

Registration

2004 AAAI Fall Symposium Series &

October 21–24, 2004 ■ Hyatt Regency Crystal City, Arlington, Virginia

Sponsored by the American Association for Artificial Intelligence 445 Burgess Drive, Menlo Park, California 94025 / 650-328-3123 / 650-321-4457 (fax) www.aaai.org/Symposia/Fall/2004

Registration Deadlines

- September 10, 2004: Invited participants
- September 27, 2004: Hotel reservation cut-off date
- land October 1, 2004: Final (open)
- October 8, 2004: Refund requests in writing

The American Association for Artificial Intelligence is pleased to present its 2004 Fall Symposium Series, to be held Friday through Sunday, October 22-24 at the Hyatt Regency Crystal City in Arlington, Virginia, adjacent to Washington, DC. The Symposium Series will be preceded on Thursday, October 21 by a one-day AI funding seminar, which will be open to all registered attendees of the fall symposium series. The topics of the eight symposia in the 2004 Fall Symposia Series are:

- Achieving Human-Level Intelligence through Integrated Systems and Research
- Artificial Multi-Agent Learning
- & Compositional Connectionism in Cognitive Science
- Dialogue Systems for Health Communications
- * The Intersection of Cognitive Science and Robotics: From Interfaces to Intelligence
- Making Pen-Based Interaction Intelligent and Natural
- Real-Life Reinforcement Learning
- Style and Meaning in Language, Art, Music, and Design

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:

2004 Fall Symposium Series AAAI, 445 Burgess Drive, Menlo Park, CA 94025 Telephone: (650) 328-3123* Fax: (650) 321-4457* Email: fsso4@aaai.org *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.

A registration form is available at the end of this document. If you prefer, you may register online at www.aaai.org/ Symposia/Fall/2004/fss-04.html.

Tentative Program Schedule

(subject to change)

Friday, October 22

9:00 AM - 5:30 PM: Symposia sessions 6:00 PM - 7:00 PM: Reception

Saturday, October 23

9:00 AM - 5:30 PM: Symposia sessions 6:00 PM - 7:00 PM: Plenary session

Sunday, October 24

9:00 ам - 12:30 рм: Symposia sessions

Registration will be located on the third floor of the hotel outside the meeting rooms.

Funding Workshop

Thursday, October 21, 2004, 9:00 AM – 5:30 PM

This workshop will provide an opportunity for new and junior researchers, as well as students and post-doctoral fellows, to get an inside look at what funding agencies expect in proposals and prospective grantees.

Representatives and program managers from various funding agencies such as the Defense Advanced Research Projects Agency (DARPA), the National Science Foundation (NSF), the Office of Naval Research (ONR), and the Department of Homeland Security will be giving presentations. Potential topics will include how to approach program managers, socialize your proposals, find out about potential programs, team with industry and other researchers, and find information on various infrastructure programs that provide equipment funding, and upcoming funding opportunities. In addition, several successful researchers will discuss what they feel made them successful, and will give advice on how to play the funding game.

 ${\cal H}$ lthough there has been substantial progress in some of the subfields of artificial intelligence during the past three decades, the field overall is moving toward increasing subfield isolation and increasing attention to near-term applications, retarding progress toward comprehensive theories and deep scientific understanding, and ultimately, retarding progress toward developing the science needed for higher-impact applications. Recent work in artificial intelligence, in addition to cognitive psychology, neuroscience, and linguistics, presents an opportunity to reverse this specialization and reinvigorate the field's focus on understanding and developing human-level intelligence.

Because there are so few venues for research on integration and because the opportunity is so great, we propose to gather researchers working across the boundaries of their subfields to explore new computational techniques and research methodologies for integrating research results to produce more intelligent systems.

We plan to address three broad topics of interest. First, what can models of vision, language, learning, and reasoning in fields such as cognitive psychology, linguistics, and neuroscience contribute to artificial intelligence? Is there a way to describe and organize these results so that they can be more easily shared and combined across subfields? Second, how can we integrate multiple perception, action, representation, learning, planning, and reasoning systems to build cognitive models and intelligent systems that significantly advance the level of intelligence we can model or achieve? Is there a way to characterize the strengths and weaknesses of each approach and determine when to use each? Finally, what kind of theoretical, methodological, or technological innovations are needed to accelerate this research? Will it require advances in cognitive modeling, cross-domain and intersubfield ontologies, or some kind of institutional transformation?

The topics of interest lead us to encourage a wide range of presentations, including presentations focused on the integration and interconnection of multiple systems, on the contributions of fields such as cognitive psychology, neuroscience, and linguistics to integration questions, and on methodological issues having to do with integration.

