Twenty-Fifth AAAI Conference on Artificial Intelligence (AAAI-11)

Twenty-Third Conference on Innovative Applications of Artificial Intelligence (IAAI-11)

Second Symposium on Educational Advances in Artificial Intelligence (EAAI-11)

August 7 – 11, 2011
Hyatt Regency San Francisco
San Francisco, California, USA

Sponsored by the Association for the Advancement of Artificial Intelligence

Cosponsored by the National Science Foundation, AI Journal, Google, Inc., Microsoft Research, Cornell University Institute for Computational Sustainability, Naval Research Laboratory, Yahoo! Research Labs, NASA Ames Research Center, University of Southern California/Information Sciences Institute, ACM/SIGART, IBM Research, Videolectures.net, and David E. Smith

Conference Program
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-Fifth AAAI Conference on Artificial Intelligence and the Twenty-Third Conference on Innovative Applications of Artificial Intelligence.

AAAI-11 Conference Committee

AAAI Conference Committee Chair
Dieter Fox (University of Washington, USA)

AAAI-11 Program Chairs
Wolfram Burgard (University of Freiburg, Germany)
Dan Roth (University of Illinois, Urbana-Champaign, USA)

IAAI-11 Conference Chair and Cochairs
Daniel Shapiro (Institute for the Study of Learning and Expertise (ISLE), USA)
Markus Fromherz (ACS, a Xerox Company, USA)

EAAI-11 Symposium Chair
Marie desJardins (University of Maryland, Baltimore County, USA)

Special Track on Artificial Intelligence and the Web Cochairs
Chin-Yew Lin (Microsoft Research Asia, China)
Michael Strube (HITS gGmbH, Germany)

Special Track on Computational Sustainability and Artificial Intelligence Cochairs
Carla P. Gomes (Cornell University, USA)
Brian C. Williams (Massachusetts Institute of Technology, USA)

Special Track on Integrated Intelligence Cochairs
Paul Rosenbloom (University of Southern California, USA)
William Swartout (University of Southern California, USA)

Special Track on Physically Grounded Artificial Intelligence Cochairs
Kurt Konolige (Willow Garage and Stanford University, USA)
Tanzee Choudhury (Cornell University, USA)

Nectar Program Cochairs
Beth Y. Choueiry (University of Nebraska-Lincoln, USA)
Alan Fern (Oregon State University, USA)

Tutorial Program Cochairs
Thomas Lukasiewicz (Oxford University Computing Laboratory, UK)
Patrick Pantel (Microsoft Research, USA)

Workshop Program Cochairs
Giuseppe De Giacomo (Sapienza Universita' di Roma, Italy)
Dragos Margineantu (Boeing Research and Technology, USA)

Doctoral Consortium Cochairs
Bradley J. Clement (Jet Propulsion Laboratory, USA)
Elizabeth Sklar (Brooklyn College, City University of New York, USA)

Student Abstract and Poster Cochairs
Ugur Kuter (Smart Information Flow Technologies, USA)
Rudolph Triebel (University of Oxford, United Kingdom)

AAAI-11 Awards

IAAI-11 Deployed Applications Awards
The five IAAI-11 Deployed Application awards will be announced by the IAAI-11 chair Daniel Shapiro and cochair Markus Fromherz. 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-11 and AI Magazine, and will be presented by Daniel Shapiro and Markus Fromherz. IAAI-11 chair and cochair, and David B. Leake, editor-in-chief, AI Magazine. The award and lecture was established in 2003 to honor Robert Engelmore’s extraordinary service to AAAI, AI Magazine, and the AI applications community, and his contributions to applied AI. The 2011 award will be presented to Ramon Lopez de Mantaras (Artificial Intelligence Research Institute (IIIA) and Spanish National Research Council (CSIC)) for pioneering research contributions in a breadth of artificial intelligence areas, especially pattern recognition and case-based reasoning, leading to novel applications in design, diagnosis, and music,
and for extensive international leadership and service for the AI community. The lecture will be held Wednesday, August 10, 10:20 AM, in Bayfront B on the Bay Level of the Hyatt Regency.

**AAAI Special Awards and Recognition**

The AAAI Special Awards and Recognition will be presented by Eric Horvitz, Awards Committee Chair and AAAI Past President, and Henry Kautz, AAAI President. Edward Feigenbaum will help present the first AAAI Feigenbaum Prize.

**2011 Feigenbaum Prize**

The AAAI Feigenbaum Prize was established to recognize and encourage outstanding artificial intelligence research advances that are made by using experimental methods of computer science. The 2011 prize is being awarded jointly to Sebastian Thrun, Stanford University and William A. “Red” Whittaker, Carnegie Mellon University, for their influential contributions to artificial intelligence via achievements in autonomous vehicle research, including experimental efforts and leadership of teams addressing challenges with the fielding of robotic systems in the open world. The Feigenbaum Prize is supported by a grant from the Feigenbaum Nii Foundation.

**Classic Paper Award**

The 2011 AAAI Classic Paper award honors the authors of two complementary papers deemed most influential from the Tenth National Conference on Artificial Intelligence, held in 1992 in San Jose, California for their significant contributions to the area of automated reasoning via methods and analyses on satisfiability, providing foundational insights about constraint satisfaction and search.

**Distinguished Service Award**

The AAAI Distinguished Service award recognizes one individual each year for extraordinary service to the AI community. The 2011 recipient is David L. Waltz, Director, Center for Computational Learning Systems, Columbia University, for his extraordinary and long-term technical contributions to artificial intelligence including ground-breaking work in computer vision, memory-based reasoning, classification, and information retrieval, and dedicated organizational leadership within the AI research community. Beyond the influence of his ideas and guidance, his insights, wisdom, and generous mentorship have been of great value in the nurturing and support of numerous students and colleagues.

