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BNAIC 2004

Soft Computing and Intelligent Systems Design

Coordinated Exploration in Multi-Agent Reinforcement Learning

News from the Belgium-Netherlands Association for Artificial Intelligence

Fresh Blood

Editor-in-chief

This issue of your *Newsletter* features reports on the BNAIC 2004 conference that was held in Groningen on October 21-22, 2004. As witnessed by the report by two of the organizers, Rineke Verbrugge and Niels Taatgen, on pages 104-105 of this issue, the BNAIC 2004 conference was an overwhelming success. During the General Assembly Meeting of the BNVKI, at the second day of the conference, a discussion arose on the primary purpose of the BNAIC. Some BNVKI members argued that the BNAIC should primarily be a forum for young enthusiastic AI researchers, where they gain experience in presenting their research and become acquainted with the research of their colleagues. Other members argued that the BNAIC should strive for optimal quality (in the scientific sense). The first point of view emphasizes the attraction and guidance of fresh blood, clearly of fundamental importance for the existence of our community. Luckily, in my opinion, offering a forum for young researchers is not necessarily in disagreement with striving for quality. The BNAIC 2004 featured many presentations by young researchers and proved to be a very high-quality conference. A splendid achievement by both the organizers and the young researchers.

In the General Assembly Meeting of the BNVKI two board members stepped down, i.e., Floris Wiesman and Bas Zinsmeister. We thank them wholeheartedly for all their efforts for the BNVKI during many years. As a consequence, two fresh members of the board were elected. Though my blood is not so fresh anymore, I thank the participants of the meeting for my appointment. More fresh is the election of Edwin de Jong, who did as Section Editor already much work for the *Newsletter* and I am convinced that he will continue to do so in his new role as board member.

As a consequence of Edwin's appointment as board member he decided to step back as Section Editor. He suggested as a successor Martijn van Otterlo. Martijn happily accepted and it is my conviction that he will become a fine collaborator in setting up the *Newsletter*. Let me introduce Martijn briefly: Martijn is in the fourth year of his Ph.D. research at the Department of Electrical Engineering, Mathematics and Computer Science (EEMCS) of the University of Twente. His promotores are Prof. Anton Nijholt (chair of the department) and Prof. John-Jules Meyer (Intelligent Systems Group, Utrecht). His research area is Relational Reinforcement Learning, in which he investigates the use of relational representations to solve complex problems with reinforcement learning. He also is program co-chair of the Benelearn 2005 conference, to be held on February 17-18, 2005 at the University of Twente.

As a last AI group needing fresh blood, I mention the AIgg, the Artificial Intelligence gebruikers groep (user group) of the HCC, the Hobby Computer Club. On page 118 the secretary of the AIgg, Peter Uilenreef, does a call for presentations, a splendid alternative opportunity for our young AI researchers.

Of course, with so much instream into our community, there is also an outstream. With sadness we received the news that Prof.dr. A.A. Verrijn-Stuart passed away on October 25, 2004 at the age of 81 (see the obituary by John-Jules Meyer on page 113 of this issue).

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The photo on page 110 is by Niek Bergboer. All other photographs in this issue are by courtesy of Wouter Teepe.

Front cover: Henk-Jan Lebbink (with Cilia Witteman and John-Jules Meyer) receives the Elsevier Best Paper Award.

BNVKI-Board News

Han La Poutré

We have just experienced another enthousiastic BNAIC happening. Many people participated in the conference and presented their latest and nicest results. As most of you know, this year's BNAIC was organised by the University of Groningen and it was held in "De Meerwold" in Groningen. Program and location were very nice, and so was the food. So, the board thanks everybody who contributed to this great event, and in particular Rineke Verbrugge, Lambert Schomaker, Niels Taatgen, and the other members of the organising committee in Groningen.

During the last BNAIC, new members of the BNVKI Board were elected: Jos Uiterwijk (Maastricht) and Edwin de Jong (Utrecht). They already presented themselves in the previous issue of the *BNVKI Newsletter*. The board welcomes both new members and looks forward to the joint activities and cooperation.

Also, during this BNAIC, it was decided that next year's BNAIC will be held in Brussels, at the Vrije Universiteit Brussel. Main organisors will be Ann Nowe and Bernard Manderick. Of course, we still have to wait for it for 11 months, but already look forward to this next event.

Rineke Verbrugge: a great conference!

BNAIC 2004
A Word from the Organizers

Rineke Verbrugge and Niels Taatgen
ALICE, University of Groningen

The sixteenth Belgian-Dutch Conference on Artificial Intelligence was held on October 21 and 22 in Groningen. This year's BNAIC was organized by the Institute of Artificial Intelligence and Cognitive Engineering (ALICE) of the University of Groningen.

The slogan to promote Groningen is, freely translated, "There is nothing beyond Groningen". The ambiguity in this slogan troubled our initial planning of BNAIC 2004. Could we expect a smaller attendance, because Groningen is further away than most people are used to, especially our Belgian colleagues, or would Groningen be extra attractive? A conference that is further away somehow seems to gain importance just because you have to put in some more effort to get there (the theory of cognitive dissonance can explain this). Fortunately for us as organizers the latter turned out to be the case. The total attendence of the conference turned out to be around 170 people, which was more than we had expected and had initially planned for. It was however easy to order some more shuttle busses and dinner space. The only people that were slightly overwhelmed were those from the city hall, who were accustomed to less people turning up on conference reception instead of more. They nevertheless provided for a warm welcome, in which wethouder Willem Smink admitted that he was not opposed to the idea of replacing the prime minister of the Netherlands by a computer program, as Jaap van den Herik had proposed a couple of years ago. However, it seemed that Smink's motivation was more political, because he specifically referred to the current prime minister instead of the general idea.

This year's conference received a total of 107 submissions. In the original full-paper category, 46 original papers were submitted, 24 of which were accepted as a talk, and 11 as a poster. In the category of extended abstracts, we received 52 papers. 27 of these papers were presented as spoken paper, and 22 as poster. Finally, 9 demonstrations have been submitted, all of which have been accepted. The trend of the last few years has been maintained: machine learning is still the hottest topic, with agent techology attaining a good second position.

Our first invited speaker, Prof.dr. Kerstin Dautenhahn (University of Hertfordshire), started the conference, speaking about *The Human in the Loop: Case Studies in Human-Robot Interaction Research*. Usually in robot talks, the impression is that robots may be useful for humans in the far future after many scientific and technical problems have been solved. Thus, it was pleasantly surprising to see that technically relatively simple robots have already been used to great effect in play with autistic children. These kids have much less difficulty interacting with robots than with humans, who are usually too overwhelming for them.

The next morning started with the invited talk by Prof.dr. Patrick Doherty (Linköping University). For the first time we heard a lecture about unmanned aerial vehicles in which the speaker explained in a highly understandable way what principles and techniques were used to develop them. And of course it is a logician's dream come true to hear that temporal and non-monotonic logics are actually used in extremely fast planners for real-time decision making.

Many interesting talks, posters and demos were presented in the parallel sessions, which will be separately reviewed in this and the next Newsletter. Here we would just like to congratulate the prizewinners. Wouter Teepe won the SKBS-prize for the best demonstration with *The Secret Prover: Proving Possession of Arbitrary Files While not Giving Them Away*. Henk-Jan Lebbink, Cilia Witteman and John-Jules Meyer were chosen for the Elsevier Best Paper Award for *A Dialogue Game Approach to Multi-Agent System Programming*.

