Sixteenth National Conference
on Artificial Intelligence (AAAI-99)

Workshop Program

July 18-19, 1999
Orlando, Florida

Sponsored by the American Association for Artificial Intelligence

445 Burgess Drive, Menlo Park, CA 94025
650-328-3123
650-321-4457 (fax)
workshops@aaai.org
http://www.aaai.org

AAAI is pleased to present the AAAI-99 Workshop Program. Workshops will be held Sunday and Monday, July 18-19, 1999 at the Omni Rosen Hotel and Orange County Convention Center in Orlando, Florida. Exact locations and dates for the workshops will be determined in early spring. The AAAI-99 Workshop Program includes seventeen workshops covering a wide range of topics in artificial intelligence. Workshops are one day unless noted otherwise in the individual description. Each workshop is limited to approximately 25 to 50 participants. Participation at these workshops is by invitation from the workshop organizers. Workshop registration information will be mailed directly to all invited participants. Workshops are included in the AAAI-99 technical registration. All workshop participants must preregister for the AAAI-99 technical conference. Workshop participants must indicate which workshop(s) they will be attending. Workshop working notes will be distributed onsite for participants only, and may be available after the conference as technical reports.

Submission Requirements

Submission requirements vary for each workshop, but the key deadlines are uniform for all. Submissions for all workshops are due to the organizers on March 12, 1999. Workshop organizers will notify submitters of acceptance by March 26, 1999. Camera-ready copy is due back to workshop organizers by April 21, 1999. Please mail your submissions directly to the chair of the individual workshop according to their directions. Do not mail submissions to AAAI. For further information about a workshop, please contact the chair of that workshop.

Formats

Many workshops request or require the AAAI two-column format. Links to styles, macros, and guidelines for this format are located at http://www.aaai.org/Publications/Templates/macros-link.html

AAAI-99 Workshop Chair

David Leake
leake@cs.indiana.edu

Contents

Deadlines
- March 12: Submissions due
- March 26: Notification of acceptance
- April 21: Camera-ready copy due
- July 18-19: AAAI-99 Workshop Program

Agent-Based Systems in the Business Context

This workshop will bring together key researchers in the areas of AI agents, planning, and scheduling with those in workflow management. The aim is to start a dialogue between these groups on how AI techniques can support real-world business processes.

Workflow management systems are integrated software tools for supporting the modeling, analysis, and enactment of business processes. The market for workflow management software grew from around $100 million in 1991 to $2.5 billion in 1996. From a research perspective, DARPA has identified workflow as one of its key "must have" technologies and is investing heavily in developing the next-generation workflow systems for the military. The theme of this workshop is that the AI community could be leveraged to realize a vision for dynamic process management, at both the modeling and technological levels.

Topics

- Reactive control
- Planning
- Planning and reactive control architectures
- Scheduling
- Knowledge acquisition
- Distributed AI

Format

Session A: Requirements of the workflow community (invited talks).

Session B: Relevant AI technologies (participant presentations).

Session C: Demonstrations (by attendees).

Session D: Formulating a research road map (interactive).

An evening meal will cement relationships and encourage interaction.

Attendance

This workshop is open to members of the AI or workflow communities. To ensure a creative atmosphere, attendance will be strictly limited to 40 participants. Therefore, if you wish to attend but are not submitting a paper, please submit a one-page statement of interest by the submission deadline.

Submissions

Submissions should focus on the role that AI technologies can play in the construction of workflow engines that manage complex processes, while remaining robust, reactive, and adaptive in the face of environmental changes. Submissions must be formatted in accordance with the AAAI guidelines and submitted electronically (gzipped PostScript format) or four paper copies can be mailed to workshop chair.

Chair

Brian Drabble
Computational Intelligence
Research Laboratory
1269 University of Oregon
Eugene, OR 97403-1269, USA
E-mail: drabble@cirl.uoregon.edu
Telephone: US +1 541 346 0473
Fax: US +1 541 346 0474

Committee

Pauline Berry, SRI International (berry@ai.sri.com); Brian Drabble, CIRL (drabble@cirl.uoregon.edu); Karen L. Myers, SRI International (myers@ai.sri.com); Peter Jarvis, AI Applications Institute (Peter.Jarvis@aiai.ed.ac.uk)

Additional Information

http://www.aiai.ed.ac.uk/~paj/aaai-wflow-wshop/

Agents' Conflicts

Agents' conflicts arise for different reasons, involve different concepts, and are dealt with in different ways, depending on the kind of agents and on the domain where they are considered. For example, agents may have conflicting beliefs, conflicting goals, or may have to share limited resources. Conflicts can be expressed as mere differences, or as contradictions, or even as social conflicts (e.g. aggression, fighting). They may be avoided, solved, kept, or even created deliberately. Since more and more concern is attached to agents' teamwork and agents' dialogue, conflicts naturally arise as a key issue to be dealt with, not only with application dedicated techniques, but also with more formal and generic tools. The aim of the workshop is therefore to focus on definitions of agents' conflicts and on their roles within a multiagent system, i.e. how this system may evolve thanks to, despite, or because of conflicts.

Topics

- Conflict ontology
- Conflict measurements
- Conflict scales
- Conflict and uncertainty
- Coping with conflicts
- Conflict management typology
- Conflict management vs. knowledge enhancement
- Conflict management vs. robustness
- Conflict management and time
- Conflict and decision making
- System design based on conflicts
- Learning from conflicts

Format

The workshop will include invited papers from knowledgeable researchers within the agent field, contributed papers selected by the workshop committee, and two discussions on issues highlighted in the papers. Guidelines for the contributed papers are given on the workshop web site.

