

KI 2008 – 31st Annual German Conference on Artificial Intelligence

Kaiserslautern, Germany, September 23–26

Andreas Dengel

The 31st German Conference on Artificial Intelligence will be held in Kaiserslautern on September 23–26, 2008. The conference aims to provide a forum for both researchers and practitioners, offering a technical program of carefully reviewed original research and application papers. The conference will be colocated with the MATES 2008 conference. All talks and papers will be presented in English.

The University of Kaiserslautern and the German Research Center for Artificial Intelligence (DFKI) are proud to host the KI conference in 2008. 20 years ago, the University's strong focus on artificial Intelligence (AI) was the decisive factor for the then founded DFKI to be located in the city. Since that time Kaiserslautern has become a hot spot for computer science and AI in particular. The Fraunhofer Institutes for Experimental Software Engineering and Industrial Mathematics have been built in 1996 and 2000, and in 2009 the Max-Planck-Institute for Software Systems will augment the „Science Boulevard“ along Trippstadter Straße, providing a unique ensemble of internationally renowned research facilities, covering the whole innovation cycle from basic research to application oriented development.

The KI 2008 technical program comprises three invited talks, technical poster and paper presentations, two tutorials

and seven workshops, covering the whole field of AI, including its foundations, its history and its applications. The best paper, as selected by the program committee, will be awarded the Springer Best Paper Award. It will be presented, together with two other papers from the best paper shortlist, in a single-track session on Thursday, September 25. The technical program will take place at the University while workshops and tutorials will prospectively be held within walking distance at the new DFKI building.

We are looking forward to welcoming you in Kaiserslautern, to join and enjoy the KI 2008 conference, and to celebrate with us the 20th anniversary of DFKI during the conference dinner on Thursday, September 25. This dinner will take place at Fruchthalle, a historic site right in the heart of Kaiserslautern. For further information please consult the conference website at <http://ki2008.dfki.uni-kl.de/>.

The Conference Program at a Glance

KI 2008 Full Program (tentative, please consult the website for possible changes)					
	Monday, 22.	Tuesday, 23.	Wednesday, 24.	Thursday, 25.	Friday, 26.
08:00					
08:30		Registration DFKI	Registration TU	Registration TU	Registration TU
09:00		Workshops / Tutorials	Invited Talk Yuzuru Tanaka	Technical Talks	Invited Talk Randy Goebel
09:30		Coffee	Coffee	Coffee	Coffee
10:00		Workshops / Tutorials	Technical Talks	Technical Talks	Technical Talks
10:30					
11:00					
11:30					
12:00		Lunch	Lunch	Lunch	Lunch
12:30					
13:00		Workshops / Tutorials	Industrial Session	Invited Talk Michael Wooldridge	Technical Talks
13:30			Coffee	Coffee	
14:00		Coffee			Coffee / Farewell
14:30		Workshops / Tutorials	Poster and Demo Session	Best Papers	
15:00					
15:30					
16:00					
16:30				Bustransfer:	
17:00				TU - Hotels/Fruchthalle	
17:30					
18:00	DFKI	Reception TU	GI Fachgruppe Kognition	Conference Dinner / DFKI's 20 th Anniversary	
18:30	Registration, informal get together				
19:00					
19:30					
20:00				Fruchthalle	

KI 2008 Organization

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KI 2008 Exhibit

We invite non-commercial research institutes and universities to participate in the KI 2008 Exhibit and to display selected demonstrations in the foyer of the conference venue during the conference at no cost. For further information please contact Karsten Berns at berns@informatik.uni-kl.de.

Commercial exhibitors may consider to subscribe as official KI 2008 sponsor and inquire for available sponsoring packages. For further information please contact Stefan Zinsmeister at stefan.zinsmeister@dfki.uni-kl.de

<http://ki2008.dfki.uni-kl.de>

Invited Talks at KI 2008

Meme Media and Knowledge Federation

Yuzuru Tanaka,
Hokkaido University, Japan

With the growing need for interdisciplinary and international availability, distribution and exchange of intellectual resources including information, knowledge, ideas, pieces of work, and tools in reeditable and redistributable organic forms, we need new media technologies that externalize scientific, technological, and/or cultural knowledge fragments in an organic way, and promote their advanced use, international distribution, reuse, and reediting. Although WWW and browsers enabled us to publish and to browse intellectual resources, they do not enable people to reedit and redistribute intellectual resources. We need new media technologies that externalize scientific, technological, and/or cultural knowledge fragments in an organic way, and promote their advanced use, international distribution, reuse, and re-editing. These media can carry a variety of intellectual resources. A media object denotes such a medium with a content intellectual resource. Such media objects can replicate themselves, recombine themselves, and be naturally selected by people reusing them. We call such media 'meme media' since they carry what Richard Dawkins called 'memes'. The Web works not only as an open publishing repository of documents, but also as an open repository of services represented as Web applications and/or Web services. Pervasive computing denotes an open system of computing resources in which users can dynamically select and interoperate some of these computing resources to perform their jobs satisfying their dynamically changing demands. Such computing resources include not only services on the Web, but also embedded and/or mobile computing resources connected to the Internet through wireless communication. In pervasive computing, the ad hoc definition and/or execution of interoperation among computing resources is called federation. While the integration denotes interoperation among computing resources with standard interoperation interfaces, federation denotes interoperation among computing resources without a priori designed interoperation interfaces. We define knowledge federation as federation of computing resources published in the form of documents. Federation over the Web is attracting the attention for inter-