Last but not least, we would like to thank SIKS, SNN, NWO, KNAW, Elsevier, SKBS, Atos Origin, Decis Lab, ECN, GUF, Prime Vision, IOP/MMI, the University of Groningen, notably the Faculty of Psychology, Education and Social Sciences and the Faculty of Mathematics and Natural Sciences, ALICE, as well as programme co-chairs and programme committee members, the Elsevier and SKBS juries, session chairs, invited speakers, the organizing committee, the BNVKI board and previous organizers, the student volunteers, and all others who contributed to the success of BNAIC'04.

Good luck to the organizers of BNAIC'05 in Brussels!

Wouter Teepe receives the SKBS-prize for the best demonstration.

Session Reports BNAIC 2004

In this issue of the *BNVKI Newsletter* we include five BNAIC 2004 session reports. The remaining session reports will be published in the next issue.

SESSION 1B: MACHINE LEARNING 1

Report by Bert Kappen
Radboud University Nijmegen

Iris Hendrickx and Antal van den Bosch presented their paper *Maximum-Entropy Parameter Estimation for the k-nn Modified Value-Difference Kernel*. It is well known that the quality of the nearest neighbor classifier depends critically on the choice of distance measure. This paper proposes to define the distance between features as the difference in conditional class probabilities. To get robust estimates of these probabilities the authors propose to use a maximum entropy method using iterative scaling. Numerical studies support the conclusion that this approach is better than either the nearest neighbour classifier or the maximum entropy classifier.

Marcel van Gerven and Peter Lucas presented their work *Using Background Knowledge to Construct Bayesian Classifiers for Data-Poor Domains*. Their paper studies the relative performance of graphical models constructed from expert knowledge and trained with clinical data. Since expert knowledge is seldom complete, the notion of partial background knowledge is introduced. The paper concludes that in the particular example studied, the model based on the expert knowledge outperforms the model constructed from clinical data.

Martijn van Otterlo and Kristian Kersting presented the paper *Bellman goes Relational*. Reinforcement

learning or dynamic programming is the standard approach to solve a Markov decision process. The method is very general but suffers from the fact that it requires the storage of the full state space. Recently, RL was shown to be extendable to a relational (first order) representation, which is computationally much more efficient. This paper shows one of the first implementations of relational value iteration and solves a difficult problem that was proposed in the literature. Very nice work!

SESSION 1C: ONTOLOGY & SEMANTIC WEB

Report by Jacco van Ossenbruggen
CWI Amsterdam

The Ontology & Semantic Web session was one of the first paper sessions at the BNAIC 2004, and was fully booked with 3 high quality abstracts of papers that appeared in the proceedings of other internationally renowned conferences.

The session immediately started with a surprise, as it turned out that the original speaker of the first presentation, Frank van Harmelen, could not make it to the conference. Luckily, he had found Marta Sabou willing to step in. While Marta was not one of the co-authors of the paper, she did a fine job presenting *C-OWL: Contextualizing Ontologies*, a paper originally presented at the International Semantic Web Conference (ISWC2003) in Florida. The paper discusses a synthesis between the shared, global view of ontologies and the private, local view of contexts.

Next, Marta could present one of her own papers, *Foundations for Service Ontologies: Aligning OWL-S to DOLCE*. This paper was originally presented at the International World Wide Web Conference (WWW2004) in New York City. She quickly introduced the audience to DOLCE (an ontology used in Linguistic and Cognitive Engineering) and OWL-S (an ontology for describing Web Services), and showed how practical alignment problems were used to identify weak points in the OWL-S specification.

The third and last speaker was Mark van Assem, who presented *Methods for Porting Resources to the Semantic Web*, originally presented at the First European Semantic Web Symposium (ESWS2004) on Crete. Mark explained us the different steps in his methodology for porting thesauri to the Semantic Web, using the MeSH thesaurus as an example. Not strictly sticking to the text of the paper, Mark already gave us a glimpse of the material he will present next month, at the International Semantic Web Conference (ISWC2004) in Hiroshima, Japan.

I really enjoyed this session, both the presentations and the questions from the audience. One critical note: with three talks from speakers affiliated with the VU and three papers by authors affiliated with the VU and UvA (and a session chair affiliated with CWI), this was really an Amsterdam-dominated session. I hope to see a more diverse picture in next year's Semantic Web session!

SESSION 5B: PATTERN RECOGNITION

Report by Maja Pantic
Delft University of Technology

The Pattern Recognition session was a one-hour paper session at the BNAIC 2004 and contained one high quality original paper and one high quality abstract of a paper that has appeared in the proceedings of another international conference.

Marius Bulacu of the University of Groningen was the first speaker. He presented the work he conducted together with Lambert Schomaker, also of the University of Groningen, on *Analysis of Texture and Connected-Component Contours for the Automatic Identification of Writers*. This work was originally presented in 2004 in the IEEE Transactions of Pattern Recognition and Machine Intelligence and at the International Workshop on Frontiers in Handwriting Recognition (IWFHR'04) in Tokyo, Japan. Marius introduced the audience to the proposed technique for offline writer identification, which uses handwriting edge-direction probability distribution and the probability distribution functions of connected-component-contours. He discussed then the accuracy of the proposed algorithm.

David Tax of the Delft University of Technology was the second speaker. He presented his original work on *Regularizing the Covarience Matrix using Spatial Information*. This interesting work addressed the question of how to obtain good generalization performance of a learning algorithm using a limited number of training samples. David explained the relevant issues using image data (handwritten digits). He described the main idea of the work as the inclusion of the spatial connectivity of pixels in image data into the covariance matrix of the data, which biases the model to solutions where remote pixels are uncorrelated. He also illustrated the effects that this spatial regularization has on learning curves for classifiers like Support Vector classifier, Nearest Mean classifier, and Fisher classifier.

I truly enjoyed this session, since both presenters were eloquent and both succeeded to involve the audience into discussions of the presented works. By this I would like to thank the speakers for their outstanding presentations and to express my hope that future BNAIC conferences will have many more of such high quality sessions.

SESSION 6A: AGENTS III

Report by Cilia Witteman
Radboud University Nijmegen

This session contained two talks on emotions: *Reasoning about Emotional Agents* by John-Jules Meyer, and *Emotional Agents need Formal Models of Emotion* by Joost Broekens and Doug De Groot, presented by the first author. John-Jules is aware that his work is on the edge, and he treated us to a convincing talk in which he showed how emotions can be approached and modelled logically. His talk created an interest in a demonstration of the added value of emotions in artificial agents. He takes the functional view on emotions: they serve a behavioural purpose. John-Jules did not profess to be interested in crying or rejoicing pieces of software, but he acknowledges the role emotions play in human life, and tries to model this role. Joost Broekens' approach was different. Their aim is to really incorporate (computational models of) emotions in virtual agents, such as is done in games like The Sims, or in VR training. They need the appraisal aspect of emotions, where John-Jules dealt with the functional part. (Remarkably both papers used the same theory of Emotions: Oatley's, which is not the currently most widely accepted emotion theory in psychology). Broekens and De Groot see communicational advantages of adding emotions to agents and in HCI.

The project of emotional agents is far from finished, and we may hope that these researchers carry on with their interesting endeavours.

The third talk was on a different but, obviously, also agent-related topic: *Plan Diagnosis with Agents* by Nico Roos and Cees Witteveen, presented by the second author. We learned that the title referred to model-based diagnosis (MBD) applied to planning systems, where a plan is taken as a to-be-diagnosed system with instances of actions. Cees took us through the steps of their approach, elegantly making their object-oriented model seem quite simple.

