



AAAI 1993

**Fall Symposium Series
Registration Brochure**

October 22-24, 1993

*Sheraton Imperial Hotel & Convention Center
Research Triangle Park
Raleigh, North Carolina*

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

AAAI presents the 1993 Fall Symposium Series to be held Friday through Sunday, October 22-24, 1993 at the Sheraton Imperial Hotel & Convention Center, Research Triangle Park, Raleigh, North Carolina.

The topics of the five symposia in the 1993 Fall Symposium Series are:

- Automated Deduction in Nonstandard Logics
- Games: Planning and Learning
- Human-Computer Collaboration: Reconciling Theory, Synthesizing Practice
- Instantiating Real-World Agents
- Machine Learning in Computer Vision: What, Why and How?

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:

1993 Fall Symposium Series
 AAAI
 445 Burgess Drive
 Menlo Park, CA 94025
 or fax with credit card
 information to (415) 321-4457.

Automated Deduction in Nonstandard Logics

A variety of nonstandard logics have been proposed in AI to represent time and action and also various epistemic notions, and a variety of methods have been developed to perform deduction with modal, many-valued, and other nonstandard logics. Also, an array of methods using concepts from nonstandard logic have been developed in work on nonmonotonic reasoning, abduction, and belief revision.

The goals of this symposium are to evaluate the state of the field, explore significant issues and delineate important areas where more research is needed. Our interests include both theoretical concerns and the practical considerations which attach to particular implementations and applications. Additionally, we hope to bring together researchers working on automated deduction in nonstandard logics and AI researchers interested in making use of such deductive systems.

Submissions have been received from researchers working on a variety of topics and from a variety of perspectives. The nonstandard logics covered in the submissions include conditional logics, autoepistemic logics, linear logic, default logics, modal logics, temporal logics, and multivalued logics. The automated proof methods include tableaux, resolution and sequent methods. The applications covered include planning, common sense reasoning, reasoning about actions, and modeling belief.

Some sample topics and questions for discussion are as follows:

- There is a need for systematic comparison among different de-

duction methods, both at the level of implementation or efficiency and at the level of naturalness or expressiveness for particular domains and applications.

- Can we develop a library of problems to compare methods?
- Finding computationally effective proof methods for autoepistemic logic, default logic, and other nonmonotonic formalisms; implementing these methods in working programs.
- What are the relative merits of methods that work by translating into FOL as opposed to reasoning explicitly with a modal language?
- What are the results of attempts to use theorem provers for non-standard logics in practical applications?

Invited Speaker: Melvin Fitting, Lehman College, CUNY.

Organizing Committee: Peter Jackson, Clarkson University, (cochair); Rich Scherl, University of Toronto, (cochair); Donald Nute, The University of Georgia; Jeff Pelletier, University of Alberta; Lincoln Wallen, University of Oxford.

Games: Planning and Learning

The symposium provides a forum for current research in game playing. Its focus extends beyond any particular game to include novel search techniques, planning and learning. The meeting draws together researchers from artificial intelligence and cognitive science, as well as statisticians, mathematicians, and computer scientists.

A central theme is how research on game playing contributes to our understanding of intelligence, particularly when it is applicable to more than one game. Topics include: as-

sessing and increasing the generality of game-learning systems, computational implementations of mathematical game analysis, counterplanning, evaluation function learning, feature discovery, learning and using abstraction in game-playing, methodologies for evaluating learning and planning, psychological theories and models of learning and planning in games, reasoning and planning under uncertainty, reasoning under real-time constraints, selective search, and training paradigms for game-learning systems.

The symposium intends to maintain a balance between theoretical issues and descriptions of implemented systems to promote a synergy between theory and practice. As well as traditional paper presentations there will be invited talks and provocative panel discussions. Search, imperfect information, and implemented game-playing systems will be important topics.

Organizing Committee: Murray Campbell, Susan Epstein, (cochair); Nicholas Flann, Richard Korf, Robert Levinson, (cochair); Barney Pell, Stuart Russell, Prasad Tadepalli, Gerald Tesauro, Paul Utgoff.

Human-Computer Collaboration: Reconciling Theory, Synthesizing Practice

This symposium deals with the theory and practice of collaborative problem solving between people and computers. The study of collaborative problem solving involves understanding the processes by which agents work together to achieve goals. We seek a deep understanding of this process as it occurs between one human and one

computational agent, an understanding that takes into account the unique characteristics of each type of agent. In particular, the goals of this symposium are to explore the fundamental nature of collaborative problem solving, examine various approaches to modeling collaboration and designing collaborative systems, and to draw lessons from implemented systems.

