



# Thirteenth National Conference on Artificial Intelligence (AAAI-96)

## Workshop Program

CALL FOR PARTICIPATION

*August 4-8, 1996*

*Oregon Convention Center, Portland, Oregon, USA*

### Sponsored by

The American Association for Artificial Intelligence

445 Burgess Drive, Menlo Park, CA 94025

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<http://www.aaai.org/Workshops/workshops.html>

# 1996 AAI Workshops

AAAI is pleased to present the AAAI-96 Workshop Program. Workshops will be held Sunday, August 4 and Monday, August 5, 1996, at the Oregon Convention Center. Exact locations and dates for the workshops will be determined in early spring. The AAAI-96 Workshop Program includes fourteen workshops covering a wide range of topics in artificial intelligence. Participation at these workshops is by invitation from the workshop organizers. Workshops are one day unless noted otherwise in the individual description. Each workshop is limited to approximately 25 to 50 participants. Workshops are free for technical registrants of AAAI-96. There is a \$125 registration fee for those attendees who do not register for AAAI-96. **All workshop attendees must preregister for the workshops.** Workshop working notes will be distributed onsite for participants only, and may be available after the conference as technical reports.

## Submission Requirements

Submission requirements vary for each workshop, but the key deadlines are uniform for all. Submissions for all workshops are due to the organizers on March 18, 1996. Workshop organizers will notify submitters of acceptance by April 15, 1996. Camera-ready copy is due back to workshop organizers by May 13, 1996.

Please mail your submissions directly to the chair of the individual workshop according to their directions. *Do not* mail submissions to AAAI. For further information about a workshop, please contact the chair of that workshop.

## AAAI-96 Workshop Chair

Subbarao Kambhampati  
Arizona State University  
rao@parichaalak.eas.asu.edu

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## Deadlines

March 18: Submissions due  
April 15: Author notification of acceptance  
May 13: Camera-ready copy due  
August 4-5: Workshops

# Agent Modeling

The study of issues arising in building agents competent in interacting with other agents has played a central role in much of AI research. Agent modeling—the capability of modeling and reasoning about other agent’s knowledge, beliefs, goals, and actions—is central to intelligent interaction. This capability is being addressed in a variety of research areas, including distributed AI and multi-agent systems, natural language discourse, plan recognition, intelligent tutoring and user interfaces, as well as in related areas, such as game theory and psychology. Added impetus to this work comes from the recent explosion of work on agents in interactive simulation and software environments, which bring with them new concerns for agent modeling for collaboration and competition.

This workshop is intended to bring together researchers working in all areas related to the theoretical and practical aspects of agent modeling. Topics of concern include, but are not limited to:

- What paradigms and theories should the modeling be based on? Should it be logical, knowledge-theoretic, decision-theoretic, game-theoretic?
- What level of modeling is appropriate for different tasks? Is treating agents in terms of knowledge, beliefs and desires always better? Can they be treated as simple mechanisms?
- Are the models considered in game theory or psychology useful in AI applications?
- How do concerns of real-time performance and reactivity in the synthetic simulation environments affect agent modeling?
- What are the implications of various

approaches to modeling for communication?

- How can agents learn models of other agents?

## Submissions

Please submit a ten-page write-up (12 point font) in PostScript, text format via e-mail. If this is not possible, please send four hard copies to:  
Milind Tambe  
Information Sciences Institute  
University of Southern California  
4676 Admiralty Way  
Marina del Rey, CA 90292  
tambe@isi.edu.

## Organizing Committee

Milind Tambe (Cochair), Information Sciences Institute, USC (tambe@isi.edu); Piotr Gmytrasiewicz (Cochair), University of Texas at Arlington (piotr@cse.uta.edu); Sandra Carberry, University of Delaware; Ed Durfee, University of Michigan; Lewis Johnson, Information Sciences Institute, USC; Charles Rich, Mitsubishi Electric Research Laboratories; Sandip Sen, University of Tulsa; Candy Sidner, Lotus Corporation; and Katia Sycara, Carnegie Mellon University.

# AI in Agriculture & Natural Resources

This workshop will cover innovative research in the application of AI to the areas of natural and agricultural resource management. The scope of the problem domain includes the management and utilization of agroecosystems (i.e., farms) and natural ecosystems (e.g., forests, watersheds, recreational areas). The rule-based expert system paradigm alone is inadequate for many of the problems facing resource managers. Natural and agricultural ecosystems are extremely complex. Often, management is toward multiple, and at times conflicting, objectives, and the knowledge required to do a creditable management job tends to be multi-disciplinary. In the face of these problems, researchers are investigating the application of more advanced AI techniques, and the integration of multiple software technologies (e.g., simulation modeling, geographic information and database management systems) with AI methodologies. This workshop will provide a forum for the discussion of these issues, and a venue for the interaction between researchers in the field.