SESSION 7A: GAMES

Report by Jaap van den Herik
IKAT, Universiteit Maastricht

The Games session was worth visiting for two reasons. First, it was one of the last two sessions in the successful BNAIC 2004 and announced as a summit-session on Games. Second, the three presentations were based upon papers that were all three eligible for the Elsevier Best Paper Award (for the most original paper). So the Auditorium was full of attendees who were well prepared for the lectures. All knew that the title Games had only a vague relation with games in the form of (1) two-persons games (usually zero-sum with perfect-information) or of (2) commercial games. The most related game in this respect was addressed in the first lecture (on Japanese games), the two other lectures were on dialogues and social interaction.

A Discrete Tomography Approach to Japanese Puzzles by Joost Batenburg (Mathematical Institute, Leiden, also CWI, Amsterdam) and Walter Kosters (LIACS, Leiden). The authors discussed an evolutionary algorithm for computing a reconstruction of binary images from their horizontal and vertical projections. In the lecture, there was a clear focus on Japanese puzzles. The latter are considered being a special case of the general DT problems (Discrete Tomography). An important issue was the construction of an evaluation function encapsulating all additional information. The evaluation function is used to distinguish the minimal deviation possible, i.e., the solution. The contribution in the proceedings fairly accurately describes the ingredients of the evaluation function. Moreover, the authors provide the results of several testruns; some are taken from the Dutch *Puzzelsport*. Although some reconstructions took a long time, the results were satisfactory.

A Dialogue Game Approach to Multi-Agent System Programming by Henk-Jan Lebbink (Utrecht, Nijmegen, Almere), Cilia Witteman (Nijmegen), and John-Jules Meyer (Utrecht). The emphasis of this lecture was on dialogue games allowing the semantics to play an essential role. In addition to the dialogue game, a reasoning game was introduced. Already during the lecture a lively discussion arose. The questions posed were answered, but they were immediately followed by new questions. The master of ceremony then decided to postpone the other intriguing questions to the end of the lecture. (As a remark it is stated that this opportunity was not in the system.) The lecture contained: (1) posing questions, (2) affirmative answers to questions, (3) posing

counter-questions, (4) negative answers to questions, (5) dialogue and update rules, and (6) other communication protocols (so, no postponing was introduced). The conclusion was that "different dialogue games and reasoning games can be deployed for different tasks, like problem solving or belief revision." At the end of the session it became clear what the result of the contents was in the eyes of the Jury.

An Abstract Multi-Agent Framework Applied to a Social Interaction Game by Hendrik Wietze de Haan, Wim Hesselink, and Gerard Renardel de Lavalette (all University of Groningen). The main idea of the lecture was to prepare a framework for multi-agent systems in which social interaction can take place. The best way to do and to test this is by implementing a game. The social game chosen was the game Mafia. There are different versions of this game available. The main rule is that the behaviour of the players within the rules of the game is unrestricted. A model of the game was presented and a description of the initial rules. Moreover, a game-master was introduced as a reactive agent. The game would be played as a non-deterministic sequence of choices over seven possibilities, such as eliminated, accusing, voting, shooting, etc. The authors believe that the game is a good test case for frameworks and methodologies for the design of multi-agent systems.

Immediately after the last speaker, there was the handing out of the Elsevier Best Paper Award. The Jury headed by Catholijne Jonker assured that the presentations were not an essential part of the awarding procedure, since then the ceremony would not have taken place so directly after the session. After many deliberations, the Prize was awarded to: *A Dialogue Game Approach to Multi-Agent System Programming* by Henk-Jan Lebbink, Cilia Witteman, and John-Jules Meyer.

Niels Taatgen: good work!

Soft Computing and Intelligent Systems Design

Fakhreddine Karray and Clarence de Silva
Pearson Books, August 2004
ISBN 0321116178

Book review by Gerrit Visser
IKAT, Universiteit Maastricht

When reading chapters in this book I was puzzled by two questions: Who will purchase and read the book? What level of education would be necessary? Sometimes the chapters are easily comprehensible and sometimes the authors dig deeper. The pictures, which accompany the text, are of great help. Often they explain more than the text. The first question is answered in the preface. The book is meant for "senior undergraduate" students and students who attend graduate level-courses. Very fine. In Dutch university terms, I will translate this as a book for students in their 2nd and 3rd year. The second question is easily to answer. The mathematical background required is sometimes very little. ("When reading one can understand everything"). Sometimes a more profound background is demanded. Examples: Linear Algebra ("Orthogonal transformation"), training algorithms like "Back-propagation", servo motor response processing, the "PID" stuff, etc.

My specialization lies in the genetic algorithms. In this book a generic term "Evolutionary computing" covers that field. The theory of genetic algorithms and optimization is simple and accurately described. Fortunately the theory does not require much background. Unfortunately very little applications are given, nor any practical tips.

In general the theoretical background of different chapters is very well organized. The required theoretical background is in most cases well explained. In brief this is a good book for students who want to be familiar in the field of knowledge-based techniques. All the aspects now applied are neatly described. The case studies are covering a very wide range of applications. If the book is to be criticised in some field I will mention some practical results. To predict chaotic signals with fuzzy or neuronal techniques the authors do not mention the practical result: Is there a maximum predictability? How much is that in terms of correlation of the predicted signal and the signal itself? Which method is to be preferred? There is no answer given. We all know that a chaotic signal without "memory" (no auto-correlation) cannot be predicted by any method except magic. They do not treat that chapter.

ECAI 2004

Report by N.H. Bergboer
IKAT, Universiteit Maastricht

From the 22nd to the 27th of August, the 16th European Conference on Artificial Intelligence, ECAI 2004, took place in Valencia, Spain. The ECAI is a high-profile biannual European conference spanning a broad range of fields in Artificial Intelligence research. In the author's information guide, the ECAI was aptly described as "Europe's hottest AI event in 2004", partly because of its location in Southern Europe, but mostly because the number of submissions and registrations surpassed that of any previous ECAI: out of 653 submissions, 169 papers were accepted for oral presentation at ECAI 2004, 13 for oral presentation at the co-located PAIS 2004, and 87 were accepted for poster presentation. This number of submissions is about 32 per cent higher than for the previous ECAI. In total, about 700 researchers attended the conference.

The most prevalent topics of accepted papers at the ECAI 2004 were machine learning, knowledge representation and reasoning, together accounting for more than 45 per cent. Other main topics included constraint satisfaction/search, and agent technology. This report's author presented a paper in one of the smaller fields: vision and perception.

The actual conference was preceded by two days of workshops and courses, covering diverse areas such as logic, the semantic web and ROC analysis. The workshops provided a series of talks by leading researchers in the field, in which direct interaction between the presenter and the public was highly encouraged and appreciated. This report's author attended the 1st Workshop on ROC analysis in AI (ROCAI 2004). Receiver Operating Characteristic (ROC) curves have long since been a standard tool to visualise the performance of algorithms in binary classification and detection problems. A ROC curve shows the fraction of correctly detected positive instances (detection rate) against the fraction of negative samples that have accidentally been classified as positive (false-positive rate). However, whereas most learning algorithms are optimised for a single point on the ROC curve, learning algorithms that take the full range of properties of the ROC curve into account in the learning stage, are rare. New advances in ROC analysis thus have the potential of yielding learning algorithms that display good performance on the entire ROC curve.

On Tuesday the 24th, the main conference was opened by J. Nieto, rector of the Universitat Politecnica de Valencia. During the opening ceremony, the best paper award was awarded to Martin Sachenbacher and Brain Williams for their paper *Diagnosis as Semiring-Based Constraint Optimisation*.