disciplinary and international advanced reuse and interoperation of heterogeneous intellectual resources especially in scientific simulations, digital libraries, and research activities. It may be classified into two types: federation defined by programs and federation by users. Most studies on federation focused on the former type. Their approach is based on both the proposal of a standard communication protocol with a language to use it and a repository with a matching mechanism between service providing programs and service consuming programs. Federation of this type over the Web uses Web service technologies. The second approach tries to federate arbitrarily selected Web applications with each other in an ad hoc manner by extracting arbitrary input forms and output contents from these Web pages, and by defining interoperation among them only through direct manipulation. The latter approach requires knowledge federation technology. This talk reviews the speaker's 15 year research on meme media and their application frameworks as well as his 6 year research on their application to knowledge federation of resources over the Web, and then shows some recent applications of these technologies.

Yuzuru Tanaka is a professor at the Department of Computer Science, Graduate School of Information Science and Technology, Hokkaido University, and the director of Meme Media Laboratory, Hokkaido University. He is also a professor of National Institute of Informatics. His research areas covered multiprocessor architectures, database schema-design theory, hardware algorithms for searching and sorting, multiport memory architectures, database machine architectures, full text search of document image files, and automatic cut detection in movies and full video search. His current research areas cover meme media architectures, knowledge federation frameworks, and their application to e-Science based on meme media application frameworks such as database and Web visualization frameworks and virtual experiment environment frameworks. He worked as a board member of Japanese Society for Artificial Intelligence (1991-1994), a councilor of Japanese Society for Artificial Intelligence (1995-), a board member of Information Processing Society of Japan (1995-1996, 1999-2000), an associate member of Japanese Academy of Science (2006-), and an advisory board member of NTT Research Laboratory (2004-). He is currently involved in EU's Integrated Project ACGT (Advancing Clinico-Genomic Trials on Cancer).

Logic for Automated Mechanism Design and Analysis

Michael Wooldridge,
University of Liverpool, UK

Recent years have witnessed an explosion of interest in the issues surrounding the use of social choice mechanisms and economic resource allocation mechanisms in settings where the participants are computer programs. Algorithmic mechanism design, and the recent emergence of computational social choice theory are two examples of this growth of interest. If we take seriously the idea that computational agents will participate in economically inspired mechanisms, then it is natural to consider the questions of knowledge representation and reasoning for them. In this talk, we describe our work in this area, particularly as it relates to the specification and verification of social choice mechanisms, and coordination mechanisms such as social laws. We motivate and introduce the main research issues in the area, discussing, for example, the succinct representation of social choice rules, the complexity of reasoning with such representations, and the handling of preferences. We conclude by showing discussing the relationship of our work to mechanism design as it is understood in economics. The talk will report joint work with Thomas Ågotnes (Bergen), Wiebe van der Hoek (Liverpool), Marc Pauly (Stanford), and Paul E. Dunne (Liverpool).

Michael Wooldridge is a Professor in the Department of Computer Science at the University of Liverpool, UK. He has been active in multi-agent systems research since 1989, and has published over two hundred articles in the area. His main interests are in the use of formal methods for reasoning about autonomous agents and multi-agent systems. Wooldridge was the recipient of the ACM Autonomous Agents Research Award in 2006. He is co-editor in chief of the journal "Autonomous Agents and Multi-Agent Systems"; and his introductory textbook "An Introduction to Multiagent Systems" was published by Wiley in 2002.

Folk Reducibility and AI-complete Problems

Randy Goebel,
University of Alberta, Canada

The idea of an "AI-complete" problem has been around since at least the late 1970s, and refers to the more formal idea of the technique used to confirm the computational complexity of NP-complete problems. In the more formal context, the technique of reducibility was used to transform one problem into another that had already been proved to be NP-complete. Our presentation takes a closer look at what we call "Folk Reducibility," as an approximation to reducibility, in order to try and improve coherence regarding what constitutes tough AI problems. We argue that the traditional AI-complete problems like "the vision problem" and "the natural language problem" are too vague. We provide examples of more precisely specified problems, and argue that relationships amongst them provide a little more insight regarding where and how valuable problem relationships might emerge.

Randy is currently President and CEO of ICORE, professor of Computing Science at the University of Alberta, and principle investigator in the Alberta Ingenuity Centre for Machine Learning. Randy's current interests include applications of machine learning to systems biology, visualization and web mining, as well as work on natural language processing, web semantics, and belief revision. Randy has experience working on industrial research projects in crew scheduling, pipeline scheduling, and steel mill scheduling, as well as scheduling and optimization projects for the energy industry in Alberta. Randy has held appointments at the University of Waterloo, University of Tokyo, Multimedia University (Malaysia), and has had research collaborations with DFKI (German Centre for AI Research), NICTA (National ICT Australia), RWC (Real World Computing project, Japan), ICOT (Institute for New Generation Computing, Japan), NII (National Informatics Institute, Tokyo), and is actively involved in academic and industrial collaborative research projects in Canada, Australia, Europe, China and Malaysia.