**AAAI Fellows Recognition**

Each year, the Association for the Advancement of Artificial Intelligence (AAAI) recognizes one individual each year for extraordinary contributions to the AI field. The 2011 AAAI Fellow is David Ferrucci, IBM’s Director of Research and Director of the Watson Research Center. Ferrucci received the 2011 Feigenbaum Prize for his work on the Jeopardy! Challenge and his contributions to the development of DeepQA, a computer system that can answer questions from a vast range of knowledge domains. Ferrucci’s research has been instrumental in advancing natural language processing and artificial intelligence, and his work has inspired many others in the field.
to announce the six newly elected Fellows for 2011, who will be honored and who have attained unusual distinction in the profession. AAAI is pleased made significant sustained contributions to the field of artificial intelligence.

Makoto Yokoo (Kyushu University, Japan)
Satinder Singh Baveja (University of Michigan, USA)
Sheila A. McIlraith (University of Toronto, Canada)
Robert C. Holte (University of Alberta, Canada)
Dieter Fox (University of Washington, USA)

Workshop Program

Sunday, August 7
W1: Activity Context Representation: Techniques and Languages Organizers: Vikas Agrawal, Lokendra Shastri, James “Bo” Begole, Tim Finin, Henry Kautz, and Mathia Philipose Golden Gate Room, Bay Level, Sunday, 9:00 AM – 5:00 PM Monday, 9:00 AM – 5:15 PM

W2: Language - Action Tools for Cognitive Artificial Agents: Integrating Vision, Action and Language Organizers: Katerina Pastra, Yiannis Aloimonos, Giorgio Metta, and Luciano Fadiga Seacrest D, Bay Level Sunday, 9:00 AM – 6:00 PM Monday, 9:00 AM – 6:00 PM

W3: Applied Adversarial Reasoning and Risk Modeling (AARM) Organizers: Noa Agmon, Christopher Ekremveld, Michael Bowling, and Janusz Marecki Regency B, Street Level, 9:00 AM – 6:00 PM

W5: AI for Data Center Management and Cloud Computing Organizers: Donagh Buckley, Burt Kaliski, and Barry O’Sullivan Pacific G, Pacific Concourse, 9:00 AM – 5:30 PM


W7: Computational Models of Natural Argument Organizers: Floriana Grasso, Nancy Green, and Chris Reed Pacific H, Pacific Concourse, 8:30 AM – 12:00 PM

W12: Language - Action Tools for Cognitive Artificial Agents: Integrating Vision, Action and Language Organizers: Katerina Pastra, Yiannis Aloi-monos, Giorgio Metta, and Luciano Fadiga Seacrest D, Bay Level Sunday, 9:00 AM – 6:00 PM, Monday, 9:00 AM – 6:00 PM

W13: Lifelong Learning from Sensorimotor Experience Organizers: Joseph Modayil, Doina Pre-te, and Saurav Singh Garden B, Atrium Lobby Level, 8:30 AM – 5:30 PM

W14: Plan, Activity, and Intent Recognition (PAIR 2011) Organizers: Gita Sukthankar, Hung Bui, Christopher W. Geib, and David V. Pyndadath Regency A, Street Level, 9:00 AM – 5:15 PM

W15: Scalable Integration of Analytics and Visualization Organizers: Ole Mengshoel, Ted Selker, and Henry Lieberman Boardroom C, Atrium Lobby Level, 9:00 AM – 6:00 PM

Monday, August 8
W1: Activity Context Representation: Techniques and Languages Continued from Sunday Monday, 9:00 AM – 5:15 PM

W2: Analyzing Microtext Organizers: David W. Aha, Douglas W. Oard, Sowmya Ramachandran, and David C. Uthus Garden A, Atrium Lobby Level, 8:30 AM – 6:00 PM

W4: Artificial Intelligence and Smarter Living: The Conquest of Complexity Organizers: Benjamin Johnston, Mary-Anne Williams, Ryan Calo, Xiaoping Chen, Michael Genesereth, Satjaj Hauder, Roland Vogl, Xin Wang, and Glenn Wightwick Pacific G, Pacific Concourse, 9:00 AM – 5:00 PM

W8: Generalized Planning Organizers: Siddharth Srivastava, Sheila McIlraith, Paolo Traverso, and Shlomo Zilberstein Garden B, Atrium Lobby Level, 8:30 AM – 5:30 PM

W9: Human Computation Organizers: Luis von Ahn, Panagiotis Ipeirotis, Edith Law, Haoqi Zhang, and Jing Wang Bayview A, Bay Level, 8:45 AM – 5:45 PM

W10: Human-Robot Interaction in Elder Care Organizers: Prashant Doshi, Simon Parsons, and Lundy Lewis Pacific H, Pacific Concourse, 8:30 am – 6:00 PM


W12: Language - Action Tools for Cognitive Artificial Agents: Integrating Vision, Action and Language Continued from Sunday 9:00 AM – 6:00 PM

Special Meetings

AAAI Business Meeting The AAAI Annual Business Meeting will be held Monday, August 8, 1:15 PM – 1:45 PM, Seacliff C, Bay Level, Hyatt Regency San Francisco.

AAAI Conference Committee Meeting AAAI Conference Committee Meeting will be held Thursday, August 11, 7:45 AM – 8:45 AM, Boardroom C, Atrium Lobby Level, Hyatt Regency San Francisco.

AAAI Executive Council Meeting The AAAI Executive Council Meeting will be held Monday, August 8, 9:00 AM – 4:00 PM, Boardroom C, Atrium Lobby Level, Hyatt Regency San Francisco. Continental breakfast will be available at 8:30 AM.