Each of the four days of the main conference consisted of one 1.5-hour invited talk and four 1.5-hour sessions in which 5 to 6 papers were presented in parallel. The invited talks covered a range of subjects in fields that were mostly adjacent to AI itself.

On the 24th, Christian Freska from the University of Bremen, Germany, talked about an *AI Perspective on Spatial Cognition*. He presented spatial cognition as an interesting interface between cognitive sciences and artificial intelligence, and argued that problems from both fields can be described from a spatial-cognition viewpoint.

On the 25th, Gloriana Davenport from MIT, USA, talked about the (future) use of AI to facilitate the navigation in large media collections. Initially, the facilitation can take place using computer-readable meta data. However, for computers to become "collaborators" and "provocateurs", as Davenport calls it, they need to better understand the mechanisms that underlie stories.

On the 26th Seppo Laukkanen from Sensitrix, Finland, talked about the use of AI in virtual reality systems. One of the main focusses of his talk was the use of AI to create more credible behaviour for computer-persons in virtual-reality applications.

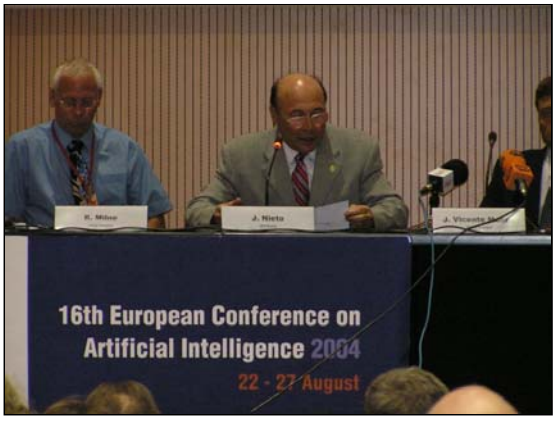
Finally, on the 27th, Carole Goble from Manchester University, UK, talked about problems and progress in building the semantic grid. The semantic grid is a future "holy grail" in which both information and services are given well-defined meanings. As such, the semantic grid is supposed to be a combination of the current Grid, and the semantic web.

The ECAI provided a plethora of sessions, and the author would like to highlight a few of these. First, the ECAI strives to keep in touch with actual application-areas in the industry. The PAIS sub-conference showcases prestigious applications of AI in actual applications. Two examples of the 13 applications presented at PAIS are an automatic road layout system in landscapes, and a system for pacemaker-treatment advice. The vision and perception sessions, in which the author participated, provided a taste of current issues in computer vision and related fields; a very interesting paper on the connection between computer vision and descriptive semantic vision-languages was presented. Summarising, the ECAI

provided an excellent setting for the exchange of scientific ideas and concepts.

In addition to providing a very good scientific setting, the ECAI organising committee spared no efforts to create a nice atmosphere for the participants. All participants for workshops were invited to an organised dinner for each workshop, which was a very nice way for informal interaction. At the evening of the 24th, a large outdoor paella-dinner, together with snacks, drinks and (good!) Spanish wine was provided. An additional very nice fireworks display made this a truly enjoyable evening.

The author would like to acknowledge the Universiteitsfonds Limburg /SWOL for providing a travel grant for his visit to Valencia.



The opening of the ECAI 2004 Conference.

Coordinated Exploration in Multi-Agent Reinforcement Learning

Ph.D. defense by Katja Verbeeck
COMO, Vrije Universiteit Brussel,
September 23, 2004

Report by Joris van Looveren
Vrije Universiteit Brussel

Many systems in the real world are composed of several components that work together to achieve a goal. Think of the internet for example, which is composed of an enormous amount of routers that work together to bring packets of data from their sources to their destinations. Every router in the network connects with different sub-networks and decides for each packet that comes from one of the sub-networks to which other sub-network it should go. Each of these routers can be seen as an agent in a very large multi-agent system.

Another example is a multi-processor computer, in which each processor works on a part of the global problem that the computer is solving. Ideally, each processor would be working on the problem all the time, but some time will always be spent coordinating the different processors, and assigning each a portion of the problem. Finding the right balance between communication and portion size is a difficult problem, and will depend also on the nature of the problem. In this system, every processor is an agent in the system, and all agents collaborate to solve the global problem.

Such multi-agent systems can often be made to perform adequately by design, but they are nevertheless so complex that it is very hard to take into account all factors to make them function optimally. In these cases, it would be beneficial to be able to have the agents in the system learn the optimal strategy themselves, instead of needing to figure it out beforehand.

This has several advantages. The engineer does not have to be concerned any more with finding a strategy that allows the system to function well. Figuring out such a strategy is especially hard when the environment in which an agent functions is not stationary, i.e. the changes in the world are beyond the control of the agent, or put differently, the world changes not only in response to the agent's own actions, but also in response to other events occurring in the world.

In her Ph.D. dissertation, Katja Verbeeck develops several algorithms that deal with the problem of learning in such a non-stationary multi-agent system. The type of non-stationary environments that was specifically studied in this dissertation, is called "state-dependent non-stationarity", i.e., an agents' environment changes because there are other agents acting in it. Her model uses Learning Automata to represent the agents in the system, and their objective is to learn what is called "an optimal fair solution". Of course, "optimally fair" should be defined relative to the type of multi-agent system considered. Two types are considered, i.e., common interest and conflicting interest systems.

She starts out with a "narrow" class of problems, where the Nash equilibria all lie on the diagonal of the state matrix, and shows how an algorithm with separate exploration and synchronisation stages can work. She calls her algorithm "Exploring Selfish Reinforcement Learning" (ESRL), where the "selfish" indicates that in the exploration phase, each agent tries to maximize its individual payoff, without regard for the global payoff. In the synchronisation phase, the agents modify their learned behaviours, by excluding actions from their

action space. In this way, the joint action phase shrinks and agents get the opportunity to learn a new solution in the next exploration phase. She proves that her algorithm will converge to the system's Pareto optimal Nash equilibrium for common interest games.

Then, in several steps, she expands the classes of problems for which the algorithm can be made to work, detailing the changes needed to the algorithm to do so. For example, in cases where the Nash equilibria are not all on the diagonal of the state matrix, the algorithm is restarted iteratively in a randomly chosen point in the state space, such that equilibria in other areas of the state space will also be found. She also extends the algorithm to include cases in which there are no clear optima; cases of conflicting interests, where an agent must know how to accept a lower-than-optimal individual payoff sometimes in order to maximise the global payoff for the system. In the algorithm, this results in periodical solutions, where each agent in turn is allowed to have the most profit, and then allows others to do well. She also shows that asynchronous, real-life applications as adaptive load-balancing and job scheduling show the usefulness of the ESRL algorithms.

Of course, there is still scope for improvement and extension of the work, as was made clear by the questions of the jury members. The algorithm assumes a homogeneous population of agents at this moment, a population where all agents are of the same type. Also, the algorithm can be further extended to deal with other classes of solutions to conflicting interest problems besides periodical solutions. All in all, the jury was very impressed by the work, awarding it with a "greatest distinction" nomination.

More information can be found on: http://como.vub.ac.be/Members/katja.htm

The Challenge of a Listing

Jaap van den Herik
IKAT, Universiteit Maastricht

The basis for scientific research is documentation. Writing a Ph.D. thesis is important, but an adequate documentation of the experiments performed is sometimes even more important. A good thesis enables other researchers to reproduce the experiments. Making reproduction possible is a basic rule for scientific researchers. Each scientific assertion is assailable (Popper) and as such it should be defendable. A proper attaque on the assertion is only possible under the same circumstances. Therefore, documentation is of prime importance. To support the assertions made in a thesis, most computer-science theses contain appendices with explanations and sometimes parts of a listing. Nowadays, we see a shift from working with appendices to making the relevant files available on a website. So far for the scientific listings of the Ph.D. theses.