KI 2008 – Technical Program

Out of 77 submitted papers 15 have been accepted for oral presentation (20 %). In addition to these presentations KI 2008 will include a poster and a demo session. The posters and demos were chosen from submitted papers.

Accepted Papers

(oral and poster presentations)

- *Navigator - Similarity Based Browsing for Image & Video Databases*
Damian Borth, Christian Schulze, Adrian Ulges and Thomas Breuel
- *Automating Interactive Protocol Verification*
Lassaad Cheikhrouhou, Andreas Nonnengart, Werner Stephan, Frank Koob and Georg Rock
- *Limits and Possibilities of BDDs in State Space Search*
Stefan Edelkamp and Peter Kissmann
- *Interactive Dynamic Information Extraction*
Kathrin Eichler, Holmer Hensen, Markus Löckelt, Günter Neumann and Norbert Reithinger
- *Fusing DL Reasoning with HTN Planning*
Ronny Hartanto and Joachim Hertzberg
- *Multi-Value Classification of Very Short Texts*
Andreas Hess, Philipp Dopichaj and Christian Maass
- *Analysis and Evaluation of Inductive Programming Systems in a Higher-Order Framework*
Martin Hofmann, Emanuel Kitzelmann and Ute Schmid
- *High-Level Expectations for Low-Level Image Processing*
Lothar Hotz, Bernd Neumann and Kasim Terzic
- *Automatic Bidding for the Game of Skat*
Thomas Keller and Sebastian Kupferschmid
- *Automobile Driving Behavior Recognition Using Boosting Sequential Labeling Method for Adaptive Driver Assistance Systems*
Wathanyoo Khaisongkram, Pongsathorn Raksincharoensak, Masamichi Shimosaka, Taketoshi Mori, Tomomasa Sato and Masao Nagai
- *Identifying and Analysing Germany's Top Blogs*
Darko Obradovic and Stephan Baumann
- *Planar Features for Visual SLAM*
Tobias Pietzsch
- *Extracting and Querying Relations in Scientific Papers*
Ulrich Schäfer, Hans Uszkoreit, Christian Federmann, Torsten Marek and Yajing Zhang
- *Efficient Hierarchical Reasoning about Functions over Numerical Domains*
Viorica Sofronie-Stokkermans
- *A Drum Machine that Learns to Groove*
Axel Tidemann and Yiannis Demiris
- *Believing Finite-State Cascades in Knowledge-Based Information Extraction*
Benjamin Adrian and Andreas Dengel
- *A Methodological Approach for the Effective Modeling of Bayesian Networks*
Martin Atzmüller and Florian Lemmerich
- *Plan Repair in Hybrid Planning*
Julien Bidot, Susanne Biundo and Bernd Schattenberg
- *Visual Terrain Traversability Estimation using a Combined Slope/Elevation Model*
Tim Braun, Henning Bitsch and Karsten Berns
- *Iterative Search for Similar Documents on Mobile Devices*
Kristof Csorba and Istvan Vajk
- *Partial Symbolic Pattern Databases for Optimal Sequential Planning*
Stefan Edelkamp and Peter Kissmann
- *Symbolic Classification of General Two-Player Games*
Stefan Edelkamp and Peter Kissmann
- *Optimal Scheduling with Resources for Application Execution in 3G Networks*
Roman Englert
- *Evolutionary Self-Organization of Smart-Appliances Ensembles*
Stefan Goldmann and Ralf Salomon
- *On-line Detection of Rule Violations in Table Soccer*
Armin Hornung and Dapeng Zhang
- *Extracting and Verifying Hyponymy Relations Based on Multiple Patterns and Features*
Lei Liu, Sen Zhang, Luhong Diao, Shuying Yan and Cungen Cao
- *News Annotations for Navigation By Semantic Similarity*
Walter Kasper, Jörg Steffen and Yajing Zhang
- *EANT+KALMAN: An Efficient Reinforcement Learning Method for Continuous State Partially Observable Domains*
Yohannes Kassahun, Jose de Gea Fernandez, Jan Hendrik Metzen, Mark Edgington and Frank Kirchner
- *Where Temporal Description Logics Fail: Representing Temporally-Changing Relationships*
Hans-Ulrich Krieger
- *Interpreting Motion Expressions in Route Instructions Using Two Projection-Based Spatial Models*
Yohei Kurata and Hui Shi
- *Repairing Decision-theoretic Policies Using Goal-oriented Planning*
Christoph Mies, Alexander Ferrein and Gerhard Lakemeyer
- *A Recognition Interface for Bridging the Semantic Desktop and the Physical World*
Hiroshi Miyake, Koichi Kise and Andreas Dengel
- *Learning by Observing: Case-Based Decision Making in Complex Strategy Games*
Darko Obradovic and Armin Stahl
- *Toward Alignment With a Virtual Human - Achieving Joint Attention*
Nadine Pfeiffer-Lessmann and Ipke Wachsmuth
- *Concerning Olga, the Beautiful Little Street Dancer - Adjectives as Higher-Order Polymorphic Functions*
Walid Saba
- *FACT-Graph: Trend Visualization by Frequency and Co-occurrence*
Ryosuke Saga, Masahiro Terachi, Zhongqi Sheng and Hiroshi TSUJI
- *Shallow Models for Non-Iterative Modal Logics*
Lutz Schröder and Dirk Pattinson
- *Enhancing Animated Agents in an Instrumented Poker Game*
Marc Schroeder and Patrick Gebhard

