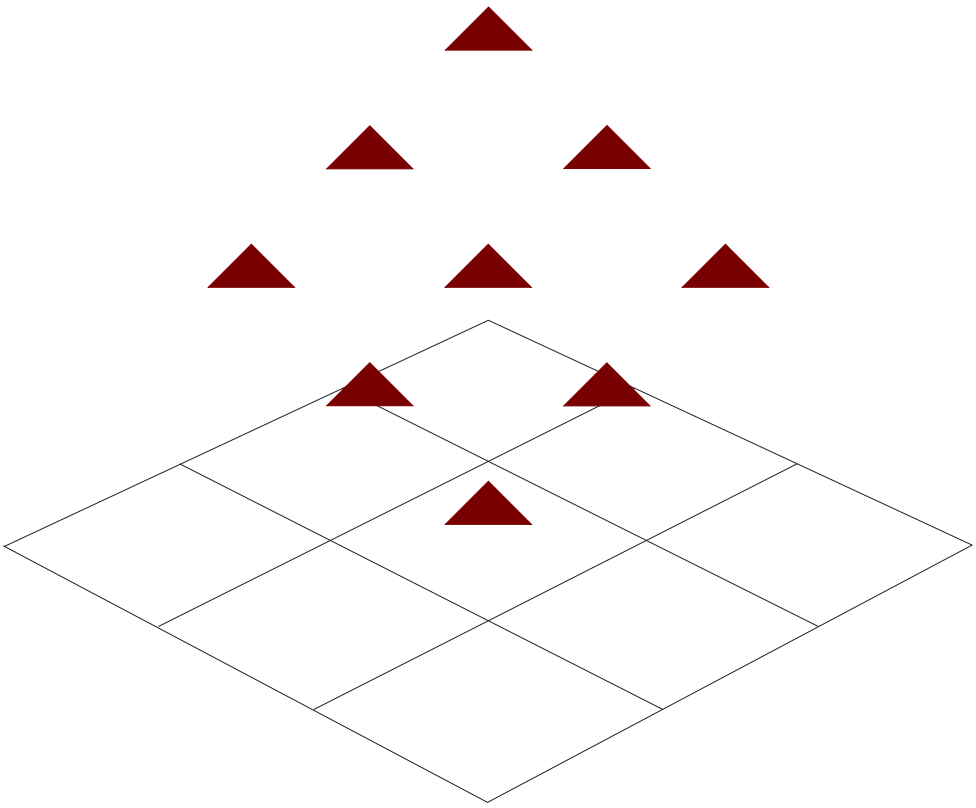

Call for Participation

2008 AAAI Fall Symposium Series

November 7–9, 2008 ❧ The Westin Arlington Gateway, Arlington, Virginia

Sponsored by the Association for the Advancement of Artificial Intelligence

With support from the Naval Research Laboratory

445 Burgess Drive, Menlo Park, California 94025 ❧ 650-328-3123 ❧ 650-321-4457 (fax) ❧ www.aaai.org/fss08.php

Important Deadlines

May 15, 2008: Submission due to organizers

June 6, 2008: Notifications of acceptance sent by organizers

September 12, 2007: Accepted camera-ready copy due to AAAI.

URL

www.aaai.org/fss08.php

Photo courtesy Arlington Convention and Visitors Bureau

The Association for the Advancement of Artificial Intelligence is pleased to present the 2008 Fall Symposium Series, to be held Friday through Sunday, November 7–9, at the Westin Arlington Gateway in Arlington, Virginia. The titles of the seven symposia are as follows:

- Adaptive Agents in Cultural Contexts
- AI in Eldercare: New Solutions to Old Problems
- Automated Scientific Discovery
- Biologically Inspired Cognitive Architectures
- Education Informatics: Steps Toward the International Internet Classroom
- Multimedia Information Extraction
- Naturally Inspired AI

An informal reception will be held on Friday, November 7. A general plenary session, in which the highlights of each symposium will be presented, will be held on Saturday, November 8. 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 2008.