Currently, other lists are nationwide in debate, such as the list of the "Greatest Dutchperson of all times" or "the Greatest Dutch Scientist" (awarded to Spinoza). The challenge of a list is that it is debatable, mostly since the criteria are debatable, sometimes because the contest is so complex that different opinions are possible. Sometimes it is none of the above and then the composer of such a list has made an omission. In general, for human beings, the composition of a list is a dangerous undertaking. Yet, science nowadays lives by the flavour of exhaustive enumerations owing to the fact that we have such powerful machines. Mimicking a machine's behaviour in this respect is a good idea, but the follower should be aware of the fallability of the human mind.

Careful checking did not help me when I listed in the previous issue of the *BNVKI Newsletter*, on the opportunity of Catholijne Jonker's appointment at the Radboud University of Nijmegen, the names of the lady-professors at the Dutch universities in computer-science-related disciplines. I simply overlooked two of them and immediately after publication of the newsletter I received an email "Out of sight, out of mind". This message was from Professor Frances Brazier. I have no excuses, and deeply apologize to Frances Brazier (VU Amsterdam) and to Franciska de Jong (University of Twente) for not mentioning their names in the list of lady professors. Fortunately, I had the opportunity to do it in person to Franciska at the start of the CATCH project. The "full" list now reads (in alphabetical order without titles and affiliations): Frances Brazier, Linda van der Gaag, Waltraud Gerhardt, Linda Hardman, Franciska de Jong, Catholijne Jonker, Anja Oskamp, Corien Prins, and Cilia Witteman. The purpose of republishing this list is twofold: (1) to honour them and (2) to attend future advisory committees on the disbalance between men and women.

In this contribution I would like to start with announcing the second inaugural address by Professor Sjaak Brinkkemper at the Universiteit Utrecht. Earlier he had a part-time appointment at the Vrije Universiteit Amsterdam (Product Software). His current address is titled: *Ondernemen met productsoftware – een goudader*

voor de economie. We wish him much success with the official acceptance of his new appointment. This brings us to another appointment. On February 1, 2004, the University of Amsterdam has appointed Maarten de Rijke as a Professor in Information Processing and Internet. As of April 1, 2004 the Language and Inference Technology (LIT) group of Maarten de Rijke, is no longer part of the ILLC. They are now part of the Informatics Institute of the Universiteit van Amsterdam, Faculteit der Natuurwetenschappen, Wiskunde en Informatica. We wish him a fruitful career and many activities within the BNVKI.

The list of Ph.D. students now and then misses a name. We attempt to be as accurate as possible and are now privileged to provide you with ceremonies in September 2004 (not earlier mentioned) and ceremonies in the Netherlands and in Belgium from October 2004 to January 2005. There are eight SIKS Ph.D. defences. Moreover, the Ph.D. thesis by Katja Verbeeck titled "Coordinated Exploration in Multi-Agent Reinforcement Learning" is reviewed in this issue by Joris van Looveren.

Katja Verbeeck (September 23, 2004). *Coordinated Exploration in Multi-Agent Reinforcement Learning*. Vrije Universiteit Brussel. Promotor: Prof.dr. A. Nowé.

Pieter Kleve (September 10, 2004). *Juridische Iconen in het Informatietijdperk*. Erasmus Universiteit Rotterdam. Promotor: Prof.mr. R.V. de Mulder MBA.

Floortje Alkemade (October 7, 2004). *Evolutionary Agent-Based Economics*. Technische Universiteit Eindhoven. Promotores: Prof.dr.ir. J.A. La Poutré and Prof.dr. H.M. Amman.

Joop Verbeek (October 14, 2004). *Politie en de Nieuwe Internationale Informatiemarkt*. Universiteit Maastricht. Promotores: Prof.dr. H.J. van den Herik and Prof.dr.mr. Th. de Roos.

Nico Jacobs (October 15, 2004). *Relational Sequence Learning and User Modelling*. KU Leuven. Promotores: Prof.dr. M. Bruynooghe and Prof.dr. L. de Raedt.

Suzanne Kabel (October 20, 2004). *Knowledge-rich Indexing of Learning-Objects*. Universiteit van Amsterdam. Promotores: Prof.dr. R. de Hoog and Prof.dr. B.J. Wielinga.

Federico Divina (October 26, 2004). *Hybrid Genetic Relational Search for Inductive Learning*. VU Amsterdam. Promotor: Prof.dr. A.E. Eiben. Co-Promotor: Dr. E. Marchiori.

Arno Knobbe (November 22, 2004). *Multi-Relational Data Mining*. Universiteit Utrecht. Promotor: Prof.dr. A.P.J.M. Siebes.

Thijs Westerveld (November 25, 2004). *Using Generative Probabilistic Models for Multimedia Retrieval*. Universiteit Twente. Promotor: Prof.dr. F.M.G. de Jong.

Vania Bessa Machado (November 29, 2004). *Supporting the Construction of Qualitative Knowledge Models*. Universiteit van Amsterdam. Promotor: Prof. Dr. B.J. Wielinga.

Mark Winands (December 1, 2004). *Informed Search in Complex Games*. Universiteit Maastricht. Promotor: Prof.dr. H.J. van den Herik. Co-promotor: Dr. J.W.H.M. Uiterwijk.

Madelon Evers (December 10, 2004). *Learning from Design: Facilitating Multidisciplinary Design Teams*. Universiteit Nyenrode. Promotores: Prof.dr W. Baets and Prof.dr. G. van der Veer.

Jan Struyf (December 23, 2004). *Techniques for Improving the Efficiency of Inductive Logic Programming in the Context of Data Mining*. KU Leuven. Promotores: Prof.dr. ir. H. Blockeel and Prof.dr. B. Demoen.

Erik van der Werf (January 27, 2005). *AI Techniques for the Game of Go*. Universiteit Maastricht. Promotor: Prof.dr. H.J. van den Herik. Co-promotor: Dr. J.W.H.M. Uiterwijk.

Floor Verdenius (January 28, 2005). *Methodological Aspects of Designing Induction-Based Applications*. Universiteit van Amsterdam. Promotor: Prof.dr. B.J. Wielinga. Co-promotor: Dr. M.W. van Someren.

INAUGURAL ADDRESS

Prof.dr. Sjaak Brinkkemper (November 8, 2004). *Ondernemen met Productsoftware – een Goudader voor de Economie*. Universiteit Utrecht, Utrecht.

Section Editor
Richard Starmans

Obituary

PROFESSOR A.A. VERRIJN-STUART

John-Jules Meyer
Scientific Director SIKS

On October 25th Professor A.A. (Xander or Alex) Verrijn-Stuart, emeritus professor of Leiden University and chairman of the SIKS advisory board, passed away at the age of 81. Professor Verrijn-Stuart played a prominent role in the development of the area of computer science and that of information science in particular. He was involved with establishing computer science as a separate academic curriculum in The Netherlands. His research interests focused on the methodology of the field, in particular methods, techniques and tools for system development. Furthermore, he was very active (even after his retirement!) in the IFIP organisation (WG8.1 Task Force FRISCO) and the Royal Holland Society of Sciences and Humanities (Koninklijke Hollandsche Maatschappij der Wetenschappen). On quite a different level, literally speaking, he became well-known by his mountaineering expedition to the Himalaya.

