

Registration Brochure

### 2009 AAAI Fall Symposium Series &

November 4–7, 2009 & The Westin Arlington Gateway, Arlington, Virginia

Sponsored by the Association for the Advancement of Artificial Intelligence

### **Tentative Program Schedule**

(subject to change)

Wednesday, November 4

9:00 AM - 5:00 PM: AI Funding Seminar

Thursday, November 5

9:00 AM – 5:30 PM: Symposia sessions

6:00 PM – 7:00 PM: Reception

Friday, November 6

9:00 AM – 5:30 PM: Symposia sessions

6:00 PM - 7:15 PM: Plenary session

Saturday, November 7

9:00 AM - 12:30 PM: Symposia sessions

Registration will be located in the Ballroom Foyer on the Second Level.



The Association for the Advancement of Artificial Intelligence is pleased to present the 2009 Fall Symposium Series, to be held Thursday through Saturday, November 5–7, at the Westin Arlington Gateway in Arlington, Virginia, adjacent to Washington, DC. The Symposium Series will be preceded on Wednesday, November 4 by a one-day AI funding seminar. The titles of the seven symposia are as follows:

- Biologically Inspired Cognitive Architectures
- Cognitive and Metacognitive Educational Systems
- Complex Adaptive Systems and the Threshold Effect: Views from the Natural and Social Sciences
- Manifold Learning and Its Applications
- Multi-Representational Architectures for Human-Level Intelligence
- The Uses of Computational Argumentation
- Virtual Healthcare Interaction

The highlights of each symposium will be presented at a special plenary session. Notes will be prepared and distributed to participants in each symposium, but will not otherwise be available unless published as an AAAI Technical Report or edited collection.

Each symposium will have limited attendance. Participants will be expected to attend a single symposium throughout the symposium series. In addition to participants selected by the program committee of the symposia, a limited number of other interested parties will be allowed to register in each symposium on a first-come, first-served basis. To register, please fill out the registration form, and send it along with payment to:

AAAI Fall Symposium Series 445 Burgess Drive, Suite 100 Menlo Park, CA 94025-3442 Telephone: (650) 328-3123\* Fax: (650) 321-4457\* E-mail: fss09@aaai.org\* www.aaai.org/Symposia/Fall/fss09.php

\*Credit card orders only, please. Please note that there are security issues involved with the transmittal of credit card information over the internet. AAAI will not be held liable for any misuse of your credit card information during its transmittal to AAAI.

Online registration is also available at www.aaai. org/Symposia/Fall/fss09.php, along with this document.

**Biologically Inspired Cognitive Architecture** 

 $oldsymbol{T}$  he challenge of designing a human-level learner is central to creating a computational equivalent of the human mind in its higher cognitive abilities. It demands the level of robustness and flexibility of learning that today is available in biological systems only. Therefore, it is essential that we better understand at a computational level how biological systems naturally develop their cognitive and learning functions. In recent years, biologically inspired cognitive architectures (BI-CA) have emerged as a powerful new approach toward gaining this kind of understanding. The impressive success of BICA-2008 was clear evidence of this trend. As the second event in the series, BICA-2009 continues our attack on the challenge, with the overall atmosphere of excitement and potential, brainstorming and collaboration.

### **Topics**

- Bridging the gap between natural and artificial intelligence: robustness, flexibility, integrity
- Models of natural cognitive growth: self-regulation, bootstrapping, metalearning
- Critical components of humanlike learning that enable transformative cognitive growth
- Vital biological constraints informed by neuroscience and their leverage in learning sys-
- Cognitive versus subcognitive forms of learning: scalability laws and metrics for growing
- Physical support of conscious experience: the emergent self and self-awareness in artifacts
- Formal theory of cognitive and metacognitive architectures and their natural develop-
- Language acquisition, symbol grounding, and the "critical mass" of a universal learner
- Reading and measuring minds of machines and humans: the second cognitive revolution
- The origin and the function of emotional feelings and values in humans and in artifacts

### **Speakers**

Key speakers include Igor Aleksander (Imperial College), Ronald Arkin (Georgia Tech), Bernard Baars (NSI), Kenneth De Jong (GMU), Stan Franklin (University of Memphis), Stephen Grossberg (Boston University), Christof Koch (CalTech), Benjamin Kuipers (University of Michigan), Chris Lebiere (Carnegie Mellon University), Konstantin Likharev (Stony Brook University), Carol O'Donnell (DOE IES NCER), Jim Reggia (UMD), Frank Ritter (Penn State University), Stuart Shapiro (University of Buffalo), Hans-George Stork (European Commission).