Three major issues will be addressed at the symposium:

1. Sharing Responsibility

- *Analyses of the strengths and weaknesses of people and computers.*
- *Analyses of the types of communication and coordination necessary in order to collaborate on a task.*
- *Analyses of how people do work.*
- *Methods for shifting responsibility between people and computers.*

2. Managing the Person-Computer Interaction

- *Models of interaction.*
- *Managing multi-media interaction.*
- *Achieving "natural communication."*

3. Clarifying Assumptions Concerning the Cognitive Capabilities and Knowledge Requirements Required for Effective Collaboration.

- *What knowledge must a system have in order to be an effective collaborative partner?*
- *What are appropriate architectures for deploying this knowledge?*

We will consider both theoretical arguments concerning the type of knowledge that is necessary to be an effective collaborative partner, and system-based arguments that identify types of knowledge that have proved useful in practice, ex-

amine the cost of acquiring, representing, and utilizing such knowledge, or present general architectures for collaborative behavior.

Organizing Committee: Gerhard Fischer, University of Colorado at Boulder; Lewis Johnson, USC/ISI; Johanna Moore, University of Pittsburgh; Chuck Rich, Mitsubishi Electric Research Laboratories; Candace Sidner, Digital Equipment Corporation; Loren Terveen, AT&T Bell Laboratories, (chair).

Instantiating Real-World Agents

Rather than being centered on a research area, or a general unsolved problem area, this symposium will concentrate on AI as applied to a physically instantiated robot for vacuuming household floors. The target problem is to autonomously vacuum a living room, while doing the right thing with furniture, pets, trash, etc. In particular, research on navigation, planning, spatial representation, multi-agent control, behavior control, obstacle avoidance, perception, exploration, NLP interfaces, etc., will be presented as that research relates to household vacuuming. Theoretical work, simulations, and partially implemented systems set in the target domain will be discussed.

Limiting the discussions to a specific task to be performed without allowing the engineering of a specific solution still leaves many issues to be explored. We hope that significant progress can be made on this problem, and that new research methods might grow out of this type of symposium. We are also hopeful that a common problem domain may obviate the vocabulary problems that have crept up in recent years. By having a common

problem, we hope a common language will emerge.

Additionally, by concentrating on a real-world problem domain, we hope that some practical progress can be made, bringing to focus some research areas that are of more than just academic interest. It may even be possible that participants in this symposium will work on a commercial version of this robot—allowing them to really clean up (as it were).

The written papers for the symposium consist of short position papers that describe either the authors' approach to addressing the vacuuming problem, or their current research and how it can be related to the vacuuming floors in the home.

It is important to keep in mind that we will be discussing not engineered solutions, but rather those oriented on general techniques which could be used in similar tasks. We will present and discuss "explore, learn, map, and plan" as well as reactive approaches, with a view toward uncovering the value and trade-offs among these strategies.

Organizing Committee: Pete Bonasso, MITRE, (cochair and contact person) (bonasso@starbase.mitre.org); David Miller, MITRE, (cochair); Ramesh Jain, UCSD; Ben Kuipers, University of Texas at Austin.

Machine Learning in Computer Vision: What, Why, and How?

This symposium will bring together researchers from different specialties in machine learning and computer vision to address issues raised by examining the use of machine learning in computer vision:

- What elements of a computer vision system might be learned rather than hand-crafted by the designer?
- What machine learning paradigms are appropriate to the computer vision domain (especially across the signal to symbol transition)?
- Why or how would learning improve the performance or efficiency of computer vision systems?
- How do we go about implementing or exploiting the machine learning paradigms which seem most appropriate to the computer vision domain?

One of the acknowledged problems with computer vision systems is that they tend to be hand-crafted application-specific efforts that embody or reflect rather little in the way of general principles which can adapt easily from one application environment to another. While some in the computer vision field are currently reconsidering the goal of "general purpose vision systems" as possibly too difficult or not relevant, there is still the clearly motivated desire to learn something from the experience in creating a vision system for one application domain that can be used to make it easier to create the next vision system.

Since much of the effort in creating a vision system often lies in creating a database of examples and facts, and in tuning the parameters and operations of the system to the application domain, learning techniques may be of use in addressing this problem. However, it is not yet clear what learning capabilities computer vision systems should have, why these capabilities should result in computer vision systems that display greater competence and generality, or how to go about building vision systems that incorporate learning capabilities.

From the standpoint of machine learning systems, visual domains present some interesting problems. The images and the outputs of low-level image processing operations tend to be noisy, making it difficult to get true segmentation of images and so unreasonable to assume that the transition from image signal to symbol is made completely and correctly. Also, large numbers of exactly labeled examples suitable for inductive learning are generally not available. There is often some domain knowledge available and some clear examples, perhaps suggesting a multi-paradigm learning approach.

