



1998 Spring Symposium Series

March 23-25, 1998

Stanford University, California

Call for Participation

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

The American Association for Artificial Intelligence presents the 1998 Spring Symposium Series, to be held Monday through Wednesday, March 23-25, 1998, at Stanford University. The topics of the eight symposia are:

- Applying Machine Learning to Discourse Processing
- Integrating Robotic Research: Taking the Next Leap
- Intelligent Environments
- Intelligent Text Summarization
- Interactive and Mixed-Initiative Decision-Theoretic Systems
- Multimodal Reasoning
- Prospects for a Commonsense Theory of Causation
- Satisficing Models

Symposia will be limited to between forty and sixty participants. Each participant will be expected to attend a single symposium. Working notes will be prepared and distributed to participants in each symposium.

A general plenary session, in which the highlights of each symposium will be presented, will be held on Tuesday, March 24, and an informal reception will be held on Monday, March 23.

In addition to invited participants, a limited number of other interested parties will be able to register in each symposium on a first-come, first-served basis. Registration information will be available by December 15, 1997. To register, contact

AAAI
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<http://www.aaai.org/Symposia/>

Submission Information

Submissions for the symposia are due on October 24, 1997. Notification of acceptance will be given by November 14, 1997. Material to be included in the working notes of the symposium must be received by January 17, 1998. See the appropriate section below for specific submission requirements for each symposium.

This document is available at
www.aaai.org/Symposia/Spring/1998/sss-participation-98.html

Applying Machine Learning to Discourse Processing

Following success in using machine learning (ML) techniques in speech, syntactic, and semantic processing, there has been an increasing interest in applying ML to discourse problems such as dialogue act prediction, cue word usage, and discourse segmentation. This symposium will bring together researchers interested in exploring the potential contribution of ML to discourse interpretation and generation. We will address issues from the discourse processing and machine learning points of view.

From the discourse processing point of view:

- What discourse understanding/generation tasks are or are not suitable for processing using ML-acquired models?
- How should traditional approaches be integrated with ML approaches?
- What types of pragmatic knowledge (e.g., discourse recipes, cue phrase classification) can or cannot be acquired by ML?
- What kinds of categories and features can be tagged automatically and/or reliably?
- How can useful features be identified?

From the machine learning point of view:

- What ML techniques may be suitable for acquiring knowledge for discourse processing? How do they compare in terms of accuracy, efficiency, speed, amount of training data needed?
- What discourse corpora are currently available for ML? What other corpora are needed?
- What characteristics of discourse processing cause problems for existing ML techniques?

Submissions

Authors may submit one of the following:

- A technical paper (8 pages maximum) describing research in discourse processing involving ML techniques.
- A position paper (3 pages maximum) addressing any of the issues related to the symposium theme.
- A statement of interest describing your prior experience and publications related to the symposium theme.

Papers may be submitted either electronically (due October 21) or in hard copy (due October 24). Electronic submissions can be in plain ASCII text, PDF, PostScript, or by giving the URL of a web site containing the submission. For detailed submission instructions (including submission addresses), see: www.cs.cmu.edu/afs/cs.cmu.edu/user/ngreen/public-web-pages/sss-98.html

Organizing Committee

Jennifer Chu-Carroll (cochair), Bell Laboratories (jenc@bell-labs.com); Nancy Green (cochair), Carnegie Mellon University (Nancy.Green@cs.cmu.edu); Barbara Di Eugenio, University of Pittsburgh; Peter Heeman, Oregon Graduate Institute; Diane Litman, AT&T Labs - Research; Raymond Mooney, University of Texas at Austin; Johanna Moore, University of Pittsburgh; David Powers, Flinders University

Integrating Robotic Research: Taking the Next Leap

In recent years, many interesting solutions have been found for specific pieces of the general robotics problem. In fact, it now appears that enough of the separate parts have been solved that we might expect real progress to be made in solving harder, general tasks. However, research groups, because of limited funding, staff or hardware, continue to work in narrowly focused areas. To make the next leap in capability, the community must work together to merge these independent efforts. This workshop will bring together robot and AI practitioners to explore how we might take that leap.

To help generate ideas and discussion, we have identified several general areas that have a role in robot integration, and have identified key questions in each area.

Please refer to our web site for a complete listing of general areas and key questions: www.aic.nrl.navy.mil/~schultz/aaai98/

We seek papers or abstracts on integrating, distributing, and/or testing robotic components, and related areas. We do not want papers that address single robotic activities, such as a particular vision or navigation algorithm. To ensure relevance, papers should address one or more of the topics and questions listed at the web site above.

