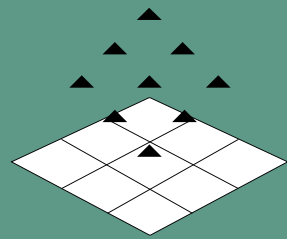
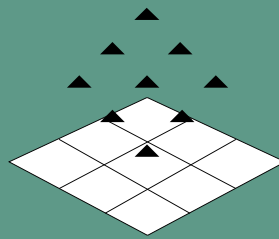
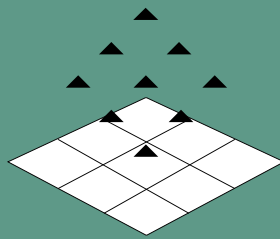
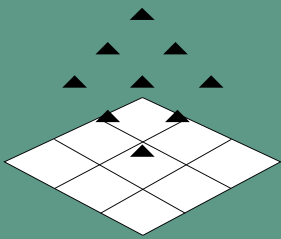
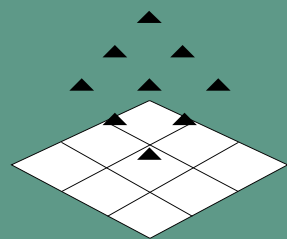
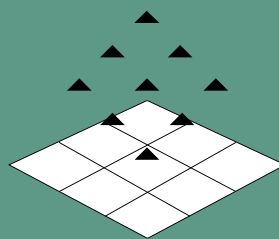
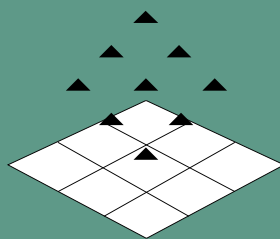
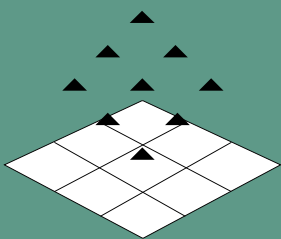
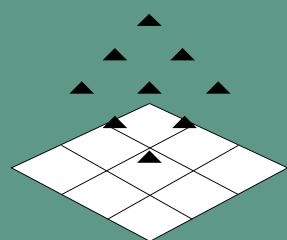
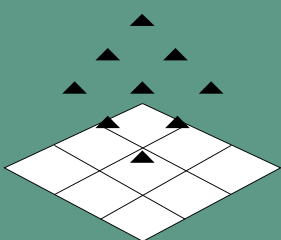
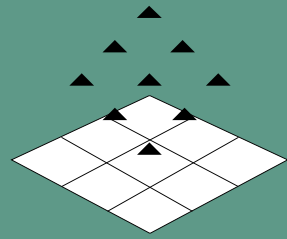
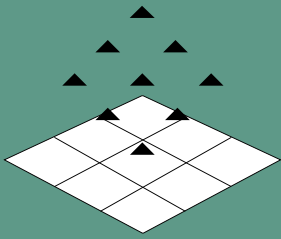


Call for Participation

2005 AAAI Fall Symposium Series

November 3-6, 2005 ■ Hyatt Regency Crystal City
Arlington, Virginia

*Sponsored by the
American Association for Artificial Intelligence
With Support from the Naval Research Laboratory*



Important Deadlines

- ☞ May 2, 2005: Submission due to organizers
- ☞ May 23, 2005: Notifications of acceptance sent by organizers
- ☞ September 13, 2005: Accepted camera-ready copy due to AAAI.

The American Association for Artificial Intelligence is pleased to present the 2005 Fall Symposium Series, to be held Friday through Sunday, November 4–6 at the Hyatt Regency Crystal City in Arlington, Virginia. The Symposium Series will be preceded on Thursday, November 3, by a one-day AI funding seminar, which will be open to all registered attendees of FSS-05. The titles of the eight symposia are:

- ☞ Agents and the Semantic Web
- ☞ Caring Machines: AI in Eldercare
- ☞ Coevolutionary and Coadaptive Systems
- ☞ Explanation-Aware Computing
- ☞ From Reactive to Anticipatory Cognitive Embodied Systems
- ☞ Machine Ethics
- ☞ Mixed-Initiative Problem-Solving Assistants
- ☞ Roles, An Interdisciplinary Perspective

An informal reception will be held on Friday, November 4. A general plenary session, in which the highlights of each symposium will be presented, will be held on Saturday, November 5.