- *Homography based state estimation for aerial robots*
Jakob Schwendner
- *A Symbolic Pattern Classifier for Interval Data Based on Binary Probit Analysis*
Renata Souza, Francisco Cysneiros, Diego Queiroz and Roberta Fagundes
- *Object Configuration Reconstruction from Incomplete Binary Object Relation Descriptions*
H. Joe Steinhauer
- *Visual-Based Emotion Detection for Natural Man-Machine Interaction*
Samuel Strupp, Norbert Schmitz and Karsten Berns
- *Simplest Scenario for Mutual Nested Modeling in Human-Machine-Interaction*
Rustam Tagiew
- *Bayesian Network for Future Home Energy Consumption*
Atsushi Takahashi, Shingo Aoki, Hiroshi Tsuji and Shuki Inoue
- *Learning Dance Movements by Imitation: A Multiple Model Approach*
Axel Tidemann and Pinar Öztürk


Demos

- *Ontology-Based Information Extraction for Business Intelligence Applications*
Thierry Declerck
- *An Integrated Development Environment for Speech-Based Classification*
Michael Feld
- *A Scalable Architecture for Cross-Modal Semantic Annotation and Retrieval*
Manuel Möller and Michael Sintek
- *Prototype Prolog API for Mindstorms NXT*
Grzegorz Nalepa
- *VARDA Rule Design and Visualization Tool-Chain*
Grzegorz Nalepa and Igor Wojnicki
- *COSAIR: A Platform for AI Education and Research in Computer Strategy Games*
Darko Obradovic

KI 2008

Kaiserslautern, Germany – September 23 - 26, 2008
31ST Annual German Conference on Artificial Intelligence

<http://ki2008.dfki.uni-kl.de>



KI 2008 is the 31st edition of the German Conference on Artificial Intelligence, which traditionally brings together academic and industrial researchers from all areas of AI. The technical programme of KI 2008 will comprise paper and poster presentations and a variety of workshops and tutorials. It will be highlighted by a number of invited talks from different research areas.

Important Dates

Workshop Proposals:	January 25, 2008
Tutorial Proposals:	March 28, 2008
Paper Submission Deadline:	March 28, 2008
Notification:	May 30, 2008
Camera Ready:	July 2, 2008
Early Registration Deadline:	July 18, 2008

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Andreas Dengel (DFKI and Univ. of Kaiserslautern)


Programme Chairs
Karsten Berns (Univ. of Kaiserslautern)
Thomas Breuel (DFKI and Univ. of Kaiserslautern)

Workshops
Thomas Roth-Berghofer (DFKI)


Tutorials
Frank Bomarius (Fraunhofer IESE and Univ. of Applied Sciences Kaiserslautern)

Local Arrangements
Stefan Zinsmeister (DFKI)


Co-located with MATES 2008 – <http://www.wi2.uni-trier.de/mates08>




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KI 2008 – Tutorials

Frank Bomarius

During the 31st German Conference on Artificial Intelligence (KI 2008) in Kaiserslautern from 23-26 September 2008 the tutorials T1 and T2 will be held on Tuesday, 23 September.

Tutorial 1: An introduction to the design and study of self-assembling systems

Roderich Groß, PhD
Marie Curie Research Fellow
Ecole Polytechnique Fédérale de Lausanne (EPFL)
Laboratoire de Systèmes Robotiques (LSRO)

Intended length: Half-day
Language: English

Self-assembly is a process by which pre-existing components organize into patterns or structures without human intervention. It can involve components at all scales, for example, molecules, cells, organisms, and weather systems. Self-assembly processes comprise one of four groups of processes responsible for the generation of biological form. The intelligence of self-assembly processes is coded in the logic of the underlying components (e.g., by selective binding preferences). In biological systems, the components' logic is shaped by natural evolution and thereby the overall system can attain desired properties and functions. The design and study of self-assembling systems offers great prospects for enhancing our understanding of natural systems as well as for advancing the intelligence and adaptivity of technological systems. Ultimately, a self-assembling system could form entities of arbitrary size, appearance, structure, and function. For many years research focused on systems at the molecular scale. Research on macroscopic systems (ranging from passively moving mechanical parts to autonomous robots) is now becoming a major trend in a variety of science areas (e.g. biology, computer science, and engineering). It is this latter class of systems that the tutorial addresses. Currently, this subject is neither covered by a text book nor by traditional lectures at university.

The tutorial is intended to provide support to scientists and practitioners wishing to enter this fascinating area. It introduces the general concepts and principles that underlie self-assembling systems. A selection of examples provide in-depth practical knowledge on the design of self-assembling systems (i) to model and analyze a natural phenomenon, or (ii) to address a technological challenge.