Attendance

Attendance is limited to 40 participants.

Submissions

Authors are invited to submit papers on the topics outlined above. Submissions should be no longer than 10 pages, and be in line with the AAAI style sheet. Electronic submissions, in PostScript format, should be sent to Catherine Tessier.

Chairs

Catherine Tessier and Laurent Chaudron
Onera-Cert-DCSD
2 avenue Edouard-Belin, BP 4025
31055 Toulouse Cedex 04 - France
Telephone: (33) 5 62 25 29 14
Fax: (33) 5 62 25 25 64
E-mail: Catherine.Tessier@cert.fr

Committee

Cristiano Castelfranchi, CNR, Italy (cris@pscs2.irmkant.rm.cnr.it); Mark Klein, CCS-MIT (m_klein@mit.edu); Juergen Mueller, Deutsche Telekom, Germany (muellerhj@tzd.telekom.de); Joel Quinqueton, Inria, France (jq@lirmm.fr); Munindar P. Singh, North Carolina State University (singh@ncsu.edu); Milind Tambe, University of Southern California (tambe@isi.edu); Laurent Chaudron (cochair), Onera-Cert, France (Laurent.Chaudron@cert.fr); Catherine Tessier (cochair), Onera-Cert, France (Catherine.Tessier@cert.fr)

Additional Information

http://www.cert.fr/fr/dcsd/PUB/AAAI99/conflicts.html.

Artificial Intelligence for Distributed Information Networking

The fast paced evolution of networks, services, and consumer needs is causing problems in the management of networks and services. This workshop aims to assess how AI technologies can help address these problems.

Topics

The morning session will focus on two problem specifications posted on the web site:

- Routing and resource management.
- Monitoring and fault management.

Submissions and discussion will be aimed at:

- Elaborating on the generic problems and highlighting their significant challenges and comparing proposed solutions.

The afternoon session focus is more general and submissions are solicited for discussion on:

- Other management areas (configuration, security, etc.)
- The impact of evolving consumer requirements (e.g. for pervasive appliances and e-commerce)
- Network and service interoperability across heterogeneous environments
- New technologies and services including traffic flow analysis, topology/capacity planning, traffic scheduling, active networks, and agent technologies.

Format

For each topic the authors of the best papers and selected speakers will be invited to form a panel. Each panelist will have 5 minutes to present their position and appropriate committee members will summarize the other contributions. Discussion will be encouraged throughout.

Attendance

Participants will be selected based on refereed submissions of position and full papers. One of the main goals of this workshop is to bring together AI researchers and network experts to discuss open problems and to evaluate proposed solutions. We are aiming for a good mix of industrial and academic participants.

Submissions

Submissions should be 2 pages for position papers and 6 pages for full papers and be formatted using the standard AAAI guidelines.

Electronic submissions (in PDF, PostScript or Word97 format) are preferred. Please see workshop web site for detailed submission information (e.g. hard copy submission). Submit to Steven Willmott.

Cochairs

Sue Abu-Hakima, President/CEO
AmikaNow! Corporation
Ottawa, Canada
Telephone: 613-991-1231
suhayya@amikanow.com
http://www.amikanow.com/

Steven Willmott
Laborotoire d'Intelligence Artificielle
Department Informatique
IN (Ecublens), EPFL
CH-1015 Lausanne
Switzerland
E-mail: willmott@lia.di.epfl.ch
Telephone: +41 (0) 21 693 66 77
Fax: +41 (0) 21 693 52 25

Committee

Sue Abu-Hakima (cochair); Boi Faltings, EPFL Lausanne (faltings@lia.di.epfl.ch); Alex Hayzelden, Queen Mary and Westfield College (a.l.g.hayzelden@elec.qmw.ac.uk); Beat Liver, IBM Research Division, (bli@zurich.ibm.com); Steven Willmott (cochair).

Additional Information

http://liawww.epfl.ch/AiDIN99/ or http://www.amikanow.com

Artificial Intelligence for Electronic Commerce

Electronic commerce (EC) is the buying and selling of goods and services in cyberspace. Already a multi-billion-dollar segment of the world economy, it is a fast-growing and exciting field. This workshop addresses the challenges, opportunities, practical applications, and theoretical aspects of using AI in e-commerce. We particularly encourage submissions about practical applications and techniques, and about the newer area of business-to-business e-commerce, e.g., supply-chain management.

Topics

- Shopping agents, e.g., find and compare
- Recommender services, e.g., in e-storefront
- Data mining of customer buying patterns
- Customer service help
- Buyer and seller economic decision-making, e.g., pricing and bidding
- Markets, auctions, negotiations, and contracts
- Agent communication, knowledge exchange, and XML
- Brokering, matchmaking, and reputation services
- Promotions, advertising, and navigation of buyer attention
- Procurement and supply chain business processes
- Product catalogs

See the workshop website (URL below) for a more detailed list of topics, including of topics where significant progress has already occurred.

Format

The format of the workshop will be a mixture of presentations and discussions. Presentation time will be mostly devoted to papers, along with brief panels. Discussion time will total approximately one-third of overall workshop time. The first part of the workshop will focus more on practical applications, and the later part of the workshop will focus more on theory and discussion.