Submissions

Submissions (preferably by e-mail) of extended abstracts (1-2 pages) or complete papers (less than 8 pages) should be sent to one of the two cochairs listed below.

David Kortenkamp, Metrica, cochair
Metrica Inc.
NASA Johnson Space Center — MC: ER2
Houston TX 77058
david.m.kortenkamp1@jsc.nasa.gov

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Organizing Committee

David Kortenkamp, Metrica, Inc.; Alan Schultz, Naval Research Laboratory; Ron Arkin, Georgia Institute of Technology; Reid Simmons, Carnegie Mellon University

Intelligent Environments

Intelligent environments are spaces in which computation is seamlessly used to enhance ordinary activity. They enable tasks historically outside the normal range of human-computer interaction by connecting computers to normal, everyday phenomena that have traditionally been outside the purview of contemporary user-interfaces. Their applications are not spreadsheets and word processing but intelligent rooms and personal assistants.

Interaction with these environments should be in terms of forms that people are naturally comfortable with. Their user-interface primitives are not menus, mice and windows but gesture, speech, context, and affect. At least in theory, it should be possible for a person to forget she is using a computer while interacting with one.

Building intelligent environments requires a unique breadth of knowledge that extends beyond any of the traditional boundaries of AI research areas. The purpose of this symposium is to bring together researchers from various AI backgrounds to discuss the issues involved in creating these complex, interactive, embedded systems. We expect to have relevant contributions from interested researchers in computer vision, software agents, knowledge representation, robotics, machine learning, and speech understanding. (Additional information about this symposium is available at www.ai.mit.edu/people/mhcoen/IE)

Submissions

Potential participants should submit a short paper (up to 5-8 pages) describing work in progress, completed work, positions, test beds, discussion topics or potential panels. Other interested participants should submit a one to two page description of their work or interest in this area (including a short list of related publications) or specific questions and issues that they feel should be addressed.

Submissions must include title, author's name(s), affiliation, mailing address, e-mail address, phone and fax numbers. Invited participants will be asked to submit PostScript versions of their papers.

Five hard copies of your submission should be sent to:

Michael Coen
MIT AI Lab
545 Technology Square
Cambridge, MA 02139

Organizing Committee

Michael Coen (chair), Massachusetts Institute of Technology (mhcoen@ai.mit.edu); Gregory Abowd, Georgia Institute of Technology (abowd@cc.gatech.edu); Aaron Bobick, Massachusetts Institute of Technology (bobick@media.mit.edu); Jeremy Cooperstock, Sony Computer Science Laboratory (jer@csl.sony.co.jp); Eric Horvitz, Microsoft Research (horvitz@microsoft.com).

Intelligent Text Summarization

With the proliferation of online textual resources, it has become very difficult to find information of interest. Improving access to online information includes finding relevant documents (information retrieval) and presenting only information that matches the user's interests (text summarization).

While the recent ACL/EACL Workshop on Intelligent Scalable Text Summarization represented more heavily statistical approaches, this symposium will focus primarily on symbolic techniques. It will include formal presentations and discussions of existing techniques and open problems. Using input from potential participants, the program committee will present a series of questions to which attendees will be encouraged to suggest approaches and solutions.

Sample topics include the following:

- AI techniques
- Knowledge representation issues
- Discourse analysis and discourse planning
- Concise text generation
- Summarization of multiple documents
- Generation of updates
- Architectures for summarization
- Multilingual and multimodal summarization
- User modeling
- Scalability
- Evaluation of text summarization

Submissions

Potential participants should submit either a *full technical paper* (PostScript, 11-point font, up to 5000 words); a *description of a demonstration or video*; or a *statement of interest* (up to 1000 words) that is a description of an ongoing research effort; a position statement; a description of a problem to be discussed; a proposal for an activity related to text summarization that can take place at the symposium; a description of a completed summarization system; or descriptions of tools, corpora, or other resources, especially if they can be shared with others.

Participants are encouraged to include URLs related to text summarization (bibliographies, papers, projects, tools, corpora).

Selection will be made in the following order:

1. People who present papers (one person per paper)
2. Other presenters
3. Collaborators of the above
4. People with strong statements of interest
5. Others as space permits

Send all submissions electronically to radev@cs.columbia.edu. If you are unsure whether your file will print at our site, please submit four days before the deadline in order to receive a confirmation.

