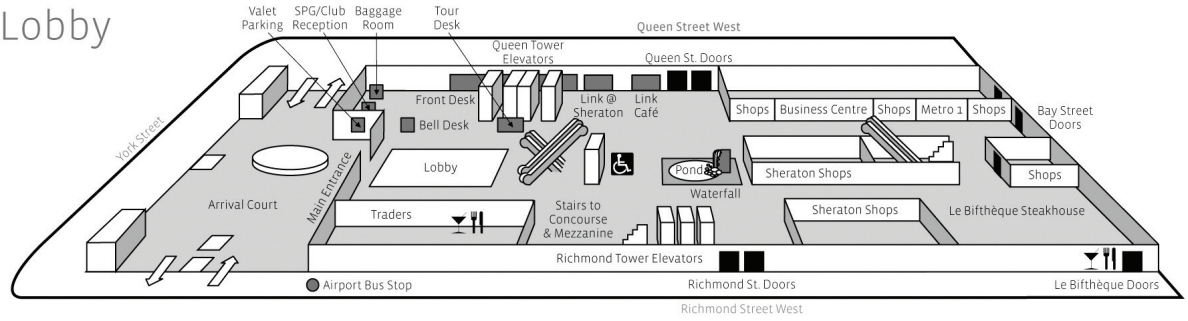
2nd Floor



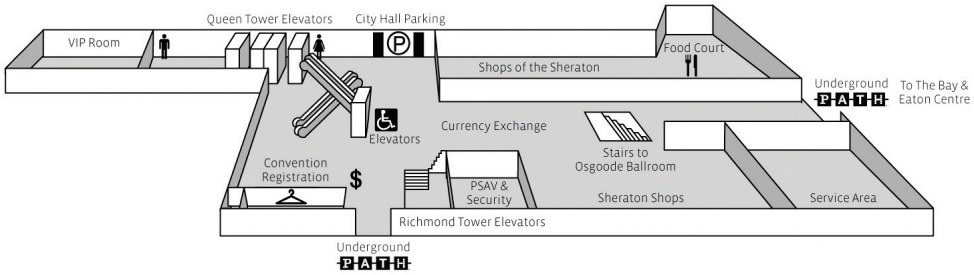
Mezzanine



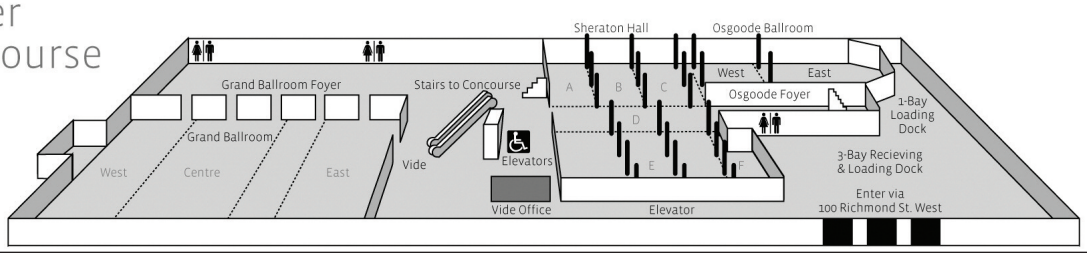
Lobby



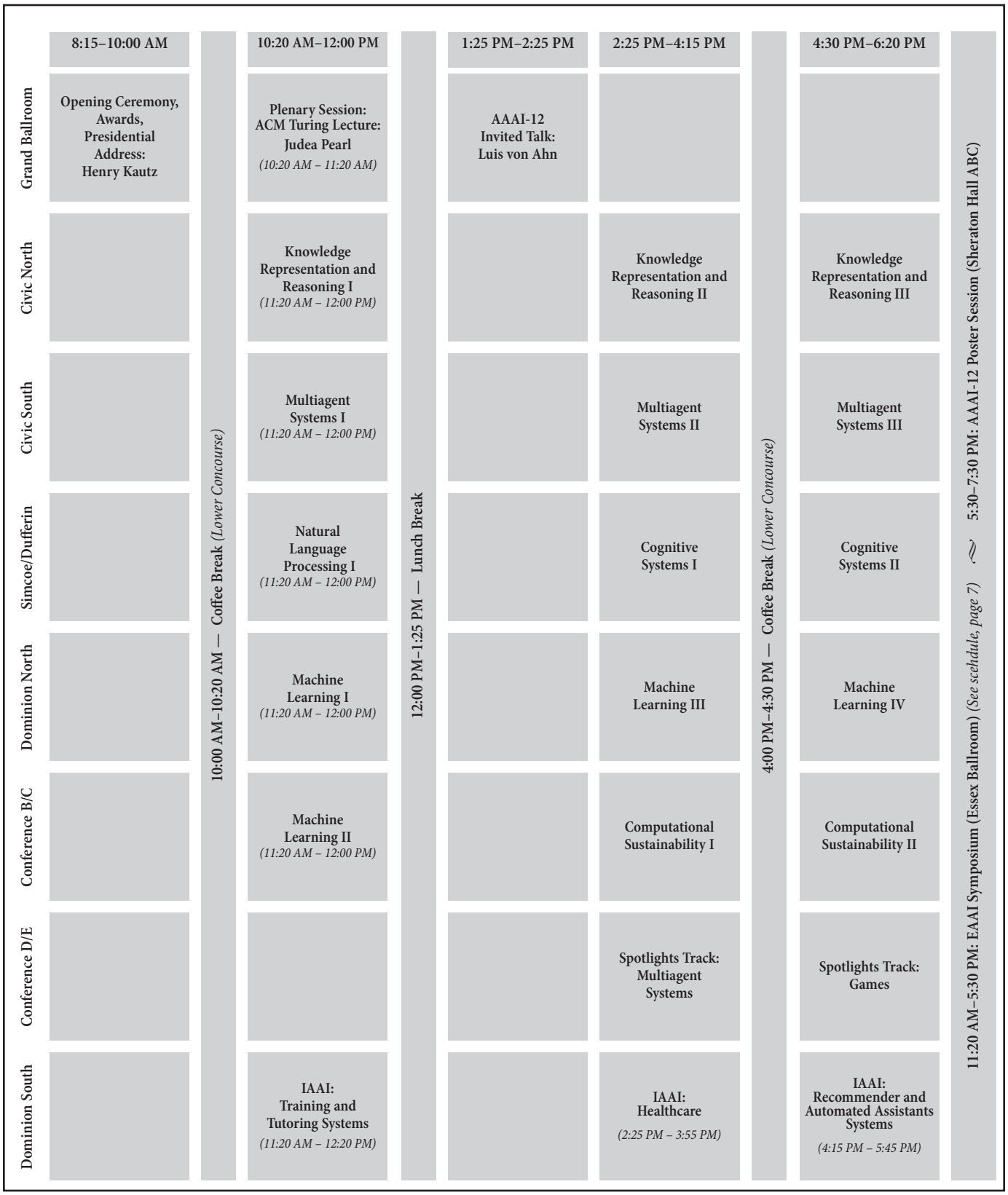
Concourse



Lower Concourse



Technical Program Overview, Tuesday, July 24



For Tuesday Technical Program session detail (paper titles and authors), please see pages 18–19. (EAAI page 7)

AAAI oral presentations are 20 minutes each, followed by a 10 minute lightning session and a 40 minute joint poster session in Sheraton Hall E, Lower Concourse.

Technical Program Overview, Wednesday, July 25

	9:00–10:00 AM	10:00 AM–10:20 AM — Coffee Break (*Lower Concourse*)	10:20 AM–12:10 PM	12:10 PM–1:25 PM — Lunch Break	1:25 PM–2:25 PM	2:25 PM–4:15 PM	4:00 PM–4:30 PM — Coffee Break (*Lower Concourse*)	4:30 PM–6:20 PM	6:30–7:30 PM: AAAI Turing Event: Hello Hi There (Grand Ballroom East) ≈ 8:00–11:00 PM: AAAI-12 Banquet, CN Tower (Reservation Required)
Grand Ballroom	AAAI Turing Lecture: Christos H. Papadimitriou		IAAI Invited Talk Robert S. Engelmore Lecture: Steven Minton *(10:20 AM – 11:20 AM)*		AAAI-12 Invited Talk: Ross D. King	Foucault/Chomsky Television Debate *(Located in Conference D/E)*			
Civic North			MDPs, Planning, and Sequential Decision Making I			MDPs, Planning, and Sequential Decision Making II		MDPs, Planning, and Sequential Decision Making III	
Civic South			Multiagent Systems IV			Multiagent Systems V		Multiagent Systems VI	
Simcoe/Dufferin			Natural Language Processing II			Natural Language Processing III		Constraints, SAT, and Search I	
Dominion North			Machine Learning V			Machine Learning VI		Machine Learning VII	
Conference B/C			AI and the Web I			AI and the Web II		AI and the Web III	
Essex Ballroom			Spotlights Track: SAT and Constraint Programming			Spotlights Track: Search and Planning		Spotlights Track: Machine Learning	
Dominion South			IAAI: Machine Learning *(11:20 AM – 12:20 PM)*			IAAI: Trajectory and Air Traffic Control *(2:25 PM – 3:55 PM)*		IAAI: Constraint Management and Configuration Systems *(4:15 PM – 5:45 PM)*	

For Wednesday Technical Program session detail (paper titles and authors), please see pages 20–22.