### **Format**

The symposium format is a one-track session including several discussion panels and a poster review session. A joint session with MCES-2009 on the Future Funding of Research in Learning Technologies will also include a joint discussion panel. Notification of the intent to participate with name, affiliation, address, phone and fax sent by e-mail to samsonovich@cox.net is strongly encouraged.

### **Organizing Committee**

Alexei Samsonovich, chair (GMU), Igor Aleksander (Imperial College), Antonio Chella (University of Palermo), Stan Franklin (University of Memphis), Christian Lebiere (CMU), Shane Mueller (Klein/ARA), David Noelle (University of California Merced), Lokendra Shastri (Infosys).

### **Program Committee**

Samuel Adams (IBM), James Albus (NIST), Jason Augustyn (CIV USA AMC), Wei Chen (CMU), Son Dao (HRL), John Gero (GMU), Eva Hudlicka (Psychometrix), Neil Jacobstein (Stanford University), Deepak Khosla (HRL), Murray Shanahan (Imperial College), Narayan Srinivasa (HRL), Brian Tsou (AFRL), Pei Wang (Temple University), John Weng (Michigan State University).

### **Additional Information**

For more information about the symposium, see members.cox.net/bica2009.

### Cognitive and Metacognitive Educational Systems

Computer-based learning environments are designed to support learning processes to facilitate acquisition, development, use, and transfer of knowledge and strategies required to solve complex tasks. These systems have to interact with different users, and support them with decisional processes that are sensitive to individual differences. A primary concern is self-regulation, which is important for developing independent learners. Traditional intelligent (that is, rational) systems have limitations in achieving all these goals. Systems in support of education have to be "cognitive." A (meta)cognitive system is selfaware — it can adapt to the user, and may propose self-regulation strategies to help the user learn and deploy self-regulatory processes and facilitate dynamic adaptivity during learning. This sort of cognitive push-pull can be enabled via multimodal interaction, and through the possibility to define a system's "mental state." MCES 2009 is aimed to stimulate the creation of a dedicated research community about the definition of what is a (meta)cognitive educational system. What aspects of cognition, metacognition, affect, and motivation have to be explored and integrated to achieve the goal of a new generation of metacognitive tools for enhancing learning with understanding and transfer in metacognitive educational Systems?

### **Topics**

- Theoretical foundations of cognitive and metacognitive systems
- Psychological aspects of the learning process



Photo courtesy Arlington Convention and Visitors Bureau

- New educational paradigms to be addressed with a cognitive system
- & Cognitive architectures for education
- Knowledge management and representation, skill acquisition
- Novel interaction modalities for educational purposes
- Linguistic interaction in MCESs
- Modelling metacognitive skills and pedagogical interactions
- Social and cultural aspects of learning
- Support for knowledge building communities, and for networked communication
- Student modelling and cognitive diagnosis
- New software architectures (agent based systems, distributed systems...) for MCESs
- Virtual learning environments
- Neb-based systems for education

### **Speakers**

Key speakers and panelists include Michael Cox, Stephen Grossberg, Carol O'Donnell, Hans-George Stork, Elizabeth Albro.

### **Format**

The symposium format is a one-track session including several discussion panels and a poster review session. A joint session with BICA-2009 on the Future Funding of Research in Learning Technologies will also include a joint discussion panel. Notification of the intent to participate with name, affiliation, address, phone and fax sent by email to mces2009-info@dinfo.unipa.it or via the symposium website is strongly encouraged.