The preliminary format of the workshop is two days, with 10-15 presentations, including discussion periods. Workshop participation will be limited to approximately 50 individuals.

## Submissions

Individuals interested in making a presentation should submit an extended abstract (no more than 2 pages) of the proposed talk. Although all submissions will be considered, special consideration will be given to subjects that move beyond the application of rule-based techniques. Appropriate topics include model-based reasoning, uncertainty, reasoning with spatial knowl-

edge, case-based reasoning, neural-networks, planning, integration and philosophical issues.

Persons desiring to participate, but not give a presentation, should submit a shorter abstract (a page or less) describing their research and/or interest in the subject area.

Submissions should be sent in hard-copy form or by e-mail to:

Richard L. Olson  
USDA-ARS  
P.O. Box 5367  
Mississippi State, MS 39762-5367  
(601)324-4367  
olson@csrumsu.ars.ag.gov

If you wish to be included in the working notes distributed to participants at the workshop, you must supply camera-ready copy to Richard Olson by May 13.

## Organizing Committee

Richard Olson (Cochair), USDA Agricultural Research Service, Mississippi State University (olson@csrumsu.ars.ag.gov); Nicholas Stone (Cochair), Department of Entomology, Virginia Tech (nick@vt.edu); Douglas K. Loh, Range Science Department, Texas A&M University; John Roach, Department of Computer Science, Virginia Tech.

# Computational Cognitive Modeling: Source of the Power

Computational models for various cognitive tasks, such as language acquisition, skill acquisition, and conceptual development, have been extensively studied by cognitive scientists, AI researchers, and psychologists.

We attempt to bring researchers from different backgrounds together, and to examine how and why computational models (connectionist, symbolic, or others) are successful in terms of the source of power. The possible sources of power include:

- Representation of the task;
- General properties of the learning algorithm;
- Data sampling/selection;
- Parameters of the learning algorithms.

The workshop will focus on, but not be limited to, the following topics, all of which should be discussed in relation to the source of power:

- Proper criteria for judging success or failure of a model.
- Methods for recognizing the source of power.
- Analyses of the success or failure of existing models.
- Presentation of new cognitive models.

## Submissions

Potential presenters should submit a paper (maximum 12 pages, 12 point font). We strongly encourage e-mail submissions of text/postscript files; or you may also send 4 paper copies to one workshop cochair:

Charles Ling (Cochair)  
Department of Computer Science  
University of Hong Kong  
Hong Kong  
ling@csd.uwo.ca (on leave)

Ron Sun (Cochair)  
Department of Computer Science  
University of Alabama  
Tuscaloosa, AL 35487  
rsun@cs.ua.edu

Researchers interested in attending the workshop only should send a short description of interests to one cochair by deadline.

The workshop will consist of invited talks, presentations, and a poster session. All accepted papers will be included in the workshop working notes.

## Organizing Committee

Charles Ling (Cochair), University of Hong Kong (ling@csd.uwo.ca); Ron Sun, University of Alabama (rsun@cs.ua.edu); Pat Langley, Stanford University (langley@flamingo.stanford.edu); Mike Pazzani, UC Irvine (pazzani@super-pan.ics.uci.edu); Tom Shultz, McGill University (shultz@psych.mcgill.ca); Paul Thagard, University of Waterloo (pthagard@watarts.uwaterloo.ca); and Kurt VanLehn, University of Pittsburgh (vanlehn+@pitt.edu).

This call for papers can also be found on the world wide web at <http://www.csd.uwo.ca/faculty/ling>.

## Detecting, Repairing, & Preventing Human-Machine Miscommunication

Any system that communicates must be able to cope with the possibility of miscommunication—including misunderstanding, non-understanding, and misinterpretation:

In *misunderstanding*, one participant obtains an interpretation that she believes is complete and correct, but which is, however, not the one that the other speaker intended her to obtain.

In *nonunderstanding*, a participant either fails to obtain any interpretation at all, or obtains more than one interpretation, with no way to choose among them.

In *misinterpretation*, the most likely interpretation of a participant's utterance suggests that their beliefs about the world are unexpectedly out of alignment with the other's.

All three forms of miscommunication can eventually lead to repair in a dialogue; however, misinterpretations and nonunderstandings are typically recognized immediately, whereas a participant is not aware, at least initially, when a misunderstanding occurs. Additionally, misinterpretation can be a source of misunderstanding.

Successful communication requires that participants share considerable knowledge. For example, they must share some knowledge about the state of their interaction and about the physical and social situation in which they are communicating. Knowledge of their interaction includes the current topic under discussion (often a shared task), the focus of attention, and the relevance of each utterance to the previous interaction. In practice, no two participants start with an identical understanding of their task or of the situation—nor can they take the time to identify and resolve discrepancies be-

forehand. As a result, participants must be prepared to handle miscommunication during dialogue.

