AAAI 1995

Spring Symposium Series

March 27-29, 1995
Stanford University, California

Registration

The American Association for Artificial Intelligence, in co-operation with Stanford University's Department of Computer Science, presents the 1995 Spring Symposium Series, to be held Monday through Wednesday, March 27–29, 1995, at Stanford University. The topics of the nine symposia in the 1995 Spring Symposium Series are:

- *Empirical Methods in Discourse Interpretation and Generation*
- *Extending Theories of Action: Formal Theory and Practical Applications*
- *Information Gathering from Heterogeneous, Distributed Environments*
- *Integrated Planning Applications*
- *Interactive Story Systems: Plot and Character*
- *Lessons Learned from Implemented Software Architectures for Physical Agents*
- *Representation and Acquisition of Lexical Knowledge: Polysemy, Ambiguity, and Generativity*
- *Representing Mental States and Mechanisms*
- *Systematic Methods of Scientific Discovery*

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 enclosed form, and send it along with payment to:

1995 Spring Symposium Series
AAAI
445 Burgess Drive
Menlo Park, CA 94025
*Telephone: (415) 328-3123
*Fax: (415) 321-4457
*Email: sss@aaai.org
(credit card orders only, please)

This document is available as http://www.ai.mit.edu/people/las/aaai/sss-95/sss-95-registration.html
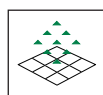
Empirical Methods in Discourse Interpretation and Generation

Computational theories of communicative action provide the foundation for the design of a wide range of AI systems (such as intelligent tutors, believable agents, intelligent software agents like softbots, and so forth. To date, much work in computational theories of discourse has focused on specifying the mechanisms underlying a particular discourse phenomenon. However developing the robust, broad coverage, theories of discourse that are needed in today's systems requires an empirical basis. Moreover, there are no shared methods, tools or resources for the discourse community.

This symposium aims to investigate empirical methods that can be used in the development and evaluation of computational theories of discourse, and develop a set of shared resources for the computational discourse community. Symposium presentations will address the following issues:

- Corpus-Based methods applied to theories of discourse.
- Evaluation of dialogue modules in implemented systems.
- Simulation tools for developing and evaluating theories of discourse.
- Coding schemes for the quantitative study of discourse phenomena.
- Tools that support (semi-)automatic or empirical studies of discourse phenomena.
- Applications and extensions of methods used in traditionally empirical disciplines (such as, psychology or sociolinguistics) to computational theories of discourse.
- Empirical analyses that distinguish between claims made by different discourse theories.

Organizing Committee

Marti Hearst, Xerox Palo Alto Research Center; Lynette Hirschman, MITRE; Aravind Joshi, University of Pennsylvania; Johanna Moore (cochair), University of Pittsburgh, jmoore@cs.pitt.edu; Marilyn Walker (cochair), Mitsubishi Electric Research Labs, walker@merl.com.
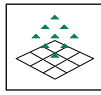
# Extending Theories of Action: Formal Theory and Practical Applications

Action and its representation continues to play a central role in many areas of AI. The research focus in these areas has often been motivated by different issues and types of problems, or based on different underlying assumptions. Representations vary widely, ranging from logical specifications to influence diagrams and belief nets to less complex, but more computationally manageable planning representations. The assumptions and reasoning methods adopted are also quite different. Techniques include state- and plan-space search, regression, logical inference, network algorithms and analytical methods.

This symposium will bring together researchers with widely different backgrounds, and provide a forum for discussion of the manner in which these different approaches to reasoning about action can be brought together. The two primary goals are: evaluating the state of the art, especially identifying the issues and assumptions central to different fields; and identifying relevant research issues for extending theories of action and putting these theories into practice.

The format will consist of technical presentations, panels and discussion sessions. Technical presentations will cover recent advances in extending theories of action, and their application to planning, diagnosis, and control. The panels and discussion sessions will evaluate these approaches, and produce recommendations for extending and unifying various approaches, as well as for closing the gap between theory and applications.