Tutorial 2: Reasoning in complex theories and applications

Dr. Viorica Sofronie-Stokkermans
Max-Planck-Institut für Informatik
Saarbrücken, Germany

Intended length: Half-day
Language: English

One of the most important objectives of the research in mathematics and computer science is to obtain means of reasoning in and about complex systems. These can be, for instance complex mathematical theories; programs, or generally reactive or hybrid systems; distributed databases; or complex systems in general (e.g. multi-agent systems or reactive or hybrid systems with embedded software, whose behavior is controlled by databases, reasoning about knowledge and belief, planning mechanisms, or programs). Proving that such systems have certain properties (e.g. that they are safe, that they behave correctly, or that the information they use does not contain inconsistencies) is extremely important:

In safety-critical systems (such as cars, trains, planes, or power-plants) even small mistakes can provoke disasters. Since the amount of data which has to be handled in verification tasks is usually huge, computer support is indispensable. The dream of the scientists is to provide such correctness proofs automatically. This goal cannot be reached in its full generality: As shown by undecidability results going back to the work of Gödel, Church and Turing, it is impossible to write a program for checking arbitrary properties of general systems. However, for concrete application domains, automatic procedures exist.

It is therefore very important to identify situations in which automated verification of complex systems is possible. For this, it is essential to identify theories which are decidable, preferably with low complexity, and - since concrete problems often are quite heterogeneous in nature - to obtain methods for efficiently combining decision procedures.

The goal of the tutorial is to give a comprehensive, in-depth perspective of recent advances in the field of reasoning in complex logical theories, and to present applications of these results in various areas ranging from formal verification to reasoning about knowledge. The tutorial introduces the general principles underlying reasoning in complex theories from a unifying perspective, gives a survey of recent achievements in the field, and illustrates the problems and their solutions using a selection of examples from mathematics, verification, and knowledge representation.

KI 2008 – Workshops

Thomas Roth-Berghofer

Workshops at a Glance

- WS 1: Agent-based Simulation – From Cognitive Modelling to Engineering Practice
- WS 2: 2nd Workshop on Behaviour Monitoring and Interpretation (BMI'08)
- WS 3: 3rd Workshop on Emotion and Computing – Current Research and Future Impact
- WS 4: 4th Workshop on Knowledge Engineering and Software Engineering (KESE 2008)
- WS 5: Ontology-based Information extraction (OBIES 2008)
- WS 6: 22. Workshop Planen, Scheduling und Konfigurieren, Entwerfen (PuK 2008)
- WS 7: Ambient Intelligence

During the 31st German Conference on Artificial Intelligence (KI 2008) in Kaiserslautern from 23–26 September 2008 workshops W1–W7 will be held on Tuesday, 23 September.

WS 1: Agent-based Simulation – From Cognitive Modelling to Engineering Practice

- **Organisers:** Franziska Klügl, Sabine Timpf, Ute Schmid
- **Website:** <http://ki.informatik.uni-wuerzburg.de/events/cog.abs/>

Constructing and executing an agent-based model provides many advantages in comparison to traditional simulation approaches. Increased degrees of freedom in model design, possibilities of modelling behaviour in restricted, heterogeneous geographical and temporal context, etc. are only partial aspects of its great potential. Thus with agent-based simulation, means are available to actually test cognitive models of human decision making in an adequately rich, simulated environment. These efforts may finally result in detailed cognitive models that are grounded in reproducible, practical experience, in addition to abstract hypotheses and theories of cognition.

On the other side, in the agent-based simulation community the need for well-defined and reliable cognitive models is growing as complex human behaviour has to be reproduced in real-world applications. Abstract models based on rational optimisation, and/or game-theoretic models are not suf-

ficient any more, if complex decision making in urban space has to be modelled for enhanced pedestrian simulations, or if complex dynamics of team work are to be reproduced.

This workshop aims at bringing these two communities together, demonstrating the current state of art in both research directions. We intend to discuss questions such as

- Why does cognitive science need good engineering practice in agent-based simulation?
- Why do real-world applications of agent-based models really need complex agent models?
- How to solve the problem of missing adequate data for empirical validation of such complex agent models?
- How to determine whether a model is cognitively adequate or even “valid”?
- Can agent-based simulations offer a viable path from single-agent cognitive models to multi-agent cognitive models?

We therefore especially invite position papers on the above mentioned questions for discussion at the workshop. We plan to allow for time slots of at least 30 min per presentation to encourage discussion. As a contribution to the state of the art, we welcome papers describing completed research, work in progress reports as well as problem descriptions with respect to the following topics.