Organizing Committee

Patrick Winston (cochair), Massachusetts Institute of Technology; Nick Cassimatis (cochair), Naval Research Laboratory; Marvin Minsky, Massachusetts Institute of Technology; Erik Mueller, IBM Thomas J. Watson Research Center; Nicolas Nicolov, IBM T.J. Watson Research Center; Lera Boroditsky, Massachusetts Institute of Technology

Artificial Multi-Agent Learnin

 ${\mathcal M}$ ultiagent systems is a subset of distributed artificial intelligence that emphasizes the joint behaviors of agents in environments with some degree of autonomy. In most such environments there are constraints placed on the degree to which any agent may know what other agents know, or on their communication capabilities, such that the system must have distributed control and cannot be solved with a master-slave model via a single master agent.

In recent years there has been increasing interest in applying machine learning techniques to multiagent systems problems. The presence of large numbers of agents, increasingly complex agent behaviors, partially observable environments, and the mutual adaptation of agent behaviors make the learning process a challenging one. These problems are further complicated by noisy sensor data, local bandwidth-limited communication, unplanned faults in hardware agents, and stochastic environments.

The goal of this symposium is to bring together researchers from diverse areas of the multiagent learning community. Research presented at the symposium will include learning topics such as coevolution, multiagent reinforcement learning, multi-robot issues, stochastic and repeated games, agent modeling, team formation, swarms, and distributed scheduling.

Organizing Committee

Michael Bowling (bowling@cs.ualberta.ca), Kenneth De Jong (kdejong@cs.gmu.edu), Marie desJardins (mariedj@cs.umbc.edu), Sean Luke (chair, sean@cs.gmu.edu), Mitchell Potter (mpotter@ aic.nrl.navy.mil), and Lee Spector (lspector@ hampshire.edu)

Compositionality (the ability to combine constituents recursively) is generally taken to be essential to the open-ended productivity of perception, cognition, language and other human capabilities aspired to by AI. Ultimately, these capabilities are implemented by the neural networks of the brain, yet connectionist models have had difficulties with compositionality. This symposium will bring together connectionist and non-connectionist researchers to discuss and debate compositionality and connectionism.

The aim of this symposium is to expose connectionist researchers to the broadest possible range of conceptions of composition—including those conceptions that pose the greatest challenge for connectionism—while simultaneously alerting other AI and cognitive science researchers to the range of possibilities for connectionist implementation of composition. We have encouraged submissions from both proponents and critics of connectionist representations, so long as the work described focuses on compositionality in the context of AI or cognitive science.

Topics of interest include:

- The relationships between the representational constituents and the composite
- * The process of composition
- The possibility of asymmetry between composition and decomposition
- The constituents (relevant to human agency) that can be composed
- The consequences of having multiple interacting compositional systems
- * The extent to which "structure-in-time" connectionist models, like Elman's Simple Recurrent Networks, represent compositional structure
- The possibility that different connectionist models implement different aspects of compositionality and can be used together

Researchers from a wide range of disciplines are encouraged to participate. The symposium will consist of approximately twenty papers, two invited talks, and round table discussions. Authors were asked to keep their papers brief to provide extensive discussion time and to allow for the variable background knowledge of the audience.

We anticipate having some funds to support student travel.

For More Information

For more information about the symposium, see www.cs.wlu.edu/~levy/aaai04/

Invited Speakers

- la Jeff Elman, University of California, San
- Mark Steedman, University of Edinburgh

Organizing Committee

Simon D. Levy (cochair), Washington & Lee University; Ross Gayler (cochair), La Trobe University; Pentti Kanerva, Redwood Neuroscience; Institute; Chris Eliasmith, University of Waterloo

ialogue Systems for Health Communication

Oince Eliza was developed in 1966, computer scientists and health researchers have attempted to build conversational systems that emulate interactions between health providers and patients. Although Eliza was developed only as a proof-ofconcept, more recent systems have been built with the intent to provide low-cost and widely accessible health care in limited treatment domains. and many of these systems have been proven effective in large-scale clinical trials. In addition to the unique challenges of developing health dialogue systems that are safe, scale to thousands of users, and can accommodate the complexity of multiple diseases or health behaviors, dozens of studies in the field of health communication indicate that psychosocial aspects of the provider-patient interaction—such as empathy, trust and liking-are crucial for maximizing outcomes and patient satisfaction, indicating that these should be addressed in automated systems as well.