Organizing Committee

Craig Boutilier (cochair), University of British Columbia, cebly@cs.ubc.ca; Tom Dean, Brown University; Moises Goldszmidt (cochair), Rockwell, moises@rpal.rockwell.com; Steve Hanks, University of Washington; David Heckerman, Microsoft; Ray Reiter, University of Toronto.
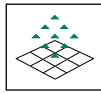
# Information Gathering from Heterogeneous, Distributed Environments

We are currently witnessing an explosion in the amount of information that is available from various sources, such as the Internet. Along with the rise in the number of information sources, there is also a growing number of systems and protocols for providing user friendly browsing of this information. Although browsing is an important form of obtaining information, it is a limited, and often time-consuming form of interaction. A challenge to Artificial Intelligence researchers is to develop techniques for providing better access to the wealth of available information. The purpose of this symposium is to bring together researchers working on topics relating to information gathering in heterogeneous and distributed environments. Specifically, we will discuss the challenges in providing intelligent and efficient access to this information. Topics that will be discussed at the symposium include: knowledge representation, reasoning, planning, learning, and knowledge sharing as they relate to information gathering. We will also hear about major ongoing projects in this area.

Organizing Committee

Su-Shing Chen, National Science Foundation; Craig Knoblock (cochair), USC Information Sciences Institute, knoblock@isi.edu; Alon Levy (cochair), AT&T Bell Laboratories, levy@research.att.com; Gio Wiederhold, Stanford University.

Program Committee

Ronald Brachman, AT&T Bell Laboratories; Robin Burke, University of Chicago; Oren Etzioni, University of Washington; Robert Kahn, Corporation for National Research Initiatives; Yoav Shoham, Stanford University.
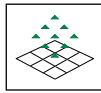
Integrated Planning Applications

The planning field has finally begun to take on real, or at least realistic, applications. Traditionally, a key application for planning systems has been robotics. Recently, new areas for application have emerged, including planning for data analysis tasks, virtual reality environments or other simulated environments, medical applications, and factory automation. Invariably, once a planning application becomes realistic, issues arise regarding the integration of the planning system with its environment, such as what is difficult or easy about particular applications, what similar applications have in common, and how technologies can be integrated.

The goal of this symposium is to explore the boundary between planning systems and their environments. The symposium welcomes interested participants who have worked on planning applications or have integrated planning into other systems. We plan to make the symposium interactive and participatory. Therefore, we encourage potential participants to send electronic mail to howe@cs.colostate.edu, letting us know that you plan to attend the symposium and summarizing your research interests and relevant background.

The symposium will consist primarily of presentations of selected papers and panels, followed by discussions focussed around issues and application areas. In addition, at least one senior researcher will be asked to present an invited talk. We will disseminate accepted papers and key discussion topics in advance of the symposium.

Organizing Committee

Marie desJardins, SRI International; Adele Howe (chair), Colorado State University, howe@cs.colostate.edu; Amy Lansky, NASA Ames Research Center; Robin Murphy, Colorado School of Mines.
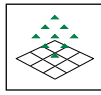
Interactive Story Systems: Plot and Character

We will explore conceptual, technical, and artistic issues involved in integrating plot and character to create "interactive story systems" - simulated dramatic situations in which human users actively participate. Symposium participants will include academic and industrial researchers in artificial intelligence and interactive media, as well as professionals from the computer games, educational software, film, and video industries. Symposium sessions will be organized around different design issues for interactive story systems. For each session we will have a mix of speakers reporting related work and facilitators raising questions and issues for discussion. Anticipated session topics include:

- What is the space of interaction modes for interactive story systems?
- How can a story arise from character-based and other simulation-based approaches?
- How can semi-autonomous characters be made to follow an intended plot structure?
- How can plot structures be designed to accommodate user interaction?
- What special properties make characters compelling in a story context?
- What is the role of an automated story master?
- What special issues or design concepts arise in the design of interactive story systems for children?

