



AAAI 1997

Fall Symposium Series
Registration Brochure

November 8-10, 1997

*Massachusetts Institute of Technology
Cambridge, Massachusetts*

Sponsored by the
American Association for Artificial Intelligence
445 Burgess Drive, Menlo Park, CA 94025
(415) 328-3123
fss@aaai.org • www.aaai.org/Symposia/Fall/

AAAI presents the 1997 Fall Symposium Series to be held Saturday through Monday, November 8-10, 1997 at the Massachusetts Institute of Technology in Cambridge, Massachusetts. The topics of the seven symposia in the 1997 Fall Symposium Series are:

- Communicative Action in Humans and Machines
- Context in Knowledge Representation (KR) and Natural Language (NL)
- Frontiers in Soft Computing and Decision Systems
- ITS Authoring Tools
- Model-Directed Autonomous Systems
- Reasoning with Diagrammatic Representations
- Socially Intelligent Agents

The highlights of each symposium will be presented at a special plenary session. Working 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:

1997 Fall Symposium Series
AAAI
445 Burgess Drive
Menlo Park, CA 94025
Telephone: (415) 328-3123*
Fax: (415) 321-4457*
E-mail: fss@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.

This document is also available at www.aaai.org/Symposia/Fall/1997/fss-registration-96.html

Tentative Program Schedule

(subject to change)

Saturday, November 8

Symposia sessions:
9:00 AM--5:30 PM

Reception:
6:00 PM--7:00 PM

Sunday, November 9

Symposia sessions:
9:00 AM--5:30 PM

Plenary session:
6:00 PM--8:00 PM

Monday, November 10

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

Registration will be in the foyer of the Tang Center, Building E51, Massachusetts Institute of Technology.

Communicative Action in Humans and Machines

Since at least the 1950s when Austin told us how we do things with words, it has been recognized that language performance can be fruitfully viewed as action. There has subsequently been a range of work reasoning about the action involved in the spoken language communication process (speech acts), using both formal and empirical methods. Views of communication as action have also been influential in reasoning about machine communication in multiprocessor or distributed systems. Moreover, many human-computer interactions have also been described as actions similar to Austin and Searle's speech acts.

In recent years there has been an increased emphasis on theories of action covering other aspects of the communication process, including other modalities than speech and other aspects of dialogue than the illocutionary acts associated with the utterance of sentences. There has also been much subsequent work in philosophy, logic, linguistics, and AI on the nature of actions, which can help shed light on communicative action.

We seek to bring together researchers from a variety of perspectives on action in communication to discuss these issues, including the current state of the art and assess prospects for synergy and future applications. The symposium will focus on the following themes:

- Theories of action and agency to support representing and reason-

ing about communicative action.

- Theories of communicative action including other modalities than speech, and non-traditional levels of action.
- Empirical investigation of communicative action.
- Use of communicative action in applications.
- Relations between the communicative action of differing types of communicators (humans, machines, and mixtures of the two).
- Relations between communicative action and other kinds of physical and mental action (e.g., reasoning and learning).

Organizing Committee

Phil Cohen, Oregon Graduate Institute (pcohen@cse.ogi.edu); Mark Maybury, Mitre Corporation (maybury@linus.mitre.org); Johanna Moore, University of Pittsburgh (jmoore@cs.pitt.edu); David Sadek, France Telecom (sadek@lannion.cnet.fr); Candace Sidner, Lotus Development Corp. (Candy_Sidner/CAM/Lotus.LOTUS@crd.lotus.com); David Traum (Chair), University of Maryland (traum@cs.umd.edu).

Additional information about the symposium can be found at www.cs.umd.edu/~traum/CA/.

Context in Knowledge Representation and Natural Language

Context plays a crucial role in human knowledge representation (KR), reasoning, natural language (NL) processing, and perception. Computer systems that act “intelligently” need the ability to represent, utilize and reason about contexts.

A number of AI projects aimed at incorporating context into KR and NL systems have produced some very encouraging results. However, these researchers have also reached a conclusion that this task turned out to be much more difficult than originally anticipated and that a better understanding of the general mathematical and computational properties of context is needed.

Our interdisciplinary symposium brings together researchers in AI, linguistics, philosophy and anthropology. Some of the questions to be addressed include:

- What are some roles of context in KR and NL systems? How does it contribute to computing inferences and interpretation of NL?
- Is decontextualization possible or necessary?
- Do the KR theories of context offer insights into or solutions to the context-dependency of NL?
- Do NL theories of context offer solutions to the problems which have motivated the KR theories?