Dragomir Radev (cochair)
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Interactive and Mixed-Initiative Decision-Theoretic Systems

Building an interactive decision-theoretic problem solver raises a number of issues concerning elicitation of the domain model and presentation of the results. While standard techniques are available for eliciting probability and utility models, the elicitation task is typically time consuming and tedious. Elicitation in decision analysis has required specification of a complete model, even though much of the model may be irrelevant to the problem actually being solved. Furthermore, decision-analytic elicitation requires the skill of an expert to identify what information is important and what simplifying assumptions are appropriate. Problem solving results must be presented to the user in an easily intelligible form and one that facilitates communicating additional requirements to the system if the user is not satisfied with the results.

This symposium will provide a forum for identifying key problems to be addressed and techniques for solving them. Issues to be addressed include: the nature of interaction required by various applications; representations and strategies that facilitate elicitation; inference with incomplete models; use of different representations for communication and inference; incorporation of constraints other than probability and utility; and display of results to facilitate user feedback. A more detailed description of the symposium can be found at www.cs.washington.edu/research/projects/ai/www/idts.

Submissions

Submissions to the symposium can take one of three forms. We highly encourage electronic submission in PostScript (preferred) or MS Word format to ids-submissions@cs.washington.edu. Please use single-column format and 12 point type.

Full papers of up to 10 pages will be considered for plenary presentation. (Authors of full papers may be asked to give poster presentations depending on the schedule.) Short papers of up to 5 pages will be considered for poster presentation. Parties who would simply like to participate in the workshop may submit position papers of up to 2 pages. We welcome demonstrations of working systems. If you are interested in giving a demo, send e-mail to the above address.

Organizing Committee

Peter Haddawy (cochair), University of Wisconsin-Milwaukee (haddawy@cs.uwm.edu); Steve Hanks (cochair), University of Washington (hanks@cs.washington.edu); Denise Draper, Rockwell Palo Alto Research Laboratory (draper@rpal.rockwell.com); Tze Yun Leong, The National University of Singapore (leongty@iscs.nus.edu.sg).

Multimodal Reasoning

There are a number of AI reasoning modes or paradigms that have widespread application, e.g. case-based reasoning, constraint-based reasoning, model-based reasoning, rule-based reasoning. The symposium will encourage integration of these reasoning modes, and interaction among the corresponding research communities. Topics include, but are not limited to:

- Combining reasoning methods in a single application
- Using one form of reasoning to support or guide another
- Compiling one form of reasoning experience into another form of reasoning knowledge
- Transferring successful methods from one form of reasoning to another
- Interoperability of applications based on different reasoning technology
- Switching among alternative forms of reasoning
- Comparing and evaluating reasoning alternatives for specific problem domains
- Identifying categories, structures, or properties of knowledge or tasks for which different reasoning techniques are appropriate or advantageous
- Systematically relating reasoning formalisms
- Demonstrating practical advantages of a multimodal approach for real problems
- Identifying and exploiting commonalities

Papers grounded in specific problems or domains will be welcome. More general or theoretical insights will also be appropriate. The Symposium will encourage building on the specific experiences of the attendees towards general principles of multimodal reasoning architecture, multimodal both in the sense of combining modes, and in the sense of being relevant to multiple modes.

Submissions

Submit an abstract of a new paper or a summary of previous relevant work. Submissions should be no more than four pages, single column, 12 point type. Include an illustrative example. E-mail PostScript of submissions to multimodal@cs.unh.edu.

Eugene Freuder (chair)
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The symposium web page is at:
www.cs.unh.edu/ccc/mm/sym.html.

Organizing Committee

Edwina Rissland, University of Massachusetts; Peter Struss, Technical University of Munich; Milind Tambe, University of Southern California

Program Committee

Rene Bakker, Telematics Research Centre; Karl Branting, University of Wyoming; Nick Cercone, University of Regina; Ashok Goel, Georgia Institute of Technology; Vineet Gupta, Xerox Palo Alto Research Center; David Leake, University of Indiana; Amnon Meisels, Ben Gurion University; Robert Milne, Intelligent Applications Ltd; Pearl Pu, Ecole Polytechnique Fédérale de Lausanne; Ron Sun, University of Alabama; Jerzy Surma, Technical University of Wroclaw; Katia Sycara, Carnegie Mellon University

Prospects for a Commonsense Theory of Causation

The goal of this symposium is to stimulate efforts towards the development of a commonsense theory of causation while also encouraging discussion on the prospects for and impediments to such a theory. Ultimately, a theory of causation would play a central role in many tasks of importance to AI: for example, planning, reasoning about action, diagnosis, and explanation. However, progress in these areas has often been explored independently of considerations into the general properties that a theory of causation might have.