### **Organizing Committee**

Roberto Pirrone, Cochair (University of Palermo, Italy), Roger Azevedo, Cochair (University of Memphis), Gautam Biswas, Cochair (Vanderbilt University)

### **Program Committee**

Philip Winne (Simon Fraser University), James Lester (North Carolina State University), Susanne Lajoie (McGill University), Valerie Shute (Florida State University), Amy Baylor (National Science Foundation)

### **Additional Information**

For more information about the symposium see www.dinfo.unipa.it/mces2009.

Most interesting phenomena in natural and social systems include transitions and oscillations among their various phases. Companies, societies, markets, and humans rarely stay in a stable, predictable state for long. Randomness, power laws, and human behavior ensure that the future is both unknown and challenging. How do events unfold? When do they take hold? Why do some initial events cause an avalanche while others do not? What are the characteristics of these threshold phenomena that differentiate a sea change from a nonevent?

Complex adaptive systems (CAS) and related technologies have proven to be powerful tools for exploring threshold phenomena. We characterize a general CAS model as having a significant number of self-similar agents that utilize one or more levels of feedback; exhibit emergent properties and self-organization; produce nonlinear dynamic behavior.

Advances in modeling and computing technology, including CAS, have led to a deeper understanding of complex systems in many fields in the natural, physical, and social sciences. These developments have raised the possibility that similar fundamental principles may be at work across these systems, even though the underlying principles may manifest themselves in different ways. We therefore invite participation from researchers across a wide range of disciplines, in the belief that a deep understanding in one domain may lead to greater insight into others.

### **Format**

Our symposium will have invited talks from leaders in the field, as well as paper presentations on both completed and speculative work. Due to the nature and the novelty of the theme, it is essential to allow ample time for both open-ended and targeted discussions; as such, we will hold panel discussions and smaller break-out groups to allow for a spirited interaction among participants.

### **Organizing Committee**

Mirsad Hadzikadic, Chair (University of North Carolina, Charlotte), Ted Carmichael, cochair (University of North Carolina Charlotte), Didier Dréau (University of North Carolina Charlotte), Jim Walsh (University of North Carolina Charlotte), Thom McLean (Georgia Tech), Cathy Zanbaka (BAE Systems), Marvin Croy (University of North Carolina Charlotte), Aaron Frank (BAE Systems), John Hummel (Argonne National Laboratory), Charles Macal (Argonne National Laboratory), John Stamper (University of North Carolina Charlotte), Alfred Hubler (University of Illinois, Urbana-Champagne), Russ Abbott (California State University), Patrick Grim (SUNY Stony Brook), Andrea Jones-Rooy (University of Michigan), Scott Demarchi (Duke University), Bill Rand (University of Maryland), Bob Reynolds (Wayne State University), Anne-Marie Grisogono (Defense Science and Technology Organisation, Australia), Tony Beavers (University of Evansville), Eunice Santos (Virginia Tech).

### **Additional Information**

For more information about the symposium see sites.google.com/site/complexadaptivesystems.

# Manifold Learning and Its Applications

In recent years, an impressive number of methods have been proposed for manifold learning and nonlinear dimensionality reduction. This fact illustrates both the growing interest in the area and the myriad of possible approaches to the problem. These methods vary, for example, in terms of the preservation of global or local properties of the data, regularization methods or the application of probabilistic or geometric constraints to the embedding.

The resulting theory and methods of manifold learning can be applied to many areas. For example, in computer vision, most data sets are comprised of sparse, high dimensional data (for example, hundreds of images where each image contains millions of pixels). Manifold learning has been used to facilitate common computer vision tasks such as video content analysis, pose estimation, image or video segmentation, and object tracking. Similarly, applications of manifold learning are abundant in bioinformatics, natural language processing, and robotics.

The goal of this symposium is to identify the overlap of theory and uses of manifold across the disciplines, which both produce and consume these methods in order to consolidate the knowledge on this topic, discuss the achievements in the area, and figure out the common open problems.