AAAI oral presentations are 20 minutes each, followed by a 10 minute lightning session and a 40 minute joint poster session in Sheraton Hall E, Lower Concourse.

Technical Program Overview, Thursday, July 26

	9:00–10:00 AM	10:00 AM–10:20 AM — Coffee Break (*Lower Concourse*)	10:20 AM–12:10 PM	11:20 AM–12:10 PM: Turing Event: Hello Hi There Question and Answer Session (Huron)	12:10 PM–1:25 PM — Lunch Break	1:25 PM–2:25 PM	2:25 PM–4:15 PM	4:00 PM–4:30 PM — Coffee Break (*Lower Concourse*)	4:30 PM–6:20 PM
Grand Ballroom	AAAI-12 Invited Talk: Regina Barzilay		IAAI Invited Talk Sebastian Thrun *(10:20 AM – 11:20 AM)*			AAAI-12 Invited Talk: Joshua B. Tenenbaum			
Civic North			MDPs, Planning, and Sequential Decision Making IV				Knowledge Representation and Reasoning IV		Knowledge Representation and Reasoning V
Civic South			Multiagent Systems VII				Multiagent Systems VIII		Multiagent Systems IX
Simcoe/Dufferin			Robotics I				Constraints, SAT, and Search II		Constraints, SAT, and Search III
Dominion North			Machine Learning VIII				Machine Learning IX		Machine Learning X
Conference B/C			Computational Sustainability III				AI and the Web IV		Robotics II
Essex Ballroom			Spotlights Track: Knowledge Representation and Reasoning, and Semantic Web				Spotlights Track: Robotics and Vision		Spotlights Track: Human-Computer Interaction
Dominion South			IAAI: Machine Translation *(11:20 AM – 12:20 PM)*				IAAI: Surveillance and Monitoring *(2:25 PM – 3:55 PM)*		IAAI: Sketching and Learning *(4:15 PM – 5:15 PM)*

For Thursday Technical Program session detail (paper titles and authors), please see pages 22–24.

AAAI oral presentations are 20 minutes each, followed by a 10 minute lightning session and a 40 minute joint poster session in Sheraton Hall E, Lower Concourse.

Technical Sessions
Tuesday, July 24

❦ *Denotes full paper poster presentation.*

8:15 AM – 9:00 AM

Welcome and Opening Remarks
Grand Ballroom, Lower Concourse

AAAI-12 Outstanding Award Presentations
Jörg Hoffmann and Bart Selman, AAAI-12 Program Cochairs

IAAI Welcome and Awards
Markus Fromherz, IAAI-12 Conference Chair, Hector Munoz-Avila, IAAI-12 Program Cochair, and David Leake, AI Magazine *Editor-in-Chief*

IJCAI-*JAIR* Best Paper Prize
Shlomo Zilberstein, Editor-in-Chief, Journal of Artificial Intelligence Research (JAIR)

Fellows Announcement, Senior Member Recognition, AAAI Classic Paper Awards, Distinguished Service Award
Eric Horvitz, Henry Kautz, and Manuela Veloso

9:00 AM – 10:00 AM

AAAI Presidential Address
Grand Ballroom, Lower Concourse

Revisiting the Dream
Henry Kautz, University of Rochester

10:20 AM – 11:20 AM

ACM A. M. Turing Award Lecture
Grand Ballroom, Lower Concourse

The Mechanization of Causal Inference: A "Mini Turing Test" and Beyond
Judea Pearl (University of California, Los Angeles)

This lecture is open to all conference participants and ACM members.

11:20 AM – 12:00 PM

Knowledge Representation and Reasoning I
Civic North, Second Floor

Basing Decisions on Sentences in Decision Diagrams
Yexiang Xue, Arthur Choi, Adnan Darwiche

I'm Doing as Well as I Can: Modeling People as Rational Finite Automata
Joseph Y. Halpern, Rafael Pass, Lior Seeman

Multiagent Systems I
Civic South, Second Floor

Modeling Context Aware Dynamic Trust Using Hidden Markov Model
Xin Liu, Anwitaman Datta

Probabilistic Alternating-Time Temporal Logic of Incomplete Information and Synchronous Perfect Recall
Xiaowei Huang, Kaile Su, Chenyi Zhang

Natural Language Processing I
Simcoe/Dufferin, Second Floor

Collective Nominal Semantic Role Labeling for Tweets
Xiaohua Liu, Zhongyang Fu, Xiangyang Zhou, Furu Wei, Ming Zhou

Sembler: Ensembling Crowd Sequential Labeling for Improved Quality
Xian Wu, Wei Fan, Yong Yu

Machine Learning I
Dominion North, Second Floor

Learning the Kernel Matrix with Low-Rank Multiplicative Shaping
Tomer Levinboim, Fei Sha

Efficient Online Learning for Large-Scale Sparse Kernel Logistic Regression
Lijun Zhang, Rong Jin, Chun Chen, Jiajun Bu, Xiaofei He

Machine Learning II
Conference B/C, Mezzanine

Identifying Adverse Drug Events by Relational Learning
David Page, Vítor Santos Costa, Sriraam Natarajan, Aubrey Barnard, Peggy Peissig, Michael Caldwell

Heart Rate Topic Models
Alexander Van Esbroeck, Chih-Chun Chia, Zeeshan Syed

11:20 AM – 12:20 PM

IAAI Session: Training and Tutoring Systems
Dominion South, Second Floor

Deployed: Mechanix: A Sketch-Based Tutoring System for Statics Courses
Stephanie Valentine, Francisco Vides, George Lucchese, David Turner, Hong-hoe Kim, Wenzhe Li, Julie Linse, Tracy Hammond

Integrating Learner Help Requests Using a POMDP in an Adaptive Training System
Jeremiah T. Folsom-Kovarik, Gita Sukthankar, Sae Schatz

1:25 PM – 2:25 PM

AAAI-12 Invited Talk
Grand Ballroom, Lower Concourse

Duolingo: Translating the Web with Millions of People
Luis von Ahn (Carnegie Mellon University)

2:25 PM – 4:15 PM

Knowledge Representation and Reasoning II
Civic North, Second Floor

On the Relation of Constraint Answer Set Programming Languages and Algorithms
Yuliya Lierler

Reformulating Temporal Action Logics in Answer Set Programming
Joohyung Lee, Ravi Palla

Ordered Completion for Logic Programs with Aggregates
Vernon Asuncion, Yan Zhang, Yi Zhou

❦ A Well-Founded Semantics for Basic Logic Programs with Arbitrary Abstract Constraint Atoms
Yisong Wang, Fangzhen Lin, Mingyi Zhang, Jia-Huai You

❦ FLP Semantics without Circular Justifications for General Logic Programs
Yi-Dong Shen, Kewen Wang

❦ Equality-Friendly Well-Founded Semantics and Applications to Description Logics
Georg Gottlob, André Hernich, Clemens Kupke, Thomas Lukasiewicz

❦ A Tractable First-Order Probabilistic Logic
Pedro Domingos, W. Austin Webb

❦ Using First-Order Logic to Compress Sentences
Minlie Huang, Xing Shi, Feng Jin, Xiaoyan Zhu

Multiagent Systems II
Civic South, Second Floor

Alpha-Beta Pruning for Games with Simultaneous Moves
Abdallah Saffidine, Hilmar Finnsson, Michael Buro

HyperPlay: A Solution to General Game Playing with Imperfect Information
Michael Schofield, Timothy Cerexhe, Michael Thielscher

Solving Dots-And-Boxes
Joseph K. Barker, Richard E. Korf

❦ Generalized Monte-Carlo Tree Search Extensions for General Game Playing
Hilmar Finnsson

❦ Information Set Generation in Partially Observable Games
Mark Richards, Eyal Amir

❦ Construction of New Medicines via Game Proof Search
Abraham Heifets, Igor Jurisica

Cognitive Systems I
Simcoe/Dufferin, Second Floor

Learning Qualitative Models by Demonstration
Thomas R. Hinrichs, Kenneth D. Forbus

A Grounded Cognitive Model for Metaphor Acquisition
Sushobhan Nayak, Amitabha Mukerjee

Three Controversial Hypotheses Concerning Computation in the Primate Cortex
Thomas Dean, Greg S. Corrado, Jonathon Shlens

❦ Sentic Activation: A Two-Level Affective Common Sense Reasoning Framework
Erik Cambria, Daniel Olsher, Kenneth Kwok

❦ Using Expectations to Drive Cognitive Behavior
Unmesh Kurup, Christian Lebiere, Anthony Stentz, Martial Hebert

❦ Social Cognition: Memory Decay and Adaptive Information Filtering for Robust Information Maintenance
David Reitter, Christian Lebiere

Machine Learning III
Dominion North, Second Floor

Outstanding Paper Award
Learning SVM Classifiers with Indefinite Kernels
Suicheng Gu, Yuhong Guo