Organizing Committee

Joseph Bates, CMU, joseph.bates@cs.cmu.edu; Barbara Hayes-Roth, Stanford, bhr@ksl.stanford.edu; Pattie Maes, MIT, pattie@media.mit.edu
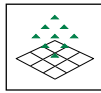
# Lessons Learned from Implemented Software Architectures for Physical Agents

The goal of this symposium is to shed light into reasons for architectural decisions in building artificial agents. Many important questions affect architectural decisions. For this symposium, we ask questions like the following only with respect to architectural decisions.

- How should the agent arbitrate/coordinate/cooperate its behaviors and actions?
- How can human expertise be easily brought into an agent's decisions?
- How much internal representation of knowledge and skills is needed?
- How should the computational capabilities of an agent be divided, structured, and interconnected?
- What types of performance goals and metrics can realistically be used for agents operating in dynamic, uncertain, and even actively hostile environments?
- Why should we build agents that mimic anthropomorphic functionalities?
- What, if any, role can advanced simulation technology play in developing and verifying modules and/or systems?
- How can a given architecture support learning?

Organizing Committee

Ron Arkin, Georgia Tech; Peter Bonasso, MITRE; Henry Hexmoor (cochair), SUNY Buffalo, hexmoor@cs.buffalo.edu; David Kortenkamp (cochair), MITRE, korten@aio.jsc.nasa.gov; David Musliner, University of Maryland.
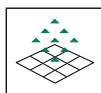
Representation and Acquisition of Lexical Knowledge: Polysemy, Ambiguity, and Generativity

The lexicon is at the core of many NL, MT, IR, and KR systems, and thus can play a central role in determining the success or failure of a system. Nonetheless, points of sharp controversy have arisen concerning the most flexible and powerful way to represent the extensive variety of lexical information required to drive robust applications. We intend this symposium to provide a forum to discuss problematic issues of lexical representation, and ways to solve difficult and complex questions. The symposium will maintain a balance between theoretical and applications oriented papers.

There will be two special events at the Symposium: one is an invited talk by Professor Charles Fillmore on the future of lexical research, with some visionary thoughts from a pioneer in the field of lexical semantics. The other is a set of break-out sessions to involve symposium participants, focusing on burning issues such as limits of corpus analysis, machine-readable dictionaries, thematic roles, linking rules, and other limits to be set by the participants. This section of the symposium involves pushing the limits, and we plan to push our own limits together in focussed discussions on how to solve such persistent problems.

Organizing Committee

Bran Boguraev, Apple Computer; Judith Klavans (chair), Columbia University, klavans@cs.columbia.edu; Lori Levin, Carnegie Mellon University; James Pustejovsky, Brandeis University.
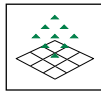
Representing Mental States and Mechanisms

The ability to reason about mental states and cognitive mechanisms facilitates performance at a variety of tasks. The purpose of this symposium is to enhance our ability to construct programs that employ commonsense knowledge of mental phenomena in an explicit representational format that can be shared across domains and systems. The need to represent knowledge of mental activity transcends usual disciplinary boundaries to include, not simply conditions whereby an agent might introspect about the mental world, but most reasoning tasks where systems interact with users, coordinate behaviors with autonomous agents, or consider their own beliefs and limitations with respect to the physical world.

The symposium will consist of individual participant presentations, interactive invited talks, panel discussions, and one or more break-out sessions on focused topics. Additional details, including position papers describing relevant issues, are available through the World Wide Web via mosaic at URL ftp://ftp.cc.gatech.edu/pub/ai/symposia/aaai-spring-95/home_page.html (or via ftp on ftp.cc.gatech.edu in directory pub/ai/symposia/aaai-spring-95).