Papers can address, but are not limited to, any of the following issues. In addition, papers that draw connections to related disciplines, such as philosophy and language, as well as position papers are also encouraged.

- *The expression of causal laws*: Generality of causal laws; axiomatizations of causation (direction, time, properties); relations of laws at distinct levels of representation and granularity; qualitative versus quantitative descriptions of physical systems.
- *Acquisition of causal laws*: Distinguishing causal laws from other knowledge; probabilistic reasoning in support of acquisition of causal models; inferring models from observations; lessons from qualitative reasoning systems.
- *Counterfactual reasoning*: Role of counterfactual reasoning in causation; is causation or counterfactual reasoning primitive; similarity metrics on possible worlds.
- *Causal explanation*: Linking causal laws ranging over primitive events to reports involving higher level events; choosing the most "salient" cause among a number of causes; identifying and axiomatizing the most important causal relations that can be used to construct a useful causal language.

- *Analysis of philosophical issues*: Fail-safe causation, preemption, causal-overdetermination, etc; impact on AI efforts; is commonsense causation supervenient on, for example, scientific theorizing?

Submissions

Paper submissions should be e-mailed in PostScript form and should not exceed ten single-spaced pages. Those wishing to attend without contributing a paper should submit a 1-2 page statement of background and interest. Submissions and questions should be directed to ortiz@eecs.harvard.edu. Further information will be posted at www.eecs.harvard.edu/~ortiz/cause98.html.

Organizing Committee

Charlie Ortiz (Chair), Harvard University (ortiz@eecs.harvard.edu); Leora Morgenstern, IBM T.J. Watson Research Center (leora@watson.ibm.com); Glenn Shafer, Rutgers University (gshafer@andromeda.rutgers.edu); Rich Thomason, University of Pittsburgh (thomason@isp.pitt.edu); Yoav Shoham, Stanford University (shoham@cs.stanford.edu).

Satisficing Models

To effectively accomplish their goals, agents need to model their environment and other agents with which they interact. Building detailed, accurate, and up-to-date models however is a time-consuming activity and can detract from the actual problem solving activities of the agents. We define “satisficing models” as approximate models that enable agents to reliably perform at an acceptable level of effectiveness.

Agents have to make informed and reasoned decisions about allocating their limited computing, sensing, and other resources toward problem solving versus model building activities. On a related question, even if an agent has a detailed model of the environment and other agents, due to time and computational constraints, it may prefer to use only abstractions of the model.

To be able to make these decisions effectively, agents must be able to evaluate the accuracy and reliability of their current models, predict the computational implications of building more accurate models, and analyze which components of their world models will yield the maximum incremental payoff upon enhancement. Research questions relevant to the symposium include the following:

- What are the computational trade offs involved in model construction? How can they be measured?
- How to incrementally develop and update the satisficing model with changes in the environment and changes in the collection or behavior of other agents?
- What is the role of inductive learning in resource-bounded reasoning? Should learning be used to control deliberation? How should one control the exploration-exploitation trade off?
- What are the existing methodologies for developing satisficing models? What are their shortcomings? How can they be enhanced?

Submissions

The symposium will consist of individual pre-

sentations, invited talks, break-out group discussions, panels, and video sessions. Participants interested in presenting their work should send an extended abstract (12 point font, 5 pages or less) describing work in progress or completed work. Other interested participants should send a one-page description of their research interests with a short list of relevant publications. We would like to encourage submissions for short position papers, video presentations and for working systems that can be used for hands-on demonstration during the symposium. We also welcome suggestions for panel and break-out group discussions. We will accept only e-mail submissions of PostScript files.

Submissions should be sent to sandip@kolkata.mcs.utulsa.edu. Further information on this symposium can be found at euler.mcs.utulsa.edu/~sandip/symposium/98.

Organizing Committee

Sandip Sen (Chair), University of Tulsa (sandip@kolkata.mcs.utulsa.edu); Ed Durfee, University of Michigan (edurfee@umich.edu); Toru Ishida, Kyoto University (ishida@kuis.kyoto-u.ac.jp); Victor Lesser, University of Massachusetts (lesser@cs.mass.edu); Jeff Rosenschein, The Hebrew University (jeff@cs.huji.ac.il); Tuomas Sandholm, Washington University (sandholm@cs.wustl.edu); Milind Tambe, USC/ISI (tambe@isi.edu); Shlomo Zilberstein, University of Massachusetts (shlomo@cs.umass.edu).