Convex Kernelized Sorting
Nemanja Djuric, Mihajlo Grbovic, Slobodan Vucetic

Semi-Supervised Kernel Matching for Domain Adaptation
Min Xiao, Yuhong Guo

❦ Rule Ensemble Learning Using Hierarchical Kernels in Structured Output Spaces
Naveen Nair, Amrita Saha, Ganesh Ramakrishnan, Shonali Krishnaswamy

❦ Investigating the Effectiveness of Laplacian-Based Kernels in Hub Reduction
Ikumi Suzuki, Kazuo Hara, Masashi Shimbo, Yuji Matsumoto, Marco Saerens

❦ Hierarchical Double Dirichlet Process Mixture of Gaussian Processes
Aditya Tayal, Pascal Poupart, Yuying Li

Computational Sustainability I
Conference B/C, Mezzanine

Patrol Strategies to Maximize Pristine Forest Area
Matthew P. Johnson, Fei Fang, Milind Tambe

Lagrangian Relaxation Techniques for Scalable Spatial Conservation Planning
Akshat Kumar, Xiaojian Wu, Shlomo Zilberstein

MOMDPs: A Solution for Modelling Adaptive Management Problems
Iadine Chadès, Josie Carwardine, Tara G. Martin, Samuel Nicol, Régis Sabbadin, Olivier Buffet

❦ The Automated Vacuum Waste Collection Optimization Problem
Ramón Béjar, Cèsar Fernández, Carles Mateu, Felip Manyà, Francina Sole-Mauri, David Vidal

❦ Last-Mile Restoration for Multiple Interdependent Infrastructures
Carleton Coffrin, Pascal Van Hentenryck, Russell Bent

❦ Sustaining Economic Exploitation of Complex Ecosystems in Computational Models of Coupled Human-Natural Networks
Neo D. Martinez, Perrine Tonin, Barbara Bauer, Rosalyn C. Rael, Rahul Singh, Sangyuk Yoon, Ilmi Yoon, Jennifer A. Dunne

❦ An Efficient Simulation-Based Approach to Ambulance Fleet Allocation and Dynamic Redeployment
Yisong Yue, Lavanya Marla, Ramayya Krishnan

❦ Scheduling Conservation Designs via Network Cascade Optimization
Shan Xue, Alan Fern, Daniel Sheldon

Spotlights Track: Multiagent Systems
Conference D/E, Mezzanine

What's Hot: Computing Game-Theoretic Solutions and Applications to Security
Vincent Conitzer

Best Paper: PROTECT: An Application of Computational Game Theory for the Security of the Ports of the United States (Best Paper Shortlist AAMAS'12)
Eric Shieh, Bo An, Rong Yang, Milind Tambe, Craig Baldwin, Joseph DiRenzo, Ben Maule, Garrett Meyer

Best Paper: Optimal Manipulation of Voting Rules (Best Paper Shortlist AAMAS'12)
Svetlana Obraztsova, Edith Elkind

Best Paper: Predicting Your Own Effort (Best Paper Shortlist AAMAS'12)
David F. Bacon, Yiling Chen, Ian Kash, David C. Parkes, Malvika Rao, Manu Sridharan

Challenges: Delivering the Smart Grid: Challenges for Autonomous Agents and Multi-Agent Systems Research
Alex Rogers, S. D. Ramchurn, N. R. Jennings

2:25 PM – 3:55 PM

IAAI Session: Health Care
Dominion South, Second Floor

Deployed: Advisor Agent Support for Issue Tracking in Medical Device Development
Touby Drew, Maria Gini

Cost-Sensitive Risk Stratification in the Diagnosis of Heart Disease
Selen Uguroglu, Jaime Carbonell, Mark Doyle, Robert Biederman

Statistical Relational Learning to Predict Primary Myocardial Infarction from Electronic Health Records
Jeremy C. Weiss, David Page, Sriraam Natarajan, Peggy L. Peissig, Catherine McCarty

4:30 PM – 6:20 PM

Knowledge Representation and Reasoning III
Civic North, Second Floor

The Parameterized Complexity of Abduction
Michael R. Fellows, Andreas Pfandler, Frances A. Rosamond, Stefan Rümmele

A First-Order Interpreter for Knowledge-Based Golog with Sensing Based on Exact Progression and Limited Reasoning
Yi Fan, Minghui Cai, Naiqi Li, Yongmei Liu

On the Complexity of Consistent Query Answering in the Presence of Simple Ontologies
Meghyn Bienvenu

- Query Rewriting for Horn-*SHIQ* plus Rules
Thomas Eiter, Magdalena Ortiz, Mantas Simkus, Trung-Kien Tran, Guohui Xiao

- Benchmarking Ontology-Based Query Rewriting Systems
Martha Imprialou, Giorgos Stoilos, Bernardo Cuenca Grau

- Ontology-Based Data Access with Dynamic TBoxes in DL-Lite
Floriana Di Pinto, Giuseppe De Giacomo, Maurizio Lenzerini, Riccardo Rosati

- On Completeness Classes for Query Evaluation on Linked Data
Andreas Harth, Sebastian Speiser

- Exploring the Duality in Conflict-Directed Model-Based Diagnosis
Roni Stern, Meir Kalech, Alexander Feldman, Gregory Provan

Multiagent Systems III
Civic South, Second Floor

Influence-Based Abstraction for Multiagent Systems
Frans A. Oliehoek, Stefan J. Witwicki, Leslie P. Kaelbling

Catch Me If You Can: Pursuit and Capture in Polygonal Environments with Obstacles
Kyle Klein, Subhash Suri

Decision Support for Agent Populations in Uncertain and Congested Environments
Pradeep Varakantham, Shih-Fen Cheng, Geoff Gordon, Asrar Ahmed

- Tree-Based Solution Methods for Multiagent POMDPs with Delayed Communication
Frans A. Oliehoek, Matthijs T.J. Spaan

- Bayes-Adaptive Interactive POMDPs
Brenda Ng, Kofi Boakye, Carol Meyers, Andrew Wang

- A Hybrid Algorithm for Coalition Structure Generation
Talal Rahwan, Tomasz Michalak, Nicholas R. Jennings

- A Distributed Approach to Summarizing Spaces of Multiagent Schedules
James C. Boerkoel Jr., Edmund H. Durfee

Cognitive Systems II
Simcoe/Dufferin, Second Floor

A Multi-Domain Evaluation of Scaling in a General Episodic Memory
Nate Derbinsky, Justin Li, John E. Laird

Towards a Cognitive System that Can Recognize Spatial Regions Based on Context
Nick Hawes, Matthew Klenk, Kate Lockwood, Graham S. Horn, John D. Kelleher

Crossing Boundaries: Multi-Level Introspection in a Complex Robotic Architecture for Automatic Performance Improvements
Evan Krause, Paul Schermerhorn, Matthias Scheutz

- Lessons Learned from a Rational Reconstruction of Minstrel
Brandon Tearse, Peter Mawhorter, Michael Mateas, Noah Wardrip-Fruin

- Functional Interactions between Memory and Recognition Judgments
Justin Li, Nate Derbinsky, John Laird

- Discovering Constraints for Inductive Process Modeling
Ljupco Todorovski, Will Bridewell, Pat Langley

Machine Learning IV
Dominion North, Second Floor

Discriminative Clustering via Generative Feature Mapping
Liwei Wang, Xiong Li, Zhuowen Tu, Jiaya Jia

Convex Matching Pursuit for Large-Scale Sparse Coding and Subset Selection
Mingkui Tan, Ivor W. Tsang, Li Wang, Xinming Zhang

Sparse Probabilistic Relational Projection
Wu-Jun Li, Dit-Yan Yeung

- Weighted Clustering
Margareta Ackerman, Shai Ben-David, Simina Brânzei, David Loker

- Pairwise Exemplar Clustering
Yingzhen Yang, Xinqi Chu, Feng Liang, Thomas S. Huang

- Sparse Principal Component Analysis with Constraints
Mihajlo Grbovic, Christopher R. Dance, Slobodan Vucetic

- Low-Rank Matrix Recovery via Efficient Schatten p-Norm Minimization
Feiping Nie, Heng Huang, Chris Ding

- Transportability of Causal Effects: Completeness Results
Elias Bareinboim, Judea Pearl

Computational Sustainability II
Conference B/C, Mezzanine

Non-Intrusive Load Monitoring Using Prior Models of General Appliance Types
Oliver Parson, Siddhartha Ghosh, Mark Weal, Alex Rogers

Fine-Grained Photovoltaic Output Prediction Using a Bayesian Ensemble
Prithwish Chakraborty, Manish Marwah, Martin Arlitt, Naren Ramakrishnan

Far Out: Predicting Long-Term Human Mobility
Adam Sadilek, John Krumm

- An Intelligent Battery Controller Using Bias-Corrected Q-learning
Donghun Lee, Warren B. Powell

- Improving Hybrid Vehicle Fuel Efficiency Using Inverse Reinforcement Learning
Adam Vogel, Deepak Ramachandran, Rakesh Gupta, Antoine Raux