Because participation is anticipated to be quite heterogeneous in terms of both academic background and subfield affiliation, we intend to emphasize interaction and the exchange of ideas rather than traditional presentations. A participant will be considered especially successful when answering the question "What does my representation offer those outside of my own paradigm?"

Organizing Committee

Gregg Collins, Northwestern University; Michael Cox (cochair), Georgia Tech, cox@cc.gatech.edu; Michael Freed (cochair), NASA Ames, freed@picasso.arc.nasa.gov; Bruce Krulwich, Andersen Consulting, CSTaR; Cindy Mason, NASA Ames; John McCarthy, Stanford University; John Self, Lancaster University.
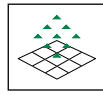
Systematic Methods of Scientific Discovery

Scientific discovery is among the most celebrated creative processes, and receives scholarly attention from several disciplines including AI. Experience has shown that some scientific reasoning can be made systematic. This symposium will examine the state of systematic methods for scientific inference, with special emphasis on insights that promise broad applicability within science. The development of such methods will, as foreseen by Allen Newell, increasingly lead to the sciences taking a metaposition, in which doing science will involve understanding the information processes of scientific inference, and building systems that do the object-level science, leading to a convergence of AI and the scientific enterprise.

This symposium will feature: descriptions of existing methods or systems and their achievements in natural, social, and mathematical science; generalizations made over these systems; exploratory task analyses; and psychological/historical studies that promise to lead to further systematic methods.

Organizing Committee

Lindley Darden, Maryland; Joshua Lederberg, Rockefeller; Herbert Simon, Carnegie Mellon; Derek Sleeman, Aberdeen; Raul Valdes-Perez (chair), Carnegie Mellon, valdes@cs.cmu.edu.
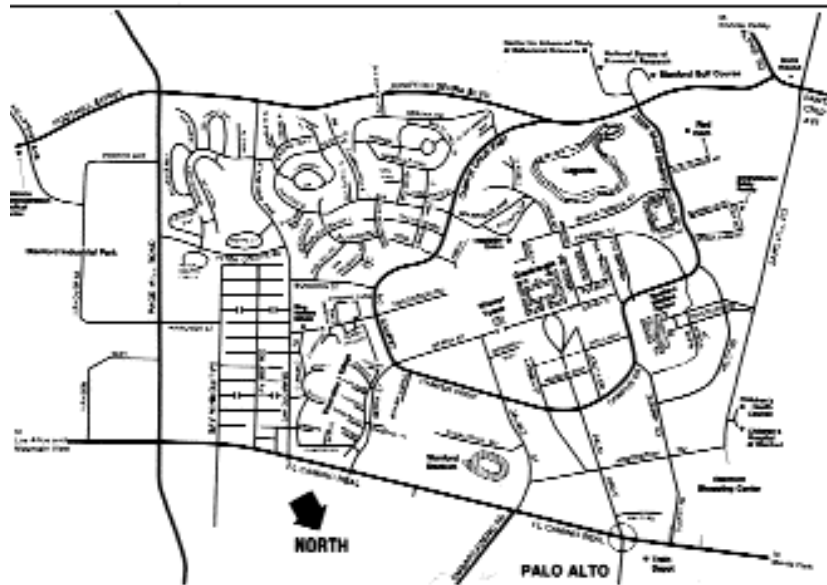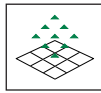
Registration

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 **February 22, 1995.** After that period, registration will be opened up to the general membership of AAAI and other interested parties. All registrations must be postmarked by **March 8, 1995.**

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 complete the attached registration form and mail it with your fee to:

AAAI Spring Symposium Series
445 Burgess Drive
Menlo Park, CA 94025

If you are paying by credit card, you may email the form to sss@aaai.org or fax it to 415/321-4457. Registration forms are available by email from sss@aaai.org.

Parking will be available on the Stanford campus from March 27-29 for $15.00. Application for a parking permit is included on the attached registration form. A permit will be mailed to you with your registration receipt, along with a map and directions to the assigned lots.