AAAI Publications Committee Meeting The AAAI Publications Committee Meeting will be held Wednesday, August 10, 12:30 – 1:30 PM, Boardroom B, Atrium Lobby Level, Hyatt Regency San Francisco.

AI Magazine Editorial Board Meeting The AI Magazine Editorial Board Meeting will be held Tuesday, August 9, 12:30 – 2:00 PM, Boardroom C, Atrium Lobby Level, Hyatt Regency San Francisco.

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 2011, who will be honored during the annual Fellows dinner on Tuesday, August 9:

Dieter Fox (University of Washington, USA)
Robert C. Holte (University of Alberta, Canada)
Sheila A. McIlraith (University of Toronto, Canada)
Satinder Singh Baveja (University of Michigan, USA)
Maloto Yokoo (Kyushu University, Japan)

Shlomo Zilberstein (University of Massachusetts Amherst, USA)

AAAI Senior Member Recognition
AAAI congratulates the inaugural group of AAAI senior members, who are being recognized for their long-term participation in AAAI and their distinction in the field of artificial intelligence. The list of new senior members will be announced in the AAAI-11 Opening Ceremony.

Special Competition Awards
For information about the special competition awards, please see the sec-
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Invited Talks

Tuesday, August 9

9:15 – 10:00 AM
AAAI-11 25th Conference Anniversary Panel
Moderator: Manuela Veloso (Carnegie Mellon University)
Grand Ballroom, Street Level (see description on page 3)

10:20 – 11:20 AM
AAAI-11/AAAI-11 Joint Invited Talk
Building Watson: An Overview of DeepQA
for the Jeopardy! Challenge
David Ferrucci (IBM T J Watson Research Center)
Grand Ballroom, Street Level (see description on page 3)

1:50 – 2:50 PM
AAAI-11 Invited Talk
From Turn-Taking to Social Ties
Karahalios (University of Illinois)
Grand Ballroom, Street Level

Wednesday, August 10

9:00 – 10:00 AM
AAAI-11 Invited Talk
Registration and Recognition for Robotics
Kurt Konolige (Willow Garage, Inc and Stanford University)
Grand Ballroom, Street Level

Robotic manipulation around the home and office requires perception of the environment and objects within it. In this talk, Konolige highlights the key roles played by visual registration. The first role is in keeping track of where the robot is, and for understanding how multiple views of the environment correspond to each other. The second is in finding and manipulating objects in the world. Registration and recognition methods will be illustrated with examples from Willow Garage’s PR2 robot.

10:20 – 11:20 AM
AAAI-11 Invited Talk — Robert S. Engelmore Memorial Award Lecture:
Playing with Cases: Rendering Expressive Music Performance with Case-Based Reasoning
Ramon Lopez de Mantaras (Artificial Intelligence Research Institute (IIIA) and Spanish National Research Council (CSIC))
Bayview B, Bay Level (see description on page 7)

Thursday, August 11

9:00 – 10:00 AM
AAAI-11 Invited Talk
Strategic Intelligence in Social Networks
Michael Kearns (University of Pennsylvania)
Grand Ballroom, Street Level

For the past six years at the University of Pennsylvania, we have been conducting controlled human-subject experiments on strategic interaction in social networks. The overarching goal of these experiments is to provide a behavioral counterpart to the flourishing research on mathematical models of social networks, diffusion dynamics, influence in social networks, and related topics. To date we have conducted experiments on a wide variety of strategic and computational tasks in social networks, including graph coloring (which can be viewed as a problem of social differentiation), consensus, biased voting, trading and bargaining in networks, and network formation. These experiments have yielded a wealth of findings and data on the ability of human subjects to solve challenging collective tasks from only local interactions, and have shed light on basic topics such as influence and altruism in social networks, and the relationship between network structure and collective and individual performance and behavior. The experiments also raise interesting challenges for notions of collective intelligence in humans and machines, and for the application of machine learning to the resulting data.

1:50 – 2:50 PM
AAAI-11 Invited Talk
Towards Artificial Systems: What Can We Learn from Human Perception?
Heinrich H. Buelthoff (Max Planck Institute for Biological Cybernetics)
Grand Ballroom, Street Level

Recent progress in learning algorithms and sensor hardware has led to rapid advances in artificial systems. However, their performance continues to fall short of the efficiency and plasticity of human behavior. In many ways, a deeper understanding of how humans process and act upon physical sensory information can contribute to the development of better artificial systems. In this presentation, Buelthoff will highlight how the latest tools in computer vision, computer graphics, and virtual reality technology can be used to systematically understand the factors that determine how humans behave and solve tasks in realistic scenarios.

10:20 – 11:20 AM
AAAI-11 Invited Talk
HaloBook and Progress Towards Digital Aristotle
David Gunning (Vulcan Inc.)
Bayview B, Bay Level

Project Halo is a long-range research effort, pursuing the vision of the Digital Aristotle—a system containing large volumes of scientific knowledge and capable of applying sophisticated problem-solving methods to answer novel questions, with applications in education and scientific research. The current focus of the project is the development of HaloBook—an electronic textbook capable of answering a student’s questions. This talk will summarize the history and motivation for Project Halo, describe the current work on HaloBook, and discuss possible Grand Challenges to motivate future research.
Rendering expressive music performances involves complex processes that constitute a challenging research area for computer music research. Besides, it is a rich field for investigating aspects of human intelligence, emotion, and creativity. Case-based reasoning is one of the AI techniques that have produced more promising results in rendering expressive music performances. Furthermore, it has advanced the state of the art in case-based reasoning through the invention of new approaches to case representation, case retrieval and case reuse adapted to musical knowledge. In this talk Lopez de Mantaras will describe in some detail two successful case-based reasoning systems applied to expressive music performance that have been developed at the Artificial Intelligence Research Institute.
Student Programs

AAA-I-11 Student Only Reception
USC/Information Sciences Institute will host the fifth annual AAAI Student Only Reception, Tuesday, August 9 from 5:45 – 6:45 PM in the Seacill Foyer on the Bay level of the Hyatt Regency. Snacks and beverages will be served. All AAAI-11 registered students are welcome.