- Cooperative Virtual Power Plant Formation Using Scoring Rules
Valentin Robu, Ramachandra Kota, Georgios Chalkiadakis, Alex Rogers, Nicholas R. Jennings

- Factored Models for Multiscale Decision-Making in Smart Grid Customers
Prashant P. Reddy, Manuela M. Veloso

- Cruising with a Battery-Powered Vehicle and Not Getting Stranded
Sabine Storandt, Stefan Funke

Spotlights Track: Games
Conference D/E, Mezzanine

What's Hot: What's Hot in Games from the AIIDE Perspective
Mark Riedl, Vadim Bulitko

Best Paper: Goal Recognition with Markov Logic Networks for Player-Adaptive Games (Best Paper AIIDE-11)
Eun Y. Ha, Jonathan P. Rowe, Bradford W. Mott, James C. Lester

4:15 – 5:45 PM

IAAI Session: Recommender and Automated Assistants Systems
Dominion South, Second Floor

Deployed: A Real-Time Decision Support System for High Cost Oil-Well Drilling Operations
Odd Erik Gundersen, Frode Sørmo, Agnar Aamodt, Pål Skalle

Toward Habitable Assistance from Spoken Dialogue Systems
Susan L. Epstein, Rebecca J. Passonneau, Tiziana Ligorio, Joshua Gordon

Using a Critic to Promote Less Popular Candidates in a People-to-People Recommender System
A. Krzywicki, W. Wobcke, X. Cai, M. Bain, A. Mahidadia, P. Compton, Y. S. Kim

5:30 PM – 7:30 PM

AAAI-12 Poster Reception
Sheraton Hall A/B/C

Student Abstracts, Doctoral Consortium, EAAI, and Poker Competition

Technical Sessions
Wednesday, July 25

❦ *Denotes full paper poster presentation.*

9:00 AM – 10:00 AM

AAAI Turing Lecture
Grand Ballroom, Lower Concourse

The Origin of Computable Numbers: A Tale of Two Classics
Christos H. Papadimitriou (University of California, Berkeley)

10:20 AM – 12:10 PM

MDPs, Planning, & Sequential Decision Making I
Civic North, Second Floor

LRTDP Versus UCT for Online Probabilistic Planning
Andrey Kolobov, Mausam, Daniel S. Weld

Action Selection for MDPs: Anytime AO* Versus UCT
Blai Bonet, Hector Geffner

Stochastic Safest and Shortest Path Problems
Florent Teichteil-Königsbuch

❦ Approximate Policy Iteration with Linear Action Models
Hengshuai Yao, Csaba Szepesvári

❦ Covering Number as a Complexity Measure for POMDP Planning and Learning
Zongzhang Zhang, Michael Littman, Xiaoping Chen

❦ Efficient Approximate Value Iteration for Continuous Gaussian POMDPs
Jur van den Berg, Sachin Patil, Ron Alterovitz

❦ POMDPs Make Better Hackers: Accounting for Uncertainty in Penetration Testing
Carlos Sarraute, Olivier Buffet, Jörg Hoffmann

Multiagent Systems IV
Civic South, Second Floor

Identifying Bullies with a Computer Game
Juan F. Mancilla-Caceres, Wen Pu, Eyal Amir, Dorothy Espelage

Strategic Advice Provision in Repeated Human-Agent Interactions
Amos Azaria, Zinovi Rabinovich, Sarit Kraus, Claudia V. Goldman, Ya'akov Gal

Negotiation in Exploration-Based Environment
Israel Sofer, David Sarne, Avinatan Hassidim

❦ Characterizing Multi-Agent Team Behavior from Partial Team Tracings: Evidence from the English Premier League
Patrick Lucey, Alina Bialkowski, Peter Carr, Eric Foote, Iain Matthews

❦ Agent-Human Coordination with Communication Costs under Uncertainty
Asaf Frieder, Raz Lin, Sarit Kraus

Natural Language Processing II
Simcoe/Dufferin, Second Floor

Outstanding Paper Award
Document Summarization Based on Data Reconstruction
Zhanying He, Chun Chen, Jiajun Bu, Can Wang, Lijun Zhang, Deng Cai, Xiaofei He

Generating Coherent Summaries with Textual Aspects
Renxian Zhang, Wenjie Li, Dehong Gao

Sense Sentiment Similarity: An Analysis
Mitra Mohtarami, Hadi Amiri, Man Lan, Thanh Phu Tran, Chew Lim Tan

❦ Opinion Target Extraction Using a Shallow Semantic Parsing Framework
Shoushan Li, Rongyang Wang, Guodong Zhou

❦ Modeling Textual Cohesion for Event Extraction
Ruihong Huang, Ellen Riloff

❦ Similarity Is *Not* Entailment-Jointly Learning Similarity Transformations for Textual Entailment
Ken-ichi Yokote, Danushka Bollegala, Mitsuru Ishizuka

Machine Learning V
Dominion North, Second Floor

Multi-Label Learning by Exploiting Label Correlations Locally
Sheng-Jun Huang, Zhi-Hua Zhou

Multi-Label Learning on Tensor Product Graph
Jonathan Q. Jiang

Compressed Least-Squares Regression on Sparse Spaces
Mahdi Milani Fard, Yuri Grinberg, Joelle Pineau, Doina Precup

❦ Towards Discovering What Patterns Trigger What Labels
Yu-Feng Li, Ju-Hua Hu, Yuan Jiang, Zhi-Hua Zhou

❦ Classification of Sparse Time Series via Supervised Matrix Factorization
Josif Grabocka, Alexandros Nanopoulos, Lars Schmidt-Thieme

❦ Table Header Detection and Classification
Jing Fang, Prasenjit Mitra, Zhi Tang, C. Lee Giles

❦ Sequence Labeling with Non-Negative Weighted Higher Order Features
Xian Qian, Yang Liu

❦ Hierarchical Modeling with Tensor Inputs
Yada Zhu, Jingrui He, Rick Lawrence

AI and the Web I
Conference B/C, Mezzanine

Fused Matrix Factorization with Geographical and Social Influence in Location-Based Social Networks
Chen Cheng, Haiqin Yang, Irwin King, Michael R. Lyu

Social Context-Aware Trust Network Discovery in Complex Contextual Social Networks
Guanfeng Liu, Yan Wang, Mehmet A. Orgun

Discovering Spammers in Social Networks
Yin Zhu, Xiao Wang, Erheng Zhong, Nanthan N. Liu, He Li, Qiang Yang

❦ Multinomial Relation Prediction in Social Data: A Dimension Reduction Approach
Nozomi Nori, Danushka Bollegala, Hisashi Kashima

❦ Combining Hashing and Abstraction in Sparse High Dimensional Feature Spaces
Cornelia Caragea, Adrian Silvescu, Prasenjit Mitra

❦ Towards Automated Choreographing of Web Services Using Planning
Guobing Zou, Yixin Chen, You Xu, Ruoyun Huang, Yang Xiang

Spotlights Track: SAT
Essex Ballroom, Mezzanine

What's Hot: SMT-Based Verification of Hybrid Systems
Alessandro Cimatti, Sergio Mover, Stefano Tonetta

Best Paper: On Freezing and Reactivating Learnt Clauses (SAT'11 Best Paper Award)
Gilles Audemard, Jean-Marie Lagniez, Bertrand Mazure, Lakhdar Sais

Challenges: Seven Challenges in Parallel SAT Solving
Youssef Hamadi, Christoph M. Wintersteiger

Spotlights Track: Constraint Programming
Essex Ballroom, Mezzanine

What's Hot: Symmetry Breaking Constraints: Recent Results
Toby Walsh

Best Paper: Systematically Identifying and Exploiting Dominance Relations (Best Paper CP-12)
Geoffrey Chu and Peter Stuckey

Challenges: Opportunities and Challenges for Constraint Programming
Barry O'Sullivan

10:20 – 11:20 AM

IAAI-12 Invited Talk
Grand Ballroom, Lower Concourse

Robert S. Engelmore Memorial Award Lecture
Building AI: Our Shared Enterprise
Steven Minton (President, InferLink Corporation)

11:20 AM – 12:20 PM

IAAI Session: Machine Learning
Dominion South, Second Floor

Deployed: Statistical Anomaly Detection for Train Fleets
Anders Holst, Markus Bohlin, Jan Ekman, Ola Sellin, Björn Lindström, Stefan Larsen

Learning Driver's Behavior to Improve the Acceptance of Adaptive Cruise Control
Avi Rosenfeld, Zevi Bareket, Claudia V. Goldman, Sarit Kraus, David J. LeBlanc, Omer Tsimoni

1:25 PM – 2:25 PM

AAAI-12 Invited Talk
Grand Ballroom, Lower Concourse

Automating Biology Using Robot Scientists
Ross D. King (University of Manchester, UK)

2:25 PM – 4:15 PM

MDPs, Planning, and Sequential Decision Making II
Civic North, Second Floor

Planning in Factored Action Spaces with Symbolic Dynamic Programming
Aswin Raghavan, Saket Joshi, Alan Fern, Prasad Tadepalli, Roni Khardon

Symbolic Dynamic Programming for Continuous State and Action MDPs
Zahra Zamani, Scott Sanner, Cheng Fang