Submission Requirements

Interested individuals should submit a paper or abstract by the deadline listed in the box. For AAAI formatting guidelines, please see the author pages on the AAAI website (www.aaai.org/ Publications/Author). 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.

Adaptive Agents in Cultural Contexts

Computational human behavior models, in extending a conventional information-processing approach, face two complex problems: adaptation and evolution of behavior, and the sociocultural specificity of cognition. These fields are vast, variegated, informed by disparate theoretical and technical disciplines, and interrelated. This symposium seeks to focus research by examining their intersection. In addition to informing academic research, expected applications include simulations and training for international commercial enterprise, non-governmental organizations, and military, as well as commercial games.

The goals of this symposium are as follows:

- Identify the ranges of meanings described by "adaptive agent" and "culturally specific behavior," and their interrelation
- Determine the range and nature of problems requiring computational models of culture and adaptive agents
- Clarify the role of culture and adaptation in human behavior, toward architectures, algorithms, and representations for computational modeling
- Bring together researchers and practitioners from varying disciplines, to share ideas and results, and establish relationships
- Chart a multi-disciplinary research program

Topics

We aim to bring together communities of artificial intelligence, social science, and cognitive science researchers, with developers of games and simulations within both commercial and governmental sectors. To this end, we solicit papers such as surveys and analysis of pertinent literature, case studies of simulation or game development that contain adaptive or cultural aspects, theoretical work in modeling cultural behavior, adaptive behavior, or their interrelation, analysis of human behavior in relevant domains, and empirical comparisons of agent models

Format

The expected format for the two and a half day symposium is as follows. *Day 1:* invited speaker on culture and cognitive modeling, and related paper presentations. *Day 2:* Invited speaker on adaptive agents, and related paper presentations. *Day 3* (half day): integrative paper presentations and a discussion panel.

Submissions

Interested participants should submit papers of not more than 8 pages (two-column AAAI conference format) or panel proposals (1-2 pages) to the Adaptive Agents submission site: www. easychair.org/conferences/?conf=aacc08

Organizing Committee

Alex Davis, cochair (Stottler Henke), Jeremy Ludwig, cochair (Stottler Henke), David W. Aha (Naval Research Laboratory), Harold Hawkins (Office of Naval Research), Lewis Johnson (Tactical Language Training), Helen Altman Klein (Wright State University), Glenn Taylor (Soar Technology, Inc.), Michael van Lent (University of Southern California/Institute for Creative Technologies), Abbas K. Zaidi (George Mason University)

For more information about the symposium, see the supplementary symposium web site e-mail aacc08@easychair.org.

For More Information

For more information about the symposium see the supplementary symposium web site (www .stottlerhenke.com/AAAI08FallSymposium) or e-mail aacc08@easychair.org.

AI in Eldercare: New Solutions to Old Problems

There is a wide range of problems facing older adults as they age. Many represent old challenges to health care providers, including chronic illnesses like heart disease, diabetes, and hypertension, as well as deterioration of physical function, high risk of falling, strokes, memory problems, cognitive decline, and loneliness. At the same time, the population of older adults is growing dramatically, giving concern as to how these people will get the care they need.

AI technology offers the potential for innovative solutions, spanning such areas as sensing and sensory perception, computer vision, planning, reasoning, smart homes, robotics and human-robot interaction. We invite an interdisciplinary group with joint interests in addressing aging-related challenges. In addition to AI researchers, gerontologists, geriatric nurses and psychiatrists, rehabilitation therapists, social workers, counselors, epidemiologists, and those from other related professions and disciplines will be invited to attend. We will provide a forum to share ideas, foster new collaborations, and investigate funding opportunities.

