Call for Participation

2006 AAAI Spring Symposium Series ✦

March 27–29, 2006 ■ **Stanford University, Stanford, California**

The American Association for Artificial Intelligence, in cooperation with Stanford University's Computer Science Department, is pleased to present its 2006 Spring Symposium Series, to be held Monday through Wednesday, March 27-29, 2006 at Stanford University in Stanford, California. The titles of the eight symposia in this symposium series are:

- Argumentation for Consumers of Healthcare
- Between a Rock and a Hard Place: Cognitive Science Principles Meet AI-Hard Problems
- Computational Approaches to Analyzing Weblogs
- Distributed Plan and Schedule Management
- Formalizing and Compiling Background Knowledge and Its Applications to Knowledge Representation and Question Answering
- Semantic Web Meets e-Government
- To Boldly Go Where No Human-Robot Team Has Gone Before
- What Went Wrong and Why: Lessons from AI Research and Applications

An informal reception will be held on Monday, March 27. A general plenary session, in which the highlights of each symposium will be presented, will be held on Tuesday, March 28. Symposia will be limited to between forty and sixty participants. Each participant will be expected to attend a single symposium. Working notes or AAAI technical reports will be prepared and distributed to participants in each symposium. In addition to invited participants, a limited number of interested parties will be able to register in each symposium on a first-come, first-served basis. Registration information will be available in December. To obtain registration information, write to:

AAAI Spring Symposium Series
445 Burgess Drive
Menlo Park, CA 94025-3442 USA
Voice: 650-328-3123
Fax: 650-321-4457
sss06@aaai.org
www.aaai.org/Symposia/symposia.html

Submission Requirements

Please see the appropriate section in each symposium description for specific submission requirements.

Important Dates

Submissions for the symposia are due on October 7, 2005

Notification of acceptance will be given by November 4, 2005

Material to be included in the working notes or technical report of the symposium must be received by January 27, 2006

Different notions of argument historically have played a central role in artificial intelligence, such as proof trees, sets of assumptions, and explanations of probabilistic inference. These notions have been used to model the diagnostic reasoning and decision-making of medical experts. However, it was beyond the scope of that research to address information needs of the lay person. It was assumed that a medical expert, trained to interpret explanations produced by the system, would mediate between system and lay person. The goal of this symposium is to investigate the role of argumentation in future intelligent healthcare systems, focusing on systems designed to interact directly with healthcare consumers, or with healthcare workers and caregivers with little training. Topics include AI-based approaches to the following:

- Persuasive argumentation to change health-related behavior,

- Patient-tailored explanation,

- Lay-oriented explanation of conflicting views in the medical literature,

- Argumentation addressing the needs of low-literacy or low-numeracy audiences,

- Synthetic agents working in cooperation with the healthcare team,

- Negotiation with patients about treatment regimens,

- Providing information to lay persons for informed consent, and

- Healthcare training.

Participation is invited from AI researchers in diagnostic reasoning and medical applications; computational models of argumentation; user modeling, trust, and affective computing; intelligent tutoring systems and games on health-related topics; natural language generation and multimodal dialogue systems. In addition, participation is invited from researchers in fields providing empirical or theoretical foundations including medicine, risk communication, health literacy, behavioral medicine and public health, discourse of medicine, argumentation, and medical ethics.

Submission Information

Papers or extended abstracts on current research as well as position papers are welcome. E-mail 2–6 page submissions in PDF format to the cochairs (bickmore at bu.edu, nlgreen at uncg.edu).

See the symposium website (www.uncg.edu/~nlgreen/aaaisss06/home.html) for additional information.

Organizing Committee

Timothy Bickmore (cochair), Boston University; Nancy Green (cochair), University of North Carolina at Greensboro; Ellen Barton, Wayne State University; Noel Brewer, University of North Carolina; Martin Beveridge, Cancer Research UK; Giuseppe Carenini, University of British Columbia; Allison Cawsey, University of Glasgow; Subrata Das, Charles River Analytics; Fiorella de Rosis, University of Bari; Chrysanne di Marco, University of Waterloo; Reva Freedman, Northern Illinois University; Florianna Grasso, University of Liverpool; Curry Guinn, University of North Carolina at Wilmington; Stephen Intille, Massachusetts Institute of Technology; Suzanne O'Neill, University of North Carolina; Chris Reed, University of Dundee; Ehud Reiter, University of Aberdeen; Wayne Velicer, University of Rhode Island; Mary McGee Wood, University of Manchester

Argumentation for Consumers of Healthcare

Between a Rock and a Hard Place: Cognitive Science Principles Meet AI-Hard Problems

Artificial intelligence and cognitive science have always been overlapping disciplines. Early in their history, that overlap was considerable. However, the two disciplines have increasingly diverged under seemingly incompatible constraints. The difficulty of many problems tackled by AI led it to adopt brute-force or domain-specific solutions that arguably were not cognitively plausible. Conversely, the need for precision and reproducibility increasingly led cognitive science to focus on experimental paradigms that AI did not recognize as hard problems.