- Which aspects of context can be handled in a real-life application such as managing a large knowledge base and processing large volumes of text?

Organizing Committee

Nicholas Asher, University of Texas (nasher@bertie.la.utexas.edu); Sasa Buvac (Cochair), Stanford University (buvac@cs.stanford.edu); Kees van Deemter, Philips Electronics (deemter@natlab.research.philips.com); Fausto Giunchiglia, IRST & Universita' di Trento (fausto@irst.itc.it); R.V. Guha, Apple Computer, Inc. (guha@taurus.apple.com); Pat Hayes, University of Illinois (phayes@cs.uiuc.edu); Graeme Hirst, University of Toronto (gh@cs.toronto.edu); Lucja Iwanska (Cochair), Wayne State University (lucja@cs.wayne.edu); John McCarthy, Stanford University (jmc@cs.stanford.edu); Stuart Shapiro, SUNY Buffalo (shapiro@cs.buffalo.edu); Rich Thomason, University of Pittsburgh (thomason@isp.pitt.edu); Wlodek Zadrozny, IBM TJ Watson Research Center (wlodz@watson.ibm.com).

Frontiers in Soft Computing and Decision Systems

An important direction for soft computing is its application to decision analysis and decision systems. While fuzzy logic has a proven and vital role in control systems, applications of soft computing to management decision making may be equally significant. An important next step is to discuss real problems in decision analysis that are faced by organizations today and identify the best roles for soft computing. The following topics will be discussed:

- The need for methods and tools to deal with high levels of complexity, organization and manipulation of information, and the limitations in the application of formal methods.
- Strengths and limitations of methods such as expert systems and other intelligent technologies.
- Problems in decision systems and the nature and specific challenges in application areas such as financial planning and project management.
- Integration and interface of humans as components of decision systems.
- Prospects for application of emerging concepts such as granularization and computing with words.

This symposium will be a mixture of lectures, small group work, and roundtable discussions. Researchers and developers from industry, business, and government are invited to participate as well as those in fuzzy and traditional AI areas. Participants who might help find ways to transfer successful techniques in fuzzy control systems and engineering to applications in management decision making are encouraged to attend. The results from the working groups and the contributed papers will be published and could form a road map for future work at the frontiers of soft computing and decision analysis.

Organizing Committee

Larry Medsker (Chair), American University (medsker@e-mail.cas.american.edu); Ron Yager, Iona College (Yager@panix.com); Lotfi Zadeh, University of California, Berkeley (zadeh@cs.berkeley.edu); Maria Zemankova, National Science Foundation (mzemanko@nsf.gov); Hans Zimmermann, RWTH Aachen.

Intelligent Tutoring Systems Authoring Tools

Intelligent tutoring systems (ITSs) are typically developed with a four module paradigm: expert model, student model, instructional module, and the interface. This symposium brings together researchers and developers of authoring tools for intelligent tutoring systems to compare existing authoring tools and their approaches and methods for capturing and representing expert knowledge, student modeling, and instructional strategies.

The first day of this symposium will be a demonstration of four or five ITS authoring tools showing the development of a very simple tutor (such as tutoring how to use a cellular phone). Each tool will be used to develop a tutor for the same domain so that each tool's strengths and weaknesses can be brought out and compared.

The second day of the symposium will include a series of short talks on each tool's approach to 1) expert knowledge acquisition and representation, 2) student modeling, and 3) instructional strategies. The end of the second day will be a discussion of the similarities and differences between the tools. A chart or grid of characteristics may be developed.

The final morning will be a brainstorming session where we will consider other possible paradigms for ITS authoring tools by addressing what works and what doesn't work about the current ITS authoring tools.