The symposium will focus on a variety of topics that address the physical, cognitive, and emotional challenges of aging:

- Smart homes
- Reminder systems
- Fall detection
- Automatic gait analysis
- Passive sensing for monitoring physical and/or cognitive condition
- Wearable sensors
- Aging assessment tools
- Robotics for eldercare
- Stroke rehabilitation
- Systems to provide emotional support
- Aging assistance for people with disabilities
- Ethical considerations of eldercare systems
- Evaluating eldercare systems

A combination of presentation and discussion styles is planned: Focused panel discussions including one offering the perspective of gerontology experts: talks describing established work followed by discussion periods; short talks describing emerging work followed by discussion periods; and breakout sessions with small groups discussing challenges and possible solutions; reports to the large group

Submissions

Submit long papers (up to 8 pages) and short pages (up to 3 pages) to Marge Skubic at skubicm@missouri.edu using the two-column AAAI format in PDF.

Organizing Committee

Marge Skubic, chair (University of Missouri), Michael Anderson (University of Hartford), Susan Anderson (University of Connecticut), Tim Bickmore (Northeastern University), Cynthia Breazeal (Massachusetts Institute of Technology), Jesse Hoey (University of Dundee, Scotland), Stephen Intille (Massachusetts Institute of Technology), Ben Krose (University of Amsterdam), Alex Mihailidis (University of Toronto), Federico Pecora (Orebro University, Sweden), Rich Simpson (University of Pittsburgh), Holly Yanco (University of Massachusetts Lowell), Howard Wactlar (Carnegie Mellon University)

For more information about the symposium see the supplementary symposium web site (eldertech.missouri.edu/aaai/).

Automated Scientific Discovery

There is a long and fascinating history of humankind's endeavor to explain and, with the advent of AI, ultimately mechanize the overarching processes that leads to scientific discoveries. This quest dates back to Aristotle's account of human deductive reasoning (the theory of the syllogism, developed to model the discoveries of Euclid), and continues through modern AI, which, through impressive systems like LT, Bacon, GT, Eurisko, and Graffiti (and many theorem provers, model finders, and computational frameworks for machine-assisted reasoning), has placed some degree of such automation within reach. Over the past 60 years, starting with AI's inaugural conference, systems such as these have automated aspects of scientific discovery. Machines have generated novel and interesting conjectures (some which have spawned new scientific research areas), and increasingly efficient techniques have been invented to prove or refute them.

Nevertheless, the sobering fact remains that such advances fall far short of approaching the creativity and innovation of even amateur scientists. We believe that AI is ripe for revolutionary progress in automated and semi-automated scientific discovery, in no small part because the field now has on hand systems that mark advances in various parts of discovery—parts that, when interconnected, may make for some very exciting new systems. We also believe that dialogue between researchers behind these systems could lead to a new generation of powerful AI discovery systems.

This symposium will survey the state of the art in systems that cover some aspects of the entire process of scientific discovery (including, for example, representation, exploration, conjecture generation, validation, and publishing / reporting). Of particular interest is how the current technologies can fit together to form an environment by which the human reasoner's vision and reach can be augmented, and what goals should be set in order to move closer to the complete mechanization of general scientific discovery—or at least closer to a time when machines can truly operate as intelligent assistants in the search for new discoveries.

Topics

Given progress on multiple fronts relevant to scientific discovery, can comprehensive or multifaceted discovery systems be developed?

What role does/should knowledge, knowledge-based systems, and the semantic web, play in the development of AI discovery systems?

Systems for human-machine collaborative discovery.

Can architectures for carefully describing, in computational terms, the overall process of scientific discovery be devised?

What role can the cognitive science of discovery (creativity, invention, etc.) play in AI's quest for discovery systems?

Submissions

Interested individuals should submit full papers of no more than (6) pages or position papers of no more than (2) pages in PDF format, using the two-column AAAI paper format, to cochairs Andrew Shilliday (shilla@rpi.edu) or Selmer Bringsjord (selmer@rpi.edu).

Organizing Committee

Andrew Shilliday, cochair (Rensselaer Polytechnic Institute), Selmer Bringsjord, cochair (Rensselaer Polytechnic Institute) (selmer@rpi.edu), Alan Bundy (University of Edinburgh), Simon Colton (Imperial College London), Doug Lenat (Cycorp)

For More Information

For more information about the symposium see the supplementary symposium web site (www.cogsci.rpi.edu/conferences/AAAI/Fall Symposium2008/).