In this symposium, we will explore what each discipline can expect to contribute to the other in the relatively near future. More specifically, we will ask whether cognitive science approaches can be applicable to AI-hard problems. Conversely, what impact can the challenges of AI-hard problems and the techniques that have been applied to solve them have on cognitive science? To improve focus and enliven debate, we will structure the symposium around a number of questions with clear answers outlining sharply divergent positions. These questions include the following:

1. Is cognitive science relevant to AI problems?

2. Are "good enough" solutions valuable?

3. Are multi-level heterogeneous approaches beneficial?

4. Is adaptiveness an essential component of intelligence?

5. Are the most efficient solutions problem-specific?

6. Are specialized, modular components a reasonable approach to general intelligence?

7. Can artificial intelligence contribute to our understanding of human cognition?

Each symposium session will focus on one of these questions and include two to four presentations arguing both sides of the issue, followed by a brief closing argument and a substantial discussion session between panel presenters and symposium participants.

Submission Information

Participants will be asked to take positions on one or more of these questions by using examples from their own work or synthesizing other works into coherent patterns. Contributions can be in the form of either full-size 6-page papers or short 2-page white papers and must state clearly which question(s) they are addressing. Inquiries and submissions in Word or PDF format should be sent to clebiere@maad.com. The list of questions should not be considered a definitive list. Indeed, we would welcome the identification of additional issues that bring up new connections between the cognitive science and artificial intelligence communities. However, contributors who focus their submissions primarily on recent progress in their specific areas of research will be discouraged. See the symposium website (www.andrew.cmu.edu/user/cl/AAAI2006SS. html) for further details.

Organizing Committee

Christian Lebiere (cochair), Micro Analysis and Design (clebiere@maad.com); Robert Wray (cochair), Soar Technology (wray@soartech.com); Krishna Jha, Lockheed Martin Advanced Technology Laboratories (kjha@atl.lmco.com); Peter Weinstein, Altarum Institute (peter.weinstein@altarum.org).

Computational Approaches to Analyzing Weblogs

Weblogs are web pages that provide unedited, highly opinionated personal commentary including hyperlinks to other resources. Often, weblogs (also referred to as blogs) are chronological sequences of entries, maintained and published with authoring tools.

The "blogosphere" as a whole can be exploited for outreach opinion formation, maintaining online communities, supporting knowledge management within large global collaborative environments, monitoring the reaction to public events and is seen as the upcoming alternative to the mass media.

Semantic analysis of blogs represents the next challenge in the quest for understanding natural language. Their light content, fragmented topic structure, inconsistent grammar, and vulnerability to spam makes blog analysis extremely challenging when faced with questions like: Can the implicit and explicit communities implied by content and link structure be used to determine relevance and influence of bloggers? Can a blog segment be identified as a summary of a linked story in order to use both as training data for summarization research? Can we determine how information percolates through mass media outlets and blogs? Can blogs with multimedia content be stored in a way that allows search across different modalities? Can we find consumer complaints, discover vulnerabilities of products, and predict trends?

This symposium aims to bring together researchers from different subject areas (such as computer science, linguistics, psychology, statistics, sociology, multimedia and the semantic web) and foster discussions about ongoing research in the following areas:

- Semantic analysis; cross-blog name tracking; named relations and fact extraction; discourse analysis; summarization.
- Sentiment analysis; polarity or opinion identification and extraction.
- Text categorization; gender or age identification; spam filtering.
- Social network analysis; communities identification; expertise discovery; collaborative filtering.
- Trend identification/tracking.
- Centrality or influence of bloggers and blogs; ranking and relevance of blogs; web pages ranking based on blogs.
- Semantic web; semantic blogging; unstructured knowledge management.
- Multimedia; audio/visual blogs processing; aggregating information from different modalities.
- Time series forecasting; measuring predictability of phenomena based on blogs.
- AI methods for ethnographic analysis through blogs.
- Blogosphere versus mediasphere; measuring the influence of blogs on the media.
- Human computer interaction; blogging tools; navigation.
- Crawling or spidering and indexing.