Symposia will be limited to 40–60 participants each. Participation will be open to active participants as well as a limited number of interested individuals on a first-come, first-served basis. Each participant will be expected to attend a single symposium. Working notes will be prepared and distributed to participants in each symposium. Registration information will be available on the AAAI web site in July 2005.

To obtain registration information, write to:

☞ AAAI Fall Symposium Series
445 Burgess Drive
Menlo Park, CA 94025-3442
650-328-3123
650-321-4457 (fax)
fss05@aaai.org
www.aaai.org/Symposia/symposia.html

Submission Requirements

Interested individuals should submit a paper or abstract by the deadline listed in the box at left. Please mail your submissions directly to the chair of the individual symposium according to their directions. *Do not mail submissions to AAAI.* See the appropriate section in each symposium description for specific submission requirements.

The semantic web is based on the idea of dynamic, heterogeneous, shared knowledge sources providing machine-readable content in a similar way to that in which information is shared on the World Wide Web. Integral to this vision was a synergy with multiagent systems technology; agents could use this knowledge to achieve their own goals, producing new knowledge that could be disseminated or published within a common framework. Conversely, the semantic web would benefit from autonomous, distributed agents responsible for gathering or aggregating knowledge, reasoning and inferring new facts, identifying and managing inconsistencies, and providing trust and security mechanisms.

Previous workshops and discussion devoted to this topic have mainly focused on either the semantic web aspect or the agent aspect of the problem, and have failed to achieve an agreement on the common research issue, leaving several open problems unaddressed, such as the following:

Knowledge Sharing: The agent paradigm is successfully employed in those applications where autonomous, heterogeneous, and distributed systems need to interoperate in order to achieve a common goal, however this is possible if agents are able to share knowledge. Ontologies are a powerful tool to achieve semantic interoperability among heterogeneous, distributed systems.

Syntactic Unification: Data exchanged between service providers are typically based on different syntax, raising the problem of data mediation for interoperability. Ontologies, and mechanisms for mapping and translating across ontologies can address these problems.

Discovery of Agent Capabilities: Semantic-based discovery mechanisms and languages/ontologies for describing agent capabilities and predefined coordination mechanisms are needed to make the automatic discovery of services offered by agents and other providers.

Agent Coordination: Goal-directed composition typically involves planning across a space of existing actions, ensuring that data and control flow constraints are satisfied. Model checking techniques are required to ensure valid compositions, as well as temporal reasoning to validate control flow dependences. Such techniques need to accommodate semantic descriptions as well as avoiding live-lock situations that may lead to failure.

Interaction Protocols: Different agents expect specific messages to be choreographed in a precisely defined manner. Integration has to guarantee and enforce the communication protocols. Interoperable description frameworks are thus required to ensure that both parties understand and adhere to interaction protocols. The semantics of the terms used in these protocols is made explicit in ontologies.

This symposium aims to promote and foster a greater understanding of the synergy between multiagent Systems and the semantic web.

Organizing Committee

Terry Payne (cochair), University of Southampton (trp@ecs.soton.ac.uk); Valentina Tamma (cochair), University of Liverpool (V.A.M.Tamma@csc.liv.ac.uk); Bijan Parsia, University of Maryland (bparsia@isr.umd.edu); David Martin, SRI International (david.martin@sri.com); Simon Parsons, Brooklyn College (parsons@sci.brooklyn.cuny.edu); Nick Gibbins, University of Southampton (trp@ecs.soton.ac.uk)

Additional Information

For additional information, including submission instructions, please see www.daml.ecs.soton.ac.uk/AAAI-FSS05/

Caring Machines: AI in Eldercare

Much has been published on the looming demographic crisis in the U.S., with the number of older adults skyrocketing while the number of human caretakers dwindle. Combined with a strong desire by aging individuals to remain independent in their homes as long as possible, these conditions motivate technological solutions to human care-giving.