Research related to achieving robust interaction is an important subarea in artificial intelligence. Early work concerned the correction of spelling or grammatical errors in a user's utterance so that the system could more easily match them against a fixed linguistic model; work has also been done in the area of speech recognition, attempting to find the best fit of a sound signal to legal sequences of linguistic objects. Other systems have attempted to detect misconceptions in the user's model of the domain of discourse. All of these approaches have assumed that the system's model is always correct. More recently, researchers have been looking at detecting and correcting errors in the system's model of an interaction. This work includes research on speech repairs, miscommunication, misunderstanding, non-understanding, and related work in planning, such as plan misrecognition and plan repair.

The focus of this workshop is to bring together researchers interested in developing theoretical models of robust interaction or in designing robust systems. Topics of interest include, but are not limited to, the following:

- Theories that delineate what knowledge must be represented, how it will be obtained and updated, and how responsibility for achieving robustness might be distributed among the interactants.
- Strategies for identifying *potential* causes of breakdowns, such as ambiguities, misconceptions, and plan misrecognition, in order to avert miscommunication.
- Strategies for identifying symptoms

of *actual* breakdowns, such as deviations from expected behavior, unresolvable ambiguities, and speech errors.

- Techniques for correcting errors in interpretation that have been used in other areas of AI, such as plan recognition and computer vision, and in related areas, such as human-computer interaction and multimedia.
- Approaches to minimizing and correcting miscommunication in tutoring systems and education.
- Empirical data regarding the occurrence of miscommunication and approaches to robust communication that derive from empirical methods.
- Research in knowledge representation that would be useful in detecting, repairing, and preventing miscommunication.

We solicit papers that explore these issues, and papers that discuss implementations of solutions to the problems of detecting, repairing, and preventing human-machine miscommunication. Papers submitted to the workshop should address these topics explicitly. As AAAI procedures require, participation will be limited to 65.

### Submissions

Submit an extended abstract. Abstracts should not exceed 10 pages, exclusive of references, in 12 point, double-spaced text, with one-inch margins. We strongly encourage electronic submissions, either plain text or postscript. E-mailed submissions should be e-mailed to [mcroy@cs.uwm.edu](mailto:mcroy@cs.uwm.edu) with a subject heading "Attention: AAAI MNM". In the event that electronic submission is not possible, send 6 copies to:

Susan McRoy  
Attention: AAAI MNM Workshop  
Computer Science Department  
University of Wisconsin, Milwaukee  
3200 North Cramer Street, EMS  
Room 503  
Milwaukee, WI 53211  
(414) 229—6695  
(414) 229—6958 (fax)

This call for papers can be found on the world wide web at  
<http://www.cs.uwm.edu/faculty/mcroy/mnm.html>

### Organizing Committee

Susan McRoy (chair), University of Wisconsin—Milwaukee ([mcroy@cs.uwm.edu](mailto:mcroy@cs.uwm.edu)); Brad Goodman, Mitre Corporation ([bgoodman@linus.mitre.org](mailto:bgoodman@linus.mitre.org)); Susan Haller, University of Wisconsin—Parksides ([haller@cs.uwp.edu](mailto:haller@cs.uwp.edu)); Graeme Hirst, University of Toronto ([gh@cs.toronto.edu](mailto:gh@cs.toronto.edu)); Kathleen McCoy, University of Delaware ([mccoy@louie.udel.edu](mailto:mccoy@louie.udel.edu)); Ronnie Smith, East Carolina University ([rws@math1.math.ecu.edu](mailto:rws@math1.math.ecu.edu)); and David Traum, TECFA, Universite de Geneve ([David.Traum@tecfa.unige.ch](mailto:David.Traum@tecfa.unige.ch)).

# Entertainment & AI / A-Life

It is increasingly recognized that the entertainment industry will be one of the major industries in which the power of computing will play a key role. This is particularly evident when one observes the intense pace of collaborations, mergers, and corporate purchases at the boundary between entertainment and computing. The popular press has referred to this as "the merger of Hollywood and Silicon Valley."

For this merger to succeed in the long term, machines must become competent in entertainment industry tasks presently performed by humans. Automating such human tasks is an important new domain for AI research and development. This workshop focuses on the applications of artificial intelligence and artificial life technologies to entertainment.

By broadly soliciting papers in an area that has not been, in the past, a major concern of the AI community, we expect to draw an overall picture of AI and A-Life opportunities in the entertainment industry. We also expect that information will be exchanged to facilitate active research in the area.