Topics of the program include the following:

Theory of Manifold Learning

- Distance metrics
- laplace operators, harmonic analysis
- Dimensionality estimation
- Regression and classification
- Sparsity and compressive sensing
- Approximation of manifolds
- Parameterizations and embeddings

Manifold Learning and Graph-Based Methods

- Kernel, spectral, topological, and probabilistic methods
- Method taxonomies

Applications of Manifold Learning

AI, bioinformatics, computer vision, NLP, robotics, social networks

### **Format**

The symposium format is a one-track session, which will be organized into the following topic clusters: foundations, algorithms, representations, applications, and future challenges. Each cluster will consist of an invited talk, presentation of submitted work as short talks or posters, and a panel discussion.

### **Organizing Committee**

Mikhail Belkin (The Ohio State University), Mauro Maggioni (Duke University), Sridhar Mahadevan (University of Massachusetts), Richard Souvenir (University of North Carolina at Charlotte), Jerry Zhu (University of Wisconsin – Madison)

### **Additional Information**

For more information about the symposium see odin.uncc.edu/aaai-manifold or contact Richard Souvenir (souvenir@uncc.edu) with questions...

### $oldsymbol{A}$ multiplicity of representational frameworks has been proposed for explaining and creating human-level intelligence. Each has been proven useful or effective for some class of problems, but not across the board. This fact has led researchers to propose that perhaps the underlying design of cognition is multi-representational, or hybrid, and made up of subsystems with different representations and processes interacting to produce the complexity of cognition. Recent work in cognitive architectures has explored the design and use of such systems in high-level cognition. The main aim of this symposium is to bring together researchers who work on systems utilizing different types of representations to explore a range of questions about the theoretical framework and applications of such systems.

The symposium will be a mixture of invited talks, refereed full and position papers, expert panels and discussion sessions. The first session on each day will feature invited talks from experts in the field. The second and fourth sessions on Thursday and Friday (and the second session on Saturday) will be devoted to paper presentations. The exact length of time reserved for each presentation will be determined according to the number of number of papers accepted and will include time for answering questions. Time will also be reserved at the end of each paper session for an expert panel formed from the presenters of that session. More general questions that focus on areas common to the presentations or those that

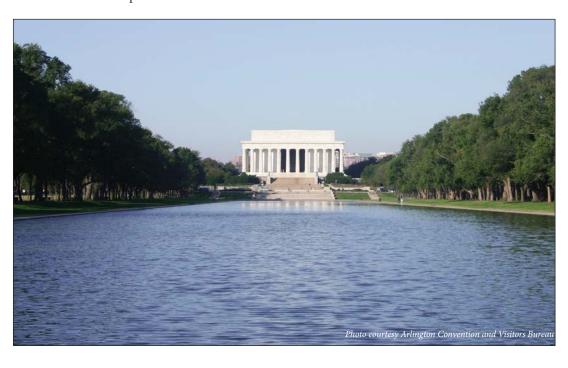
compare and contrast the various approaches discussed in that session will be the focus of these discussions. The third session on Thursday and Friday will be devoted to discussion groups. There will be between four and six groups devoted to various theoretical and application-oriented topics. Symposium participants will be able to select their group of choice. The end of these discussion sessions will include a 20-30 minute meeting where various groups will present their summary of the individual discussions.

### **Organizing Committee**

Unmesh Kurup, Chair (Rensselaer Polytechnic Institute, USA), B. Chandrasekaran (The Ohio State University, USA), Bonny Banerjee (Securboration, USA), John Laird (University of Michigan, USA), Scott Lathrop (United States Military Academy, USA), Marvin Minsky (MIT Media Lab, USA), Luis Pineda (Universidad Nacional Autónoma de México, Mexico), Samuel Wintermute (University of Michigan, USA)

### **Additional Information**

For more information about the symposium see www.diagrams.ukurup.com/hybrid.