While this situation has inspired many research projects in AI, HCI and robotics over the last decade, most of these solutions have addressed only very narrow aspects of the total care-giving needs of older individuals. Social psychologists have identified a number of types of social support that people provide for each other, and this taxonomy may be useful in grasping the entire range of needs that an individual may have. Instrumental support provides material aid for individuals, such as help with shopping or household chores, and may require robotic assistance to effect. Informational and cognitive support provides advice, suggestions, and information that a person can use to address problems, and may require proactive reminding and intervention for individuals with cognitive impairments. Emotional and appraisal support involves the provision of empathy to help individuals manage their adverse emotional states and provide feedback that is useful for self-evaluation, and may help address loneliness and depression. Social network support helps an individual maintain an active social network, and can be provided by systems that introduce elders to others with similar interests or proactively take steps to maintain existing friendships.

The goal of this symposium is to bring together researchers in AI—including computational linguistics, planning, user modeling, social agents, robotics, intelligent sensing and machine learning—with researchers in gerontology, geriatrics health communication, public health and other medical sciences. The overall focus will be the design, implementation and evaluation of integrated intelligent support systems for older adults, and cover topics such as the following:

- ✎ Frameworks for integrating assistive and supportive technologies for older adults.
- ✎ Approaches to maintaining trust and engagement between support systems and elders over years of use, while avoiding user complacency and over-reliance.

- ✎ User modeling and system adaptation over time.
- ✎ Recognition, display, or management of affect to support system goals.
- ✎ Uses and comparisons of different HCI modalities for older adults, including text, audio, embodied agents or robots, and other human factors issues.
- ✎ Ethical and privacy issues.
- ✎ Approaches to evaluation of these systems and results from studies and clinical trials.

Submissions

Potential participants may submit a technical paper (up 8 pages), or a short paper (up to 4 pages) in the form of an extended abstract or a description of a proposed demo. Potential participants who are unable to submit a paper are encouraged to submit a one-page statement of interest. PDF-submissions in AAAI format should be sent to bickmore@bu.edu.

Organizing Committee

Timothy Bickmore (chair), Boston University School of Medicine; Karen Haigh, Honeywell Laboratories; Stephen Intille, House_n, Massachusetts Institute of Technology; Henry Kautz, Department of Computer Science & Engineering, University of Washington; Richard Simpson, School of Health and Rehabilitation Sciences, University of Pittsburgh

Additional Information

For additional information, please see www.misu.bmc.org/~bickmore/eldertech

Coevolutionary and Coadaptive Systems

Coevolutionary and coadaptive systems are techniques in which multiple interacting elements of a system are learned concurrently in relationship to one another. Such methods include both competitive and cooperative systems. While competitive systems tend to involve evaluating a candidate solution using a coadapting opponent to measure its performance, cooperative systems tend to involve evaluating a collaborative assembly of multiple coadapting components. These systems offer promise for applications involving interactive domains.

Interest in coevolutionary and coadaptive systems has intensified in recent years as new theory has developed. Using tools such as evolutionary game theory and order theory, as well as tools drawn from multiobjective optimization, to describe the dynamics of coevolutionary algorithms and the structure of coevolutionary problems, analysis underscores the need to understand the relationship between the underlying problems one wishes to solve and the nature of the applied algorithms. This analysis has led to more realistic expectations of the potential of coevolutionary and coadaptive systems, as well as clarifications of their goals. We have begun to see the design and implementation of more useful algorithms as a result.

As new applications of coevolutionary and coadaptive systems emerge in areas such as multiobjective optimization and robotics, they continue to reveal their advantages and drawbacks, exposing many interesting research issues. For example, questions surrounding problem decomposition and role assignment, among others, continue to present interesting challenges for researchers in the field. These and other research issues provide a compelling motivation for a symposium focused on contemporary topics in the field, including but not limited to the following:

- ✂ Methods and architectural issues
- ✂ Analysis
- ✂ Applications
- ✂ Metrics and visualization
- ✂ Pedagogy and philosophy

Submissions

Those interested in participating in this symposium are invited to submit a technical paper, up to 8 pages in length, describing recent work or

work in progress that the authors would like to discuss at the symposium. Please e-mail submissions in PDF format to the cochairs (mpotter or wiegand at aic.nrl.navy.mil) by the AAAI submission deadline.