Please note: Requests for refunds must be received in writing by March 15, 1995. A $25.00 processing fee will be levied on all refunds granted.

When you arrive at Stanford, please pick up your complete registration packet in the lobby of Cubberley Auditorium, located in the School of Education. Registration hours will be:

Monday, March 27: 8:00 PM–5:00 PM
Tuesday, March 28: 8:00 AM–5:00 PM
Wednesday, March 29:
    8:00 AM–12:00 NOON

Hotels

For your convenience, AAAI has reserved a block of rooms at the following hotels:

Symposium attendees must contact the hotels directly. Please identify yourself as an AAAI Spring Symposium Series registrant to qualify for the reduced rate.

Creekside Inn (Best Western)
3400 El Camino Real
Palo Alto, CA 94306
Phone: 415/493-2411
Fax: 415/493-6787
Marguerite shuttle pick-up: 0.5 mile
Rates: $70 (S) $90 (D)
Reserve before 2/26/95

Holiday Inn-Palo Alto
625 El Camino Real
Palo Alto, CA 94301
Phone: 415/328-2800
or 800/874-3516

Fax: 415/327-7362
Marguerite shuttle stop nearby
Rates: $98 (S), $108 (D)
Reserve before: 3/10/95

Stanford Terrace Inn
531 Stanford Ave
Palo Alto, CA 94306
Phone: 415/857-0333
Fax: 415/857-0343
Marguerite shuttle stop nearby
Rates: $82 (S), $92 (D)
Reserve before: 3/1/95

Other Hotels
(Available only on a first-come, first served basis; all prices are subject to changes without notice):

Mermaid Inn
727 El Camino Real
Menlo Park, CA 94025
Phone: 415/323-9481 (No fax).
Rates: $48-56 (S), $58-68 (D)

Riviera Motor Lodge
15 El Camino Real
Menlo Park, CA 94025
Phone: 415/321-8772
Fax: 415/321-2137
Rates: $65 (S), $75 (D)

The Cardinal Hotel
235 Hamilton Avenue
Palo Alto, CA 94301
Phone: 415/323-5101
Fax: 415/325-6086
Marguerite shuttle stop nearby
Rates: $65 (S & D)

Hotel California
2431 Ash Street
Palo Alto, CA 94306
Phone: 415/322-7666 (No fax).
Marguerite shuttle stop nearby
Rates: $52–$63 (S and D)
(Continental breakfast included)

Travelodge
3255 El Camino Real
Palo Alto, CA 94306

Phone: 415/493-6340
Fax: 415/424-9535
Marguerite shuttle stop nearby
Rates: $45 (S), $54 (D)

Air Transportation and Car Rental

San Francisco/San Jose - Get there for less! Fly into San Francisco or San Jose on American Airlines or United Airlines and save 5% on lowest everyday fares, some restrictions apply. Or save 10% on lowest unrestricted fares, with 7 day advance purchase. Travel between March 19 and June 1, 1995. Alamo Rent A Car is also offering special rates starting as low as $26/day or $125/week. Unlimited free mileage. Earn bonus frequent flyer miles when you drive Alamo and fly American or United.

For lowest available fares on any airline, call Conventions in America, the official travel agency for AAAI and receive free flight insurance of $100.000. Plus you'll become eligible to win free travel - drawings held bi-monthly for two systemwide tickets on American Airlines. Call 1-800-929-4242, ask for group **#428.** If you call direct: American 1-800-433-1790, ask for Index #S9272. United 1-800-521-4041, ask for Tour Code #577OR. Alamo 1-800-732-3232, ask for ID # **409268GR.**

Disclaimer: In offering United Airlines, American Airlines, Alamo Rent a Car, the Creekside Inn (Best Western), Holiday Inn, and Stanford Terrace Inn (hereinafter referred to as "Supplier") and all other service providers for the AAAI Spring Symposium Series, the American Association for Artificial Intelligence (AAAI) acts only in the capacity of agent for the Supplier which is the

provider of transportation or of hotel rooms. Because AAAI 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.