# The Uses of Computational Argumentation

 $oldsymbol{A}$ rgumentation is a form of reasoning in which explicit attention is paid to the reasons for the conclusions that are drawn and how conflicts between reasons are resolved. Explicit consideration of the support for conclusions provides a mechanism, for example, to handle inconsistent and uncertain information. Argumentation has been studied both at the logical level, as a way of modelling defeasible inference, and at the dialogical level, as a form of agent interaction. Argumentation has long been studied in disciplines such as philosophy, and one can find approaches in computer science from the 1970s onwards that clearly owe something to the notion of an argument. Work on computational argumentation, where arguments are explicitly constructed and compared as a means of solving problems on a computer, first started appearing in the second half of the 1980s, and argumentation is now well established as an important sub-field within artificial intelligence.

There is now a good understanding of the basic requirements of argumentation systems, and there are several theoretical models that have been widely studied by researchers. There are one or two robust implementations, and the first software systems built around argumentation are beginning to appear. This, therefore, is an appropri-

ate time to consider what these models and implementations might be used for. This symposium will provide a forum for wide-ranging discussion of the possible applications of techniques from computational argumentation. It will give special focus to strongly innovative ideas, ideas that can engage current researchers in the area and can inspire others to become researchers in the area.

### **Organizing Committee**

Simon Parsons, Chair (Brooklyn College, City University of New York), Pietro Baroni (University of Brescia, Italy), Trevor Bench-Capon (University of Liverpool, UK), Nancy Green (University of North Carolina Greensboro, USA), Henry Prakken (Utrecht University, The Netherlands)

### **Additional Information**

For more information about the symposium see people.cs.uu.nl/henry/uses.

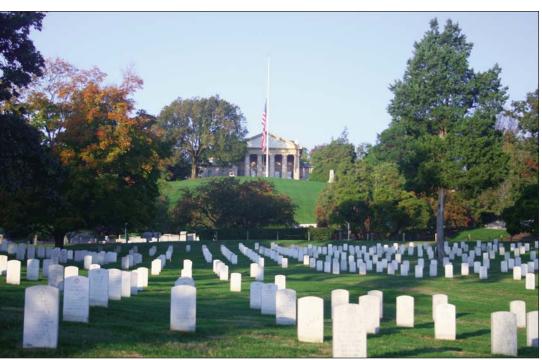


Photo courtesy Arlington Convention and Visitors Bureau

Virtual Healthcare Interaction

Interaction between healthcare providers and consumers has a central role in consumer satisfaction and successful health outcomes. The healthcare consumer, facing increasing responsibility for healthcare decisions, may turn to electronic resources to supplement the information given by his healthcare provider. Here intelligent systems can assist in retrieval and summarization of relevant and trustworthy information, in tailoring the information so that it is comprehensible, and in making it accessible to computer users with disabilities. Furthermore, intelligent systems are beginning to appear that provide virtual healthcare services to the patient: for example, monitoring the patient's health, reminding him to take his medicine, and encouraging him to exercise or eat a healthy diet. On the health care provider's side, artificial intelligence can provide virtual patients for training providers to diagnose, care for, or communicate with clients.

This symposium will focus on virtual healthcare interaction (VHI): use of artificial intelligence in interaction traditionally occurring between healthcare providers and consumers. Topics of interest include the following:

- Virtual healthcare providers (such as medication advising, counseling)
- Games, conversational agents, and dialogue systems for healthy behavior promotion (such as STD prevention, personal exercise trainer)
- Virtual patients for training providers to diagnose, care for, or communicate with clients (such as virtual psychiatric patient)
- Decision support for healthcare clients (such as for cancer treatment)
- Explanation for informed consent
- Healthcare interventions (such as cognitive prostheses, speech therapy, virtual or robotic companions)
- Tailoring health information or risk communication to patients, including low-literacy, low-numeracy, or under-served audiences
- Intelligent retrieval and summarization of healthcare information tailored for patients
- Tailored access to medical record supporting both providers and consumers
- Intelligent interfaces supporting access to healthcare services for people with HCI limitations (such as motor, vision, hearing, cognitive).

In addition to AI researchers, the symposium invites participants from healthcare-related fields with an interest in these issues. The symposium format will consist of presentations on work in progress and mature work, demonstrations of implemented systems, invited expert presentations, and small group discussions.