We welcome papers that clearly demonstrate use (including both actual use and ideas and proposals) of AI and A-Life technologies to all areas of entertainment. We especially welcome reports on efforts to scientifically model fundamental artistic elements of entertainment. Topics include, but are not limited to:

- Film (movie, video, etc) production
- Cyberspace
- Computer graphics and animation
- Interactive fiction, simulated worlds, role playing games
- Video games

- Network-based games
- Virtual reality
- Autonomous systems and agents
- Interactive media
- Music, sound, and speech
- Drama and story-telling
- Robotics, animatronics
- Theme park applications

The workshop format will consist of presentation of selected papers and invited talks followed by intensive discussions. A poster session will be organized if necessary.

## Submissions

Please submit a detailed abstract (approximately 1,500 words) or a full paper (limited to 5,000 words). We prefer electronic submission of PostScript files if possible. (Files may be e-mailed to any member of the organizing committee.) Video tapes must be recorded in VHS-NTSC format. In the event that electronic submission is not possible, send three hard copies (and three video tapes) to:

Hiroaki Kitano (Chair)  
Sony Computer Science Laboratory  
3-14-13, Higashi-Gotanda,  
Shinagawa,  
Tokyo, 141 Japan  
(+81) 3-5448-4380  
Fax: (+81) 3-5448-4273  
kitano@csl.sony.co.jp

## Organizing Committee

Hiroaki Kitano (Chair), Sony Computer Science Laboratory (kitano@csl.sony.co.jp); Joseph Bates, Carnegie Mellon University (joseph\_bates@cs.cmu.edu); Barbara Hayes-Roth, Stanford University (bhr@ksl.stanford.edu); Hitoshi Matsubara, Electrotechnical Laboratory (matsubar@etl.go.jp); and Alex Pentland, Media Lab, MIT (pentland@media.mit.edu).



## Integrating Multiple Learned Models for Improving & Scaling Machine Learning Algorithms

Most modern machine learning research uses a single model or learning algorithm at a time, or, at most, selects one model from a set of candidate models. Recently, however, there has been considerable interest in techniques that integrate the collective predictions of a set of models in some principled fashion. With such techniques, often the predictive accuracy and/or the training efficiency of the overall system can be improved, since one can “mix and match” among the relative strengths of the models being combined.

The goal of this workshop is to gather researchers actively working in the area of integrating multiple learned models, to exchange ideas and foster collaborations and new research directions. In particular, we seek to bring together researchers interested in this topic from the fields of machine learning, knowledge discovery in databases, and statistics.

Any aspect of integrating multiple models is appropriate for the workshop. However, we intend the focus of the workshop to be improving prediction accuracies, and improving training performance in the context of large training databases. More precisely, submissions are sought in, but not limited to, the following topics:

- Techniques that generate and/or integrate multiple learned models. In particular, techniques that do so by:
  - 1) using different training data distributions (in particular by training over different partitions of the data)
  - 2) using different output classification schemes (for example using output codes) or 3) using different hyperparameters or training heuristics (primarily as a tool for

generating multiple models)

- Systems and architectures to implement such strategies. In particular: parallel and distributed multiple learning systems or multi-agent learning over inherently distributed data

### Submissions

Submit a short paper of not more than 2000 words detailing recent research results. The paper should include an abstract of not more than 150 words, and a list of keywords. Please include the name(s), e-mail address(es), address(es), and phone number(s) of the author(s) on the first page. The first author will be the primary contact unless otherwise stated.

Electronic submissions in PostScript or ASCII via e-mail are preferred. Three printed copies (preferably double-sided) of your submission are also accepted. Please also send the title, name(s) and e-mail address(es) of the author(s), abstract, and keywords in ASCII via e-mail. A paper need not be submitted to participate in the workshop, but space may be limited so contact the organizers as early as possible if you wish to participate.

The workshop format is planned to encompass a full day of half hour presentations with discussion periods, ending with a brief period for summary and discussion of future activities. Notes or proceedings for the workshop may be provided, depending on the submissions received.

Submissions and general inquiries should be sent to:

Philip Chan  
IMLM Workshop  
Computer Science  
Florida Institute of Technology  
150 West University Boulevard  
Melbourne, FL 32901-6988  
407-768-8000 x7280 (x8062)  
407-984-8461 (fax)  
imlm@cs.fit.edu

## **Organizing Committee**

Philip Chan, Florida Institute of Technology, (pkc@cs.fit.edu); Salvatore Stolfo, Columbia University (sal@cs.columbia.edu); and David Wolpert, Santa Fe Institute (dhw@santafe.edu).

Up-to-date workshop information is maintained on the world wide web at:  
<http://www.cs.fit.edu/~imlm/> or  
<http://cs.fit.edu/~imlm/>

# Intelligent Adaptive Agents

In recent years, researchers from different fields have pushed toward greater flexibility and intelligent adaptation in their systems. The development of intelligent adaptive agents has been rapidly evolving in many fields of science. Such systems should have the capability of dynamically adapting their parameters, improve their knowledge-base or method of operation in order to accomplish a set of tasks. This workshop will focus on intelligent adaptation and its relationship to other fields of interest.