AAA-I/SIGART Doctoral Consortium (DC-11)
The Sixteenth AAAI/SIGART Doctoral Consortium program will be held on Sunday and Monday, August 7 – 8, in Marina on the Bay level of the Hyatt. 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-11 Poster Session. All interested AAAI-11 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.

AAAI Fellow / Student Lunches
First held in 2006, the AAAI Fellow / Student 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 Market Street Foyer on the street level of the Hyatt Regency. Students should meet their designated Fellow in onsite registration on their assigned day.

Doctoral Consortium Schedule
The Sixteenth AAAI/SIGART Doctoral Consortium program will be held on Sunday and Monday, August 7 – 8, in Marina on the Bay level of the Hyatt. 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-11 Poster Session. All interested AAAI-11 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.

Sunday, August 7
8:40 – 9:00 AM
Welcome and Introductions
9:00 – 9:40 AM
Modeling the Effects of Emotion on Cognition
   Marvin Sparagen (Mentor: Charles Isbell)
9:40 – 10:20 AM
Long-Term Declarative Memory for Generally Intelligent Agents
   Nate Derbinsky (Mentor: Dave Pynadath)
10:20 – 10:50 AM
Break
10:50 – 11:30 AM
Incentive-Compatible Trust Mechanisms
   Jens Widowski (Mentor: Simon Parsons)
11:30 AM – 12:10 PM
Scaling Up Game Theory: Achievable Set Methods for Efficiently Solving Stochastic Games of Complete and Incomplete Information
   Liam MacDermed (Mentor: Michael Bowling)
12:10 – 12:50 PM
Six Steps to a Successful Research Program
   Brad Clement
12:50 – 1:50 PM
Lunch
1:50 – 2:30 PM
Designing Water Efficient Residential Landscapes with Agent-Based Modeling
   Rhonda Hoensgama (Mentor: Berthe Choueiry)
2:30 – 3:10 PM
Ensemble Classification for Relational Domains
   Hoda Eldardiry (Mentor: Amy McGovern)
3:10 – 3:50 PM
Learning with Imprecise Classes, Rare Instances, and Complex Relationships
   Seinath Ravindran (Mentor: David Aha)
3:50 – 4:20 PM
Break
4:20 – 5:20 PM
Panel
   Sven Koenig (additional panelists will be added)
7:00 PM
Dinner

Monday, August 8
9:00 – 9:40 AM
A Probabilistic Trust and Reputation Model for Supply Chain Management
   Yasaman Haghpanah (Mentor: Munindar Singh)
9:40 – 10:20 AM
Predicting Text Quality for Scientific Articles
   Annie Louis (Mentor: Kiri Wagstaff)
10:20 – 10:50 AM
Break
10:50 – 11:30 AM
Developing a Language for Spoken Programming
   Forrester Bao (Mentor: Jeremy Frank)
11:30 AM – 12:10 PM
Learning Sensor, Space and Object Geometry
   Jeremy Stober (Mentor: Rich Sutton)
12:10 – 1:10 PM
Panel
   Sonia Chernova, Matthew Taylor (additional panelists may be added)
1:10 – 2:10 PM
Lunch
2:10 – 2:50 PM
Joint Inference for Extracting Text Descriptors from Triage Images of Mass Disaster Victims
   Niyati Chhaya (Mentor: Bill Smart)
2:50 – 3:30 PM
The AC(C) Language: Integrating Answer Set Programming and Constraint Logic Programming
   Forrest Bao (Mentor: Jeremy Frank)
3:30 – 4:00 PM
Break/Survey
4:00 – 4:40 PM
Model Update for Automated Planning
   Maria Viviane de Menezes (Mentor: Jeremy Frank)
4:40 – 5:20 PM
Pruning Techniques in Search and Planning
   Nir Pochter (Mentor: David Smith)
5:20 – 6:20 PM
Farewell / Collection of Surveys
EAAI-11 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-11 features a technical program, a poster program as part of the conference-wide poster session on Wednesday evening, and a “Model AI” session highlighting innovative, ready-to-adopt materials. EAAI-11 is included in the AAAI-11 technical registration fee, but an EAAI-11 only registration option is also available.

### EAAI Schedule

The Symposium on Educational Advances in AI (EAAI-11) will be held in Garden B, Atrium Lobby Level.

**Tuesday, August 9**

11:30 AM – 12:30 PM
**Opening Session**
Welcome Remarks
Mehran Sahami, EAAI-11 Organizing Committee

**Invited Talk**
Rethinking Educational Impact: Topical Robotics for Social Action
Illah Nourbakhsh (Carnegie Mellon University)

1:30 PM – 2:30 PM
**Teaching AI with Games**
Teaching Introductory Artificial Intelligence through Java-Based Games
Amy McGovern, Zachery Tidwell, and Derek Rushing
Introducing Uninformed Search with Tangible Board Games
Fred Martin
Teaching Reinforcement Learning with Mario: An Argument and Case Study
Matthew Taylor

3:00 PM – 4:00 PM
**AI and Education**
Science Fiction as an Introduction to AI Research
Judy Goldsmith and Nicholas Mattei
Playing to Program: An Intelligent Programming Tutor for RUR-PLE (Poster Spotlight)
Marie desJardins, Amy Ciavolino, Robert Deloatch, and Eliana Feasley