Photo courtesy Arlington Convention and Visitors Bureau

Biologically Inspired Cognitive Architectures

This symposium will focus on the challenge of creating a computational equivalent of the human mind limited to a selected domain of expertise. This fundamental scientific problem calls for the design and experimental study of biologically inspired cognitive architectures (BICA). Despite a substantial number of recent conferences and workshops focused on computational theories of biological information processing, this topic of research remains underrepresented. Some of its valuable outcomes are just beginning to emerge in publications. It is therefore our view that a forum, under the auspices of AAAI, dedicated to the topic of BICA is both timely and beneficial in stimulating further research in this field. The primary objective of this symposium is to showcase recent modeling and rapid prototyping experience aimed at building architectures of cognitive agents that have been inspired by the human brain and, in a definite sense, operate like the human mind. At the same time, theoretical discussion of the underlying mechanisms will be equally encouraged.

Biological constraints on human cognition informed by neuroscience and psychology become most valuable, when it comes to a computational description of higher cognition. Some of them are pre-programmed to develop and are critical for robustness and adaptability in real-world situations. On the other hand, the main body of human cognitive abilities is acquired through learning and meta-learning (cognitive growth), which thus are the key to development of adult human-level intelligence. Learning can be achieved not only via trial and error, but most importantly, through social and teaching paradigms: by instruction, by example, and by guided exploration (example: "learning by reading"). From this point of view, it is important (A) to determine a "critical mass" of capabilities that together enable bootstrapped learning, (B) to find the right architecture for their implementation, and (C) to be able to measure the outcome.

Submissions

We are soliciting submissions (a combination of position papers (4 pages), short (6 pages) and long papers (up to 12 pages) in the areas of cognitive modeling, psychological and brain sciences, and potential applications of BICA, including natural language, intelligent/social robotics, virtual social characters, pedagogical agents, and human-computer interface, with a focus on biological constraints, human-like learning and cognitive growth. The format of the symposium is one-track session with panel discussions and a poster session.

The format of the symposium will be a one-track session with panel discussions and a poster session. In order to receive peer review and be included in the proceedings, manuscripts must be prepared using the AAAI Author Kit and submitted by the deadline to Alexei Samsonovich (samsonovich@cox.net) or another organizing committee member (make sure you get a receipt). An early notification of the intent with informational regarding title, author, affiliation, abstract (implying permission to post) is strongly encouraged.

Organizing Committee

Alexei Samsonovich (chair) (George Mason University), Deepak Khosla (HRL Laboratories, LLC), Laurent Itti (University of Southern California), Murray Shanahan (Imperial College London), Antonio Chella (University of Palermo), Richard Granger (Dartmouth College), Shane Mueller (Klein Associates Division / ARA), Ben Goertzel (Novamente / AGIRI), David Noelle (UC Merced).

Program Committee

Samuel Adams (IBM Research), James Albus (NIST), Alan Bond (University of California, Los Angeles), Michael Cox (BBN Technologies), Son Dao (ISSL, HRL Laboratories, LLC), Stanley Franklin (University of Memphis), John Gero (George Mason University and Massachusetts Institute of Technology), Elkhonon Goldberg (New York University School of Medicine), Andreas Herzog (IESK), Eva Hudlicka (Psychometrix), Neil Jacobstein (Stanford University and Teknowledge Corp.), Evguenia Malaia (SLHS Department, Purdue University), Howard Shrobe (Massachusetts Institute of Technology CSAIL), Narayan Srinivasa (HRL Laboratories LLC), Brian Tsou (Air Force Research Laboratory), Pei Wang (Temple University), Juyang (John) Weng (Michigan State University).

For More Information

For more information about the symposium see the supplementary symposium web site (binf.gmu.edu/~asamsono/bica/).