Organizing Committee

Mitchell A. Potter (cochair), Naval Research Laboratory; R. Paul Wiegand (cochair), Naval Research Laboratory; Anthony Bucci, Brandeis University; Edwin D. de Jong, Utrecht University; Kenneth A. De Jong, George Mason University; Liviu Panait, George Mason University.

Additional Information

For additional information, please see cs.gmu.edu/~eclab/CoevolCoadapSystems.html

Explanation-Aware Computing

With the introduction of intelligent, adaptive systems and decision automation, the need arises for explaining system answers to the user with respect to the IT application's knowledge. The user is interested in how reliable a system's answers are. An obvious approach to increase confidence in the system's result is to output explanations as part of the result. Belief in a system can be increased not only by the quality of its output but, more importantly, by evidence of how it was derived. Such systems will become more robust and dependable. It is a psychological characteristic that the user wants to have some sense of control over the system. Such systems must justify their means and decisions.

Explanations as answers to why-questions are studied in depth in philosophy of science. Expert systems research operationalized explanations and derived aspects for good explanations. To fulfill these aspects, advanced models, methods, and tools are needed that provide mechanisms and techniques for structured management of explanation relevant information, effective ways for retrieving it, and the possibility to integrate explanation and application knowledge. Beyond technical aspects, it becomes important to understand explanations from social and philosophical perspectives on IT-applications.

The major goal of this symposium is to bring researchers, scientists from both industry and academe, and representatives from such different communities and fields as informatics, philosophy, and sociology, together to study, understand, and explore the aspect of explanation in IT-applications. Besides contributions and invited talks, this symposium will offer organized and open spaces for targeted discussions and creating an interdisciplinary community. As a result, a common understanding on the topic of explanation-aware computing shall originate.

Submissions

Those interested in participating should send a three-page extended abstract describing their related work and areas of interest. Submissions may discuss work in any stage of development, from concepts and future directions to finished work. PDF submissions in AAAI format should be sent to trb@dfki.uni-kl.de. Admission to the symposium is decided upon at least two reviews of the

abstracts. A limited number of participants will be invited to prepare long presentations or posters to start up discussion rounds on focused explanation-aware computing topics.

Organizing Committee

Thomas R. Roth-Berghofer (Primary organizer), German Research Center for Artificial Intelligence DFKI GmbH / TU Kaiserslautern (trb@dfki.uni-kl.de); Stefan Schulz, Department of Systems and Computer Engineering, Carleton University, Ottawa, Ontario, Canada (schulz@sce.carleton.ca); Andrea Woody, Department of Philosophy, University of Washington, Seattle, USA (awoody@u.washington.edu)

Additional Information

For additional information, please see exact2005.workshop.hm

From Reactive to Anticipatory Cognitive Embodied Systems

In order to deal with novel and dynamic environments, cognitive systems need sophisticated capabilities based on many kinds of anticipation.

Expectations and prediction-based control mechanisms underlie effective routinized behavior. Every step we take relies on the expectation that the floor will not give way beneath us; the pervasiveness of such expectations is highlighted by the surprise we experience when we suddenly lose our footing and by our ability to control and adjust it by using a prediction-control loop. Moreover, the ability of building higher order expectations about future events has been a major evolutionary and cognitive breakthrough for humans. Our representations are detached from the present here and now, and we can conceive forthcoming events - and even situations that will never be real. We are able to reason not only about what we experience, but about expected, desired and feared futures—our behavior can thus be really “driven by the future.”

The aim of this symposium is to bring together scientists from several fields from AI and robotics to cognitive science and neuroscience interested in these topics to present, discuss and make further progresses toward the understanding of anticipatory cognitive systems situated in a real dynamic environment.

Some significant questions to be addressed are as follows:

- ✎ Which is the specific role of anticipatory mechanisms with respect to reactive ones, both in an evolutionary and architectural perspective? Which are the evolutionary stages leading from reactive to anticipatory systems, and from simpler to more complex anticipatory mechanisms?
- ✎ How do we exploit anticipatory capabilities for shifting attention, for selecting the appropriate features to perceive the environment and interacting with it, for selecting and regulating our behavior on the basis of representations of the future, expectations and goals?
- ✎ Which is the relation between anticipatory processes and symbol formation?
- ✎ How are emotions and bodily responses related to anticipatory representations? How are anticipatory emotions such as fear and hope built and exploited?
- ✎ How do different anticipatory mechanisms

integrate and interact? Which kinds of representations they exploit? Which are their powers and limitations?