### **Organizing Committee**

Nancy Green, cochair (University of North Carolina Greensboro), Donia Scott, cochair (Open University), Tim Bickmore (Northeastern University), Giuseppe Carenini (University of British Columbia), Floriana Grasso (University of Liverpool), Curry Guinn (University of North Carolina Wilmington), Kathy McCoy (University of Delaware), Cecile Paris (CSIRO ICT Centre, Australia), Yan Qu, Ehud Reiter (University of Aberdeen)

### **Additional Information**

For more information about the symposium see www.uncg.edu/~nlgreen/aaaifss09/VHI-09

## Registration and General Information

ALL ATTENDEES MUST PREREGISTER. Each symposium has a limited attendance, with priority given to invited attendees. All accepted authors, symposium participants, and other invited attendees must register by September 18, 2009. After that period, registration will be opened up to the general membership of AAAI and other interested parties. All registrations must be postmarked by October 16, 2009.

The conference registration fee includes admission to one symposium, one copy of the working notes from the symposium, coffee breaks, and the opening reception.

Checks (drawn on US bank) or international money orders should be made out to AAAI. VISA, MasterCard and American Express are also accepted. Please fill out the attached registration form and mail it with your fee to:

AAAI 2009 Fall Symposium Series 445 Burgess Drive, Suite 100 Menlo Park, CA 94025

If you are paying by credit card, you may email the form to fss09@aaai.org or fax it to (650) 321-4457. Registration forms are also available on AAAI's web page: www.aaai.org/Symposia/Fall/fss09.php

Please note: All refund requests must be in writing and postmarked by October 23, 2009. No refunds will be granted after this date. A \$75.00 processing fee will be levied on all refunds granted.

When you arrive at the Westin Arlington Gateway, please pick up your complete registration packet at the registration area.

Registration hours will be:

Thursday, November 4 8:00 AM - 5:00 PM Friday, November 5 8:00 AM - 5:00 PM Saturday, November 6 8:30 AM - 5:00 PSunday, November 7 8:30 AM - 11:00 AM

### **Hotel Information**

For your convenience, AAAI has reserved a block of rooms at the Westin Arlington Gateway. One of the newest hotels in the Washington D.C. area, the Westin Arlington Gateway is located in the Ballston area of Arlington. It is a short walk from the Ballston Metro Station, which allows guests to easily explore Arlington, downtown Washington, DC, Alexandria, or Georgetown. Reagan National Airport is easily accessible via the Washington

Metro rapid transit.

The conference room rate per night is \$189.00 (single/double).

Rates do not include applicable state and local taxes (approximately 10.25%), or hotel fees in effect at the time of the meeting. Symposium attendees must contact the Westin Arlington Gateway directly. Please request the group rate for the Association for the Advancement of Artificial Intelligence (AAAI) when reserving your room. The cut-off date for reservations is October 4, 2009. Reservations after this date will be accepted based on availability at the hotel's prevailing rate. All reservations must be secured by one night's deposit per room, via credit card or check. Reservations may be cancelled with no penalty up to 6:00 pm, 72 hours prior to the date of arrival. After that time, a penalty of one night's room and tax will be incurred. Upon check-in, date of departure must be confirmed. Early departure will result in a fee equal to one night's guest room rate.

Westin Arlington Gateway 801 North Glebe Road Arlington, Virginia 22203 USA Fax: +1 703 717-6260 Reservations: +1-888-627-7076 (reference AAAI) Online Reservations: www.starwoodmeeting.com/Book/aaai2009

### **Airport Transportation**

Metro Rail. Metro service is available from Reagan National Airport to The Westin Arlington Gateway. The cost is approximately \$1.65 per person one way. Take the Blue Line towards Largo Town Center Metro Station and arrive at Rosslyn Metro Station. Transfer to the Orange Line towards Vienna/Fairfax GMU. Arrive at Ballston Metro Station and walk .30 mile SW to The Westin Arlington Gateway.