The goal of this symposium is to bring together researchers in AI-including computational linguistics, planning, user modeling and social agents-with researchers in health communication, public health and the medical sciences. The overall focus will be the design, implementation and evaluation of effective health dialogue systems. Topics to be covered at the symposium include:

- Automatic generation of dialogue to support patient health education, health behavior change, or chronic disease management, or to provide assistance with daily activities for individuals with physical or cognitive impairments.
- The use of embodied conversational agents, telephonic systems and computer games for health education and health behavior change.
- Assessment of neuropsychiatric states and voice pathology from dialogue and speech.
- Approaches to the development and maintenance of trust, working alliance, liking and other variables that characterize the patient-agent relationship.
- Approaches to evaluation of these sys-

Keynote talks will be given by experts who have developed health dialogue systems that have been used in several large scale clinical trials. They will discuss the challenges they've faced in fielding these systems and problem areas they feel could be addressed through additional dialogue systems research. Panel sessions will be held on the uniqueness of health dialogue and issues in conducting research within the healthcare system.

For More Information

More information about the symposium can be found at: www.misu.bmc.org/~bickmore/dshc/

Organizing Committee

Timothy Bickmore (chair), Boston University School of Medicine; Neal Lesh, Mitsubishi Electric Research Laboratory; Stacy Marsella, USC Information Sciences Institute; Rosalind Picard, MIT Media Laboratory; Martha Pollack, University of Michigan, Artificial Intelligence Laboratory

 $P_{
m rinciples}$ and methodologies from cognitive science are starting to be applied to autonomous robots. The use of cognitive science in robotics takes varied forms, from using computational cognitive models as reasoning mechanisms for robots, to the design and control of human-robot interaction. This interdisciplinary workshop will bring together researchers in robotics, cognitive science, and human-machine interfaces to examine this emerging area, and hopes to establish a new community for this emerging discipline.

We need to make clear what we mean by cognitive science and by robotics. By cognitive science, we mean work that has some cognitive plausibility (i.e., can arguably be claimed that the representation, strategies, and/or actions have some basis in human cognition; in general C++ code written to do formal reasoning are not cognitively plausible) or person-in-the-loop issues. By robotics, we wish to emphasize embodied systems such as mobile robots and autonomous vehicles, and not just software agents. Topics that may be discussed include:

- Use of computational cognitive models in robots and autonomous systems as spatial, temporal or other reasoning mechanisms or as model of human or other agent with whom the robot must interact
- Achieving near-human performance for more effective interactions
- Human subject studies to determine effective interaction model for a given role and task domain
- & Cognitive science as applied to interaction design
- Role of the robot during interaction (bystander, collaboration...etc)
- Human-based perceptual or action sys-
- Models of emotion for the robot to interact with people
- & Studies or models of human-based representations that can be used on the robot to facilitate human-robot interaction

Longer technical presentations will be followed by a series of short position or technical presentations representing different aspects of this interdisciplinary field. Panel sessions will then allow all attendees to participate in a discussion of the topics introduced in that session. We will also be organizing a joint sessions with the symposium "Achieving human-level intelligence through integrated systems and research."

Organizing Committee

Alan C. Schultz Code 5515, Naval Research Laboratory 4555 Overlook Ave., S.W. Washington DC, 20375 202-767-2684

Cynthia Breazeal, MIT Media Lab (cynthiab@media.mit.edu); John R. Anderson, Carnegie Mellon University; Greg Trafton, Naval Research Laboratory (trafton@aic.nrl.navy.mil)

Making Pen-Based

 $\mathcal{W}_{\mathrm{ith}}$ the growing interest in and use of PDAs and tablet computers, pen-based interaction has become an area of increasing research interest and practical consequences. To date, however, most pen-based interaction is still done using either traditional mouse motions or with an artificial gesture language like Palm's Graffiti.

This symposium aims to explore what it would take to make intelligent pen-based interaction feel much more like the kind of writing and drawing we routinely do on paper. What would it take to make sketching on a tablet computer, for example, feel as natural as sketching on paper, yet have the computer understand what is being drawn? Can we extend the interaction so that the system also understands the often fragmentary speech and the variety of hand gestures that go with drawing in environments like collaborative design reviews? How can multimodal input such as pen strokes, speech, and gestures be naturally combined and used for mutual disambiguation? Solving these challenges would provide an enormous advance over traditional tools for tasks like design and brainstorming.

The central goal of the symposium is to provide a focus for the growing community interested in making pen-based computing more natural by making it smarter, and interested in uses of penbased computing that go beyond handwriting recognition. It will as well be an opportunity to cross-fertilize research in AI and HCI, aiming on one hand to make human-computer interaction more natural by making it smarter, and on the other to infuse AI research with the insights and expertise of the HCI community.

Twenty-six technical papers have been selected for presentation at the symposium.