Attendance

The workshop will be limited to about 50 invited participants. To participate, you must submit a short statement (one or two pages) describing your relevant background and interests. Paper submissions of three kinds are invited: technical papers; position papers that describe opportunities and challenges; and application descriptions that focus on AI aspects.

Submissions

Submit your statement and optional paper electronically to aiec-submission@cs.umbc.edu. Inquiries can be sent to aiec@cs.umbc.edu.

See the longer-version call for participation at the workshop website for full details on attendance and submissions.

Cochairs

Tim Finin (chair)
University of Maryland
(finin@cs.umbc.edu,
Telephone: 410-455-3522
Fax: 410-455-3969

Benjamin Grosof (chair)
IBM T. J. Watson Research Center
(grosof@us.ibm.com
Telephone: 914-784-7783
Fax: 914-784-7455

Committee

Yannis Labrou, University of Maryland (jklabrou@cs.umbc.edu; Leora Morgenstern, IBM T.J. Watson Research Center (leora@watson.ibm.com; Michael Wellman, University of Michigan, (wellman@umich.edu)

Additional Information

http://www.cs.umbc.edu/aiec

Computation with Neural Systems

Current AI methods lack the flexibility and reliability of biological information processing systems and, although a great deal is known about the construction of biological systems, this knowledge has had little impact on main stream AI. If we are to progress toward building machines with the abilities of the natural computing systems, closer collaboration between those studying biological information processing systems and AI and neural computing is essential. This workshop is specifically designed to bring these two groups together, with the aim of providing indicators on how the brain may organize and process information, so that this knowledge may initiate new ways to think about computation.

Topics

The workshop will focus on topics of common interest to neuro-biologists and those working in neural networks and other approaches to intelligent systems. It will focus on the low-level mechanisms involved in biological systems and how these may be exploited by the brain to bring about intelligent behavior. The following list expands on the areas of interest in the workshop:

- Synchronization of processing
- Processing speed
- Timing
- Robustness to component failure
- Modular construction
- Information representation
- Information transmission

Format

The workshop will last one day with the morning session comprising speakers for half an hour each followed by a discussion/ panel session. The afternoon session will again comprise speakers for half an hour each, followed by a further panel session.

Attendance

Attendance will be limited to 40 participants. To be invited, please submit either a short paper (up to 4,000 words) on one or more of the areas listed above or a brief statement (up to two pages) of your interests in the topic areas and a list of your related publications.

Submissions

The preferred method for submitting a paper or statement is to e-mail a PostScript file to aaai99_workshop@cs.york.ac.uk. If that is not possible, please submit papers to the general organizer.

General Organizer

Victoria Hodge
Department of Computer Science
University of York
Heslington, York
YO10 5DD
United Kingdom
Telephone: +44 1904 432729
Fax: +44 1904 432767

Chair

Jim Austin
Department of Computer Science
University of York
Telephone: +44 1904 432734
Fax: +44 1904 432767
E-mail: austin@cs.york.ac.uk

Committee

Stefan Wermter (cochair) (stefan.wermter@sunderland.ac.uk); Dr. Vasant Honavar (cochair) (honavar@cs.iastate.edu); Victoria Hodge (General Organizer) (vicky@cs.york.ac.uk)

Additional Information

http://thalamus.cs.york.ac.uk/aaai

Configuration

Configurators are a cornerstone for successful applications of the mass customization paradigm. Combined with e-business solutions these techniques have a high market impact. Configurators are generating new business opportunities in many industries for new products and for new ways to interact with customers. However, efficient development and maintenance of configurators require sophisticated software development techniques. AI methods, more than ever, are central to the development of powerful configuration tools. The goal of this workshop is to strengthen the interaction between industry and research in order to improve the state of the art.

Topics

Topics include (but are not limited to):.

- Efficient reasoning methods for configuration problems
- Knowledge representation & acquisition
- Debugging of faulty configurations and configuration knowledge bases
- Validation and maintenance
- Reconfiguration of existing systems
- Cooperative and concurrent knowledge acquisition and configuration processes
- Integration of configurators with internet, e-business, and (existing) software applications
- Intelligent man-machine interaction
- Integration of the development of configurators in the software engineering process
- Application reports, case studies, real world challenges
- Integrated hardware/software configuration
- Contributions of configurators to knowledge management in organizations
- Theoretical foundations of design

Format

This one-day event will include paper sessions and application reports; discussion; demonstration of prototypes, tools, and deployed systems; and invited talks and a panel discussion.

Attendance

Participation will be by invitation only, limited to 25-50 persons. To participate, submit either a full paper of no more than six pages, presenting research or full position statement, or a short paper (1 or 2 pages), addressing an important issue or describing an interesting lesson learned, or a proposal for a demo presentation (especially encouraged) indicating the status of the prototype or the deployed system.

Submissions

Send electronic submissions (preferred) to Gerhard Friedrich. Papers may be in PostScript or Microsoft Word format, or submit three hard copies.