Time-Consistency of Optimization Problems
Takayuki Osogami, Tetsuro Morimura

❦ Investigating Contingency Awareness Using Atari 2600 Games
Marc G. Bellemare, Joel Veness, Michael Bowling

❦ Sample Bounded Distributed Reinforcement Learning for Decentralized POMDPs
Bikramjit Banerjee, Jeremy Lyle, Landon Kraemer, Rajesh Yellamraju

❦ Adaptive Step-Size for Online Temporal Difference Learning
William Dabney, Andrew G. Barto

❦ Sequential Decision Making with Rank Dependent Utility: A Minimax Regret Approach
Gildas Jeantet, Patrice Perny, Olivier Spanjaard

Multiagent Systems V
Civic South, Second Floor

Symmetric Subgame Perfect Equilibria in Resource Allocation
Ludek Cigler, Boi Faltings

Computing Equilibria in Two-Player Zero-Sum Continuous Stochastic Games with Switching Controller
Guido Bonomi, Nicola Gatti, Fabio Panozzo, Marcello Restelli

Computing the Nucleolus of Matching, Cover and Clique Games
Ning Chen, Pinyan Lu, Hongyang Zhang

❦ Computing Optimal Strategies to Commit to in Stochastic Games
Joshua Letchford, Liam MacDermed, Vincent Conitzer, Ronald Parr, Charles L. Isbell

❦ Computing Stackelberg Equilibria in Discounted Stochastic Games
Yevgeniy Vorobeychik, Satinder Singh

❦ Stability via Convexity and LP Duality in OCF Games
Yair Zick, Evangelos Markakis, Edith Elkind

❦ Possible Winners in Noisy Elections
Krzysztof Wojtas, Piotr Faliszewski

❦ Eliminating the Weakest Link: Making Manipulation Intractable?
Jessica Davies, Nina Narodytska, Toby Walsh

❦ Symmetric Rendezvous in Planar Environments with and without Obstacles
Deniz Ozsoyeller, Volkan Isler, Andrew Beveridge

Natural Language Processing III
Simcoe/Dufferin, Second Floor

Generating Chinese Classical Poems with Statistical Machine Translation Models
Jing He, Ming Zhou, Long Jiang

Generating Pictorial Storylines via Minimum-Weight Connected Dominating Set Approximation in Multi-View Graphs
Dingding Wang, Tao Li, Mitsunori Ogihara

Choosing Linguistics over Vision to Describe Images
Ankush Gupta, Yashaswi Verma, C. V. Jawahar

• Concept-Based Approach to Word-Sense Disambiguation
Ariel Raviv, Shaul Markovitch

• Emoticon Smoothed Language Models for Twitter Sentiment Analysis
Kun-Lin Liu, Wu-Jun Li, Minyi Guo

• Exacting Social Events for Tweets Using a Factor Graph
Xiaohua Liu, Xiangyang Zhou, Zhongyang Fu, Furu Wei, Ming Zhou

Machine Learning VI
Dominion North, Second Floor

Efficient Multi-Stage Conjugate Gradient for Trust Region Step
Pinghua Gong, Changshui Zhang

Name-Ethnicity Classification and Ethnicity-Sensitive Name Matching
Pucktada Treeratpituk, C. Lee Giles

Dynamic Matching via Weighted Myopia with Application to Kidney Exchange
John P. Dickerson, Ariel D. Procaccia, Tuomas Sandholm

• Margin-Based Feature Selection in Incomplete Data
Qiang Lou, Zoran Obradovic

• Ensemble Feature Weighting Based on Local Learning and Diversity
Yun Li, Suyan Gao, Songcan Chen

• Unsupervised Feature Selection Using Nonnegative Spectral Analysis
Zechao Li, Yi Yang, Jing Liu, Xiaofang Zhou, Hanqing Lu

AI and the Web II
Conference B/C, Mezzanine

Online Task Assignment in Crowdsourcing Markets
Chien-Ju Ho, Jennifer Wortman Vaughan

Quality Expectation-Variance Tradeoffs in Crowdsourcing Contests
Xi Alice Gao, Yoram Bachrach, Peter Key, Thore Graepel

Dynamically Switching between Synergistic Workflows for Crowdsourcing
Christopher H. Lin, Mausam, Daniel S. Weld

• A Convex Formulation for Learning from Crowds
Hiroshi Kajino, Yuta Tsuboi, Hisashi Kashima

• REWOrD: Semantic Relatedness in the Web of Data
Giuseppe Pirró

• Improved Convergence of Iterative Ontology Alignment Using Block-Coordinate Descent
Uthayasanker Thayasivam, Prashant Doshi

• Towards Population Scale Activity Recognition: A Framework for Handling Data Diversity
Saeed Abdullah, Nicholas D. Lane, Tanzeem Choudhury

Spotlights Track: Search
Essex Ballroom, Mezzanine

What's Hot: Heuristic Search Comes of Age
Nathan Sturtevant, Ariel Felner, Maxim Likhachev, Wheeler Ruml

Best Paper: New Approaches for Optimally Solving the Multi-Agent Path Finding Problem (Best Paper SOCS'12)
Guni Sharon, Roni Stern, Ariel Felner, Nathan Sturtevant

Challenges: Research Challenges in Combinatorial Search
Rich Korf

Spotlights Track: Planning
Essex Ballroom, Mezzanine

Best Paper: Semi-Relaxed Plan Heuristics (Best Paper ICAPS'12)
Emil Keyder, Jörg Hoffmann, Patrik Haslum

What's Hot: Standing on the Shoulders of Classical Planners
Ronen Brafman

Best Paper: Compiling Uncertainty Away in Conformant Planning Problems with Bounded Width (JAIR Best Paper Prize 2012)
Hector Palacios, Hector Geffner

Challenges: Planning as an Iterative Process
David E. Smith

2:25 PM – 4:15 PM

AAAI Turing Event
Conference Room D/E, Second Floor

Screening of TV Debate between Foucault and Chomksy

2:25 -3:55 PM

IAAI Session: Trajectory and Air-Traffic Control
Dominion South, Second Floor

Intelligent Computation of Reachability Sets for Space Missions
Erik Komendera, Daniel Scheeres, Elizabeth Bradley

Local Search for Designing Noise-Minimal Rotorcraft Approach Trajectories
Robert A. Morris, K. Brent Venable, Marco Pegoraro, James Lindsey

Multi-Agent Simulation of En-Route Human Air-Traffic Controller
David Sislák, Premysl Volf, Michal Pechoucek, Christopher T. Cannon, Duc N. Nguyen, William C. Regli

4:30 PM – 6:20 PM

MDPs, Planning, and Sequential Decision Making III
Civic North, Second Floor

TD-Δπ: A Model-Free Algorithm for Efficient Exploration
Bruno Castro da Silva, Andrew G. Barto

Conservative and Greedy Approaches to Classification-Based Policy Iteration
Mohammad Ghavamzadeh, Alessandro Lazaric

Competing with Humans at Fantasy Football: Team Formation in Large Partially-Observable Domains
Tim Matthews, Sarvapali D. Ramchurn, Georgios Chalkiadakis

Outstanding Paper Honorable Mention
• Knapsack Based Optimal Policies for Budget-Limited Multi-Armed Bandits
Long Tran-Thanh, Archie Chapman, Alex Rogers, Nicholas R. Jennings

• Context Tree Maximizing Reinforcement Learning
Phuong Nguyen, Peter Sunehag, Marcus Hutter

• Kernel-Based Reinforcement Learning on Representative States
Branislav Kveton, Georgios Theocharous

• MCTS Based on Simple Regret
David Tolpin, Solomon Eyal Shimony

Multiagent Systems VI
Civic South, Second Floor

Congestion Games with Agent Failures
Reshef Meir, Moshe Tennenholtz, Yoram Bachrach, Peter Key

The Deployment-to-Saturation Ratio in Security Games
Manish Jain, Kevin Leyton-Brown, Milind Tambe

Finding Optimal Abstract Strategies in Extensive-Form Games
Michael Johanson, Nolan Bard, Neil Burch, Michael Bowling

• Generalized Sampling and Variance in Counterfactual Regret Minimization
Richard Gibson, Marc Lanctot, Neil Burch, Duane Szafron, Michael Bowling

• Security Games for Controlling Contagion
Jason Tsai, Thanh H. Nguyen, Milind Tambe

• Security Games with Limited Surveillance
Bo An, David Kempe, Christopher Kiekintveld, Eric Shieh, Satinder Singh, Milind Tambe, Yevgeniy Vorobeychik

• Using Sliding Windows to Generate Action Abstractions in Extensive-Form Games
John Hawkin, Robert C. Holte, Duane Szafron

Constraints, SAT, & Search I
Simcoe/Dufferin, Second Floor

A Dichotomy for 2-Constraint Forbidden CSP Patterns
Martin C. Cooper, Guillaume Escamocher

Solving Temporal Problems Using SMT: Weak Controllability
A. Cimatti, A. Micheli, M. Roveri

Optimization and Controlled Systems: A Case Study on Thermal Aware Workload Dispatching
Andrea Bartolini, Michele Lombardi, Michela Milano, Luca Benini