Research issues that are of interest to the workshop include, but are not limited to:

- Analyzing the role of adaptation in planning, execution monitoring, and problem-solving
- Adaptive control in real-world engineering systems
- Analyzing the computational cost of adaptation versus system robustness
- Controlling the adaptive process (what is the strategy? what is needed?, what is expected?, etc.)
- Adaptive mechanisms in an open agent society
- Adaptation in distributed systems.

This one-day workshop seeks high quality submission in these areas. Researchers interested in submitting papers should explain the adaptive process in light of one or more of the issues presented above. Papers with real-world applications are strongly encouraged.

## Submissions

Paper submissions should not exceed ten single-spaced pages, with 1 inch margins, 12-point font. The first page must only show the title, authors'

names, full surface mail addresses, fax number (if possible), e-mail addresses, short abstract (not exceeding 200 words), and a list of key words (up to 5). Electronic submissions are strongly encouraged and should be sent to the updated e-mail address specified in the workshop world-wide web page. Otherwise, contact the workshop chair for mailing arrangements:

Ibrahim F. Imam  
Machine Learning and Inference  
Laboratory  
George Mason University  
4400 University Drive  
Fairfax, VA 22030-4444  
iimam@aic.gmu.edu

An extended version of the call for papers can be found at:

<http://www.mli.gmu.edu/~iimam/aaai96.html>

## Organizing Committee

Ibrahim Imam (Chair), George Mason University; Gerald DeJong, University of Illinois at Urbana-Champaign; Tim Finin, University of Maryland Baltimore County; Brian Gaines, University of Calgary, Canada; Diana Gordon, Naval Research Laboratory; Yves Kodratoff, Université de Paris Sud, France; Ryszard Michalski, George Mason University; Nigel Shadbolt, University of Nottingham, England; Reid Simmons, Carnegie Mellon University; Brad Whitehall, United Technologies Research Center; and Stefan Wrobel, GMD, Germany.

# Internet-Based Information Systems

The volume and range of digitally stored information continues to expand. At the same time, the number of people who can use the Internet to access such information is growing dramatically. As a result, network-based systems for browsing, searching, and sharing information in text and other forms are beginning to play a major role in popular computing.

To become more useful and gain wider acceptance, information systems must engage users in dialogue-like interactions that lead to the satisfaction of users' information-seeking goals. The purpose of this workshop is to explore the future of Internet-based information systems. One theme of the workshop will be the use of interactive methods to overcome limitations in current approaches. We will examine relevant AI techniques and theories, discuss existing research results, and explore new ideas and future directions.

The workshop will consist of presentations, demonstrations, and discussion sessions. Participation is by invitation based on submissions; we expect around 50 attendants.

## Submissions

Submissions, not longer than 8 pages, are due by March 18, 1996. To submit, please send e-mail to [amf@pdp.crl.sony.co.jp](mailto:amf@pdp.crl.sony.co.jp) with an URL for a PostScript or HTML version of your submission. We encourage submissions that include a demonstration or video component.

Please submit to:  
[amf@pdp.crl.sony.co.jp](mailto:amf@pdp.crl.sony.co.jp)  
Alexander Franz  
Sony Research Center  
6-7-35 Kitashinagawa  
Shinagawa-ku, Tokyo 141, Japan  
+81 (03) 5448-5635  
Fax: +81 (03) 5448-6833

A full version of this call for papers, along with up-to-date information about the workshop, can be found at the workshop home page:  
<http://www.cs.cmu.edu/~amf/iis96.html>

## Organizing Committee

Alexander Franz (Cochair), Sony Research Center ([amf@pdp.crl.sony.co.jp](mailto:amf@pdp.crl.sony.co.jp)); Hiroaki Kitano (Cochair), Sony Computer Science Lab ([kitano@csl.sony.co.jp](mailto:kitano@csl.sony.co.jp)); John Leavitt, Lycos Inc. ([jrrl@lycos.com](mailto:jrrl@lycos.com)); and Hideaki Takeda, Nara Advanced Institute of Science and Technology ([takeda@is.aist-nara.ac.jp](mailto:takeda@is.aist-nara.ac.jp)).

# Knowledge-Based Document Planning

Document drafting is an important task for professionals in a wide variety of fields, including law, government, business, and software engineering. In each of these fields, document creation requires selection and configuration of textual and graphical elements to achieve illocutionary goals and to satisfy relevant content, structural, and stylistic constraints. Multi-modal documents combining text, graphics, and video offer additional representation and planning challenges.