Cochairs

Boi Faltings
E-mail: faltings@lia.di.epfl.ch

Eugene C. Freuder
E-mail: ecf@cs.unh.edu

Gerhard Friedrich
Universitaet Klagenfurt
Institut fuer Informationstechnologie
Universitaetsstrasse 65-67
A-9020 Klagenfurt, Austria
E-mail: gerhard.friedrich@ifi.uni-klu.ac.at

Committee

David Brown, Worcester Polytechnic Institute; Gerhard Fleischanderl, Siemens; David Franke, Trilogy; Albert Haag, SAP; Werner Juengst, Freightliner Corp; Daniel Mailharro, ILOG; Sanjay Mittal, Selectica; Bob Phillips, Concentra; Hans Jorgen Skovgaard, BAAN; Markus Stumptner, Technical University Vienna

Additional Information

http://www.ifi.uni-klu.ac.at/Conferences/aaai99_ws_configuration

Data Mining with Evolutionary Algorithms: Research Directions

Jointly Sponsored by GECCO-99

There has been a growing interest in data mining in several AI-related areas, including evolutionary algorithms. Hence, it seems that it is the right time for the communities of data mining and evolutionary algorithms to meet and exchange ideas.

The general goal of the workshop will be to discuss promising and necessary research directions in data mining with evolutionary algorithms.

Topics

- Evolutionary algorithms (EA) for classification, clustering, dependence modeling, regression, time series and other data mining tasks
- Discovery of comprehensible, interesting knowledge with EA
- Scaling up EA for very large databases
- Parallel and/or distributed EA
- Comparison between EA and other data mining methods
- Genetic operators tailored for data mining tasks
- Incorporating domain knowledge in EA
- Integrating EA with database systems
- Data mining with evolutionary, intelligent agents
- Hybrid (neural-genetic, rule induction-genetic, etc.) EA
- Uncertainty handling with EA
- Data pre-processing (e.g. data cleaning, attribute selection) with EA
- Post-processing of the discovered knowledge with EA
- Mining semi-structured or unstructured data (e.g. text mining) with EA

Format

The workshop length will be either half day or full day, depending on the number of submitted papers. The workshop will consist of presentations by selected speakers, followed by discussions.

Submissions

Speakers will be selected via submission of short papers, reviewed by an international program committee. Submitted papers must address important research directions and open problems, rather than just discuss some particular algorithm developed by the authors.

If you cannot submit a paper or if your paper is not selected, you can still attend the workshop if you are invited by the Chairman. Invitees will be selected via submission of a short CV, describing their relevant expertise, main publications, etc.

The following items must be submitted to the Workshop Chairman:

- A hardcopy of a short CV (maximum 2 pages) for each author
- Four hardcopies of a short paper (maximum 5 pages)

Chair

Alex Alves Freitas
PUC-PR (Pontificia Universida
de Catolica do Parana)
Programa de Pos-Graduacao
em Informatica Aplicada
Predio da Engenharia Eletrica
e Computacao
Rua Imaculada Conceicao,
1155. Prado Velho.
Curitiba-PR, 80215-901, Brazil
Telephone/Fax: ++55 +41 330-1699
E-mail: alex@ppgia.pucpr.br
http://www.ppgia.pucpr.br/~alex/

Additional Information

http://www.ppgia.pucprbr/~dmea/

Environmental Decision Support Systems and Artificial Intelligence

This workshop aspires to be an open forum where to expose and discuss some challenging application problems, numerous AI techniques potentially applicable, the advances of international funded projects in the area, and bring together an interdisciplinary community of AI and Environmentals researchers from both fields exchanging ideas and experiences, and possible inspiring some new lines of research.

Topics

Focused on the following items, but not limited to:

- Synergies between AI techniques and Environmental Sciences
- The state of the art on AI techniques application to Environmental Decision Support Systems (EDSS)
- Detailed applications to a real-world complex Environmental System
- Integration of several AI techniques
- Challenge applications and techniques
- Future lines of research

Format

We would like to organize a one-day workshop. A panel and/or an invited talk(s) from relevant computational ecologists and/or environmental AI researchers are been considered to be included.

Long presentations will be oriented for completed technical research contributions and short presentations for in-progress technical research contributions and challenging, survey or position contributions.

Attendance

Attendance will be limited to 50 participants (upper limit).

Submissions

Interested participants must submit papers electronically in Word for Windows or Unix compatible PostScript format to both cochairs. The format for the papers will follow the AAAI guidelines (two columns, 10-point font, etc). The maximum length of long papers will be up to 6 pages and for short papers up to 3 pages. Please follow AAAI format.

Cochairs

Ulises Cortes, Miquel Sanchez-Marre
Artificial Intelligence Section,
Department of Software
Technical University of Catalonia
Edifici C5-Campus Nord
Jordi Girona 1-3
E-08034 Barcelona. Catalonia, Spain
Telephone: + 34 93 401 73 34
Fax: + 34 93 401 70 14
E-mail: ia@lsi.upc.es, miquel@lsi.upc.es

Committee

Paolo Avesani, IRST, Italy; Rene Banares-Alcantara, University of Edinburgh, Scotland, U.K.; L. Karl Branting, University of Wyoming, USA; Ulises Cortes, Technical University of Catalonia, Catalonia, Spain; Tony Jakeman, Centre for Resource and Environmental Studies, Australia; Javier Lafuente, Barcelona's Autonomous University, Catalonia, Spain; Manel Poch, University of Girona, Catalonia, Spain; Yoram Reich, Tel-Aviv University, Israel; Antonio Sanchez-Aguilar, University of Las Américas, México; Miquel Sanchez-Marre, Technical University of Catalonia, Catalonia, Spain; Jean Philippe Steyer, Laboratory of Environmental Biotechnology, INRA, France; Peter Struss, Technical University of Munich, Germany

Additional Information

http://www.lsi.upc.es/~webia/besai/edssai99.html

Exploring Synergies of Knowledge Management and Case-Based Reasoning

Knowledge management (KM) is an increasingly important new business movement that promotes the creation, sharing, and leveraging of knowledge within an organization to maximize business results. Several AI researchers have recently turned their attention towards KM processes (e.g., business process reengineering, process support, workflow management). This workshop will focus on examining how case-based reasoning (CBR) techniques can be used to assist with KM processes, and how KM techniques can assist in the CBR problem-solving cycle.