- Examples of agent-based models of human behaviour in need of cognitive models
- Examples for cognitive theories that might be testable or usable for agent-based simulations
- Validation and evaluation issues in cognitive modelling and agent-based simulation
- Implementation issues
- Methodological aspects of cognitive modelling and agent-based simulation
- Models of human perception, reasoning and action
- Specific areas of application such as strategies of spatial orientation and navigation

Keynote talk: Harald Schaub (IABG mbh)

WS 2: 2nd Workshop on Behaviour Monitoring and Interpretation (BMI'08)

- **Organizers:** Björn Gottfried, Hamid Aghajan
- **Website:** <http://www.tzi.de/~bjoerng/BMI-08>

General BMI session

Monitoring what goes on in the environment, what people do and how they interact with their surroundings is of interest in several areas, such as in ambient intelligence, healthcare

applications, or mobile services. This workshop focuses on methods analysing and interpreting the behaviour of single people, or of small groups of people. This is for the purpose of intention recognition, the triggering of smart home environments, or generally for the investigation of how humans and animals deal with specific problems or how they do specific things.

While much effort is spent on how to obtain information about the behaviour of people, e.g. by video-technologies or sensors equipped at bodies, the goal of this workshop is the high-level representation and interpretation of the monitored behaviour. To make the vision of behaviour monitoring and interpretation a reality, there are many serious challenges that must be addressed including lack of complete information about the monitored behaviour or the imprecision of the obtained data. Furthermore, knowledge representation issues, such as ontologies about behaviour patterns, have to be considered in the context of intention recognition, and questions have to be answered concerning how to reason about behaviour patterns, e.g. for making predictions.

Ambient Assisted Living session

While technological advances in sensing and processing have ushered in an unprecedented opportunity for realising behaviour monitoring applications, much effort remains needed for the development of methods to integrate and exploit the available data for addressing specific applications. In addition to the general BMI topic, part of this year's workshop features a thematic focus section on Ambient Assisted Living (AAL). AAL has been an area of expanded interest in utilizing available technology to offer quality of life and well-being solutions for a growing segment of the population. Methods and approaches in formulating and addressing application needs in AAL will be presented and discussed. Prospective authors are encouraged to submit a paper on the general BMI topic or contribute to the AAL section.

Keynote Speaker: Juan Carlos Augusto, School of Computing and Mathematics, University of Ulster at Jordanstown, UK

WS 3: 3rd Workshop on Emotion and Computing – Current Research and Future Impact

- **Organizer:** Dirk Reichardt
- **Website:** <http://www.emotion-and-computing.de>.

Several approaches have been made concerning emotion recognition, emotion modeling, generation of emotional user interfaces and dialogue systems as well as anthropomorphic communication agents. From a scientific point of view, emotions play an essential role in decision making, as well as in perception and learning. Furthermore, emotions influence rational thinking and therefore should be part of rational agents as proposed by artificial intelligence research. Another focus is on human computer interfaces which include believable animations of interface agents.

The workshop focusses on the role of affect and emotion in computer systems including emotion recognition, emotion generation and emotion modeling with special attention to AI specific problems and applications. Both shallow and deep models of emotion are in the focus of interest. The goal is to provide a forum for the presentation of research as well as of existing and future applications and for lively discussions among researchers and industry. The presented papers should discuss theories, architectures and applications which are based upon emotional aspects of computing.

Contributions are solicited from the following fields:

- Artificial Intelligence Research
- Cognitive Science and Cognitive Robotics
- Multi-agent System Technology
- Speech Synthesis and Speech Recognition
- Computer Game Development
- User Modeling and Personalization
- Applications using models of emotion
- Affective Computing
- Dialogue Systems

WS 4: 4th Workshop on Knowledge Engineering and Software Engineering (KESE 2008)

- **Organizers:** Grzegorz Nalepa, Joachim Baumeister
- **Website:** <http://kese.ia.agh.edu.pl>

Intelligent systems have been successfully developed in various domains based on techniques and tools from the fields of knowledge engineering and software engineering. Thus, declarative software engineering techniques have been established in many areas, such as knowledge systems, logic programming, constraint programming, and lately in the context of the Semantic Web and business rules.

The fourth workshop on Knowledge Engineering and Software Engineering (KESE 2008) wants to bring together researchers and practitioners from both fields of software engineering and artificial intelligence. The intention is to give ample space for exchanging latest research results as well as knowledge about practical experience. This year we also encourage to submit tool presentations, i.e., system descriptions that clearly show the interaction between knowledge engineering and software engineering research and practice. The previous KESE Workshops were held at the KI-2007, KI-2006, and KI-2005.

Topics of interest include but are not limited to:

- AI in software/knowledge engineering: knowledge and experience management, declarative logic-based approaches, constraint programming, agent-oriented software engineering, issues of maintenance, business rules
- Knowledge/software engineering in AI: Engineering the Semantic Web, database and knowledge base management in AI systems, tools for intelligent systems, evaluation of (intelligent) systems, process models

WS 5: Ontology-based Information extraction (OBIES 2008)

- **Organizers:** Benjamin Adrian, Günter Neumann, Alexander Trousov, Borislav Popov
- **Website:** <http://www.dfki.uni-kl.de/~adrian/workshops/obies2008>

More and more information extraction (IE) systems use ontologies for extraction tasks. These systems use knowledge representation techniques for extracting information from lesser structured domains more efficiently.

The advantages of these procedures are especially an increase of quality in IE-templates, reusability, and maintainability. Ontologies in IE may provide new techniques for supporting open tasks of semantic analyses regarding for instance temporal analyses, resolution of contradiction, or context awareness.