Personally, I have known Xander since the time he lectured computer science to me, some decades ago, and I have very good memories of the pleasant meetings of the NFI (Nationale Faciliteit Informatica) committee of which he was chairman, in the beginning of the 90s. In his capacity of chairman of the advisory board of SIKS he was a regular visitor of our annual SIKS days and he used to give us valuable advice on important SIKS matters such as the (re)accreditation.

We will miss him dearly!

Advanced Course: The Semantic Web

INTRODUCTION

On November 22 and 23, 2004 the School for Information and Knowledge Systems (SIKS) will organize an Advanced Course on The Semantic Web. The course takes two days, will be given in English and is part of the so-called Advanced Components Stage of the Educational Program for SIKS-Ph.D. students. Although these courses are primarily intended for SIKS-Ph.D. students, other participants are not excluded. However, their number of passes will be restricted and depends on the number of students taking the course. The course is given by experienced lecturers actively involved in the research areas related to the topics of the course.

The idea of a "Semantic Web" has rapidly gained visibility on both the academic and the industrial agenda in recent years. Currently, some cornerstone technologies are in place, some applications are beginning to emerge, and many new research challenges have emerged. In this two-day course, all these aspects will be highlighted.

LOCATION

Conference center Woudschoten in Zeist.

SCIENTIFIC DIRECTORS

Prof.dr. F van Harmelen (VU)
Prof.dr. A. Schreiber (VU)

PROGRAMME

The programme includes the following topics:
- Semantic Web: vision and motivation,
- The Semantic Web language stack: XML, RDF(S), OWL, rules,
- Representing and querying semi-structured data,
- Ontology Engineering for the Semantic Web,
- Natural Language Processing comes to the rescue,
- Does it really exist?: some example applications,
- A research agenda for SIKS Ph.D. students.

Hands-on experience is an integral part of the course, participants will be provided with software during the course, and are requested to bring their own laptop if possible.

REGISTRATION

In the conference center there is a limited number of places and there is interest from other groups in the

topic as well. Therefore, an early registration is required.

SIKS/ICS Masterclass

Logic and Agents: It is all in the game

Date: November 24, 2004
Location: De Uithof, Utrecht University (more details to be announced on the SIKS website)

INTRODUCTION

In recent years the tendency for agent research is to be more oriented towards practice. As a consequence it seems that logic and logical formalisms are less important for the progress of the field. With this masterclass we want to show that this is a wrong conception and that logic and formal methods can be of great assistance to us for solving problems in the area of multi-agent systems. This masterclass presents some current research on logic and agents with an underlying focus on the interaction between agents in a multi-agent system.

The Masterclass is part of the Advanced Components stage of SIKS' educational program. Therefore, SIKS-Ph.D. students are strongly encouraged to participate.

PROGRAMME

13:00-13:45 Johan van Benthem (UVA):
Logic for game theory
13:45-14:30 Wiebe van der Hoek (Liverpool):
Reasoning about games
14:30-15:00 Break
15:00-15:30 Virginia Dignum (UU):
Contracts between agents
15:30-16:00 Rineke Verbrugge (RUG):
Joint commitments between agents
16:00-16:30 Cees Witteveen (TUD):
Multi-agent (re)planning
16:30-17:30 Drinks

Abstracts of the presentations and exact location of the masterclass will be made available as soon as possible.

REGISTRATION

The masterclass is co-organized by the SIKS research school and the Institute for Information and Computer Sciences, Utrecht University. Participation is free of charge, but registration is required. Coffee and drinks are included. If you want to participate in the masterclass, please send an email before November 17, 2004 to Frank Dignum, dignum@cs.uu.nl, containing your name and affiliation.

SIKS Masterclass by Kalle Lyytinen

Innovation in Software Development and Architecture

Date: November 29, 2004
Time: 10:00-16:00 hrs
Host: Prof.dr. R.J. Wieringa (UT)
Location: University of Twente, Drienerburght, Drienerlolaan 5, Enschede

The Master class will be given in English and is part of the Advanced Components Stage of the educational program for SIKS-Ph.D. students. Therefore, they are strongly encouraged to participate. Other members of SIKS are invited too.

REGISTRATION

Participation is free, but an early registration is required. Please, send an e-mail to office@siks.nl and inform Mrs. Corine Wesselman that you want to participate. After registration, you will receive pre-course reading material and updated information regarding the final programme.

PROGRAMME

Lecture 1: What is Disruptive Innovation in Software Development?

This talk makes on overview of innovation research and discusses how it relates to software development and adopting organizations. In particular it discusses the nature and impact of radical and disruptive technological innovations in software development.

Background paper 1: The Disruptive Nature of Information Technology Innovations: The Case of Internet Computing in Systems Development Organizations

Information technology (IT) innovation can be defined as the creation and new organizational application of digital computer and communication technologies. The paper suggests that IT innovation theory needs to be expanded to analyze IT innovations in kind that exhibit atypical discontinuities in IT innovation behaviors by studying two questions. First, can a model of disruptive IT innovations be created to understand qualitative changes in IT development processes

and their outcomes so that they can be related to architectural discontinuities in computing capability? Second, to what extent can the observed turmoil among systems development organizations that has been spawned by Internet computing be understood as a disruptive IT innovation? To address the first question, a model of disruptive IT innovation is developed. The model defines a disruptive IT innovation as an architectural innovation originating in the information technology base that has subsequent pervasive and radical impacts on development processes and their outcomes. These base innovations establish necessary but not sufficient conditions for subsequent innovation behaviors. To address the second question, the impact of Internet computing on eight leading-edge systems development organizations in the United States and Finland is investigated. The study shows that the adoption of Internet computing in these firms has radically impacted their IT innovation both in development processes and services.

Lecture 2: Learning in High Gear: Hyper-Learning and Dynamic Capability in Seven Software Firms

Innovation implies adopting and deploying something new. In this way it can be regarded as instance of organizational learning. The paper outlines an organizational learning perspective on software development organizations and discusses the dilemmas of learning related to exploration vs. exploitation. A case study exploring organizational learning during fast organizational change and innovation is reported.

Background paper 2: Learning in High Gear: Hyper-Learning and Dynamic Capability in Seven Software Firms

Building on the literature of dynamic capability and organizational learning, we examine strategy execution in hyper-competition as a problem of how organizations can re-configure their learning capability to match with their radically different learning demands. Organizations in hyper-competitive environments face an increasing gap between their learning opportunities and needs, and actual learning performance. In order to survive they must improve their absorptive capacity so that they can learn simultaneously broad, deep and fast. We define such a learning contingency as hyper-learning. To do so, the organization must systematically interlace exploration that seeks to maximize learning breadth and exploitation that seeks to maximize learning depth. Unlike in traditional learning cycles, exploration and exploitation during periods of hyper-learning are not insulated from each other through time or structure.

We explore seven software firms engaged in Web system development during the hey-day on dot.com frenzy and investigate how these companies were able to hyper-learn. We distinguish two mechanisms to speed up exploration: distributed gate-keeping and extended grafting of external knowledge; and two mechanisms to speed up exploitation: simple design patterns and peer networks. These mechanisms were nearly uniformly recognized in all studied organizations. We also examine the systemic configuration and patterning of these activities, which enables organizations to learn in high gear. This organizational learning model is contrasted with the punctuated equilibrium model of learning articulated in mainstream strategy research. Finally some implications for future research and management practice are drawn.

Lecture 3: How does Innovation Take Place in the Context of Networks of Organizations?