Topics

We solicit submissions including but not limited to:

- Intranet and Internet approaches for KM
- KM and the WWW
- Document Management and Multimedia for KM
- Formal and informal knowledge in KM and CBR
- Knowledge sharing
- CBR research on lessons learned systems
- Viewing the maintenance of large case bases as a knowledge management problem
- Maintenance of case bases
- Verification and Validation of Knowledge Management Systems
- Critical surveys
- Comparison of approaches
- Discussions on the limitations of using CBR (KM) for KM (CBR) tasks

Format

We will focus on a group discussion concerning the synergistic uses of KM and CBR, organized by sub-topics in KM (e.g., specific knowledge capture and reuse tasks) and CBR (e.g., the task decomposition cycle, knowledge containers). This workshop will include invited talks by recognized researchers from both fields and presentations of accepted papers. Speakers will be asked to discuss experiences from using CBR (KM) for KM (CBR) tasks, to clarify KM tasks to the AI community, and to identify open problems and research needs. A panel session will address the advantages and problems posed by the integration of KM and CBR.

Attendance

Limited to 40 invitees.

Submissions

Please submit to munoz@cs.umd.edu either a short (max 4 pages) PostScript submission, formatted according to the standard AAAI double-column format, or a brief statement (maximum of two pages) of interest. Please include a brief list of keywords. Position and survey papers pertaining to this subject are particularly encouraged as well as promising preliminary research. Accepted submissions will be distributed and included in an AAAI Press technical report.

Committee

Robert J. Aarts, Nokia (robert.aarts@ntc.nokia.com); David W. Aha (cochair), NRL (aha@aic.nrl.navy.mil); Irma Becerra-Fernandez (cochair), FIU (becferi@fiu.edu); Harold Gubnitsky, Cambridge Technology Partners (HGubni@CTP.COM); Mark Jones, Andersen Consultants (mark.a.jones@ac.com); Frank Maurer (cochair), University of Calgary (maurer@cpsc.ucalgary.ca); Hector Munoz-Avila (cochair), University of Maryland (munoz@cs.umd.edu); Daniel O'Leary, USC (oleary@rcf.usc.edu); Hideo Shimazu, NEC (shimazu@joke.cl.nec.co.jp); Derek Sleeman, University of Aberdeen (sleeman@csd.abdn.ac.uk); Rudi Studer, University of Karlsruhe (studer@aifb.uni-karlsruhe.de); Wolfgang Wilke, tecInno (wilke@tecinno.com)

Intelligent Information Systems

Computer science has always been a rapidly evolving field. But over the past few years the pace of innovation has become almost unimaginable. We are in the midst of a radical change in the nature of computing. Computation for the sake of computation is no longer the driving force for new technology. The New Computer is primarily a tool for communication—communication of all kinds, and between all kinds of entities, but above all communication for information access.

Large-scale connectivity has given us access to more than we could have even imagined five years ago. Unfortunately, while the network infrastructure is thriving, the support for communication with information systems is not. On the web and intranets, casual users are still forced to deal with information systems that were designed for research specialists. What is needed now is a new model of communication and computing.

The central focus of this new model is Intelligent Information Systems—task-oriented systems that provide "just-in-time" access to relevant information before users even think to ask for it. These systems are the next step in the development of the New Computer. Their development will require interaction between work in artificial intelligence, databases, distributed systems, and multimedia-as well as providing a coherent basis for AI's growth into the future.

The workshop will focus on intelligent information systems—systems that are aimed at providing proactive, "just-in-time" information access for individuals engaged in tasks.

The key research themes in this area include:

- Task tracking and automatic query formulation
- Just-in-time information systems
- Information gathering and organization
- Recommender systems
- Personalization of information systems
- Content-addressable information routing
- Models of information exchange
- Categorization and clustering for information presentation
- Alternative interfaces to information systems
- Community building through information sharing
- Development of large-scale story bases

The workshop will include presentations by active researchers in these areas, system demonstrations, and a poster session for emerging work. Papers should be marked with the author's intent as to type of presentation (i.e., talk, demo, or poster).

Cochairs

Kristian J. Hammond, Larry Birnbaum
Intelligent Information Laboratory
Department of Computer Science
Northwestern University
1890 Maple Ave
Evanston, IL 60201

Committee

Henry Lieberman, MIT Media Lab; Kurt Fenstermacher, The University of Chicago; Ellen Spertus, Mills College; Robin Burke, University of California, Irvine

Intelligent Software Engineering

There is a growing realization that the design of effective software engineering tools must be smarter. Real world software specs can be very intricate. Manual browsing by a software engineer cannot reveal its subtleties. Automated tools are required to reflect over business knowledge to identify what is missing or could be effectively changed. At the same time, many AI researchers now realize that software engineering provides the best testbed for AI tools and techniques. For example:

During analysis:

- Knowledge acquisition methods are useful for requirements elicitation.
- Knowledge representation methods provide efficient means for expressing business knowledge.
- Formal reasoning with non-classical logics is being successfully applied for requirements engineering and evolution.