Organizing Committee

Benjamin Bell, Columbia University (benjamin_bell@columbia.edu); Henry Half, Mei Technology Corporation (henry@meitx.com); Allen Munro, USC Behavioral Technology Laboratories (munro@usc.edu); Tom Murray, University of Massachusetts (tmurray@cs.umass.edu); Carol Luckhardt Redfield (Chair), Mei Technology Corporation (carol@meitx.com)

Model-Directed Autonomous Systems

The information gathering capabilities of the internet and smaller networked computational systems are offering new testbeds for embedded autonomous agents, from networked building energy systems and reconfigurable traffic systems to autonomous space probes, that provide a driving force for profound social and economic change. Physically these agents involve a large distributed array of simple sensors, actuators and processors. Functionally their attention is directed inward toward maintaining their internal structure, although like traditional robots they may also attend to exploring and manipulating their external environment. Controlling such systems is made difficult by the need to reason through a complex set of system-wide interactions, the one of a kind nature of the testbeds, the harshness of their environment, and the need to coordinate a broad range of discrete, continuous, and software behaviors. Realizing the potential of these immobile robots requires techniques drawn from all facets of AI.

This challenge is being addressed by a new generation of agent architectures, called model-directed autonomous systems, that use a compositional, declarative model to achieve the desired functions. Given the wide range of behaviors exhibited by such systems, these autonomous agents need a rich modeling language and diverse reasoning methods that go well beyond those offered by any single AI

sub-discipline. This requires modeling formalisms for state change and interaction that unify features of Markov processes, qualitative state diagrams, concurrent transition systems, plan operators, phase spaces, configuration spaces, belief nets, qualitative algebras and differential equations. The goal of this symposium is to bring together a diverse set of researchers in order to explore the concept of model-directed autonomous systems, from fundamental AI insights to significant applications. Topics include (1) decomposition of distributed autonomous systems; (2) model-directed reactive and projective planning; (3) combining procedural and model-directed executives; (4) model-directed state identification and goal tracking (5) self-modeling and active experimentation; (6) hybrid discrete/continuous systems; (7) modeling languages; and (8) model acquisition, verification and testing

Further information will be posted on a WWW home page for this symposium at: www.ic.arc.nasa.gov/ic/workshops/aaai97-fs.html.

Organizing Committee

B. Williams (cochair), NASA Ames Research Center, (williams@ptolemy.arc.nasa.gov); P. Nayak (cochair), NASA Ames Research Center, (nayak@ptolemy.arc.nasa.gov); L. Kaelbling, Brown University (lpk@cs.brown.edu); R. Simmons, Carnegie Mellon University (reids@cs.cmu.edu); F. Zhao, Ohio State University (fz@cis.ohio-state.edu).

Reasoning with Diagrammatic Representations

Diagrammatic representations and reasoning (DR) are pervasive in many human endeavors. Understanding and modeling the facility that human beings have in DR could be of great benefit, for instance, in terms of computational efficiency through explicit representation, improved human-machine interfacing, and the development of an artificially intelligent agent that interacts with its environment as fluently as a naturally intelligent agent now does.

We define diagrammatic representations as those that analogically model the semantics of a problem domain and diagrammatic reasoning as the process by which we make inferences from such representations. We believe the following broad issues are central to DR:

- Cognitive theories of imagery and imaginal reasoning
- Formal theories of DR
- Computational models of DR
- Synergy between cognitive theories, formal theories, and computational models of DR
- Application of DR in AI, logic, human-machine interfacing, visual languages, information visualization, etc.

The explosion of graphical and visual information has made research in DR of paramount importance. The prevalence of graphical user interfaces, the burgeoning of visual languages, the rapid growth of geographic and molecular structure databases,

and the massive graphical content of the World Wide Web exemplify the urgency of this research. This symposium, a sequel to the 1992 AAAI Symposium on Reasoning with Diagrammatic Representations, is in response to that urgency. Its intent is to consolidate research efforts since the original and provide a forum in which to disseminate recent results and initiate new research.

Further information regarding the symposium can be found at morpheus.hartford.edu/DRII (aaaidiag@cs.indiana.edu).

Organizing Committee

Michael Anderson (Chair), University of Hartford (anderson@morpheus.hartford.edu); Gerard Allwein, Indiana University (gtall@phil.indiana.edu); B. Chandrasekaran, The Ohio State University (chandra@cis.ohio-state.edu); Janice Glasgow, Queen's University (janice@qcis.queensu.ca); Vinod Goel, York University (vgoel@yorku.ca); Mary Hegarty, University of California at Santa Barbara (hegarty@condor.psych.ucsb.edu); Yumi Iwasaki, Stanford University (iwasaki@sumex-aim.stanford.edu); N. Hari Narayanan, Auburn University (narayan@eng.auburn.edu); Patrick Olivier, University of Wales (plo@aber.ac.uk); Sun-Joo Shin, University of Notre Dame (sun-joo.shin.3@nd.edu).