Submission Information

Persons interested in participating should e-mail a technical paper (up to 8 pages), a short paper (up to 4 pages), a poster or demo description (up to 2 pages), a position paper or a statement of interest (1 page) to aaai2006_weblog_symposium@umbriacom.com by the AAAI submission deadline.

Organizing Committee

Nicolas Nicolov, Umbria Communications; Mark Liberman, University of Pennsylvania; James H. Martin, University of Colorado at Boulder; Franco Salvetti, University of Colorado at Boulder.

Additional Information

Please see the symposium website (www.umbriacom.com/aaai2006_weblog_symposium) for further information.

Distributed Plan and Schedule Management

Automated systems can be used to plan and schedule the actions and coordinated interactions of human or artificial agents. Challenges arise, however, in scaling these systems to handle increasingly complex, dynamic, stochastic, and even adversarial domains, where failure is costly. During execution, the systems need to manage unexpected deviations, and manage changes to agents' objectives even when their plans/schedules are progressing well.

For example, when end users dynamically adopt new tasks, reprioritize existing goals, and reconsider the effectiveness of alternative actions, their associated management systems should revise their plans/schedules accordingly. If the world is unpredictable, the systems must also adapt to the environmental trajectory. Furthermore, if users' actions can affect each other, then the systems must coordinate their evolving multiagent plans/schedules. In all of these cases, this distributed, asynchronous management must be good enough and soon enough.

This raises questions such as the following:

- How does managing evolving objectives compare to handling environmental unpredictability?

- How can efficient techniques for planning/scheduling be used for distributed plan/schedule management?

- How can distributed planning or scheduling systems avoid, tolerate, correct for, and/or exploit asynchronously-arising local deviations, and how can broader deviations be cooperatively diagnosed and handled?

- How can distributed plans or schedules be managed in an open world, such as when the choices and timings of some activities are externally imposed?

- What are the implications of managing heterogeneous agents, who might have different temporal grain sizes, plan or schedule horizons, representations, knowledge, beliefs, or preferences?

- How should agents decide how frequently and thoroughly to try improving local and collective plans or schedules?

- How can learning improve distributed management efficiency and effectiveness?

- What is the role of principled or formal models in defining and solving the distributed management problem?

- What systems have been developed or proposed for particular applications involving distributed plan or schedule management?

This symposium will allow researchers tackling aspects of the distributed plan or schedule management problem to exchange ideas, perspectives, techniques, and best practices to accelerate progress on jointly solving it. The aforementioned (and other emerging) questions will serve to organize presentations and discussions.

Submission Information

Prospective participants are invited to electronically submit research (up to 8 pages) or position (2 pages) papers that address these and related questions. Send papers and inquiries to durfee@umich.edu. For more details, including example topics of interest, see http://ai.eecs. umich.edu/people/durfee/AAAI2006SS.html.

Organizing Committee

Edmund Durfee (cochair), University of Michigan; David Musliner (cochair), Honeywell; Marie desJardins, University of Maryland Baltimore County; Robert Neches. USC/Information Sciences Institute; Stephen Smith, Carnegie Mellon University; Regis Vincent, SRI International; Thomas Wagner, DARPA

Formalizing and Compiling Background Knowledge and Its Applications to KR and QA

Domain-specific background knowledge is an essential component of many automated reasoning systems including general question-answering systems that reason about some aspect of the world. The goal of this symposium is to investigate theoretical problems related to the design of a repository for background knowledge and to initiate the creation of such a repository. Such a repository is analogous to the libraries that accompany the compilers of various procedural languages. The effort to create an open repository will be similar to efforts such as wordnet, verbnet, and framenet, but unlike them our proposed repository will contain formal representations. The availability of these open repositories has had a significant impact on research in many areas including question answering, and our goal is to take this to the next level. In recent years research on knowledge representation and reasoning has come of age with projects such as Digital Aristotle (projecthalo.com) and question answering projects. One of the main bottlenecks in these efforts has been the absence of a publicly and freely available repository of background knowledge. The aim of this symposium is to address this shortcoming.