During design and coding:

- Knowledge base verification techniques can critique the structure of a knowledge base/specification.
- Classical theorem proving and related formal reasoning techniques are being widely applied in the context of formal specification languages, as well as in managing changing specifications for reuse-oriented software maintenance.
- Formal languages for planning in the AI context are being reincarnated as languages for software process modeling.
- Agent technology is being used to build intelligent assistants for designers and programmers.

During maintenance:

- Tools from AI can assist in maintaining declarative and procedural knowledge.
- AI techniques have been used for program comprehension and reverse engineering of legacy systems.

Submissions

Submissions should address software engineering applications of AI technologies. Of interest to the workshop are:

- Papers that present fundamental/theoretical advances.
- Papers that describe fielded applications.
- Papers that study the effectiveness of deployed solutions.

Attendance

Attendance will be limited to 40 participants. To be invited, please submit either a paper (of up to 5000 words) on the topic of the workshop or a brief statement (of up to two pages) of your interests in the topic and a list of your related publications. The preferred method for submitting a paper or statement is to e-mail an HTTP pointer to a PostScript file to Aditya Ghose. Alternately, send five copies of your paper or statement to Aditya Ghose.

Cohairs

Aditya Ghose
Decision Systems Lab
Department of Business Systems
University of Wollongong
NSW 2522 Australia
E-mail: aditya@uow.edu.au

Tim Menzies
NASA Software Independent Verification and Validation Facility/WVU
tim.menzies@ivv.nasa.gov

Ken Satoh
Hokkaido University
ksatoh@db-ei.eng.hokudai.ac.jp.

Committee

Steve Easterbrook, NASA Software IV&V Facility/WVU; Alex Quilici, University of Hawaii; Alessandra Russo, Imperial College, UK; Paul Sorenson, University of Alberta, Canada; Christopher Welty, Vassar College; Steven Woods, SEI, Carnegie Mellon University; Qiang Yang, Simon Fraser University, Canada.

Machine Learning for Information Extraction

The dramatic growth in the number and size of on-line textual information sources has fueled increasing research interest in the information extraction (IE) problem. Given a set of text documents from some domain, an IE system automatically populates a pre-defined database by extracting relevant fragments from the documents. Manually constructed IE systems cannot adapt to domain changes, and must be adapted for each new problem domain. In consequence, various machine learning (ML) techniques—symbolic learning, inductive logic programming, wrapper induction, statistical methods, and grammar induction—have recently been applied to the IE problem. This research has led to IE systems for several genres—newswire articles, medical texts, Web pages, and Usenet posts—that automatically learn to perform IE.

The purpose of this workshop is to provide a forum for exploring the commonality underlying this diversity of problem domains and approaches. The workshop has three goals:

1. To bring together communities of researchers that address the IE problem from different perspectives (e.g., the use of natural language processing for IE from grammatical text vs. extraction from semistructured documents in the context of the information integration problem);

2. To deepen the IE community's understanding of the state of the art; and

3. To identify remaining IE-related problems for which ML techniques might be appropriate.

Topics

Topics appropriate to this workshop include:

- Novel or improved ML techniques for IE;
- Novel types of IE domains;
- Extraction from structured and semi-structured documents;
- Effective use of features such as linguistic structure, mark-up, and document formatting; and
- Metrics and benchmarks for evaluating IE systems.

Format

In the interest of promoting as much discussion as possible, the number of paper presentations will be limited in favor of panels, invited talks, and posters.

Attendance is limited to 40 participants. To be invited, please submit either a short paper (up to 6 pages) or a research statement (up to two pages, including related publications). In addition to traditional research papers, we encourage the submission of both position papers and survey papers.

Submissions

Papers may be submitted by emailing the URL of a PostScript version to mecalif@ilstu.edu. If this is not possible, please contact mecalif@ilstu.edu.

Committee

Mary Elaine Califf (chair), Illinois State University (mecalif@ilstu.edu); Dayne Freitag, Carnegie Mellon University (dayne@cs.cmu.edu); Nicholas Kushmerick, University College Dublin (nick@ucd.ie); Ion Muslea, Information Sciences Institute (USC) (muslea@isi.edu)

Additional Information

http://www.isi.edu/~muslea/RISE/ML4IE

Mixed-Initiative Intelligence

Mixed-initiative intelligence represents an amalgam of human and machine cognition that together produces intelligent behavior. Mixed-initiative systems integrate human and automated reasoning to take advantage of their respective reasoning styles and computational strengths. The benefit is the potential to combine the resources available to both; the challenge is to manage the interaction and responsibilities encountered in joint decision-making.

Various flavors of mixed-initiative computing share many human-computer interaction issues because they must address the complexity of communication between human and machine. However, mixed-initiative computing transcends the fundamental concerns of other areas because the design of such systems implies problems of heterogeneous decision-making. The issues therefore include the division of processing and knowledge access, the coordination of natural-language dialogue among agents (both human and machine), and the shift of initiative and control during problem-solving and planning.