• An Efficient Higher-Order Consistency Algorithm for Table Constraints
Anastasia Paparrizou, Kostas Stergiou

• Polynomially Decomposable Global Cost Functions in Weighted Constraint Satisfaction
J. H. M. Lee, K. L. Leung, Y. Wu

• DUCT: An Upper Confidence Bound Approach to Distributed Constraint Optimization Problems
Brammert Ottens, Christos Dimitrakakis, Boi Faltings

• Incremental Management of Oversubscribed Vehicle Schedules in Dynamic Dial-A-Ride Problems
Zachary B. Rubinstein, Stephen F. Smith, Laura Barbulescu

• Filtering Decomposable Global Cost Functions
D. Allouche, C. Bessiere, P. Boizumault, S. de Givry, P. Gutierrez, S. Loudni, JP. Métivier, T. Schiex

• Filtering Algorithms Based on the Word-RAM Model
Philippe Van Kessel, Claude-Guy Quimper

Machine Learning VII
Dominion North, Second Floor

Clustering Documents along Multiple Dimensions
Sajib Dasgupta, Richard M. Golden, Vincent Ng

Topic Correlation Analysis for Cross-Domain Text Classification
Lianghao Li, Xiaoming Jin, Mingsheng Long

Query-Oriented Multi-Document Summarization via Unsupervised Deep Learning
Yan Liu, Sheng-hua Zhong, Wenjie Li

• A Spin-Glass Model for Semi-Supervised Community Detection
Eric Eaton, Rachael Mansbach

• Simple Robust Grammar Induction with Combinatory Categorial Grammars
Yonatan Bisk, Julia Hockenmaier

• Learning Games from Videos Guided by Descriptive Complexity
Lukasz Kaiser

• Colorization by Matrix Completion
Shusen Wang, Zhihua Zhang

• Unsupervised Detection of Music Boundaries by Time Series Structure Features
Joan Serrà, Meinard Müller, Peter Grosche, Josep Ll. Arcos

AI and the Web III
Conference B/C, Mezzanine

A Data-Driven Approach to Question Subjectivity Identification in Community Question Answering
Tom Chao Zhou, Xiance Si, Edward Y. Chang, Irwin King, Michael R. Lyu

ET-LDA: Joint Topic Modeling for Aligning Events and Their Twitter Feedback
Yuheng Hu, Ajita John, Fei Wang, Subbarao Kambhampati

Outstanding Paper Honorable Mention
Predicting Disease Transmission from Geo-Tagged Micro-Blog Data
Adam Sadilek, Henry Kautz, Vincent Silenzio

Querying Linked Ontological Data through Distributed Summarization
Achille Fokoue, Felipe Meneguzzi, Murat Sensoy, Jeff Z. Pan

Fine-Grained Entity Recognition
Xiao Ling, Daniel S. Weld

Building Contextual Anchor Text Representation Using Graph Regularization
Na Dai

Adaptive Polling for Information Aggregation
Thomas Pfeiffer, Xi Alice Gao, Andrew Mao, Yiling Chen, David G. Rand

Spotlights Track: Machine Learning
Essex Ballroom, Mezzanine

What's Hot: Recent Advances in Polyphonic Music Generation and Transcription
Nicolas Boulanger-Lewandowski

Best Paper: On the Partition Function and Random Maximum A-Posteriori Perturbations (Best Paper Shortlist ICML'12)
Tamir Hazan, Tommi Jaakkola

Best Paper: Bayesian Posterior Sampling via Stochastic Gradient Fisher Scoring (Best Paper Shortlist ICML'12)
Sungjin Ahn, Anoop Korattikara, Max Welling

Best Paper: A Production Rule-based Framework for Causal and Epistemic Reasoning (Best Paper RuleML'12)
Theodore Patkos, Abdelghani Chibani, Dimitris Plexousakis, Yacine Amirat

Challenges: Challenges for Machine Learning Impact on the Real World
Kiri Wagstaff

4:15 – 5:45 PM

IAAI Session: Constraint Management and Configuration Systems
Dominion South, Second Floor

Applying Constraint Programming to Incorporate Engineering Methodologies into the Design Process of Complex Systems
Odellia Boni, Fabiana Fournier, Nir Mashkif, Yehuda Naveh, Aviad Sela, Uri Shani, Zvi Lando, Alon Modai

Deployed: Using AI Local Search to Improve an OR Optimizer
F. Morgado, R. L. Saldanha, J. Roussado, L. Albino, E. Morgado, J. P. Martins

QuickPup: A Heuristic Backtracking Algorithm for the Partner Units Configuration Problem
Erich C. Teppan, Gerhard Friedrich, Andreas A. Falkner

6:30 PM – 7:30 PM

AAAI Turing Event
Grand Ballroom East, Lower Concourse

Performance of Hello Hi There
Concept and Direction by Annie Dorsen
(see also TV debate Wednesday, 2:25 – 4:15 and Q&A Thursday, 11:20 AM – 12:10 PM)

8:00 PM – 11:00 PM

AAAI-12 Banquet
CN Tower

(Reservation required)

Technical Sessions Thursday, July 26

Denotes full paper poster presentation.

9:00 AM – 10:00 AM

AAAI-12 Invited Talk
Grand Ballroom, Lower Concourse

Learning to Behave by Reading
Regina Barzilay (Massachusetts Institute of Technology)

10:20 AM – 12:10 PM

MDPs, Planning, and Sequential Decision Making IV
Civic North, Second Floor

Improving Hierarchical Planning Performance by the Use of Landmarks
Mohamed Elkawkagy, Pascal Bercher, Bernd Schattenberg, Susanne Biundo

Width and Complexity of Belief Tracking in Non-Deterministic Conformant and Contingent Planning
Blai Bonet, Hector Geffner

A Multi-Path Compilation Approach to Contingent Planning
Ronen I. Brafman, Guy Shani

The Complexity of Planning Revisited-A Parameterized Analysis
Christer Bäckström, Yue Chen, Peter Jonsson, Sebastian Ordyniak, Stefan Szeider

Structural Patterns beyond Forks: Extending the Complexity Boundaries of Classical Planning
Michael Katz, Emil Keyder

MAXSAT Heuristics for Cost Optimal Planning
Lei Zhang, Fahiem Bacchus

Evaluating Temporal Plans in Incomplete Domains
Daniel Morwood, Daniel Bryce

Multiagent Systems VII
Civic South, Second Floor

Automated Strategies for Determining Rewards for Human Work
Amos Azaria, Yonatan Aumann, Sarit Kraus

A Robust Bayesian Truth Serum for Small Populations
Jens Witkowski, David C. Parkes

A Scalable Message-Passing Algorithm for Supply Chain Formation
Toni Penya-Alba, Jesus Cerquides, Juan A. Rodriguez-Aguilar, Meritxell Vinyals

Fairness and Welfare through Redistribution When Utility Is Transferable
Ruggiero Cavallo

Optimizing Payments in Dominant-Strategy Mechanisms for Multi-Parameter Domains
Lachlan Dufton, Victor Naroditskiy, Maria Polukarov, Nicholas R. Jennings

Optimal Auctions for Spiteful Bidders
Pingzhong Tang, Tuomas Sandholm

Approximately Revenue-Maximizing Auctions for Deliberative Agents
L. Elisa Celis, Anna R. Karlin, Kevin Leyton-Brown, C. Thach Nguyen, David R. M. Thompson

Housing Markets with Indifferences: A Tale of Two Mechanisms
Haris Aziz, Bart de Keijzer

Robotics I
Simcoe/Dufferin, Second Floor

Using the Web to Interactively Learn to Find Objects
Mehdi Samadi, Thomas Kollar, Manuela Veloso

Improving Request Compliance through Robot Affect
Lilia Moshkina

Model Learning and Real-Time Tracking Using Multi-Resolution Surfel Maps
Jörg Stückler, Sven Behnke

Parsing Outdoor Scenes from Streamed 3D Laser Data Using Online Clustering and Incremental Belief Updates
Rudolph Triebel, Rohan Paul, Daniela Rus, Paul Newman

Visibility Induction for Discretized Pursuit-Evasion Games
Ahmed Abdelkader, Hazem El-Alfy

Visual Saliency Estimation through Manifold Learning
Richard M. Jiang, Danny Crookes

Mirror Perspective-Taking with a Humanoid Robot
Justin W. Hart, Brian Scassellati

Repeated Sequential Auctions with Dynamic Task Clusters
Bradford Heap, Maurice Pagnucco

Visual Saliency Map from Tensor Analysis
Bing Li, Weihua Xiong, Weiming Hu

Machine Learning VIII
Dominion North, Second Floor

Online Kernel Selection: Algorithms and Evaluations
Tianbao Yang, Mehrdad Mahdvi, Rong Jin, Jinfeng Yi, Steven C. H. Hoi

Improving Twitter Retrieval by Exploiting Structural Information
Zhunchen Luo, Miles Osborne, Sasa Petrovic, Ting Wang

Learning to Learn: Algorithmic Inspirations from Human Problem Solving
Ashish Kapoor, Bongshin Lee, Desney Tan, Eric Horvitz