We solicit papers on (1) formalization (knowledge modules) of background knowledge in specific domains as well as (2) papers addressing general challenges such as formalizing background knowledge for use by multiple users on multiple reasoning tasks.

For knowledge module papers, we impose no restriction on the domain to be formalized or on the level of specificity. For example, the knowledge module might provide a general formalization of a theory of actions, or it could be a formalization of a travel domain. We suggest the following common format for the knowledge module papers:

1. A knowledge base (KB) written in English.

2. Examples of informal consequences of KB, preferably accompanied by some explanations, including defaults and other common sense knowledge not directly mentioned in KB but needed to produce the desired consequence.

3. Information about which logic or language is used in formalizing it. (Syntax, semantics, and where the reasoning system is available.)

4. The formalization

5. Short description on how the formalization can be tested using the reasoning system.

Papers that address challenges related to some or all of the above are also welcome.

Submission Information

E-mail submissions (maximum of 6 pages in AAAI format) in PDF format to chitta@gmail.com. See the symposium website (www.public.asu.edu/~cbaral/aaai06-ss/) for additional information.

Organizing Committee

Chitta Baral, Arizona State University; Alfredo Gabaldon, University of Toronto; Michael Gelfond, Texas Tech University; Joohyung Lee, University of Texas at Austin; Vladimir Lifschitz, University of Texas at Austin; Steve Maiorano; Sheila McIlraith, Stanford University; Leora Morgenstern, IBM T. J. Watson Research Center

Semantic Web Meets e-Goverment

The semantic web (SW) has been in the focus of the AI community for the last five years. However, after years of intensive research and impressive scientific results, what the SW now really needs is real-world use cases, in order to demonstrate its added (business) value. Moreover, the full application potential of some SW technologies, like semantic web services and rules has been neglected due to a lack of large-scale testing domains. Finally, the next application-driven research challenges for SW can be defined only through the feedback from real use-cases. Therefore, the semantic web requires a large, dynamic, heterogeneous and shared information space to be effectively evaluated.

On the other hand, the domain of e-government is unique because of its enormous challenge to achieve interoperability, given the manifold semantic differences of interpretation of, for example, law, regulations, citizen services, administrative processes, best-practices, and the many different languages to be taken into account within and across regions, nations and continents. These semantic differences are related to a great variety of IT solutions (on a local, regional, national, and international level), which will have to be networked (despite any effort of standardization). In consequence, some of the key obstacles for networked computer applications in governmental processes and services are those kinds of barriers in which the different meanings of data objects and interfaces cannot be automatically mediated. Setting up seamless e-government services requires information integration as well as process integration involving a variety of objects with specific semantics.

Therefore, the combination of these two domains seems to be quite natural: the e-government domain can provide an ideal test bed for existing SW research, and SW technologies can be an ideal platform to achieve the vision of a knowledge-based, user-centric, distributed and networked e-Government. In this symposium we invite contributions, which tackle theoretical, technical and application aspects of the usage of semantic web methods for e-Government problems.

Submission Information

Those interested in participating should send a three-page extended abstract describing their recent work or work in progress that the authors would like to discuss at the symposium. A limited number of participants will be invited to prepare long papers. The organizing committee considers editing a book or a special issue of an appropriate international journal. Please e-mail submissions in PDF format to Stojanovic@fzi.de by the AAAI submission deadline.

Organizing Committee

Amit Sheth, Large Scale Distributed Information Systems Lab, University of Georgia (amit@cs.uga.edu); Andreas Abecker, FZI - Research Center for Information Technologies at the University of Karlsruhe (Abecker@fzi.de); Gregoris Mentzas, Institute of Communication and Computer Systems, National Technical University of Athens (gmentzas@softlab.ntua.gr); Ljiljana Stojanovic, FZI - Research Center for Information Technologies at the University of Karlsruhe (Stojanovic@fzi.de)

Additional Information

For additional information, please see the symposium website: http://imu.iccs.ntua.gr/sweg/.

To Boldly Go Where No Human-Robot Team Has Gone Before

Since January 2004, NASA has been pursuing a new Exploration Vision, the central objective of which is to establish a human-robotic presence on the Moon within the next two decades, as a precursor to exploration of Mars. Although robots have previously been used in space for scientific purposes, such as geology, future exploration robots will also have to perform a wide range of operational tasks including assembly, construction, maintenance, and prospecting.