There are several open research topics about ontology-based information extraction, for instance a proven architecture, evaluation guidelines regarding the use of ontologies, or ontologies vs. templates.

Suggested topics for contributions are:

- Ontologies in templates, annotated corpora or grammars
- Instance resolution (unification, disambiguation, and recommendation)
- Relation resolution (extraction, recommendation, inference)
- Using uncertainty in extraction tasks
- Evaluation and comparison of OBIE systems (corpora, metrics, etc.)
- OBIE as ontology population from texts
- Ontology-based text annotation as inverse of OBIE
- Context models for improving IE performance (query, time, user, etc.)
- RDF/OWL as knowledge representation formalism for NLP
- Integration of linguistic annotations and domain ontologies

WS 6: 22. Workshop Planen, Scheduling und Konfigurieren, Entwerfen (PuK 2008)

- **Organizers:** Jürgen Sauer, Stefan Edelkamp, Bernd Schattenberg
- **Web Site:** <http://www-is.informatik.uni-oldenburg.de/~sauer/puk2008/>

The PuK workshop is the regular meeting of the special interest group on planning, scheduling, design and configuration within the AI section of the GI. As in previous years the PuK workshop brings together researchers and practitioners of the areas of planning, scheduling, design and configuration. It provides a forum for the exchange of ideas, evaluations and experiences especially in the use of AI techniques within these application and research areas.

General Topics

The general topics of interest of the PuK community include but are not limited to:

- Practical applications and architectures
- Knowledge representation and problem solving techniques: domain-specific techniques; heuristic techniques; distributed problem solving; constraint-based techniques; iterative improvement; integrating reaction and user-interaction.
- Learning in the context of planning, scheduling and design.

Focus Theme: Practical Applications

As in earlier workshops, we intend to focus on a specific area of interest: This year it is systems and methods that are deployed in real-world applications. The workshop wants to attract practitioners in the field, who are invited to present practical approaches and to discuss their experiences, concepts, and ideas. In this way, the focal topic also aims at stimulating mutual exchange between practitioners and researchers about our common field's future research directions.

Besides this, further submissions from the general topics mentioned above are welcome.

WS 7: Ambient Intelligence

- **Organizers:** Ulrich Furbach, Rudolf Ganz, Norbert Wehn
- **Web Site:** <http://web.mac.com/ulrichfurbach/Aml/>

Ambient Intelligence represents a vision of the future where we shall be surrounded by electronic environments, sensitive and responsive to people. Technologies for this aim combine various disciplines and concepts, like ubiquitous computing, intelligence systems, control engineering, sensor and actuator technology and cognitive aspects.

This workshop is a successor of the *Tag der Technologie in Rheinland-Pfalz* in 2007, which was organised by the Ministry of Research of Rheinland-Pfalz, aiming at a survey of Aml research and development in the state. This workshop is open to everybody and is aiming at bringing together various communities and establishing networks for researching Ambient Intelligence. Another important goal is to help connecting research groups with industrial developments and companies.

Submission of technical papers, position papers as well as system descriptions are welcome.

MATES 2008

Call for Participation

Ralph Bergmann, Gabriela Lindemann

We cordially invite you to participate at the sixth German Conference on Multi-Agent System Technologies (MATES 2008) in Kaiserslautern on September 24–26, 2008. This year's event is co-located with the German Conference on Artificial Intelligence KI 2008 and hosted by the University of Kaiserslautern and the German Research Center for Artificial Intelligence (DFKI). The participants of MATES 2008 will also have full access to the concurrently running program of the KI 2008 conference, including the workshop program taking place on September 23, 2008.

MATES 2008 provides an interdisciplinary forum for researchers, users, and developers to present and discuss latest advances in research work as well as prototyped or fielded systems of intelligent agents and multi-agent systems. The conference covers the whole range of agent- and multi-agent technologies and aims to promote its theory and applications. The technical program comprises two invited talks (one talk jointly with the KI 2008 program), technical paper presentations and a doctoral students mentoring program. The best paper as selected by the program committee will receive the MATES 2008 best paper award.

We are very much looking forward to welcome you for an inspiring MATES event and hope that you will enjoy both the technical and social program.

MATES 2008 Organization

General Chairs

Stefan Kirn, U Hohenheim
Michal Pechoucek, CTU Prag, CZ

Program Co-Chairs

Ralph Bergmann, U Trier
Gabriela Lindemann, HU Berlin

Local Arrangements

Stefan Zinsmeister, DFKI

<http://www.wi2.uni-trier.de/mates08/>

The Conference Program at a Glance

	Wednesday, 24.	Thursday, 25.	Friday, 26.
08:30	Registration TU	Registration TU	Registration TU
09:00	Invited Talk	Technical Talks	Invited Talk
09:30	Yuzuru Tanaka		Randy Goebel
10:00	Coffee	Coffee	Coffee
10:30			
11:00	Technical Talks	Technical Talks	Doctoral Program
11:30			
12:00			
12:30	Lunch	Lunch	Lunch
13:00			
13:30	Invited Talk	Invited Talk	
14:00	Sascha Ossowski	Michael Wooldridge	
14:30	Coffee	Coffee	
15:00			
15:30	Technical Talks	Technical Talks	
16:00	evtl. Coffee Break...		
16:30		Bustransfer:	
17:00		TU - Hotels	
17:30			
18:00		Conference Dinner /	
18:30		DFKI's 20 th	
19:00		Anniversary	
19:30			
20:00		Fruchthalle	