Education Informatics: Steps Toward the International Internet Classroom

Could an international group provide free access to primary and secondary school curricula, aligned with national, state and local standards, delivered by our best AI tutoring technologies, in several languages, over the Internet? The purpose of this symposium is to discuss the feasibility of an international Internet classroom project.

We seek papers, including position papers, from all sectors—academe, industry and government—on available sources of content, tools, platforms, student modeling methods, educational data mining techniques, pedagogical strategies, modes of content delivery, data and content markup and standards, and concrete experiences deploying technology-based education. Authors are encouraged to present their research, systems, tools, evaluations and deployment experiences in terms of and as contributions to what we hope will become the International Internet Classroom Project.

Submissions

Please submit extended abstracts of approximately 2-4 pages in any style, but please plan to submit final copy using the AAAI style guide. Abstracts should be submitted directly to Paul Cohen (cohen@isi.edu). All submissions must be sent in PDF or PostScript format.

Organizing Committee

Paul Cohen, chair (University of Southern California Information Sciences Institute), Carole Beal (K12@USC, University of Southern California Information Sciences Institute), Niall Adams (Imperial College London)

Program Committee

Ivon Arroyo (University of Massachusetts, Amherst), Ryan Baker (Carnegie Mellon University), Avron Barr (Aldo Ventures), Joe Beck (Worcester Polytechnic University), Bert Bredeweg (University of Amsterdam), Paul Brna (University of Edinburgh), Susan Bull (University of Birmingham), Weiqin Chen (University of Bergen), Pierre Dillenbourg (École Polytechnique Fédérale de Lausanne), Judith Good (University of Sussex), Jim Greer (University of Saskatchewan), Gord McCalla (University of Saskatchewan), Bruce McLaren (German Research Institute for AI (DFKI) and Carnegie Mellon University), Ulrich Hoppe (University of Duisburg-Essen), James Lester (North Carolina State University), Rose Luckin (London Knowledge Laboratory), Erica Melis (German Research Institute for Artificial Intelligence (DFKI), Jean-François Nicaud (Grenoble 1 University), Helen Pain (University of Edinburgh), Ron Stevens (University of California, Los Angeles), Giasemi Vavoula (University of Leicester), Beverly Woolf (University of Massachusetts, Amherst)

For More Information

For more information about the symposium see the supplementary symposium web site (www.isi.edu/~cohen/AAAIFSS08/education-informatics.html).

Multimedia Information Extraction

This fall symposium will bring together researchers and practitioners in multimedia information extraction algorithms and systems and their underlying theories. Drawing from the language, image/video and spatial/temporal reasoning communities, the symposium will include presentations and demonstrations that address the processing of multiple media (for example, text, speech, maps, imagery, video) and multiple human perceptual modalities (for example, audition, vision). Accepted submissions will be organized into interactive panels focused on cross cutting topics such as (cross) media data sets, multimedia machine learning algorithms, innovative architectures, transmedia applications, evaluation methods. To increase the lasting value of the Symposium, the chairs will capture capabilities and challenges into a roadmap containing lanes (for example, multimedia data, methods, and applications) that will then be used to stimulate iterative brainstorming "roadmap" sessions. An edited collection to include extended versions of the best papers and roadmap is planned.

Topics

Submissions (papers and/or video/computer demonstrations) are invited on original research in all aspects of multimedia information extraction including, but not limited to the following topics:

- Object, attribute, and relation extraction from media (for example, text, audio, maps, imagery, and video)
- Simple and complex event detection and extraction from text, audio, imagery, and video
- Integrated speech, language, and image processing methods for cross media information extraction (that is, transmedia information extraction)
- Emotion and sentiment detection and tracking from media
- Tailoring multimedia information extraction to particular users, tasks, and contexts
- Intra- and intermedia representation languages and cross media ontologies
- Architectures for multimedia information extraction
- Constraints and capabilities of IE components and their integration
- Psychoperceptual and cognitive issues in multimodal information extraction
- Multimedia browsing/visualization tools and cross-media query (for example, visual, linguistic, and auditory)
- Studies and analyses of multimedia corpora
- Multimedia annotation schemes and tools
- Evaluation methods and metrics
- Innovative machine learning approaches

Submissions

Interested participants should send a 4-5 page (2,000 to 3,000 word) paper (or 2 page abstract for demonstration/videos) in AAAI format in Microsoft Word or PDF to maybury@mitre.org no later than June 16, 2008. Please include name, affiliation, address, phone, and e-mail address. Attendance at the symposium will be limited to 30-40 participants.