Transfer Learning with Graph Co-Regularization
Mingsheng Long, Jianmin Wang, Guiguang Ding, Dou Shen, Qiang Yang

Transfer Learning in Collaborative Filtering with Uncertain Ratings
Weike Pan, Evan W. Xiang, Qiang Yang

Modeling the Evolution of Knowledge in Learning Systems
Abhishek Sharma, Kenneth D. Forbus

Manifold Warping: Manifold Alignment over Time
Hoa T. Vu, CJ Carey, Sridhar Mahadevan

A Bregman Divergence Optimization Framework for Ranking on Data Manifold and Its New Extensions
Bin Xu, Jiajun Bu, Chun Chen, Deng Cai

Computational Sustainability III
Conference B/C, Mezzanine

Global Climate Model Tracking Using Geospatial Neighborhoods
Scott McQuade, Claire Monteleoni

Coupling Spatiotemporal Disease Modeling with Diagnosis
Martin Mubangizi, Catherine Ikae, Athina Spiliopoulou, John A. Quinn

A Novel and Scalable Spatio-Temporal Technique for Ocean Eddy Monitoring
James H. Faghmous, Yashu Chamber, Shyam Boriah, Stefan Liess, Vipin Kumar, Frode Vikebø, Michel dos Sontos Mesquita

Prediction and Fault Detection of Environmental Signals with Uncharacterised Faults
Michael A. Osborne, Roman Garnett, Kevin Swersky, Nando de Freitas

Sensing the Air We Breathe - The OpenSense Zurich Dataset
Jason Jingshi Li, Boi Faltings, Olga Saukh, David Hasenfratz, Jan Beutel

Learning Non-Stationary Space-Time Models for Environmental Monitoring
Sahil Garg, Amarjeet Singh, Fabio Ramos

Pre-Symptomatic Prediction of Plant Drought Stress Using Dirichlet-Aggregation Regression on Hyperspectral Images
Kristian Kersting, Zhao Xu, Mirwaes Wahabzada, Christian Bauckhage, Christian Thurau, Christoph Roemer, Agim Ballvora, Uwe Rascher, Jens Leon, Lutz Pluemer

Robust Cuts Over Time: Combatting the Spread of Invasive Species with Unreliable Biological Control
Gwen Spencer

Spotlights Track: Knowledge Representation and Reasoning
Essex Ballroom, Mezzanine

What's Hot: What's Hot in Knowledge Representation and Reasoning
Sheila McIlraith

Best Paper: Optimal Value of Information in Graphical Models (JAIR Best Paper Prize runner-up 2012)
Carlos Guestrin, Andreas Krause

Best Paper: Ambiguous Language and Differences in Beliefs (KR'12 Ray Reiter Best Paper Prize)
Joseph Halpern, Willemien Kets

Spotlights Track: Semantic Web
Essex Ballroom, Mezzanine

What's Hot: What's Hot and What's Not in the Semantic Web
Chris Welty

Best Paper: Usage-Centric Benchmarking of RDF Triple Stores (Best Research Paper ISWC'11)
Mohamed Morsey, Jens Lehmann, Sören Auer, Axel-Cyrille Ngonga Ngomo

11:20 AM – 12:10 PM

AAAI Turing Event
Huron, Second Floor

Hello Hi There Question and Answer Session
Annie Dorsen

10:20 – 11:20 AM

IAAI-12 Invited Talk
Grand Ballroom, Lower Concourse

Recent Progress on Self-Driving Cars
Sebastian Thrun (Stanford University/Google)

11:20 AM – 12:20 PM

IAAI Session: Machine Translation
Dominion South, Second Floor

Deployed: Transcription System Using Automatic Speech Recognition for the Japanese Parliament (Diet)
Tatsuya Kawahara

Deployed: Applying Automated Language Translation at a Global Enterprise Level
Nestor Rychtyckyj, Craig Plesco

1:25 PM – 2:25 PM

AAAI-12 Invited Talk
Grand Ballroom, Lower Concourse

How to Grow a Mind: Statistics, Structure and Abstraction
Joshua B. Tenenbaum (Massachusetts Institute of Technology)

2:25 PM – 4:15 PM

Knowledge Representation and Reasoning IV
Civic North, Second Floor

Symbolic Synthesis of Observability Requirements for Diagnosability
Benjamin Bittner, Marco Bozzano, Alessandro Cimatti, Xavier Olive

Synthesizing Strategies for Epistemic Goals by Epistemic Model Checking: An Application to Pursuit Evasion Games
Xiaowei Huang, Ron van der Meyden

Automatically Generating Algebra Problems
Rohit Singh, Sumit Gulwani, Sriram Rajamani

• Belief Functions on Distributive Lattices
Chunlai Zhou

• Conflict-Based Belief Revision Operators in Possibilistic Logic
Guilin Qi, Kewen Wang

• Approximating the Sum Operation for Marginal-MAP Inference
Qiang Cheng, Feng Chen, Jianwu Dong, Wenli Xu, Alexander Ihler

• On Finding Optimal Polytrees
Serge Gaspers, Mikko Koivisto, Mathieu Liedloff, Sebastian Ordyniak, Stefan Szeider

Multiagent Systems VIII
Civic South, Second Floor

Evaluating Resistance to False-Name Manipulations in Elections
Bo Waggoner, Lirong Xia, Vincent Conitzer

The Price of Neutrality for the Ranked Pairs Method
Markus Brill, Felix Fischer

A Complexity-of-Strategic-Behavior Comparison between Schulze's Rule and Ranked Pairs
David C. Parkes, Lirong Xia

• A Dynamic Rationalization of Distance Rationalizability
Craig Boutilier, Ariel D. Procaccia

Constraints, SAT, & Search II
Simcoe/Dufferin, Second Floor

Partial-Expansion A* with Selective Node Generation
Ariel Felner, Meir Goldenberg, Guni Sharon, Roni Stern, Tal Beja, Nathan Sturtevant, Jonathan Schaeffer, Robert C. Holte

Fast and Accurate Predictions of IDA*'s Performance
Levi H. S. Lelis, Sandra Zilles, Robert C. Holte

Solving Peg Solitaire with Bidirectional BFIDA*
Joseph K. Barker, Richard E. Korf

• The Linear Distance Traveling Tournament Problem
Richard Hoshino, Ken-ichi Kawarabayashi

• Random Projection with Filtering for Nearly Duplicate Search
Yue Lin, Rong Jin, Deng Cai, Xiaofei He

• A Parameterized Runtime Analysis of Evolutionary Algorithms for the Euclidean Traveling Salesperson Problem
Andrew M. Sutton, Frank Neumann

• Double-Bit Quantization for Hashing
Weihao Kong, Wu-Jun Li

• Iterative Resource Allocation for Memory Intensive Parallel Search Algorithms on Clouds, Grids, and Shared Clusters
Alex Fukunaga, Akihiro Kishimoto, Adi Botea

• Conflict-Based Search for Optimal Multi-Agent Path Finding
Guni Sharon, Roni Stern, Ariel Felner, Nathan Sturtevant

Machine Learning IX
Dominion North, Second Floor

Learning from Demonstration for Goal-Driven Autonomy
Ben G. Weber, Michael Mateas, Arnav Jhala

Algorithmic and Human Teaching of Sequential Decision Tasks
Maya Cakmak, Manuel Lopes

Teaching Machines to Learn by Metaphors
Omer Levy, Shaul Markovitch

• A Sequential Decision Approach to Ordinal Preferences in Recommender Systems
Truyen Tran, Dinh Q. Phung, Svetha Venkatesh

• Counting-MLNs: Learning Relational Structure for Decision Making
Aniruddh Nath, Matthew Richardson

• Markov Network Structure Learning: A Randomized Feature Generation Approach
Jan Van Haaren, Jesse Davis

• Performance and Preferences: Interactive Refinement of Machine Learning Procedures
Ashish Kapoor, Bongshin Lee, Desney Tan, Eric Horvitz

AI and the Web IV
Conference B/C, Mezzanine

Music-Inspired Texture Representation
Ben Horsburgh, Susan Craw, Stewart Massie

BabelRelate! A Joint Multilingual Approach to Computing Semantic Relatedness
Roberto Navigli, Simone Paolo Ponzetto

A Mouse-Trajectory Based Model for Predicting Query-URL Relevance
Hengjie Song, Ruoxue Liao, Xiangliang Zhang, Chunyan Miao, Qiang Yang

• SPARQL Query Containment Under SHI Axioms
Melisachew Wudage Chekol, Jérôme Euzenat, Pierre Genevès, Nabil Layaïda

• Diagnosing Changes in an Ontology Stream: A DL Reasoning Approach
Freddy Lécué

• Ontological Smoothing for Relation Extraction with Minimal Supervision
Congle Zhang, Raphael Hoffmann, Daniel S. Weld

• Predictive Mining of Comparable Entities from the Web
Myungha Jang, Jin-woo Park, Seung-won Hwang

Spotlights Track: Robotics
Essex Ballroom, Mezzanine:

What's Hot: Advances at the Intersection of Machine Learning and Robotics
Drew Bagnell