Invited Talks at MATES 2008

Coordination in Multiagent Systems – Towards a Technology of Agreement

Sascha Ossowski,
University Rey Juan Carlos, Madrid, Spain

It is commonly accepted that coordination is a key characteristic of multiagent systems and that, in turn, the capability of coordinating with others constitutes a centrepiece of agenthood. However, the key elements of coordination models, mechanisms, and languages for multiagent systems are still subject to considerable debate. In this talk, I will examine different stances on coordination, and outline various research issues related to coordination in multiagent systems. In particular, I will provide several examples of the benefits of using an organization-oriented approach towards the problem. I will then show how this perspective fits into current efforts working towards a paradigm for smart, next-generation distributed systems, where coordination is based on the concept of *agreement* between computational agents. Besides organizations, semantic alignment, norms, argumentation and negotiation, as well as trust and reputation mechanisms will be in the technology sandbox to support the definition, specification, and verification of such systems.

Sascha Ossowski is the Director of the Centre for Intelligent Information Technologies (CETINIA) at University Rey Juan Carlos in Madrid. Formerly, he was an HCM/TMR research fellow at the AI Department of Technical University of Madrid. He obtained his MSc degree in Informatics from the University of Oldenburg (Germany) in 1993, and received a PhD in Artificial Intelligence from UPM in 1997. Prof. Ossowski is holding several research grants in the field of advanced software systems, funded by the European Commission and the Spanish Government. He has authored more than 100 research papers, focusing on the application of Artificial Intelligence techniques to real world problems such as transportation management, m-Health, or e-Commerce. Recently, he has been particularly active in the field of co-ordination mechanisms for agents and services, as well as models of trust and regulation in virtual organisations. He is co-editor of more than 20 books, proceedings, and special issues of international journals. He is a General Chair of the ACM Annual Symposium on Applied Computing (SAC), chairs the Steering Committee of the European workshop series on Multiagent Systems (EUMAS), serves as a member of the editorial board for several international journals, and acts as programme committee member for numerous international conferences and workshops. Prof. Ossowski is also an Associate Manager for the field of Computer Science within the Spanish National Plan for R&D&I.

Logic for Automated Mechanism Design and Analysis

Michael Wooldridge,
University of Liverpool, UK

This talk by Michael Wooldridge is a joint invited talk of both the KI 2008 and the Mates 2008 conference. Please see description before.

Accepted Papers

- *Optimistic-Pessimistic Q-learning Algorithm for Multi-Agent Systems.*
Natalia Akchurina.
- *Adding Organizations and Roles as Primitives to JADE Framework.*
Matteo Baldoni, Guido Boella, Valerio Genovese, Roberto Grenna and Leon van der Torre.
- *Agent Models for Concurrent Software Systems*
Lawrence Cabac, Till Dörge, Michael Duvigneau, Daniel Moldt, Christine Reese, and Matthias Wester-Ebbinghaus.
- *Filtering Algorithms for Agent-Based Incident Communication Support in Mobile Human Surveillance.*
Duco N. Ferro and Catholijn M. Jonker.
- *Joint Equilibrium Policy Search for Multi-Agent Scheduling Problems.*
Thomas Gabel and Martin Riedmiller.
- *Making Allocations Collectively: Iterative Group Decision Making under Uncertainty.*
Christian Guttmann.
- *Compiling GOAL Agent Programs into Jazyk Behavioural State Machines.*
Koen Hindriks and Peter Novak.
- *Knowledge and Strategic Ability for Model Checking: A Refined Approach.*
Wojciech Jamroga.
- *Agent Learning Instead of Behavior Implementation for Simulations - A Case Study Using Classifier Systems.*
Franziska Klügl, Reinhard Hatko and Martin V. Butz.
- *Providing Integrated Development Environments for Multi-agent Systems.*
Simon Lynch and Keerthi Rajendran.
- *Implementing Organisations in JADE.*
Cristián Madrigal-Mora, Esteban León-Soto and Klaus Fischer.
- *A Fair Mechanism for Recurrent Multi-unit Auctions.*
Javier Murillo, Victor Muñoz, Beatriz López and Didac Busquets.
- *Multi-Agent Reinforcement Learning for Intrusion Detection: A case study and evaluation.*
Arturo Servin and Daniel Kudenko.
- *Teaching Distributed Artificial Intelligence with RoboRally.*
Ingo J. Timm, Tjorben Bogon, Andreas Lattner and René Schumann.
- *Refactoring in Multi Agent System Development.*
Ali Murat Tiryaki, Erdem Eser Ekinici and Oguz Dikenelli.
- *Autonomous Scheduling with unbounded and bounded agents.*
Chetan Yadati, Cees Witteveen, Yingqian Zhang, Mengxiao Wu and Han la Poutré.