Ground 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.

Van

Supershuttle—24 hour van service to and from San Francisco Airport. San Francisco Airport–Palo Alto rates are: $23.00 for one person one way; $23.00 plus $7.00 for two persons going to the same address. Cash and major credit cards accepted. For reservations call 415/558-8500.

Airport Connection—Van service $20.00 one way to and from San Francisco Airport to Palo Alto. From San Jose Airport, shared ride service (no vans) is $35.00 to Palo Alto. Cash, major credit cards, or checks accepted. Call 415/363-1500 within California, or 800/247-7678 in other areas. White courtesy telephone available at San Francisco Airport.

Stanford Shuttle

The Stanford University Marguerite Shuttle Bus service provides service from several points along El Camino Real, the train station, and other surrounding locations to the Stanford Oval as well as transportation around the Stanford campus. Complete Marguerite schedules will be included in your registration packet.

Train

CalTrain runs between San Francisco and Palo Alto station starting at 5:00 AM with the last train leaving San Francisco at 10:00 PM (weekdays), 12:00 midnight (Friday and Saturday nights). The fare is $6.50 round trip for same-day travel, or $3.25 one way. For up-to-date fare information and time tables, call toll free 800/660-4287.

Tentative Program Schedule
(subject to change)

Monday, March 27
9:00 AM–5:30 PM
    Symposia sessions

6:00 PM–7:00 PM
    Reception, Faculty Club:

Tuesday, March 28
9:00 AM–5:30 PM
    Symposia sessions

7:30 PM–9:00 PM
    Plenary session,
    Cubberley Auditorium

Wednesday, March 29:
9:00 AM–12:30 PM
    Symposia sessions

Registration will be in the lobby of Cubberly Auditorium in the School of Education.

Registration Form—1995 AAAI Spring Symposium Series

ALL ATTENDEES MUST PREREGISTER
Please complete in full and return to AAAI, postmarked by February 22, 1995 (invited attendees), or by March 8, 1995 (general registration).
Please print or type.

First name _____ Last name _____

Affiliation _____

Address: _____ Home ☐ or Business ☐

_____

City _____ State _____

Zip or postal code _____ Country _____

Daytime telephone _____ Email _____

Symposium

(Please check only one)
☐ 1. Empirical Methods in Discourse Interpretation and Generation
☐ 2. Extending Theories of Action
☐ 3. Information Gathering from Heterogeneous, Distributed Environments
☐ 4. Integrated Planning Applications
☐ 5. Interactive Story Systems: Plot and Character
☐ 6. Lessons Learned from Implemented Software Architectures for Physical Agents
☐ 7. Representation and Acquisition of Lexical Knowledge
☐ 8. Representing Mental States and Mechanisms
☐ 9. Systematic Methods of Scientific Discovery

Fee

☐ Member: $ 215.00   ☐ Nonmember: $ 275.00
☐ Student Member: $ 100.00   ☐ Student nonmember: $ 125.00
  (students must send legible proof of full-time student status)
☐ Temporary Stanford University parking permit, March 27–29 ($15.00)

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

Method of Payment *(please circle one)*
(All email and fax registrations must be accompanied by credit card information.
Prepayment is required. No PO's will be accepted.)

Check   MasterCard   VISA   American Express

Credit card number _____

Expiration date _____

Name (as it appears on card) _____

Signature _____

Please mail completed form with your payment to

AAAI, SSS–95 • 445 Burgess Drive • Menlo Park, California 94025

Please Note: Requests for refunds must be received *in writing* by March 15, 1995.
A $25.00 processing fee will be levied on all refunds granted. *Thank you for your registration!*

For Office Use Only

Check Number _____ Amount _____ Received _____