Workers in various research areas, including automated legal reasoning, discourse analysis and generation, knowledge-based software engineering, expert systems design, and multi-modal presentation planning have explored different approaches to knowledge-based document planning. The goal of this workshop is to bring together these diverse communities.

Topics include:

- Applications of discourse planning techniques and models of argumentation to document creation
- Document indexing and reuse
- Management of document libraries and meta-documents
- Document design principles for text-based and multi-modal documents
- Self-documenting systems
- Multimodal document planning
- Sentential planning and lexical choice in document creation
- Vocabularies and structures for self-explaining documents

This one-day workshop will include paper presentations, a poster session, and a panel discussion.

## Submissions

Submissions for those wishing to present may not exceed 12 pages and may be either hardcopy (5 copies) or electronic (PostScript or LaTeX). Those wishing to attend without presenting should submit a 2 page statement of interest. Submissions should be made to James Lester at the address below. For additional information, see <http://www4.ncsu.edu/eos/users/l/lester/public/doc-planning.html>.

James Lester  
Department of Computer Science  
North Carolina State University  
Box 8206  
Raleigh, NC 27695-8206  
lester@adm.csc.ncsu.edu  
(919) 515-7534  
Fax: (919) 515-7896

## Organizing Committee:

Karl Branting (Cochair), University of Wyoming ([karl@index.uwyo.edu](mailto:karl@index.uwyo.edu)); James Lester (Cochair), North Carolina State University ([lester@adm.csc.ncsu.edu](mailto:lester@adm.csc.ncsu.edu)); Trevor Bench-Capon, University of Liverpool ([tbc@compsci.liverpool.ac.uk](mailto:tbc@compsci.liverpool.ac.uk)); Eduard Hovy, USC/Information Sciences Institute ([hovy@isi.edu](mailto:hovy@isi.edu)); and Daniel Suthers, Learning Research and Development Center ([suthers+@pitt.edu](mailto:suthers+@pitt.edu)).

# Modeling & Reasoning with Function

The emphasis on function in knowledge modeling and reasoning has become widespread in many problem solving research areas from the traditional diagnosis and design, to autonomous agents on the world wide web, to assisting in the recognition of objects by vision systems and facilitating text understanding for device descriptions. The effectiveness of such approaches relies on purpose-oriented organization of knowledge about processes and/or artifacts and the subsequent application of this knowledge to achieve a variety of reasoning goals.

This workshop will bring together practitioners in various areas for discussion of current issues, to assess organizing frameworks and terminologies, to evaluate specific models, and share current research results. Building on the success of workshops at AAAI-93, AAAI-94 and IJCAI-95, this event will concentrate on transforming the mutual understanding gained in the earlier workshops into a coherent approach that will allow us to define the notion of function in general research on problem solving and spur new activity in uncharted application areas.

The format for the workshop will include presentation of recent research results, panel presentations/discussions on unifying themes related to function as well as presentations/discussions on client-server implementation activity, software tools and methodologies. This one-day event will be limited to 50 participants.

## Submissions

Three types of submissions are possible: 1) a ten page research paper; 2) a two page abstract describing relevant research, list of publications and biosketch; or 3) a five page description of methodology, software tool and/or implementation activity.

Send five hard copies to:

James K. McDowell  
Workshop Coordinator  
B100A Research Complex  
Engineering  
Michigan State University  
East Lansing, MI 48824-1326  
(517) 353-5010  
Fax (517) 432-1634  
e-mail [mcdowelj@cps.msu.edu](mailto:mcdowelj@cps.msu.edu)

## Organizing Committee

James K. McDowell (Chair), Michigan State University ([mcdowelj@cps.msu.edu](mailto:mcdowelj@cps.msu.edu)); Dean Allemang, Organon Motives, Inc. ([dta@organon.com](mailto:dta@organon.com)); Luca Chittaro, Università di Udine, Italy ([chittaro@dimi.uniud.it](mailto:chittaro@dimi.uniud.it)); Ashok K. Goel, Georgia Institute of Technology ([goel@cc.gatech.edu](mailto:goel@cc.gatech.edu)); Jack Hodges, San Francisco State University ([hodges@huckleberry.sfsu.edu](mailto:hodges@huckleberry.sfsu.edu)); Amruth N. Kumar, Ramapo College of New Jersey ([amruth@ultrix.ramapo.edu](mailto:amruth@ultrix.ramapo.edu)); Chris Price, University of Wales, UK ([cjp@aber.ac.uk](mailto:cjp@aber.ac.uk)); Jon Sticklen, Michigan State University ([sticklen@cpsmsu.edu](mailto:sticklen@cpsmsu.edu)); and Yasushi Umeda, University of Tokyo, Japan ([umeda@guinness.t.u-tokyo.ac.jp](mailto:umeda@guinness.t.u-tokyo.ac.jp)).