Socially Intelligent Agents

The symposium will discuss the issue of socially intelligent agents (SIA), focusing on the concrete realization of artificial systems (robots, software agents). Discussions consider humans, software and hardware agents, in both natural and synthetic environments. The first day of the symposium will focus on SIA research from different viewpoints. The talks address the following topics: modeling human societies, social robots, believable software agents and software pets, cultural aspects of social intelligence, VR environments which further human social networking. A game is planned for the second day of the symposium. It will be an opportunity for participants to study strategies of social interaction “from within,” i.e. by being part of the social interaction game. The game will be discussed in the context of developing a methodology and contest for testing social expertise of artificial agents and artificial environments. In the afternoon of the second day, a zoo of agents can be explored by the participants. Systems will demonstrate interesting aspects of social interaction. The third day (until lunch) is intended for discussions, summary and an outlook on the future of socially intelligent agents. More information about the symposium can be found at: www.cyber.rdg.ac.uk/staff/people/kd/WWW/aaai-social.html

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Organizing Committee

Michel Aube, Universite de Sherbrooke, Canada (maube@corrier.usherb.ca); Joseph Bates, Carnegie Mellon University, USA (joseph.bates@cs.cmu.edu); Kerstin Dautenhahn (Chair), The University of Reading, United Kingdom (kd@cyber.reading.ac.uk); Philippe Gaussier, Laboratoire ETIS, ENSEA, France (gaussier@ensea.fr); Judith Masthoff (Cochair), Institute for Perception Research, The Netherlands (masthoff@natlab.research.philips.com); Chisato Numaoka (Cochair), Sony Computer Science Laboratory - Paris, France (chisato@csl.sony.fr); Aaron Sloman, The University of Birmingham, United Kingdom (A.Sloman@cs.bham.ac.uk).

Registration & 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 15, 1997. After that period, registration will be opened up to the general membership of AAAI and other interested parties. All registrations must be postmarked by September 26, 1997.

Your registration fee covers your attendance at the symposium, a copy of the working notes for your symposium, and the 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 1997 Fall Symposium Series
445 Burgess Drive
Menlo Park, CA 94025

If you are paying by credit card, you may e-mail the form to fss@aaai.org or fax it to 415/321-4457. Registration forms are also available on AAAI's web page: www.aaai.org/Symposia/Fall/.

Please note: **All refund requests must be in writing and postmarked by October 3, 1997.** No refunds will be granted after this date. A \$25.00 processing fee will be levied on all refunds granted.

When you arrive at Massachusetts Institute of Technology, please pick

up your complete registration packet in the foyer of The Tang Center.

Registration hours will be:

- *Friday, November 7*
5:00 pm - 7:30 pm
- *Saturday, November 8*
8:00 am - 5:00 pm
- *Sunday, November 9*
8:00 am - 5:00 pm

Please call AAAI at 415/328-3123 for further information.

Accommodations

For your convenience, AAAI has reserved a block of rooms at The Hyatt Regency Cambridge. The rate is \$139.00 for a single room and \$164.00 for a double room. Symposium attendees must contact The Hyatt Regency Cambridge directly. Please identify yourself as an American Association for Artificial Intelligence Fall Symposium registrant to qualify for the reduced rate. The cut-off date for reservations is October 7, 1997.

Hyatt Regency Cambridge
575 Memorial Drive
Cambridge, MA 02139
telephone (617) 492-1234
fax (617) 491-6906

Air Transportation and Car Rental

Discounted fares have been negotiated for this event. Call Conventions in America (CIA) at 1-800-929-4242 and ask for **Group #428**. Save 5% - 10% off the lowest applicable fares on

American Airlines, or the guaranteed lowest available fare on any carrier. Travel between November 4 and November 11, 1997. All attendees booking through CIA will receive free flight insurance and be entered in their bi-monthly drawing worldwide travel for two on American Airlines. Hertz Rent A Car is also offering special low conference rates with unlimited free mileage.

Call Conventions in America at 1-800-929-4242 and ask for Group #428. Reservation hours: M-F 6:30 AM - 5:00 PM PDT. Outside U.S. and Canada, call 619-453-3686 / Fax 619-453-7679. E-mail: scitravel@aol.com. 24-hour emergency service: 1-800-748-5520. If you call direct: American 1-800-433-1790, ask for index #S 9485. Hertz 1-800-654-2240, CV #24250.