For a metro rail system map, visit www.wmata.com/rail/maps/map.cfm

For a map of the station area in relation to the Arlington Gateway, please see www.stationmasters.com/System\_Map/BALLSTON/ballston.html or www.wmata.com/rail/station\_detail.cfm? station\_id=99

Shuttle. The Super Shuttle van service will take guests directly from the airport to The Westin Arlington Gateway. The shuttle service picks up passengers outside of the terminal. Approximate



Photo courtesy Arlington Convention and Visitors Bureau

costs from each of the airports are listed below and may be subject to change. Please visit the website (www.supershuttle.com) or call Super Shuttle to confirm current rates (800-BLUE-VAN [258-3826]):

Reagan National Airport: \$14.00 Dulles International: \$29.00 Baltimore-Washington: \$48.00

Car. Take the George Washington Memorial Parkway North, and then merge onto I-395 South toward Richmond. Merge onto Washington Boulevard via Exit 8A toward Ridge Road and then onto US-50 W/Arlington Boulevard toward Falls Church. Take the Glebe Road exit, turn right onto North Glebe Road/VA-120 North. The hotel is on the right.

For directions from Washington Dulles Airport or other points, please see www.starwoodhotels. com/westin/property/overview/index.html? propertyID=1513 and click on "Local Area."

Valet parking is available at the Westin Arlington Gateway for a maximum of \$22.00 per day / overnight.

Taxi. Approximate one-way taxi fares from area airports are:

Reagan National Airport: \$20.00

Dulles International: \$50.00 Baltimore-Washington: \$95.00

### Disclaimer

In offering the Westin Arlington Gateway (hereinafter referred to as "Supplier"), and all other service providers for the AAAI Fall Symposium Series, the Association for the Advancement of Artificial Intelligence acts only in the capacity of agent for the Supplier, which is the provider of hotel rooms and transportation. Because the Association for the Advancement of Artificial Intelligence has no control over the personnel, equipment or operations of providers of accommodations or other services included as part of the Symposium program, AAAI assumes no responsibility for and will not be liable for any personal delay, inconveniences or other damage suffered by symposium 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 Form

### **AAAI 2009 Fall Symposium Series**

ALL ATTENDEES MUST PREREGISTER & Please complete in full and return to AAAI, postmarked by September 18, 2009 (invited attendees) or by October 16, 2009 (general registration).

Please print or type (registration cannot	be processed if information is incomplete or illegible):		
First Name	Last Name		
Company or Affiliation			
Address		Home □ or Busi	
City		State	
Zip or Postal Code	Country		
Daytime Telephone	E-mail Address		
Symposium			
I will attend the following sympos	ium: (Please check only one of the following symposia)		
☐ 4. Manifold Learning and Its Ap	Educational Systems and the Threshold Effect: Views from the Natural and plications tectures for Human-Level Intelligence rgumentation	Social Sciences	
☐ No, I do not plan to attend.	ling Seminar on Wednesday, November 4.		
Registration Fee  (Students must send legible proof of full-time student sta  ☐ Member: \$ 320.00 ☐ Nonmember	r: \$ 495.00	nmember student: \$ 225.00	
☐ Regular (US / Canada) Member: \$ ☐ Regular (International) Member \$	460.00 ☐ Student Member (International): \$ 2		
TOTAL FEE (Please enter correct amount.) \$*  *The card verification number on Visa and Mas-		*The card verification number on Visa and Mas-	
	ed by credit card information. Checks (drawn on a US bank) equired. No purchase orders will be accepted. (Please circle one)  VISA CHECK	tercard is a 3-digit number printed on the back of your card. It appears after and to the right of your card number. On American Express cards, the verification number is a 4-digit number printed on the front of your card. It appears after and to the right of your card number.	
Credit card number	Verification No.*	Expiration	
Name (as it appears on card)	Signature		
Credit Card Billing Address		Business Name	

Please mail your check to AAAI 2009 Fall Symposium Series • 445 Burgess Drive • Menlo Park, CA 94025 or fax with credit card information to 1-650-321-4457. *Please Note*: Requests for refunds must be received in writing by October 23. No refunds will be granted after this date. A \$75.00 processing fee will be levied on all refunds granted.