Most research on IT impacts and IT innovation has focused on a singular firm. In this paper we report a study which had to adopt a wider and more encompassing view of innovation which spans over networks of organizations. The study is based on actor network theory.

Background paper 3: Path Creation with Digital 3D Representations: Networks of Innovation in Architectural Design and Construction

Using the ideas of path dependence and path creation, we examine the wake of innovations in Architecture, Engineering and Construction (AEC) associated with the adoption of digital three-dimensional (3D) representations. We argue that prevailing practices in AEC will be disrupted by path creating 3D technology appropriations within networks of professional communities. The work of architect Frank Gehry offers us an exemplar of this path creating use of digital 3D representations. We report on a retrospective study of 3D representation-enabled innovation during the design and construction of the Peter B. Lewis Building. Our analysis suggests that a complex information technology innovation, like the use of digital 3D representations, cannot be adequately understood as a singular adoption event. Instead, a more holistic and integrated view of the innovation process is required: one that sees innovation as the mindful deviation from established practices by multiple actors across the boundaries of professional communities. Through a historical, path dependent process, the diverse communities of AEC professionals involved in large-scale building

projects have formed loosely coupled systems of communication based on 2D representations to mediate their interaction and distribute risk. Our study shows how the path creating use of digital 3D representations broke down this path-dependent loosely coupled system. In appropriating the potential of digital 3D representations, actors who were traditionally isolated became mindfully deviant in creating a tightly coupled system. This tightly coupled system was enacted with rich and complex boundary objects enabled by digital 3D representations, and involved radiant changes in work practices, organization structures, strategies, and professional identities. Our study suggests that large-scale innovations with information technology take place through a distributed network of actors engaged in both path-dependent and path-creating behaviors.

CURRICULUM VITAE

Kalle Lyytinen is Iris S. Wolstein professor at Case Western Reserve University, Cleveland, Ohio. He serves also as an adjunct professor at the University of Jyväskylä, Finland. He serves currently on the editorial boards of several leading IS journals including, AIS journal (Senior Editor), Information Systems Research, JSIS, Information & Organization, Requirements Engineering Journal, and Information Systems Journal among others. He has published over 150 scientific articles and conference papers and edited or written eight books on topics related to system design, method engineering, implementation, software risk assessment, computer supported cooperative work, standardization, and ubiquitous computing. He is currently involved in research projects that look at the IT induced innovation in software development, architecture and construction industry, design and use of ubiquitous applications in health care, and is developing a high-level requirements model for large-scale systems. He is also studying in a global scale the development and adoption of broadband wireless standards and services, where his recent studies have focused on South Korea and the U.S. He teaches e-business, mobile business and digital law classes. His research interests include information system theories, computer aided system design and method engineering, system failures and risk assessment, computer supported cooperative work, nomadic computing, and the innovation and diffusion of complex technologies and the role of institutions in such processes.

ROUTE

By public transport: Train to Hengelo, then bus 3 to Enschede (Glanerbrug).

By car: Take the A1 in the direction of Hengelo, then the A35 in the direction of Enschede. Exit 26 “Enschede-West”. Turn left at the traffic lights and follow the signs “Universiteit”.

SIKS Basic Courses

Information and Organisation and Information Retrieval

INTRODUCTION

From December 6 till December 10, 2004, the School for Information and Knowledge Systems (SIKS) organizes two basic courses: (1) *Information and Organisation* and (2) *Information Retrieval*. The location will be Landgoed Huize Bergen in Vught. Both courses will be given in English and are part of the obligatory Basic Course Program for SIKS-Ph.D. students. Although these courses are primarily intended for SIKS-Ph.D. students, other participants are not excluded. However, their number of passes will be restricted and depends on the number of SIKS-Ph.D. students taking the course.

SCIENTIFIC DIRECTORS

- Dr. H. Weigand (TU): Information and Organisation
- Prof.dr.ir. Th. van der Weide (RUN): Information Retrieval

PROGRAMME

The programme is not known yet, but will be available soon (see the SIKS website).

REGISTRATION

In the conference center there is a limited number of places and there is interest from other groups in the topic as well. Therefore, an early registration is required. Deadline for registration for SIKS-Ph.D. students: November 21, 2004.

After that date, applications to participate will be honoured in a first-come first-serve manner. Of course, applications to participate from other interested groups are welcome already. They will receive a notification whether they can participate as soon as possible.

AI EDUCATION

Section Editor
Evert van de Vrie

M.Sc. Theses in Section AI Education

Supervisors of remarkable M.Sc. work are invited to ask their student for a short article, to be submitted to the editor of the Section AI Education.

SECTION KNOWLEDGE SYSTEMS IN LAW AND COMPUTER SCIENCE

Section Editor
Marie-Francine Moens

JURIX 2004

The 17th Annual Conference on Legal Knowledge and Information Systems

8–10 December, 2004
Berlin, Germany

CALL FOR PARTICIPATION

JURIX is the leading European conference on legal knowledge and information systems. The JURIX conferences are held under the auspices of the Dutch Foundation for Legal Knowledge Systems. Papers were solicited on the foundations, methods, tools, systems and applications of legal knowledge and information systems. The JURIX 2004 conference will be held in Berlin, Germany, from December 8-10, 2004.

CONFERENCE PROGRAMME

The following 15 papers have been accepted for presentation at the JURIX 2004 conference:

- Ben Hachey and Claire Grover; University of Edinburgh; *Sentence Classification Experiments for Legal Text Summarisation*.
- Alison Chorley and Trevor Bench-Capon; University of Liverpool; *AGATHA: Automation of the Construction of Theories of Case Domains*.
- Tom M. van Engers, Radboud Winkels, Alexander Boer, and Emile de Maat; University of Amsterdam; *Internet - Portal to Justice?*
- Andrea Bolini, Luca Dini, Pietro Mercatali, and Francesco Romano; ITTIG CNR, Florence; *Models of 'Novelle' and Normative Grammar*.
- Sylvie Despres and Sylvie Szulman; Rene Descartes University, Paris; *Construction of a Legal Ontology from a European Community Legislative Text*.
- Atefeh Farzindar and Guy Lapalme; University of Montreal; *LetSum, an Automatic Legal Text Summarizing System*.
- Marie-Francine Moens; Katholieke Universiteit Leuven; *XML Retrieval Models for Legislation.*
- Tom M. van Engers, Ron van Gog, and Kamal Sayah; University of Amsterdam; *An Empirical Study of Automated Norm Extraction*.
- Guido Governatori and Antonino Rotolo; CIRSFID, University of Bologna; *Modeling Contracts using RuleML*.
- Joost Breuker and Rinke Hoekstra; University of Amsterdam; *DIRECT: Ontology-based Discovery of Responsibility and Causality in Legal Cases*.
- Burkhard Schafer and Jeroen Keppens; University of Edinburgh; *Murdered by Parties Unknown - Speculative Reasoning in Law and Logic*.
- Alexander Boer, Radboud Winkels, Tom M. van Engers and Emile de Maat; University of Amsterdam; *A Content Management System Based on an Event-based Model of Version Management Information in Legislation*.
- Floris Bex and Henry Prakken; Utrecht University and the University of Groningen; *Reinterpreting Arguments in Dialogue: An Application to Evidential Reasoning*.
- V. Richard Benjamins, Jesus Contreras, Mercedes Blazquez, Luis Rodrigo Pompeu Casanovas and Marta Poblet; International Software Components and the Autonomous University of Barcelona; *The SEKT Legal Use Case Components: Ontology and Architecture*.
- Bram Roth and Bart Verheij; University of Groningen; *Dialectical Arguments and Case Comparison.*

WORKSHOP PROGRAMME

One or two workshops will be held in conjunction with the JURIX 2004 conference.