# Spatial & Temporal Reasoning

AAAI and the organizers solicit participation in this workshop on spatial and temporal issues in representation and reasoning. Despite many obvious differences, techniques applied in both temporal and spatial aspects of problem domains are often very similar: constraint propagation, relation algebra, granularity control, and others. Even applications, such as planning and path finding, are often closely related.

The Workshop on Spatial and Temporal Reasoning focuses on major problems facing the developers and users of temporal and spatial models in all areas of AI and in computer science. The organizers seek to establish a solid space-time bridge among the researchers in disciplines where spatio-temporal issues are a key concern.

The opportunity for interaction and exchange among the participants will be maximized. Using a varied format of invited presentations, keynote address, panel, and open discussion, participants are expected to become involved in the discussion, potentially leading to new insights about the interfaces between space and time, AI and systems, and other related domains.

Around 40 participants will be selected to attend the workshop, contributing and participating in discussions. Accepted papers will be included in the workshop working notes to be distributed by AAAI. Screening will be based on reviews and relevance to the workshop goals, favoring papers incorporating a synthesis or spanning more than one traditional area (see description); a mix of views is sought.

## Submissions

Electronic submissions (sent to [fanger@nsf.gov](mailto:fanger@nsf.gov)) are solicited in TeX, Latex, or PostScript format. The papers, starting with title, authors' names, addresses, phone and fax numbers, and e-mail addresses, followed by keywords, and concluding with relevant bibliographic references, should fit on 4 to 10 single-spaced typewritten 8.5 x 11 inch pages, in the form of an extended abstract or complete research, survey, or position paper. Selection of participants will be based on relevance to the indicated focus of the workshop, clarity of the work submitted, and the strength of the research.

Please submit to:

Frank D. Anger  
Computer Science Department  
University of West Florida

Mailing Address:  
9813 Fox Rest Lane  
Vienna, VA 22181  
(703) 306-1706  
fax: 306-0474  
[fanger@nsf.gov](mailto:fanger@nsf.gov)

## Organizing Committee

Frank Anger (Chair), NSF and University of Western Florida ([fanger@nsf.gov](mailto:fanger@nsf.gov)); Hans W. Guesgen, University of Auckland ([hans@cs.auckland.ac.nz](mailto:hans@cs.auckland.ac.nz)); and Gerard Ligozat, LIMSI, Université Paris XI ([ligozat@limsi.fr](mailto:ligozat@limsi.fr)).

# Structural Issues in Planning & Temporal Learning

Currently there appears to be a mismatch between theory and practice in planning and temporal reasoning. Theoretical results typically concern guarantees of correctness and analyses involving worst-case asymptotic complexity that pertain to precisely characterized classes of problems. Such results often do not reflect the experience of practitioners. Theoreticians and practitioners alike will tell you that we have a long way to go in understanding even the simplest of problems.

Planning and temporal reasoning impose structure in time and state. Many planning and temporal reasoning problems can be specified in terms of reachability in the state space determined by assignments to propositional fluents. There are other structural properties that can be characterized in terms of the dependencies among state variables (propositional fluents) and interactions among operators (mappings from states to states). This workshop is aimed at exploring the structural properties of planning and temporal reasoning problems in an attempt to tie theory and practice closer together.

Topics include:

- Interpreting asymptotic complexity results
- Conducting large-scale empirical studies
- Structural properties and computational leverage
- Alternatives to worst-case, asymptotic complexity
- Relationship between planning and temporal reasoning

The workshop will be organized around short tutorials used to establish a common conceptual framework. These tutorials will be interspersed with focused discussions on specific

problems related to the issues introduced and motivated in the tutorials. Participation is by invitation only, and will be limited to approximately 35 people.

## Submissions

Those who wish to participate should send a statement of interest no longer than six pages. Electronic submissions are strongly encouraged. Submissions and questions regarding this workshop can be directed to:

Christer Backstrom  
Department of Computer and Information Science  
Linkoping University S-581 83  
Linkoping, Sweden  
(+46) 13 282429  
(+46) 13 282606 (fax)  
cba@ida.liu.se  
*(for electronic submissions)*

or

Thomas Dean  
Department of Computer Science  
Brown University  
115 Waterman Street  
Providence, RI 02912 USA  
(401) 863-7645  
(401) 863-7657 (fax)  
tld@cs.brown.edu  
*(for electronic submissions)*

## Organizing Committee

Christer Backstrom (Cochair), Linkoping University (cba@ida.liu.se); Tom Dean (Cochair), Brown University (tld@cs.brown.edu); Rina Dechter, University of California at Irvine (dechter@ics.uci.edu); and David McAllester, ATT Bell Laboratories (dmac@research.att.com).