**Lightning Talks**
Open microphone presentations

4:20 PM – 5:20 PM
**Model AI Assignments**
Clue Deduction: An Introduction to Satisfiability Reasoning
Todd Neller, Zdravko Markov, Ingrid Russell, and Dave Musciant

**Wednesday, August 10**

10:20 AM – 11:20 AM
**Teaching and Mentoring Workshop I**
Introduction and Keynote Lecture: Creating Classroom Engagement through Active Learning
Mehran Sahami (Stanford University)

11:30 AM – 12:30 PM
**Teaching and Mentoring Workshop II**
Active Learning Working Sessions

2:00 PM – 3:00 PM
**Teaching and Mentoring Workshop III**
Presentations and Review

3:00 PM – 4:00 PM
**Teaching and Mentoring Workshop IV**
Teaching Challenges in the Classroom

4:20 – 5:20 PM
CS2013: ACM/IEEE-CS Curriculum Revision
Mehran Sahami (Stanford University) and Zachary Dodds (Harvey Mudd College)

6:30 PM – 9:30 PM
EAAI Poster Session (AAAI-11 Poster Reception)
### AAAI-11/IAAI-11 Opening Ceremony
8:30 – 9:00 AM  
Grand Ballroom, Street Level  
Welcome and Opening Remarks  
Outstanding Award Presentations — Papers, SPC Member, PC Member  
Wolfum Burgard and Dan Roth, AAAI-11 Program Chairs

### AAAI-11 25th Conference Anniversary Panel
9:15 – 10:00 AM  
Grand Ballroom, Street Level  
Moderator: Manuela Veloso, AAAI President-Elect (Carnegie Mellon University)  
Panelists: Daniel Bobrow, Ronald J. Brachman, Edward Feigenbaum, Kenneth Forbus, Eric Horvitz, Henry Kautz, Edwina Rissland, David Waltz, Bonnie Webber (additional panelists may be added)

### Multi-Agent Systems 1
11:30 AM – 12:30 PM
Grand Ballroom, Street Level

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<td>Constrained Coalition Formation</td>
<td>Talal Rahwan, Tomasz Michalak, Edith Elkind, Piotr Faliszewski, Jacky Sroha, Michael Wooldridge, Nicholas R. Jennings</td>
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<tr>
<td>Computing an Extensive-Form Perfect Equilibrium in Two-Player Games</td>
<td>Nicola Gatti, Claudio Iuliano</td>
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<td>Learning in Repeated Games with Minimal Information: The Effects of Learning Bias</td>
<td>Jacob W. Crandall, Asad Ahmed, Michael A. Godrich</td>
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### Social Networks 1
1:50 – 2:50 PM
Grand Ballroom, Street Level

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<th>Authors</th>
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<tbody>
<tr>
<td>Compositional Social Network for Predicting Mobile Apps Installation</td>
<td>Wei Pan, Nadar Alahyarm, Alex (Sandy) Pentland</td>
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<tr>
<td>Simulated Annealing Based Influence Maximization in Social Networks</td>
<td>Qinghe Jiang, Guang Song, Gao Cong, Yu Wang, Wenjun Si, Kuning Xie</td>
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<tr>
<td>Co-Evolution of Selection and Influence in Social Networks</td>
<td>Yoon-Sik Cho, Greg Ver Steeg, Aram Galstyan</td>
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### Mechanism Design 1
3:00 – 4:00 PM
Grand Ballroom, Street Level

<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
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<tbody>
<tr>
<td>Dominant-Strategy Auction Design for Agents with Uncertain, Private Values</td>
<td>David R. M. Thompson, Kevin Leyton-Brown</td>
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<tr>
<td>Market Manipulation with Outside Incentives</td>
<td>Yiling Chen, Xi Alice Gao, Rick Goldstein, Ian A. Koh</td>
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<tr>
<td>Incentive-Compatible Escrow Mechanisms</td>
<td>Jens Witkowski, Sven Seeho, David C. Parkes</td>
</tr>
</tbody>
</table>

### Description Logics 1
4:20 – 5:20 PM
Grand Ballroom, Street Level

<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
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<tbody>
<tr>
<td>Revisiting Semantics for Epistemic Extensions of Description Logics</td>
<td>Ances Mehdi, Sebastian Rudolph</td>
</tr>
<tr>
<td>Integrating Rules and Description Logics by Simulated Annealing</td>
<td>Qian Yang, Jia-Huai You, Zhiyong Feng</td>
</tr>
<tr>
<td>Conjunctive Query Inseparability of OWL TBoxes</td>
<td>Bing Ihn Kim, Krit Vutiki, H. Ludwig, T. Schneider, F. Wolfel, M. Zakharyashev</td>
</tr>
</tbody>
</table>

### AAAI-11 Invited Talk
5:45 – 6:45 PM
Grand Ballroom, Street Level

**Title:** From Turn-Taking to Social Ties  
**Speaker:** Karrin Karahalios (University of Illinois)

---

**Coffee breaks will be held at 10:00 – 10:20 AM and 4:00 – 4:20 PM. The lunch break will be held from 12:30 – 1:50 PM.**

*Student Reception, 5:45–6:45 PM, Seaciff Foyer, Bay Level / IAAI Google Lab Tour (preregistration required) 6:30–9:30 PM*
Coffee breaks will be held at 10:00 – 10:20 AM and 4:00 – 4:20 PM. The lunch break will be held from 12:30 – 1:50 PM.

Student Reception, 5:45 – 6:45 PM, Seacliff Foyer, Bay Level / IAAI Google Lab Tour (preregistration required) 6:30–9:30 PM.
Exhibit Program

The exhibit program will be held Tuesday – Thursday, August 9 – 11 in the Seaciff Foyer, Bay Level. Exhibit hours are:
Tuesday: 11:00 AM – 5:30 PM; Wednesday, 10:00 AM – 5:30 PM; and Thursday: 10:00 AM – 1:00 PM.