Submissions

People interested in giving a presentation are encouraged to submit a technical paper (from 2,000 to 6,000 words, in PDF). Other participants should submit either a position paper, a statement of interest or an illustration of work in progress they would like to discuss. Submissions should be sent to fss05@mindraces.org. By targeting predefined questions and commenting challenging scenarios, the discussion will aim to the envisioning of complex architectures that integrate several anticipatory mechanisms across different cognitive levels.

Organizing Committee

Christian Balkenius, Lund University, Sweden; Martin V. Butz, University of Würzburg, Germany; Cristiano Castelfranchi (chair), Institute of Cognitive Science and Technology of the CNR, Italy; Andrew Ortony, Northwestern University, USA; Deb Roy, Massachusetts Institute of Technology, USA

For Additional Information

For additional information, please see www.mindraces.org/events/fss05

Machine Ethics

Past research concerning the relationship between technology and ethics has largely focused on responsible and irresponsible use of technology by human beings, with a few people being interested in how human beings ought to treat machines. In all cases, only human beings have engaged in ethical reasoning. The time has come for adding an ethical dimension to at least some machines. Recognition of the ethical ramifications of behavior involving machines, as well as recent and potential developments in machine autonomy, necessitates this. In contrast to computer hacking, software property issues, privacy issues and other topics normally ascribed to computer ethics, machine ethics is concerned with the behavior of machines towards human users and other machines.

We contend that research in machine ethics is key to alleviating concerns with autonomous systems—it could be argued that the notion of autonomous machines without such a dimension is at the root of all fear concerning machine intelligence. Further, investigation of machine ethics could enable the discovery of problems with current ethical theories, advancing our thinking about ethics. We intend to bring together interested participants from a wide variety of disciplines to the end of forging a set of common goals for machine ethics investigation and the research agendas required to accomplish them. Topics of interest include, but are not restricted to the following:

- ✎ Improvement of interaction between artificially and naturally intelligent systems through the addition of an ethical dimension to artificially intelligent systems
- ✎ Enhancement of machine-machine communication and cooperation through an ethical dimension
- ✎ Design of systems that provide expert guidance in ethical matters
- ✎ Deeper understanding of ethical theories through computational simulation
- ✎ Development of decision procedures for ethical theories that have multiple prima facie duties
- ✎ Computability of ethics
- ✎ Theoretical and practical objections to machine ethics
- ✎ Impact of machine ethics on society

Submissions

Potential participants are requested to submit either a full technical paper (not exceeding 5000 words) or a brief statement of interest (not exceeding 1000 words). Also invited are proposals for panels that state one or more fundamental issues/questions concerning machine ethics and take a stand on them supported by cogent arguments. Send submissions via email attachments to anderson@hartford.edu.

Organizing Committee

Michael Anderson (cochair), University of Hartford (anderson@hartford.edu); Susan Leigh Anderson (cochair), University of Connecticut (susan.anderson@uconn.edu); Chris Armen (cochair), Trinity College (chris.armen@trincoll.edu)

Additional Information

For additional information, please see www.machinerethics.org.

Mixed-initiative (MI) problem solving concerns the development of cooperative assistants whose user interactions are determined by problem-solving context and the relative knowledge and skills of system and user rather than by fixed roles. By dynamically integrating the contributions of the user and system, such systems enable each to contribute what it does best. Moreover, dynamic and flexible user-interaction facilitates adaptation to differences in knowledge, experience, and preferences among different users and to changes in needs and preferences in individual users over time.

Unfortunately, few MI systems have been deployed. Development of mixed-initiative systems gives rise to several challenging issues, including dialogue management, user modeling, goal recognition, domain modeling, and problem-solving strategy selection. Those systems that have been implemented have typically been quite domain specific, which has impeded their reuse for other tasks.