The purpose of this symposium is to examine novel and radical approaches to human-robot teaming, which have the potential to greatly transform space exploration. In particular, we will highlight concepts and methods that differ significantly from current approaches, that is, not just master-slave teleoperation, nor conventional supervisory control. Throughout the symposium, we will focus on how nontraditional system designs can synergistically exploit the different capabilities of humans and robots to meet mission needs.

Participants are strongly encouraged to present new concepts and breakthrough designs. Submissions that address the following challenges are particularly encouraged:

- *Remote operations with time delay and bandwidth constraints.* This includes technologies for telepresence and higher levels of autonomy.

- *Failure and contingency management.* This includes working safely with humans in shared spaces, minimizing threats to robot, and reducing risk of mission failure.

- *Coordination of human and robot work.* This addresses both loose coordination (such as resource allocation) and tightly-coupled coordination (joint task performance).

- *Enhanced human safety and efficiency.* This focuses on flexibly supporting the human in various roles (foreman, worker, problem solver, expert).

- *User modeling.* Modeling the human (actions, intent, and so on) to improve human-robot interaction and team effectiveness.

The symposium will be organized as a series of half-day sessions, each addressing a challenge area. Sessions will include an invited talk by a leading research in the challenge area, short presentations to review problems with traditional systems, break-out groups to identify new avenues for human-robot team research and ample opportunity to discuss how disruptive approaches can provide meaningful benefits to NASA's exploration program.

Submission Information

Prospective participants should submit a position paper (up to three pages) or a research report (eight pages or less) describing completed work or work in progress. All submissions should be sent in PDF format to Terry Fong at terry.fong@nasa.gov by 7 October 2005. Submissions will be judged on technical merit and on potential to provoke active discussion.

Organizing Committee

Terry Fong (chair), NASA Ames Research Center; Rachid Alami, LAAS-CNRS; Illah Nourbakhsh, Carnegie Mellon University; Debbie Schrekenghost, NASA Johnson Space Center/Metrica, Inc.; Kevin Wheeler, NASA Ames Research Center

What Went Wrong and Why: Lessons from AI Research and Applications

Bugs, glitches, and failures are powerful instructional tools: fogged film led Curie to discover radium; a failed culture let Fleming find penicillin; microwave noise let Penzias and Wilson verify the Big Bang. Bugs, glitches, and failures also chart the boundaries of technology. They shape research and development by identifying errors, revealing assumptions, and exposing design flaws. Here, a failure is often more informative than a successful demonstration. When a system works we focus on its input/output behavior, but when a problem occurs, we examine the mechanisms that generate behavior to account for the flaw and hypothesize corrections. This produces insight and forces incremental refinement. In a sense, failures are the mother of necessity, and therefore the grandmother of invention.

Unfortunately, bugs, glitches, and failures are rarely mentioned in academic discourse (unless they are the object of study). Their role in informing design and development is essentially lost. The What Went Wrong and Why symposium will address this gap by providing an opportunity for AI researchers and system developers to discuss their most revealing bugs, and share the resulting insights. We are specifically interested in relating problems to lessons learned. Relevant topics include, but are not limited to the following:

Problem

- unusual behavior
- mistaken assumption
- method or algorithm error
- technology or application mismatch
- product or project or corporate demise
- fried hardware
- physical harm

Lesson Learned

- clarity on why an algorithm works (or not)
- deep technical insight
- key research problem to solve
- reframed or reformulated task
- new technique or methodology
- new business opportunity
- changes to a human organization
- tangible human benefits

Submission Information

We solicit contributions to this symposium in one of three forms: anecdotes, posters, or full-length papers. Authors wishing to attend the What Went Wrong and Why symposium should submit a poster (approximately 4 pages) or full-length paper (approximately 8 pages) for inclusion in the technical proceedings. Alternatively, authors may submit a 1–2 page description of an off-the-record anecdote to be presented in an open-mike session consisting of 5–10 minute talks spanning at least one afternoon. Any symposium participant may sign up for multiple open-mike slots, at, or prior to, the symposium.

Organizing Committee:

Daniel Shapiro (chair), CSLI/Stanford University, & Applied Reactivity, Inc. (dgs@stanford.edu); Mehmet H. Göker (cochair), PricewaterhouseCoopers, Center for Advanced Research (mehmet.goker@us.pwc.com); David Lavery (cochair), NASA-HQ (dlavery@hq.nasa.gov)