The workshop goal is to examine mixed-initiative computing from a wide perspective. The workshop will host people from diverse backgrounds who have looked at key issues in mixed-initiative systems in order to search for intersections under a common theme. We will have a number thematically organized discussion and/or panel sessions, a break-out problem-solving (human only) session with discussion, and an invited speaker (Paul Cohen).

Topics

- Mixed-initiative intelligence as a cognitive model
- Mixed-initiative dialogue and narrative
- Mixed-initiative agent-based planning models
- Mixed-initiative teaching and learning systems
- Mixed-initiative information access systems
- Engineering applications of mixed-initiative planning
- Emergent behavior in mixed-initiative systems
- Interpretations of initiative and collaboration

Attendance

Maximum 65. Invitations based upon a short paper submission on topics suited to mixed-initiative intelligence.

Submissions

3 hard copies (< 10 pp.) to committee chair or 1 copy PostScript/PDF by e-mail.

Michael T. Cox (Chair)
Department Computer Science
and Engineering
Wright State University
Dayton, OH 45435-0001
E-mail: mcox@cs.wright.edu

Committee

Robin Burke, University of California, Irvine (burke@agents.ics.uci.edu); George Ferguson, University of Rochester (ferguson@cs.rochester.edu); Susan McRoy, University of Wisconsin-Milwaukee (mcroy@cs.uwm.edu); S. Narayanan, Wright State University (snarayan@cs.wright.edu); Robert St. Amant, North Carolina State University (stamant@csc.ncsu.edu)

Negotiation: Settling Conflicts and Identifying Opportunities

Agents interact with other agents in their environment in a variety of circumstances. Multiple agents in such shared environments have to trade off goals with others because of resource constraints and goal conflicts. On the other hand, agents can engage in fruitful dialogue by which they can unearth new possibilities and form new productive partnerships. Negotiation is a process by which agents interactively settle on mutually agreeable behaviors to serve common purpose.

Agents negotiate under a variety of information, time, and computational restrictions. A key research issue in agents and multiagent research is to develop negotiation procedures by which agents can efficiently and effectively negotiate solutions. Effectiveness requires that the outcome is fair, acceptable, or desirable to the parties involved in the negotiation process. Efficiency requires that the procedure is not excessively time-consuming or computing-intensive.

Topics

We welcome the submission discussing the following and related topics:

- Negotiation framework, languages, and protocols
- Characterizing negotiation schemes in terms of modeling power, communication abilities, knowledge requirement, processing abilities of agents
- Negotiating to form, maintain, and reorganize teams or coalitions
- Negotiation roles of agents; agents that facilitate the negotiation process
- Negotiation in open markets and auctions
- Specific applications demonstrating agents negotiating in real environments
- Learning to negotiate

Format

The workshop will contain paper sessions on common themes with panels at the end to compare/contrast the presentations. We also plan to host an invited speaker.

Attendance

Participation will be by invitation only (limited to 40 people).

Submissions

E-mail a PostScript copy of one of the following to the workshop chair:

- Brief statement of interest (1 page),
- Complete paper (6 pages maximum) including keywords, authors' complete address.

Chair

Sandip Sen
Department of Mathematical
& Computer Sciences
University of Tulsa
600 South College Avenue
Tulsa, OK 74104-3189
Telephone: 918-631-2985
Fax: 918-631-3077
E-mail: sandip@kolkata.mcs.utulsa.edu

Committee

Sandip Sen (Chair), University of Tulsa (sandip@kolkata.mcs.utulsa.edu); Carl Hewitt, MIT (hewitt@world.std.com); Michael Huhns, University of South Carolina (huhns@sc.edu); Nick Jennings, Queen Mary & Westfield College, UK (n.r.jennings@qmw.ac.uk); Sarit Kraus, Bar Ilan University, Israel (sarit@cs.umd.edu); Victor Lesser, University of Massachusetts (lesser@cs.umass.edu); Jeff Rosenschein, Hebrew University, Israel (jeff@cs.huji.ac.il); Tuomas Sandholm, Washington University (sandholm@cs.wustl.edu); Munindar Singh, North Carolina State University (singh@ncsu.edu); Jose Vidal, University of South Carolina (vidal@sc.edu)

Additional Information

http://www.mcs.utulsa.edu/~sandip/wshop/aaai99

Ontology Management

The last few years have seen a growing interest in the design, use, and sharing of ontologies. Early work and workshops in this area have focused on formal foundations, content, and engineering aspects. This workshop focus on issues relating to managing ontologies and ontological content. These issues become increasingly important as the size of ontologies and repositories grows, and as ontologies are incorporated into practice.

Topics

- Medicine
- Natural language
- Materials science and engineering
- Enterprise modeling (including process, product, and organization modeling)
- Manufacturing, engineering, and industrial processes
- Financial/economical modeling
- Crisis management
- Defense applications

Goals

- *Methodology*. What methodologies lead to successful ontology construction, use and maintenance?
- *Reuse*. How can we incorporate existing ontologies into new ones? How can we make use of sources with ontological content (e.g., thesauri, data models, data dictionaries)?
- *Speed*. How can we increase the speed of ontology development? What is a suitable labor mix in a large ontology development project? What tools enable non-KR experts to contribute?
- *Modularity*. How can ontologies be decomposed into or composed from modules?
- *Integration*. How can ontologies be integrated with existing technologies, such as database systems or object-oriented programming languages?
- *Reformulation*. How can ontologies be reformulated to support the needs of legacy and new applications?
- *Evaluation*. How can ontologies, ontology tools, and methodologies be evaluated?
- *Standardization*. Should ontologies be standardized? What is their relation to existing standards? What are the relative benefits of content, syntax, semantic standardization?