Cochairs

Randall Davis, MIT (davis at csail.mit.edu); James Landay, University of Washington (landay at cs.washington.edu); Tom Stahovich, University of California, Riverside (stahov at engr.ucr.edu); Rob Miller, MIT (rcm at csail.mit.edu); Eric Saund, PARC (saund at parc.com)

Real-Life Reinforcement Learnin

 $R_{
m einforcement}$ learning provides the tantalizing promise of enabling computer systems to adapt to their environments and solve challenging problems based on experience instead of explicit programming. Despite several notable successes, widespread adoption of reinforcement learning has been slow. The main issue is not simply how to "scale up" reinforcement learning to larger problems but a need to develop a fundamental understanding of the common research issues that arise in applying learning to real-life problems.

Real-life reinforcement learning is not about building practical applications per se, but about creating reinforcement-learning systems grounded in real data. The emphasis is on venturing beyond simulators built within AI labs to learning in systems with sensors or in simulators developed outside our research community.

To help focus attention on these challenges, this symposium will bring together researchers concerned with deploying interactive learning systems in real-world environments such as robotics, production control, network management, financial domains, and video games. It will include case studies of successful systems as well as conceptual and algorithmic work targeted toward eliminating existing stumbling blocks.

Organizing Committee

Michael Littman (co-organizer, mlittman@cs.rutgers.edu; Department of Computer Science, Rutgers University), Satinder Singh (co-organizer, baveja@eecs.umich.edu; Department of EECS, University of Michigan), Rich Sutton (Rich@richsutton.com; Department of Computing Science, University of Alberta), Peter Stone (pstone@cs.utexas.edu; Department of Computer Sciences, The University of Texas at Austin), Amy McGovern (amy@cs.umass.edu; Department of Computer Science, University of Massachusetts, Amherst), Sridhar Mahadevan (mahadeva@cs.umass.edu; Department of Computer Science, University of Massachusetts, Amherst)

 $T_{
m n}$ recent years a growing number of researchers working in artificial intelligence, cognitive science, computer graphics, computer music, and multimedia have begun to explicitly address issues of "style" or connotative meaning in their work. While it is still difficult to precisely characterize these concepts satisfactorily (we know it when we see it), common denominators of much of this work are: an emphasis on manner rather than topic, a focus on affective aspects of expression and understanding, and a search for "dense" representations of meaning in which elements simultaneously symbolize multiple layers of meaning at once.

The symposium will provide a unique meeting ground for researchers and practitioners in all media that share the problem of formalizing a notion of style, being an effective means to generate a discourse across diverse forms and approaches. The goal of this symposium is to bring such individuals together, to seek out common languages and frameworks for discussion, as well as to establish a shared set of stylistic tasks, which can be used as a test-bed for extending and generalizing stylistic work. Keying into stylistic sensibility, we hope to make headway into understanding style in an attempt to develop methodology and modeling language for representation, analysis and generation of differing styles across multiple domains.

Research talks at the symposium include papers and demonstrations of works in domains as widely varying as text, poetry, caricature, gameplaying, theater and media art, architecture, and design. Sessions each day will be preceded by invited talks and demonstrations by leading experts in applying computational techniques to style in various media and domains. Discussion panels will be held at the end of each day, focusing on fundamental questions for the development of a research community devoted to "computational approaches to style."

Invited Speakers

Eduard Hovy, ISI (natural language); Christopher Raphael, (computer music); Sheldon Brown, (new media art); George Stiny, MIT (architecture); Harold Cohen (visual arts)

Organizing Committee

Shlomo Argamon, Illinois Institute of Technology (chair); Roger Dannenberg, Carnegie Mellon, University; Shlomo Dubnoy, University of California San Diego (chair); Graeme Hirst, University of Toronto; Julie Jupp, The University of Sydney (chair); Jussi Karlgren, Swedish Institute of Computer Science; Moshe Koppel, Bar-Ilan University; Mine Ozkar, Massachusetts Institute of Technology; James Shanahan, Clairvoyance Corporation.

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 10, 2004. 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 1, 2004.

The conference registration fee includes admission to the funding seminar and 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 2004 Fall Symposium Series 445 Burgess Drive Menlo Park, CA 94025

If you are paying by credit card, you may e-mail the form to fsso4@aaai.org or fax it to 650-321-4457. Registration forms are also available on AAAI's web page: http://www.aaai.org/Symposia/Fall/2004/fss-04.html.

Please note: All refund requests must be in writing and postmarked by October 8, 2004. No refunds will be granted after this date. A \$50.00 processing fee will be levied on all refunds granted.

When you arrive at the Hyatt Regency, please pick up your complete registration packet at the registration area.