AI Topics

aaai.org/aitopics

AI Topics is the premier source of information about AI! Stop by the AITopics booth to pick up a luggage tag, sign up for the free AI-Alert service for weekly summaries of news stories that have mentioned AI, see what AITopics can provide for your classroom instruction or term papers, suggest improvements, or become an assistant editor to help meet the needs of the AI community!

Cambridge University Press

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Google Inc.

research.google.com

Google’s mission is to organize the world’s information and make it universally accessible and useful. Perhaps as remarkable as two Stanford research students having the ambition to found a company with such a lofty objective is the progress the company has made to that end. Ten years ago, Larry Page and Sergey Brin applied their research to a real problem and invented the world’s most popular search engine. The same spirit holds true at Google today. The mission of research at Google is to deliver cutting-edge innovation that improves Google products and enriches the lives of all who use them. We publish innovation through industry standards, and our researchers are often helping to define not just today’s products but also tomorrow’s.

Institute for Computational Sustainability

5136 Upson Hall
Ithaca, NY 14850, USA
cis.cornell.edu/ics

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 computing 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.

IOS Press

Nieuwe Hemweg 6B, 1013 Amsterdam, The Netherlands
iospress.nl

IOS Press publishes around 100 international journals and approximately 130 book titles a year, ranging from computer sciences and mathematics to medicine and the natural sciences. This year the 226th volume in the book series Frontiers in Artificial Intelligence and Applications is published. Commencing its publishing activities in 1987, IOS Press serves the information needs of scientific and medical communities worldwide. IOS Press continues its rapid growth, embracing new technologies for the timely dissemination of information. All journals are available electronically and an online book platform has been launched in the first half of 2006.

Morgan & Claypool Publishers

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San Rafael, CA 94901
415-462-0004
info@morganclaypool.com

Morgan & Claypool publishes the Synthesis Lectures on Artificial Intelligence and Machine Learning. The same spirit holds true at Google today. The mission of research at Google is to deliver cutting-edge innovation that improves Google products and enriches the lives of all who use them. We publish innovation through industry standards, and our researchers are often helping to define not just today’s products but also tomorrow’s.

The MIT Press

55 Hayward Street
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Please visit The MIT Press publisher’s table to see our newest titles in artificial intelligence, machine learning and robotics.

Navy Center for Applied Research in Artificial Intelligence

Washington DC, USA
www.nrl.navy.mil/ac

The Navy Center for Applied Research in Artificial Intelligence (NCARAI), part of the Naval Research Laboratory, has been involved in both basic and applied research in artificial intelligence, human factors, and human-centered computing since its inception in 1981. The emphasis at NCARAI is the linkage of theory and application in demonstration projects that use a full spectrum of artificial intelligence techniques to address critical Navy and national problems. With the FY12 opening of the Autonomous Systems Research Laboratory, the Center will carry on the support of autonomous systems research for the Navy and the Marine Corps.

UCLA Information Sciences Institute

4676 Admiralty Way
Marina del Rey, CA 90292, USA
+1-310-822-1511

Founded in 1972, the University of Southern California’s Information Sciences Institute is home to more than one hundred AI researchers working on natural language, data integration, social networks, machine translation, bioinformatics, robotics, cyberlearning, eScience, computational behavior among many others. ISI provides a unique experience in that it combines an academic environment for basic research with practical projects that cross disciplinary boundaries and are highly collaborative and broad practical relevance. Come to our booth to discuss opportunities to join us as a researcher, graduate student, research programmer, summer intern, or sabbatical visitor.
**Competition**

**AI Video Competition Awards**

Monday, August 8, 7:00 PM – 8:00 PM, Grand Ballroom Foyer

The Fifth AI Video Competition Awards Ceremony will be held immediately after the opening reception. Come and see exciting videos about AI research and applications. The winners will be presented with a trophy named a “Shakey” — which honors SRI’s pioneering robot.

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 David Aha (Naval Research Laboratory) and Arnay Jhala (University of California, Santa Cruz).

Awards will be presented in the following categories: Best Video, Best Student Video, Best Educational Video, Best Narration, Best Short Video, and Most Innovative Video.

AAAI gratefully acknowledges the generous contributions of the AI Journal Review Board, Josef Stefan Institute, and VideoLectures.net for their sponsorship.

**Computer Poker Competition**

Wednesday, August 10, 6:30 PM – 9:30 PM, Grand Ballroom, Street Level

For the Sixth Annual AAAI Computer Poker Competition teams will develop programs for playing heads-up Texas Hold’em, both limit and no-limit, and 3-player ring limit Texas Hold’em. Programs will be judged based upon their robustness (ability to beat any opponent head-to-head) and/or their ability to learn (to exploit weaker opponents for more money). The winner of a competition will be determined by matches between bots that were submitted to that specific competition. If resources allow, unofficial results will also include matches between all pairs of bots in a division. At AAAI results and posters describing the bots will be presented.

AAAI thanks Poker Competition organizers Nolan Bard and Jonathan Rubin for all their efforts in making this event possible, as well as David Parke, who serves as the impartial “arbiter” for the competition.
Twentieth Annual AAAI Robotics Program

Grand Ballroom Foyer and Regency Ballroom, Street Level, Monday – Wednesday, August 8-10

Twentieth Annual AAAI Robotics Exhibition, Challenges, and Workshop

The 20th Edition of the Robotics Program at AAAI features the long-standing Robotics Exhibitions as well as demonstration and challenges in emerging areas of robotics research. The Robotics Program has a long tradition of demonstrating innovative research in robotics at the intersection with artificial intelligence. This year, the AAAI-11 Robotics Program will feature a workshop, demonstrations from Robotics Education, and two robotics challenge events (Manipulation and Learning by Demonstration).