Format

The workshop format will be a mix of paper presentations, invited talks, panel discussions, and plenary sessions.

Attendance

Attendance will be limited to between 25-50 active participants.

Submissions

Potential presenters should submit three hard copies of a paper to the address below. Please follow the AAAI guidelines for length and format. Selection of papers will be mainly based on relevance, clarity, and significance. Accepted submissions will be distributed and included in an AAAI Press technical report.

Cochair

Adam Farquhar
Schlumberger
8311 North FM620
Austin, TX 78726, USA
Telephone: 001-512-331-3612
Fax: 001-512-331-3760
E-mail: afarquhar@slb.com

Committee

Adam Farquhar (cochair), Schlumberger; Kilian Stoffel (cochair), University of Neuchtel; Vinay Chaudhri, SRI International; Michael Gruninger, University of Toronto

Additional Information

http://www.seco.unine.ch/info/conferences/aaai99/

Reasoning in Context for AI Applications

AI applications must take context into account in order to behave appropriately. To do this, context and contextual knowledge should be represented explicitly. The goal of this workshop is to focus on the role of explicit representation of context in AI applications. This focus will allow participants to explore how theoretical results about reasoning in context can be used for specific applications and how the use of context in a particular application might be generalized to help others.

Topics

- What are appropriate representations of context for AI applications?
- How can contextual information be used in AI programs?
- How does the application and domain affect the representation of context?
- How can existing applications be extended to explicitly represent context?
- How can contextual information be learned and updated by AI programs from their experience?

Format

The workshop will consist of both paper presentations and discussion/panel sessions. A discussion session at the end of the workshop will summarize what has been learned from the workshop and to identify future directions for discussion.

Attendance

The workshop will be limited to 40 attendees.

Submissions

Potential attendees should submit a position statement (no more than 5 pages in length, use AAAI format) describing their contribution to the topic. Potential attendees are encouraged to contact the organizers to participate in a preliminary e-mail discussion of the topic.

The preferred method of submission is by electronic mail, in PostScript or PDF form, to context-workshop@cdps.umcs.maine.edu. If this is not possible, send 3 hardcopies to the workshop chair.

Chair

Patrick Brezillon
LIP6, Box 169
University Paris VI
4 Place Jussieu, 75252 PARIS Cedex 05
France
Telephone: +33 1 44 27 70 08
Fax: +33 1 44 27 70 00

Committee

Patrick Brezillon, University of Paris VI, France (Patrick.Brezillon@lip6.fr); Roy Turner, University of Maine, USA (rmt@umcs.maine.edu); Jean-Charles Pomerol (cochair), University of Paris VI, France (Jean-Charles.Pomerol@lip6.fr); Elise Turner, University of Maine, USA (eht@umcs. maine.edu); and a review committee of fourteen others (listed on the workshop home page).

Additional Information

http://cdps.umcs.maine.edu/Context/AAAI99-Workshop

Spatial and Temporal Reasoning for Collaborating Mobile Agents

A team of industrial robots work on an automobile frame without interfering with one another. A thousand web-crawling knowbots search the web for information on typhoid outbreaks and compile the results into a single document. These are only two of the many scenarios of collaboration and goal seeking among multiple mobile agents which are possible today, but they raise many interesting research questions that are the subject of the Workshop on Spatial and Temporal Reasoning for Collaborating Mobile Agents. AAAI and the organizers solicit participation in this workshop.

This workshop will use the important application of collaborating mobile agents as a focal point for the discussion of spatial and temporal reasoning and representation issues.

Topics

- Coordinated planning and scheduling
- Synchronization
- Maintaining shared spatio-temporal data about changing environment
- Path finding
- Motion control
- Natural language commands
- Problems of reaching agreement and freshness of data
- Coordinated strategies

Format

The program will include a number of presentations by the invitees representing several different aspects of mobile agent interactions followed by breaking up into a few subgroups, each with a different subtheme. Sample problems in the domain of mobile agents include:

- Given a goal and a measure of accomplishment, construct plans that coordinate agents' efforts and converge on goal.
- Use of spatio-temporal methods for generation and testing of plans and schedules.
- Maintain common spatio-temporal database with data recorded with attached belief level and the ID of agent contributing the data.
- Tractability of any of the associated problems.
- Interaction of spatio-temporal knowledge representations used for representing and reasoning about different aspects of the same mobile-agent system.

Attendance

Around 40 participants will be selected to attend the workshop. Accepted papers will be included in the workshop working notes to be distributed by AAAI.

Submissions

Electronic submissions are solicited in Tex, LaTeX, or PostScript format. Selection of participants will be based on relevance to the indicated focus of the workshop, clarity of the work submitted, and the strength of the research. Send submissions to Hans W. Guesgen.

Cochairs

Frank D. Anger, University of W. Florida (fanger@nsf.gov); Gerard Ligozat, Paris-Sud University (ligozat@limsi.fr)

Hans W. Guesgen
Computer Science Department
University of Auckland
Auckland, New Zealand
Telephone: (+64) (9) 373-7599
Fax: (+64) (9) 373-7453
E-mail: hans@cs.auckland.ac.nz

Additional Information

http://www.cs.auckland.ac.nz/~hans/spacetime/