Organizing Committee

Mark Maybury, chair, (MITRE) (maybury@.mitre.org), Sharon Walter, cochair, (AFRL) (Sharon.Walter@rl.af.mil), Kelcy Allwein (DIA), Elisabeth Andre (University of Augsburg), Thom Blum (Audible Magic), Shih-Fu Chang (Columbia University), Bruce Croft (University of Massachusetts), Alex Hauptmann (Carnegie Mellon University), Andy Merlino (Pixel Forensics), Ram Nevatia (University of Southern California), Prem Natarajan (BBN), Kirby Plessas (Open Source Works), (David Palmer (Virage), Mubarak Shah (University of Central Florida), Rohini K. Shrihari (State University of New York Buffalo), Oliviero Stock (Istituto per la Ricerca Scientifica e Tecnologica), John Smith (IBM T. J. Watson Research Center), Rick Steinheiser (DNI/Open Source Center)

For More Information

For more information about the symposium please send e-mail to maybury@mitre.org.

Naturally Inspired AI

The divide between how biological and computational systems solve cognitive problems and adjust to novel circumstances is readily apparent. While animals display marked flexibility in adjusting to new situations, our current computational approaches excel in well-defined, formally structured domains.

We are interested in new approaches to bridging this gap. Our perspective is that studies of natural and artificial intelligences can and should be mutually informative. Even young animals solve historically difficult computational problems, and we believe understanding how they do this will enable the creation of more sophisticated artificial systems. Conversely, computational models provide structure and insight into understanding animal learning and cognition. By combining biological and computational perspectives, we expect to obtain new insights that further the classical goals of artificial intelligence.

This symposium is intended to bring together researchers working on models that pertain directly to both natural and machine cognition. Particular methodology, motivation, or implementation decisions do not constrain our interests—we expect that relevant work may touch on themes as diverse as human experiments, neural models, engineering of complex systems, mathematical analysis, programming language design, and high-level cognitive models, to name only a few possibilities. We are interested in any work that has a clearly described relationship between a line of investigation and the larger problem of producing computational models that illuminate the peculiar nature and capabilities of cognition.

Topics

Participants are invited to submit either a position paper or a brief report on relevant work. Of particular are the following topics:

- Approaches to attaining breadth and flexibility
- Systems or models incorporating multiple cognitive capabilities
- Applying models of natural intelligence to engineered systems, or vice versa
- Case histories of recent success or interesting failure in crossing between these fields
- Near-term tractable problems deserving of greater attention
- Experimental techniques and measurement strategies

The symposium will mix short talks from participants with extensive discussion on the challenges of doing research relevant to both natural and artificial systems.

Note: A related but different symposium is being run by Alexei Samsonovich. Our schedule will likely include a joint session, contents to be determined.

Submissions

Those interested in participating in this symposium should send either a full paper (8 pages maximum) or a position paper (1-2 pages) in AAAI format in PDF to natural-intelligence@csail.mit.edu. Please direct all questions to natural-intelligence@csail.mit.edu.

Organizing Committee

Jacob Beal (Massachusetts Institute of Technology CSAIL), Paul Bello (Office of Naval Research), Nick Cassimatis (Rensselaer Polytechnic Institute), Michael Coen (University of Wisconsin-Madison), Patrick Winston (Massachusetts Institute of Technology CSAIL)

For More Information

For more information about the symposium see the supplementary symposium web site (groups.csail.mit.edu/genesis/NIAI/).