Embodied Intelligence: The AAAI Robotics Workshop

Monday, August 8
8:00 AM – 5:30 PM

The theme of the workshop aims to cultivate challenge experiments to advance specific problems in robotics research and education. The workshop focuses on how to leverage robotics knowledge and research in other communities through the use of standardized platforms. Very few existing robotics development architectures are used outside of the group developing them. In addition, algorithms and approaches developed in one architecture are rarely ported to another, creating a barrier to reusing good solutions and hampering the ability to validate results in more than one environment. The goal is to create a roadmap to common environments and tools. The workshop will feature presentations by exhibitors in challenge areas that highlight current research.

Learning by Demonstration Challenge

The third annual exhibit and challenge on robot Learning by Demonstration (LbD) brings together research groups to demonstrate complete platforms performing LbD tasks. This year’s event has a single challenge task focused on food preparation. The task requires a combination of low-level skills, such as picking up and manipulating objects, and high-level task reasoning. The event will feature five teams tackling this task with the Willow Garage PR2 robot, and one team showing related LbD research on their custom industrial robot.

Challenge Teams
- Ecole Polytechnique Federale de Lausanne
- Georgia Institute of Technology
- Italian Institute of Technology
- Massachusetts Institute of Technology
- Tufts University
- Worcester Polytechnic Institute

Small Scale Manipulation Challenge: Robot Chess

Fourteen years ago Deep Blue defeated the world chess champion. Yet, it was humans moving the pieces. The second AAAI Small-Scale Manipulation Challenge will highlight advances in embodied intelligence using smaller than human size robots. Robot chess requires the integration of sensing, planning and actuation and provides an opportunity for performance evaluation on a common, well-defined task.

Challenge Teams
- University at Albany
- Canisius College
- Carnegie Mellon University
- RoadNarrows LLC

Robotics Education Track

This venue offers an accessible and flexible opportunity for undergraduate, early graduate, or pre-college student teams to design, implement, and demonstrate an autonomous robotic system. The tasks involved can span physically-embodied AI exploration, interaction, and learning within an unknown environment. In the long run, the goal is to motivate hands-on AI robotics investigation both for its own sake and in service to other academic disciplines and educational goals.

Exhibition Teams
- Aldebaran Robotics
- Carnegie Mellon University
- University of Kassel
- City University New York (2 teams)
- Harvey Mudd College

Schedule of Events

Chess Challenge

Matches between all of the chess challenge teams will happen at the following times:
- Tuesday, August 9: 9:30 – 11:00 AM
- Tuesday, August 9: 3:30 – 5:00 PM
- Wednesday, August 10: 9:30 – 11:00 AM

Learning by Demonstration

Since most teams are sharing a common PR2 platform, the LbD challenge will feature each of the six teams showing their entry once for thirty minutes on each day. This will happen at the following times:
- Tuesday, August 9
  10:00 AM – 10:30 AM
  11:00 AM – 11:30 AM
  12:30 PM – 1:00 PM
- 2:00 PM – 2:30 PM
- 3:00 PM – 3:30 PM
- 4:00 PM – 4:30 PM
- Wednesday, August 10
  10:00 AM – 10:30 AM
  11:00 AM – 11:30 AM
  12:30 PM – 1:00 PM
- 2:00 PM – 2:30 PM
- 3:00 PM – 3:30 PM
- 4:00 PM – 4:30 PM

Robotics Education Track

The Robotics Education Track exhibits will be on display throughout the day:
- Tuesday, August 9
  10:00 AM – 4:30 PM
- Wednesday, August 10
  10:00 AM – 4:30 PM

Robot Demonstrations

Robot demonstrations from all categories will be on display Wednesday evening, 6:30 – 9:30 PM.

Robotics Program Organizing Committee

Program Chair
Andrea L. Thomaz (Georgia Institute of Technology)

Learning from Demonstration Challenge Chair
Sonia Chernova (Worcester Polytechnic Institute)

Small Scale Manipulation Challenge: Robot Chess Cochairs
- David S. Touretzky (Carnegie Mellon University)
- Mike Stillman (Georgia Institute of Technology)

Robotics Education Track Chair
Zach Dodds (Harvey Mudd College)
ADA Devices
The staff at the Hyatt Regency San Francisco 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 an ATM machine located on the Atrium Lobby level of the hotel. The Bank of America, Wells Fargo, Chase, along with several other banks are located within walking distance of the hotel.

Business Center/Shipping
The Hyatt’s Business Center is located on the Bay Level and provides services such as photocopying, faxing, secretarial service, pager and cell phone rentals, shipping, computer use and rentals and office supplies. The business center is open 24 hours for hotel guests, who do not require assistance from staff, with access using a guest room key. Staffed Hours: Monday – Friday, 7:30 am – 4:00 pm

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 reservations, please contact the hotel directly.

Internet Access
AAAI-11 has arranged for complimentary wireless Internet access for all registrants in the Hyatt meeting spaces and guest rooms. Guests staying overnight will be provided with login information 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
Valet Parking at the Hyatt is $57.00 with in/out privileges for hotel guests and $62.50 with no in/out privileges for transient guests. For daytime guests, the maximum daily rate is $50.00 plus tax. The first hour is $15.00 and each additional half hour is $7.50. There are several self parking garages and lots in the area. Please inquire at the hotel reception desk for locations.

Printed Materials
Display tables for the distribution of promotion al 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 in the Market Street Foyer, located on the street level of the Hyatt Regency during registration hours. All tickets must be redeemed onsite by Thursday, August 11 at 11:00 am. AAAI cannot mail CDs to registrants after the conference.