Registration Hours

Registration hours will be:

Thursday, October 21

№ 8:00 AM ⁻ 5:00 PM

Friday, October 22

№ 8:00 AM - 5:00 PM

Saturday, October 23

№ 8:30 AM - 5:00 PM

Sunday, October 24

8:30 AM - 11:00 PM

accommodations & Transportation

 ${\cal F}$ or your convenience, AAAI has reserved a block of rooms at the Hyatt Regency Crystal City. The hotel is adjacent (less than one mile) to Reagan National Airport and minutes away from downtown Washington, DC, Alexandria, Virginia, and the Georgetown district. It is also conveniently located to Metro rapid transit and near a wide selection of restaurants and shopping.

The conference rates per night are:

- \$139.00 single
- **№** \$175.00 double
- **\$200.00** triple
- **\$225.00** guad

Rates do not include applicable state and local taxes (approximately 9.75%).

Symposium attendees must contact the Hyatt Regency directly. Please request the group rate for the American Association for Artificial Intelligence when reserving your room.

The cut-off date for reservations is September 27, 2004. 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 4:00 PM, 24 hours prior to the date of arrival. After that time, a penalty of one night's room and tax will be incurred.

Hyatt Regency Crystal City

2799 Jefferson Davis Highway Arlington, Virginia 22202 USA Group Reservations: +1 703 418 1234 or 800-233-1234 Fax: +1 703 418 1289 http://hyatt.com

Hyatt Shuttle

The Hyatt Regency Crystal City operates a complimentary Reagan National Airport shuttle between 6:00 AM and midnight. The Hyatt Shuttle runs every thirty minutes and can be found at the shuttle stop outside the baggage claim area.

Metro Rail

Take the Blue or Yellow line to the Crystal City Station. Take the escalators from the station up to the street. Once you are at the top of the escalators, turn to the left toward the brown Metro sign. The Hyatt shuttles stop at the corner (look for the White\Red Shuttle sign) every 1/2 hour. For pickup at the METRO, you may call the hotel directly at 703-418-1234.

Car

Follow signs to Crystal City. Take the Rt. 1 South exit and get in the left hand lane. Turn left at first light, 27th Street. The hotel is on the left.

For directions from Washington Dulles Airport or other points, please see http://crystalcity.hyatt.com/property/areaguide/maps/index.jhtml

Parking is available at the Hyatt Regency for a maximum of \$20.00 per day.

Taxi

The approximate fare from Reagan National Airport is \$5.00 to \$7.00 one way.

Disclaimer

In offering the Hyatt Regency Crystal City (hereinafter referred to as "Supplier"), and all other service providers for the AAAI Fall Symposium Series, the American Association for Artificial Intelligence acts only in the capacity of agent for the Supplier which is the provider of hotel rooms and transportation. Because the American Association for 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 2004 Fall Symposium Series

ALL ATTENDEES MUST PREREGISTER & Please complete in full and return to AAAI, postmarked by September 10, 2004 (invited attendees) or by October 1, 2004 (general registration). The fee includes attendance at one symposium, a copy of the symposium notes, and the reception.

Please print or type (reg	istration cannot be proces.	sed if information is	incomplete or illegible):
First Name		Last Name	
Company or Affiliation	1		
Address			Home □ or Busines
City			State
Zip or Postal Code		Country _	
Daytime Telephone		E-mail Ad	lress
Symposium			
(Please check only one) 1. Achieving Hu 2. Artificial Mul 3. Composition 4. Dialogue Syst 5. The Intersect 6. Making Pen-l 7. Real Life Rein 8. Style and Mea	man-Level Intelligence ti-Agent Learning al Connectionism in Co ems for Health Comm	through Integrat ognitive Science unications e and Robotics: F ligent and Natura	
Registration Fee (Students must send legible proof ☐ Member: \$ 290.00	of full-time student status.) Nonmember: \$ 450.0	oo 🗆 Student Me	mber \$ 115.00
	nd membership in AAAI. (Students n. da) Member: \$ 385.00 mal) Member \$ 425.00	☐ Student Memb	per (US Canada) \$ 150.00 per (International): \$ 190.00
		(Please circle one)	s (drawn on a US bank) should be made payable to AAAI.
Credit card number _			Expiration date
Name (as it appears on	card)		Signature
Please mail your check to	AAAI FSS-04 Symposium Se	eries • 445 Burgess Dr	we • Menlo Park, CA 94025 or fax with credit card information to 650-321-

4457. Please Note: Requests for refunds must be received in writing by October 8, 2004. No refunds will be granted after this date. A \$50.00 processing fee will be levied on all refunds granted.