CONFERENCE FEES

The regular fee is 200 Euros, with a reduced rate of 175 Euros for academics and 25 Euros for students. A reduction of 50 Euros is being offered for early registration, before November 15, 2004. The early registration price reduction is not available to students. The fee for the conference dinner is an additional 50 Euros.

MORE INFORMATION

JURIX 2004 conference Website:
http://gi-fg612.fokus.fhg.de/Jurix2004

ORGANIZING COMMITTEE

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- Stephan Breidenbach, European University Viadrina, Frankfurt (Oder), Germany (Organizing Committee Chair).
- Thomas F. Gordon, Fraunhofer FOKUS, Berlin.
- Ronald Leenes, Tilburg University.

PROGRAMME COMMITTEE

- Trevor Bench-Capon, University of Liverpool.
- Daniele Bourcier, University of Paris.
- Tom van Engers, University of Amsterdam.
- Thomas F. Gordon, Fraunhofer FOKUS, Berlin (Program Chair).
- Arno Lodder, Free University Amsterdam.
- Anja Oskamp, Free University Amsterdam.
- Henry Prakken, Utrecht University.
- Helmut Rüßmann, University of the Saarland.
- Giovanni Sartor, University of Bologna.
- Burkhard Schafer, University of Edinburgh.
- Erich Schweighofer, University of Vienna.
- Bart Verheij, University of Groningen.
- Radboud Winkels, University of Amsterdam.

ANNOUNCEMENTS

HCC-AIgg

Peter Uilenreef
Secretary Aigg-board

INTRODUCTION

The HCC–AIgg (Hobby Computer Club – Artificiële Intelligentie gebruikersgroep) is one of the oldest Dutch AI societies. With the rise of professional organisations like the VANN and the BNKVI, the number of professional AI-researchers among its membership has sadly declined; for all that, Jaap van der Herik has told me he is still proud of his contributions to the AIgg and its newsletter "Kennisgeving" in its early days. (Kennisgeving as a paper distribution was, I am sorry to say, discontinued last year).

The AIgg has its own website at: www.ai.hccnet.nl

Together with the Robotica-gg of the HCC, the AIgg organizes meetings from 10 till 16 o'clock on the first Saturday of each month in Nieuwegein (8 km south of Utrecht). The time from 14 till 15 o'clock is reserved for presentations from members or from speakers from outside.

CALL FOR PRESENTATIONS

The AIgg invites Dutch and Belgian AI-professionals who are willing to present their work to a lay audience (20-30 persons interested in AI), to get in touch with p.l.uilenreef@kader.hobby.nl.

Travelling expenses (30ct/km) will be reimbursed. A beamer and projection screen are available. Preferred language is Dutch; presentations can be given in English (e.g., for purposes of try-outs).

On behalf of the AIgg-board:
Peter Uilenreef, secretary

CONFERENCES, SYMPOSIA WORKSHOPS

Below, the reader finds a list of conferences and websites or addresses for further information.

NOVEMBER 25-27, 2004
5th annual European GAME-ON Conference (Game'On 2004). Het pand, Ghent, Belgium.
http://biomath.ugent.be/~eurosis/conf/gameon/gameon2004/

DECEMBER 1-3, 2004
IEEE Conference on Cybernetics and Intelligent Systems (CIS2004). Singapore.
http://cis-ram.nus.edu.sg

DECEMBER 2-3, 2004
5th International Conference on Practical Aspects of Knowledge Management. Vienna, Austria.
www.dke.univie.ac.at/pakm2004

DECEMBER 5-8, 2004
4th International Conference on Hybrid Intelligent Systems (HIS'04). Kitakyushu, Japan.
http://his04.hybridsystem.com

DECEMBER 13-15, 2004
The 2nd International Conference on Autonomous Robots and Agents (ICARA 2004). Massey University, Palmerston North, New Zealand.
http://conferences.massey.ac.nz/ICARA2004

DECEMBER 15-17, 2004
International Conference on Computational Intelligence and International Conference on Signal Processing (ICCI 2004 & ICSP 2004). Istanbul, Turkey.
http://www.ijci.org/icci2004.htm (ICCI 2004)
http://www.ijsp.org/icsp2004.htm (ICSP 2004)

DECEMBER 16-17, 2004
The Second European Workshop on Multi-Agent Systems. Barcelona, Spain.
http://www.eumas.org/2004/

DECEMBER 23, 2004
Symposium: Recent Trends in Relational Data Mining. Kasteelpark Arenberg 1, Leuven, Belgium.
www.cs.kuleuven.be/~jan/symposium

JANUARY 22-28, 2005
SOFSEM 2005. 31st Annual Conference On Current Trends in Theory and Practice of Informatics. Liptovsky Jan, Slovakia.
http://www.sofsem.sk

MARCH 10-11, 2005
Future Business Technology Conference 2005 (Fubutec-2005). Insead, Fontainebleau, France.
http://biomath.ugent.be/~eurosis/conf/fubutec/fubutec2005/index.html

MARCH 24-26, 2005
Social Intelligence Design 2005 (Sid 2005). Stanford University, Stanford, Ca, USA.
http://pbl.stanford.edu/News/SID2005.html

MARCH 27-31, 2005
The 3rd International Conference on Sciences of Electronic, Technologies of Information and Telecommunications (SETIT 2005). Susa, Tunisia.
http://www.universites.tn/setit

MARCH 29-APRIL 1, 2005
The 2005 IEEE International Conference on e-Technology, e-Commerce and e-Service (EEE-05). Hong Kong.
http://www.comp.hkbu.edu.hk/~eee05

APRIL 2-10, 2005
8th Intl. Conf. on Fundamental Approaches to Software Engineering (FASE 2005). Edinburgh, Scotland.
http://fase05.disi.unige.it/

APRIL 4-6, 2005
IEEE Symposium on Computational Intelligence and Games. Essex University, Colchester, UK.
http://www.cigames.org

APRIL 11-13, 2005
10th Annual Euromedia Conference (Euromedia 2005). Toulouse, France.
http://biomath.ugent.be/~eurosis/conf/euromedia/euromedia2005/

MAY 4-6, 2005
ACM International Conference on Computing Frontiers (CF '05). Ischia, Italy.
http://cf05.ac.upc.es

MAY 10-14, 2005
The Fourteenth International World Wide Web Conference (WWW2005). Chiba, Japan.
http://www2005.org/

MAY 22-25, 2005
International Conference on Computational Science (ICCS 2005). Atlanta, USA.
http://www.iccs-meeting.org/

MAY 24-28, 2005
International Conference on Enterprise Information Systems (ICEIS-2005). Miami, USA.
http://www.iceis.org

JUNE 6-10, 2005
Tenth International Conference on Artificial Intelligence and Law (ICAIL 2005). Bologna, Italy.
http://www.iaail.org

JUNE 13-17, 2005
The 17th Conference on Advanced Information Systems Engineering (CAiSE'05). Porto, Portugal.
http://www.fe.up.pt/caise2005/

JULY 18-22, 2005
13th International Conference on Conceptual Structures: Common Semantics for Sharing Knowledge ICCS 2005). Kassel, Germany.
http://www.kde.cs.uni-kassel.de/conf/iccs05

JULY 24-29, 2005
10th International Conference on User Modeling (UM'05). Edinburgh, Scotland, UK.
http://gate.ac.uk/conferences/um2005/

ADDRESSES
BOARD MEMBERS BNVKI

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