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

Eclipse Restaurant & Lounge
In the hotel’s atrium lobby, Eclipse offers a casual dining option in a relaxing atmosphere. Full breakfast menu and convenient buffet are offered. Weekdays: 6:00 am – 11:30 am, weekends: 6:00 am – 12:00 pm

Lunch service includes fresh sandwiches, salads, and seasonal specialties. Served daily from 11:30 am – 2:30 pm. Dinner service features a medley of local and international flare sure to satisfy your appetite. Served nightly from 5:30 pm – 10:00 pm

In Room Dining
Opens daily for breakfast at 6:00 am – 10:30 am
Reopens for all day dining 11:30 am – 11:00 pm

Airport Transportation
Lorries Shuttle
Operates 4:00 am – 11:30 pm, seven days a week. Door to door service between SFO Airport and the Hyatt. Price is $16 one way per person. At the airport, look for the White and Green Vans with lettering that says Go Lorrie’s at the shuttle pick up area. For information call 415-334-9000. Reservations are required for transportation from the hotel to the airport.

Super Shuttle
Operates 24 hours/seven days a week. Door to door service between San Francisco and the SFO Airport. From the Airport, go to the upper level (median strip or courtesy island) and look for the blue and yellow van. Price is $17 one way. Call 415-558-8500. Contact concierge for further details. Rates are per person.

Bay Porter
Price $34 for first person and $15 for each additional person. Green/white vans with silver letters. Hours: 3:00 am – 10:00 pm. 415-467-1800.

Taxi
Fare is $40 – $45 to San Francisco International Airport.

Budget Rental Car
Located on the street level in Hyatt Regency San Francisco. 415-433-3717. Mon-Fri 7:30 am – 5:30 pm, Sat 8:00 am – 1:00 pm, Sun 8:00 am – 1:00 pm. Please note this location does accept Drop-Off Cars.

Bay Area Rapid Transit (BART)
$8.10 each way — Exit at Embarcadero from San Francisco International Airport. Any San Francisco bound (north bound) train will stop at “Embarcadero Station”. Hotel is located directly outside the station. Trains are available every 15 – 20 minutes.

Local Transit System:
For more information about public transportation in the city of San Francisco, please see sfmta.com. Rates: MUNI, $2.00, Cable Car, $5.00.

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

Workshop Technical Reports and Working Notes
Workshop participants will receive a ticket in their registration envelopes, which can be redeemed for a copy of the AAAI-11 Workshop Program Technical Report Series on CD, containing the papers for all workshops, except W8. For W8 (Generalized Planning), attendees will receive a CD with only the notes for this individual workshop.
Disclaimer
In offering the Hyatt Regency San Francisco, Freeman, San Francisco 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-11/IAAI-11 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.

Registration
Conference registration is located in Market Street Foyer on the street level of the Hyatt Regency San Francisco, beginning Sunday, August 7. Registration hours are:

- Sunday, August 7: 7:30 AM – 5:00 PM
- Monday, August 8: 7:30 AM – 5:00 PM
- Tuesday, August 9: 8:00 AM – 5:00 PM
- Wednesday, August 10: 8:30 AM – 5:00 PM
- Thursday, August 11: 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-11/IAAI-11 technical program registration includes admission to all technical paper and poster sessions, invited talks, EAAI-11, exhibits, demos, and competitions, the opening reception, and a copy of the AAAI-11/IAAI-11/EAAI-11 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:

<table>
<thead>
<tr>
<th>Technical Registration Fees</th>
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<tbody>
<tr>
<td>Regular Member</td>
<td>$845</td>
<td>Regular Nonmember</td>
</tr>
<tr>
<td>Student Member</td>
<td>$330</td>
<td>Student Nonmember</td>
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</tbody>
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AAAI Platinum Fees
(Includes one-, three-, or five-year new or renewal membership in AAAI)

| Regular One-Year | $980 |
| Regular Three-Year | $1250 |
| Regular Five-Year | $1520 |
| Student          | $395  |

Symposium on Educational Advances in Artificial Intelligence (EAAI-11)
The AAAI-11/IAAI-11 technical program registration includes participation in EAAI-11 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-11 only | Regular | $745 | Student | $230 |

Tutorial Forum
The AAAI-11/IAAI-11 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-11 Workshop Technical Report CD. (A CD of working notes only will be available for W8.) Please note that W1 and W12 are two-day workshops.

| Workshop with technical program |          |          |
| Regular                      | $185     | Student  | $165  |
| Regular 2-Day                | $285     | Student 2-Day | $250 |
| Workshop Only (no technical program) |          |          |
| Regular                      | $335     | Student  | $215  |
| Regular 2-Day                | $410     | Student 2-Day | $300 |

Opening Reception (Monday, August 8)
Adult Guest $65.00  Child $30.00

Poster Session Reception (Wednesday, August 10)
Adult Guest $50.00  Child $25.00

Proceedings
Copies of the hardcopy proceedings are available for purchase on 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 for hardcopy of proceedings | $95.00 (normally $250.00) |


| Special Conference Rate for Proceedings CD or Workshop CD | $25.00 each (normally $39.00) |
AAA1-11, IAAI-11, EAAI-11 Proceedings

The Twenty-Fifth AAAI Conference on Artificial Intelligence
The Twenty-Third Innovative Applications of Artificial Intelligence Conference
The Second Symposium on Educational Advances in Artificial Intelligence

Sponsored by the Association for the Advancement of Artificial Intelligence

San Francisco, California USA

7–11 August 2011

2 vols., references, index, illus.,

Special Conference Price
$95.00 (plus shipping)

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