The goal of this symposium is to identify the principles underlying the design of MI systems and to encourage their development and application. Towards this goal, this workshop will provide a forum for interested researchers to share, discuss, and learn about experiences with, best practices on, and general issues concerning mixed-initiative problem-solving approaches, including the following:

- ✎ Agent interfaces
- ✎ Case studies of successful MI systems
- ✎ Characterization of domains amenable to MI approaches
- ✎ Comparisons of MI systems
- ✎ Conversational case-based reasoning
- ✎ Conversational problem solving
- ✎ Dialogue management and discourse grammars
- ✎ Dialogue recovery strategies
- ✎ Exploiting user feedback
- ✎ Evaluation methodologies, metrics, and measures
- ✎ Explanation strategies and techniques
- ✎ Initiative sharing strategies
- ✎ Intelligent assistants
- ✎ Intelligent tutoring systems
- ✎ Intelligent and adaptive user interfaces
- ✎ Knowledge capture

- ✎ Learning apprentice systems
- ✎ Learning strategies for MI systems
- ✎ MI planning and scheduling systems
- ✎ Novel MI approaches and applications
- ✎ Personalization
- ✎ Problem (e.g., plan) recognition
- ✎ Recommender systems
- ✎ Task modeling for MI systems
- ✎ Task-oriented interfaces
- ✎ User modeling

This symposium will include invited talks, a panel, poster sessions (for all oral presentations), and multiple discussion periods to help foster significant interactions among participants.

Submissions

Potential participants who would like to present relevant work recently completed or in progress are invited to submit a short paper (4–6 pages). We also welcome extended abstracts (1–2 pages) that outline your relevant research activities, publications, and goals for participation.

Organizing Committee

David W. Aha, (cochair), Naval Research Laboratory; L. Karl Branting (cochair), BAE Systems; Marie desJardins, University of Maryland Baltimore County; Kurt Fenstermacher, University of Arizona; Karen Myers, SRI International; Stephen F. Smith, Carnegie Mellon University; Gregory Sullivan, BAE Systems; Gheorghe Tecuci, George Mason University

Additional Information

For additional information on submissions (e.g., deadline, format, e-mail address), please see <http://home.earthlink.net/~dwaha/research/meetings/fss05>.

Roles, An Interdisciplinary Perspective

The notion of roles is ubiquitous not only in many areas of artificial intelligence, e.g., multiagent systems, computational linguistics, conceptual modeling, but also in many other areas of computer science, such as programming languages, software engineering, databases, etc., and also in other fields such as formal ontology, sociology, cognitive science, organizational science, and linguistics.

In sociology roles are often described as expected behavior of entities. In organizational science roles encompass more formal aspects such as rights and duties. Undisputed distinguishing features of roles seem to be their dependence on some other entities and their dynamic character. These properties contrast roles with the notion of natural types. Natural type seems to be essential to an entity: if an entity changes its natural type, it loses its identity; roles lack of the rigidity which natural types possess.

Discussions on roles are important not only to have a better understanding of theories using this notion, but also from the applicative point of view. For example, agent oriented software engineering, integration of ontologies, programming languages, databases, simulation can benefit from the introduction of a well-founded notion of role.

There is no common agreement yet about what roles are, which are their properties, and how they can be modeled in a uniform way in the different areas. One likely reason is that roles are discussed in very different contexts, so that interested researchers have little opportunity to meet with each other since there are few venues for research integration.

With this symposium we propose to gather researchers working across the boundaries of the involved subfields to explore new formal and computational techniques and research methodologies for integrating research results. For this reason this symposium will provide time for discussion besides paper presentations.

Submissions

Researchers interested in making a presentation should submit a paper about theoretical or applicative issues (not to exceed 5,000 words). Other participants should submit either a position paper or a research abstract in order to be involved in the discussion. Submissions should be

sent to Guido Boella at guido@di.unito.it. Check the URL that follows for further submission instructions.

Organizing Committee

Guido Boella (cochair), Dipartimento di Informatica, Universita' di Torino (guido@di.unito.it); James Odell (cochair), Agentis, Ann Arbor (MI) USA (mailbox@jamesodell.com); Leendert van der Torre (cochair), CWI Amsterdam, Netherlands (torre@cwi.nl); Harko Verhagen (cochair), DSV, KTH/SU, Sweden, (verhagen@dsv.su.se)

Additional Information

For additional information, please see normas.di.unito.it/zope/roles05