# Theories of Action, Planning, & Control: Bridging the Gap

The goal of the workshop is to bring together active researchers in the areas of theories of actions, planning and control architectures to discuss and analyze the interrelation between these areas, and to accelerate the interaction between them.

Specific topics of interest are:

- Identification of features in theories of actions that make it possible to develop efficient planning algorithms
- Study of the relation between the inference methods associated with logical formalizations of a particular theory of action and planning algorithms for that theory
- Exploration of advantages and disadvantages of generate and test planners. (Some possible advantages are easy incorporation of domain knowledge, easy incorporation of non-standard goals such as maintaining the value of a fluent etc.)
- Incorporation of aspects related to control (such as: execution of actions, knowledge producing actions, actions that may fail, etc.) into theories of actions; and
- Other topics that relate to the interface between these areas.

The one and one-half day workshop will consist of tutorials, individual presentations and panel discussions.

## Submissions

Participants interested in presenting their work should send 4 copies of their paper (5000 words) or position paper (1500 words) to:

Chitta Baral  
Department of Computer Science  
University of Texas at El Paso  
El Paso, TX 79968 USA  
915-747-6952/5030 (ph/fax)

(E-mail submissions in PostScript to [chitta@cs.utep.edu](mailto:chitta@cs.utep.edu) are preferred.) Other interested participants should send a one page description of their research interest. Further information on this symposium and some papers related to this workshop can be found at <http://cs.utep.edu/actions/aaai96.html>.

## Organizing Committee

Chitta Baral, Fahiem Bacchus, Ray Reiter, and Paolo Traverso.

Steering and program committee

Michael Gelfond, Fausto Giunchiglia, Craig Knoblock, Ben Kuipers, Vladimir Lifschitz, Fangzhen Lin, Edwin Pednault, Sam Steel, and Qiang Yang.

# Validation and Verification of Knowledge Based Systems & Subsystems

Both AAAI and IJCAI have hosted lively workshops on validation and verification (V&V) of knowledge based (KB) systems for several years. This workshop continues this tradition with a focus on the following topics:

- V&V methods for KB subsystems that are components of larger systems that may not be KB overall.
- New and exciting V&V methods for KB systems/subsystems.
- Development of verifiable KB systems/subsystems; i.e., how can we develop KB systems/subsystems such that V&V is facilitated?
- V&V of KB systems/subsystems in safety critical systems.

Papers on these and also on more traditional V&V subjects such as testing, tool development, correctness verification, knowledge modelling, formal methods, etc., as well as reports on existing systems, are encouraged. For more information, see <http://cs-www.bu.edu/faculty/snyder/vandv.html>.

The workshop will be one day, consisting of presentations, one or two panels, and (possibly) a poster session and system demonstrations. Attendance is limited to 50 people.

## Submissions

Those interested in presenting should submit a paper (up to 10 pages) or abstract (up to 2 pages) describing novel research and/or results. Those interested in participation only should describe their interest in the area and/or industrial experience (up to 2 pages). E-mail submissions are encouraged: please use plain text, LaTeX or PostScript. Fax submissions are acceptable. For hard copy submissions, six copies should be provided. Surface mail

and e-mail addresses, and phone and fax numbers should be included for all contributing authors.

Submit to either of the cochairs:

Anca I. Vermesan

Det Norske Veritas Research  
1322 Hovik, Norway  
Phone: 47 67 578363  
Fax: 47 67 577520  
[anve@vr.dnv.no](mailto:anve@vr.dnv.no)

or

Jim Schmolze  
Department of Electrical Engineering & Computer Science  
161 College Avenue  
Tufts University  
Medford, MA 02155 USA  
617/627-3681  
Fax: 617/627-3220  
[schmolze@cs.tufts.edu](mailto:schmolze@cs.tufts.edu)

If you have a system that you would like to demonstrate, please contact Jim Schmolze.

## Organizing Committee

Jim Schmolze (Cochair), Tufts University ([schmolze@cs.tufts.edu](mailto:schmolze@cs.tufts.edu)); Anca Vermesan (Cochair), Det Norske Veritas Research ([anve@vr.dnv.no](mailto:anve@vr.dnv.no)); Rose Gamble, University of Tulsa ([gamble@tara.mcs.utulsa.edu](mailto:gamble@tara.mcs.utulsa.edu)); Chris Landauer, The Aerospace Corporation ([cal@aero.org](mailto:cal@aero.org)); Wayne Snyder, Boston University ([snyder@cs.bu.edu](mailto:snyder@cs.bu.edu)); and Jan Vanthienen, Katholieke Universiteit Leuven ([Jan.Vanthienen@econ.kuleuven.ac.be](mailto:Jan.Vanthienen@econ.kuleuven.ac.be)).