The workshop will consist of invited talks, sessions of contributed papers and a panel discussion. The emphasis will be on interactive discussion of issues and approaches.

Organizing Committee: Kevin Bowyer, University of South Florida (cochair); Chris Brown, University of Rochester; Bruce Draper, University of Massachusetts; Lawrence Hall, University of South Florida (cochair); Tom Mitchell, Carnegie-Mellon University; Larry Rendell, University of Illinois; Dean Pomerleau, Carnegie Mellon University.

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 September 17, 1993. 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 30, 1993.

Your registration fee covers your attendance at the symposium, a

copy of the working notes for your symposium, and reception.

Please fill out the attached registration form and mail it with your fee to:

AAAI 1993 Fall Symposium
445 Burgess Drive
Menlo Park, CA 94025

Checks (drawn on US bank) or international money orders should be made out to AAAI. VISA, MasterCard and American Express are also accepted.

Please note: All refund requests must be in writing and postmarked by October 8, 1993. *No refunds will be granted after this date.*

When you arrive at the Sheraton Imperial Hotel, please pick up your complete registration packet in the Imperial Convention Center Lobby. Registration hours will be:

<i>Thursday, October 21</i>	5:00 PM – 7:30 PM
<i>Friday, October 22</i>	8:00 AM – 5:00 PM
<i>Saturday, October 23</i>	8:00 AM – 5:00 PM

Please call AAAI at 415/328-3123 or email fss@aaai.org for further information.

Accommodations

For your convenience, AAAI has reserved a block of rooms at the Sheraton Imperial Hotel. The prices are: \$68.00 for regular single; \$108.00 for Towers single; \$78.00 for regular double; \$123.00 for Towers double. Symposium attendees must contact the Sheraton Imperial Hotel directly. Please identify yourself as an American Association for Artificial Intelligence Fall Symposium registrant to qualify for the reduced rate. *Please make reservations no later than September 21, 1993.*

Sheraton Imperial Hotel & Convention Center

I-40 exit 282 at Page Road
 P O Box 13099
 Research Triangle Park, NC 27709
 Phone: 919/941-5050
 Fax: 919/941-5156

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Air Transportation & Rental Car

AAAI has selected United Airlines as the official airline carrier and Hertz Rental Car as the official car rental agency. To make reservations at a discounted rate, please call the United Airlines Specialized Meeting Reservations Center directly at 800-521-4041 or contact any travel agent. Be sure to specify that you are traveling to the AAAI Fall Sym-

posium Series and identify our reference #538AG. By using this reference number, you will also qualify for discounts on your Hertz Rental Car. Effective travel dates are October 19-27, 1993, inclusive.

Ground Transportation

The Sheraton Imperial provides 24-hour complimentary shuttle service to and from the Raleigh/Durham International Airport. Please use the airport courtesy telephone in the baggage claim area to arrange for shuttle service upon your arrival. Press the speed dial button to the Sheraton, and a van will be dispatched. When you are ready to leave the Sheraton, please arrange for a courtesy van with the hotel bellman. If you prefer to take a taxi, the fare from the Raleigh/Durham International Airport to the Sheraton is approximately \$6.00.

Parking

Complimentary outdoor parking is available at the Sheraton Imperial. Valet parking is also available.

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
 7:30 PM-10:00 PM Plenary session

Sunday, October 24

9:00 AM-12:30 PM Symposia sessions

Registration will be in the Imperial Convention Center Lobby of the Sheraton.

Registration Form 1993 AAAI Fall Symposium Series

ALL ATTENDEES MUST PREREGISTER
Please complete in full and return to AAAI, postmarked by September 17, 1993 (invited attendees) or by September 30, 1993 (general registration). *Please print or type.*

First name _____ Last name _____

Affiliation _____

Address _____ Home or Business

City _____ State _____

Zip or postal code _____ Country _____

Daytime telephone _____ Net address _____

Symposium

(Please check only one)

- 1. Automated Deduction in Non-Standard Logics
- 2. Games: Planning and Learning
- 3. Human-Computer Collaboration: Reconciling Theory, Synthesizing Practice
- 4. Instantiating Real-World Agents
- 5. Machine Learning in Computer Vision: What, Why and How?

Fee

Member: \$ 220.00 Nonmember: \$ 260.00

Student Member \$ 95.00 Nonmember student: \$ 115.00

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

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

Method of Payment *(please circle one)*

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or fax with credit card information to 415/321-4457.**

Please Note: Requests for refunds must be received *in writing* by 8 October 1993.

A \$25.00 processing fee will be levied on all refunds granted.

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