Parking

Parking on the MIT campus is restricted Monday through Friday from 7:30 AM to 4:00 PM. As the dates for the Symposium coincide with a state holiday and normal business will not be conducted at the Institute on those dates, parking by visitors will be permitted in the surrounding lots. Public parking is also available in the garage adjacent to the Marriot Hotel.

Campus Police Parking and Traffic Division has compiled this list of public parking facilities for your use. Please note that all information is subject to change and should not be considered final.

MIT

139 Massachusetts Avenue
(617) 253-8232
(\$7.00 per day, \$2.00 per hour.)

Park and Lock

(617) 354 3rd Street
547-2685. (\$7.00 per day, \$3.00 per hour)

Kinney Systems

Four Cambridge Center (Entrance is on Ames St. and Broadway) (617) 492-1956 (\$2.75 for one hour, \$5.25 for two hours, \$7.75 for twelve hours, \$10.50 for 24 hours.)

Kinney Systems

Ten Cambridge Center
(617) 621-3115 (\$2.25 for one hour, \$4.50 for two hours, \$6.75 for twelve hours, \$9.00 for 24 hours.)

Transportation

This information is the best available at time of printing. Fares and routes change frequently. Please check by telephoning the appropriate numbers below for the most up-to-date information.

Arrival by Air

Logan International Airport is approximately five miles from the MIT campus. Taxi fare to the campus is approximately \$15.00, regardless of the number of passengers. Public transportation to MIT is available; although an inexpensive alternative, it is quite cumbersome with luggage and not recommended.

Arrival by Train

You will arrive in Boston at South Station. Taxi service and public transportation are available.

Arrival by Car

MIT is located in Cambridge on Memorial Drive, a major roadway in the region's highway system. From the west and northwest, there is access to Memorial Drive from the Massachusetts Turnpike (Interstate 90) and Route 2.

From the north (Interstate 93/Southeast Expressway), the suggested approach is to connect with Storrow Drive in Boston via the central artery bridgeways, heading west on Storrow Drive. Take the Massachusetts Avenue exit onto the Harvard Bridge which crosses the Charles River and leads you straight to MIT's central entrance at 77 Massachusetts Avenue (Building 7).

Disclaimer

In offering the Hyatt Regency Hotel, American Airlines, Hertz Rent-A-Car (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

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Registration Form-1997 AAAI Fall Symposium Series

ALL ATTENDEES MUST PREREGISTER
Please complete in full and return to AAAI, postmarked by September 15, 1997 (invited attendees) or by September 26, 1997 (general registration). *Please print or type:*

First name _____ Last name _____

Company or Affiliation _____

Address _____ Home or Business

City _____ State _____

Zip or postal code _____ Country _____

Daytime telephone _____ E-mail address _____

Symposium

(Please check only one)

- 1. Communicative Action in Humans and Machines
- 2. Context in Knowledge Representation (KR) and Natural Language (NL)
- 3. Frontiers in Soft Computing and Decision Systems
- 4. ITS Authoring Tools
- 5. Model-Directed Autonomous Systems
- 6. Reasoning with Diagrammatic Representations
- 7. Socially Intelligent Agents

Fee

Member: \$ 220.00 Nonmember: \$ 280.00

Student Member \$ 100.00 Nonmember student: \$ 125.00

(Students must send legible proof of full-time student status.)

TOTAL FEE *(Please enter correct amount.)* \$ _____

Method of Payment

(All e-mail and fax registrations must be accompanied by credit card information. **Prepayment is required.** No PO's will be accepted.) (please circle one)

AMERICAN EXPRESS MASTERCARD VISA CHECK MONEY ORDER

Credit card number _____ Expiration date _____

Name (as it appears on card) _____

Signature _____

Thank you for your registration! Please mail completed form with your payment to:
AAAI Fall Symposium Series • 445 Burgess Drive • Menlo Park, CA 94025 or fax with credit card information to 415/321-4457.
Please Note: Registration cannot be processed if information is incomplete or illegible. Requests for refunds must be received in writing by October 3, 1997. No refunds will be granted after this date. A \$25.00 processing fee will be levied on all refunds granted.

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