Best Paper: Search-Based Path Planning with Homotopy Class Constraints in 3D (Best Paper RSS'11)
Subhrajit Bhattacharya, Maxim Likhachev, Vijay Kumar

Challenges: Combining Machine Intelligence with Mechanical Intelligence in Manipulation
Lael Odhner

Spotlights Track: Vision
Essex Ballroom, Mezzanine:

What's Hot: The Rise of Applied Vision
John Tsotsos

Best Paper: Relative Attributes for Enhanced Human-Machine Communication (David Marr Prize ICCV'11)
Devi Parikh, Adriana Kovashka, Amar Parkash, Kristen Grauman

Challenges: The Main Challenges Facing Object Categorization: Perceptual Grouping and Image Abstraction
Sven Dickinson

2:25 PM – 3:55 PM

IAAI Session: Surveillance and Monitoring
Dominion South, Second Floor

A Methodology for Deploying the Max-Sum Algorithm and a Case Study on Unmanned Aerial Vehicles
F. M. Delle Fave, A. Farinelli, A. Rogers, N. R. Jennings

Using POMDPs to Control an Accuracy-Processing Time Trade-Off in Video Surveillance
Komal Kapoor, Christopher Amato, Nisheeth Srivastava, Paul Schrater

TRUSTS: Scheduling Randomized Patrols for Fare Inspection in Transit Systems
Zhengyu Yin, Albert Xin Jiang, Matthew P. Johnson, Milind Tambe, Christopher Kiekintveld, Kevin Leyton-Brown, Tuomas Sandholm, John P. Sullivan

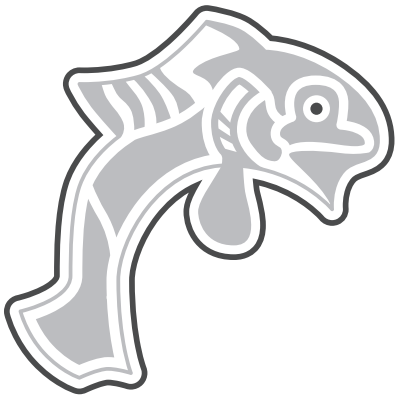
4:30 PM – 6:20 PM

Knowledge Representation and Reasoning V
Civic North, Second Floor

Lifted MEU by Weighted Model Counting
Udi Apsel, Ronen I. Brafman

Exact Lifted Inference with Distinct Soft Evidence on Every Object
Hung H. Bui, Tuyen N. Huynh, Rodrigo de Salvo Braz

Advances in Lifted Importance Sampling
Vibhav Gogate, Abhay Jha, Deepak Venugopal



AAAI Returns to the Pacific Northwest for AAAI-13!

Please mark your calendars now for the Twenty-Seventh AAAI Conference on Artificial Intelligence (AAAI-13) and the Twenty-Fifth Innovative Applications of Artificial Intelligence Conference (IAAI-13), which will be held in the Greater Seattle area, July 14-18, at the beautiful new Hyatt Regency Conference Center in Bellevue, Washington. Exciting plans are underway to coordinate with local University of Washington, Microsoft, and other members to make this a memorable event! Updates will be available at www.aaai.org/Conferences/AAAI/aaai13.php later this summer.

- An Object-Based Bayesian Framework for Top-Down Visual Attention
  Ali Borji, Dicky N. Sihite, Laurent Itti
- Symbolic Variable Elimination for Discrete and Continuous Graphical Models
  Scott Sanner, Ehsan Abbasnejad
- Conditioning in First-Order Knowledge Compilation and Lifted Probabilistic Inference
  Guy Van den Broeck, Jesse Davis

Multiagent Systems IX
Civic South, Second Floor

On Maxsum Fair Cake Divisions
Steven J. Brams, Michal Feldman, John K. Lai, Jamie Morgenstern, Ariel D. Procaccia

Content Recommendation for Attention Management in Unified Social Messaging
Hongxia Jin

Time-Critical Influence Maximization in Social Networks with Time-Delayed Diffusion Process
Wei Chen, Wei Lu, Ning Zhang

- A Multivariate Complexity Analysis of Lobbying in Multiple Referenda
  Robert Bredereck, Jiehua Chen, Sepp Hartung, Rolf Niedermeier, Ondrej Suchy, Stefan Kratsch
- Optimal Proportional Cake Cutting with Connected Pieces
  Xiaohui Bei, Ning Chen, Xia Hua, Biaoshuai Tao, Endong Yang

Constraints, SAT, & Search III
Simcoe/Dufferin, Second Floor

Search Algorithms for M Best Solutions for Graphical Models
Rina Dechter, Natalia Flerova, Radu Marinescu

Trap Avoidance in Local Search Using Pseudo-Conflict Learning
Duc Nghia Pham, Thach-Thao Duong, Abdul Sattar

From Streamlined Combinatorial Search to Efficient Constructive Procedures
Ronan Le Bras, Carla P. Gomes, Bart Selman

- Predicting Satisfiability at the Phase Transition
  Lin Xu, Holger H. Hoos, Kevin Leyton-Brown
- Configuration Checking with Aspiration in Local Search for SAT
  Shaowei Cai, Kaile Su
- Compiling Model-Based Diagnosis to Boolean Satisfaction
  Amit Metodi, Roni Stern, Meir Kalech, Michael Codish
- Two New Local Search Strategies for Minimum Vertex Cover
  Shaowei Cai, Kaile Su, Abdul Sattar
- Don't Be Strict in Local Search!
  Serge Gaspers, Eun Jung Kim, Sebastian Ordyniak, Saket Saurabh, Stefan Szeider
- Non-Model-Based Search Guidance for Set Partitioning Problems
  Serdar Kadioglu, Yuri Malitsky, Meinolf Sellmann

Machine Learning X
Dominion North, Second Floor

Probabilistic Models for Common Spatial Patterns: Parameter-Expanded EM and Variational Bayes
Hyohyeong Kang, Seungjin Choi

Learning Behavior Models for Hybrid Timed Systems
Oliver Niggemann, Benno Stein, Alexander Maier, Asmir Vodencarevic, Hans Kleine Büning

Bayesian Unification of Sound Source Localization and Separation with Permutation Resolution
Takuma Otsuka, Katsuhiko Ishiguro, Hiroshi Sawada, Hiroshi G. Okuno

- A Search Algorithm for Latent Variable Models with Unbounded Domains
  Michael Chiang, David Poole
- Supervised Probabilistic Robust Embedding with Sparse Noise
  Yu Zhang, Dit-Yan Yeung, Eric P. Xing
- A Bayesian Approach to the Data Description Problem
  Alireza Ghasemi, Hamid R. Rabiee, Mohammad T. Manzuri, M. H. Rohban
- Leveraging Domain Knowledge in Multitask Bayesian Network Structure Learning
  Diane Oyen, Terran Lane

Robotics II
Conference B/C, Mezzanine

Design and Optimization of an Omnidirectional Humanoid Walk: A Winning Approach at the RoboCup 2011 3D Simulation Competition
Patrick MacAlpine, Samuel Barrett, Daniel Urieli, Victor Vu, Peter Stone

Coordinated Multi-Robot Exploration under Communication Constraints Using Decentralized Markov Decision Processes
Laëtitia Matignon, Laurent Jeanpierre, Abdel-Illah Mouaddib

Efficient Optimization of Control Libraries
Debadeepta Dey, Tian Yu Liu, Boris Sofman, J. Andrew Bagnell

- Searching for Optimal Off-Line Exploration Paths in Grid Environments for a Robot with Limited Visibility
  Alberto Quattrini Li, Francesco Amigoni, Nicola Basilico
- Automatic Targetless Extrinsic Calibration of a 3D Lidar and Camera by Maximizing Mutual Information
  Gaurav Pandey, James R. McBride, Silvio Savarese, Ryan M. Eustice
- Mobile Robot Planning to Seek Help with Spatially-Situated Tasks
  Stephanie Rosenthal, Manuela Veloso
- Occupancy Grid Models for Robot Mapping in Changing Environments
  Daniel Meyer-Delius, Maximilian Beinhofer, Wolfram Burgard

Spotlights Track: Human-Computer Interaction
Essex Ballroom, Mezzanine

What's Hot: Progress and Hot Trends in Human-Computer Interaction Research
Joseph Konstan

Best Paper: Communitysourcing: Engaging Local Crowds to Perform Expert Work Via Physical Kiosks (Awarded Paper at CHI'12)
Kurtis Heimerl, Brian Gawalt, Tapan Parikh, Bjoern Hartmann

Challenges: Challenges in HCI: The Next 30 Years
Joseph Konstan

4:15 PM – 5:15 PM

IAAI Session: Sketching and Learning
Dominion South, Second Floor

Using Quantitative Information to Improve Analogical Matching between Sketches
Maria D. Chang, Kenneth D. Forbus

Deployed: eBird: A Human/Computer Learning Network for Biodiversity Conservation and Research
Steve Kelling, Jeff Gerbracht, Daniel Fink, Carl Lagoze, Weng-Keen Wong, Jun Yu, Theodoros Damoulas, Carla Gomes