PROGRAM

Benelux Conference on Artificial Intelligence

Eindhoven, 29-30 October 2009

Toon Calders, Karl Tuyls, Mykola Pechenizkiy
TU/e Campus

Conference Venue (Auditorium)
Program at a Glance

Thursday October 29th

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<th>Time</th>
<th>Room A3</th>
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**Registration**

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<td>14:30</td>
<td>→ 16:05</td>
<td>4P: IA1</td>
<td>4P: A&amp;R</td>
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<td>4P: ML1</td>
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**Coffee break**

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**Lunch (Senaatszaal) and Poster + demo session I (Voorhof)**

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**Conference Dinner**

Friday October 30th

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**Keynote talk Peter Flach (Blauwe zaal)**

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<td>2P: NLP</td>
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<td>10:45</td>
<td>→ 11:05</td>
<td>2P: EC</td>
<td>2P: ML2</td>
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<td>11:05</td>
<td>→ 12:40</td>
<td>4P: KRR</td>
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<td>→ 14:10</td>
<td>4P: CS</td>
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<td>4P: IA2</td>
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**Award Session (Blauwe zaal)**

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**Reception**

| AP1 & AP2 | (AP1) & (AP2) Applications I and II | (NLP) Natural Language Processing |
| A&R | (A&R) Applications and Robotics | (ABS) Agent-Based Simulation |
| G | (G) Games | (IA1) & (IA2) Intelligent Agents I and II |
| L | (L) Logics in AI | (SW) Semantic Web |
| DM | (DM) Datamining | (KRR) Knowledge Representation and Reasoning |
| ML1 & ML2 | (ML1) & (ML2) Machine Learning I and II | (CS) Complex Systems |
| EC | (EC) Evolutionary Computation | (MAL) Multi-Agent Learning |
### Thursday, October 29th

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<td>9:45 → 10:00</td>
<td>Opening</td>
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<td>10:00 → 11:10</td>
<td>3 parallel sessions</td>
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#### (MAL) Multi-Agent Learning  
*Chair: Katja Verbeeck*

- **Replicator Dynamics for Multi-agent Learning - An Orthogonal Approach**  
  *Michael Kaisers*

- **Learning what to observe in multi-agent systems**  
  *Yann-Michael De Hauwere, Peter Vraaen and Ann Nowé*

- **Decentralized Learning in Wireless Sensor Networks**  
  *Mihail Mihaylov, Karl Tuyls and Ann Nowe*

#### (ABS) Agent-Based Simulation  
*Chair: Frances Brazier*

- **Comparison of Agent-Based and Population-Based Simulations of Displacement of Crime**  
  *Tibor Bosse, Charlotte Gerritsen, Mark Hoogendoorn, Syed Waqar Jaffry and Jan Treur*

- **Using Agent-based Organisational Models for Crisis Management**  
  *Thomas B. Quilliman, Frances Brazier, Huib Aldewereld, Frank Dignum, Virginia Dignum, Loris Penserini and Niek Wijnjaards*

- **Modelling Social Learning of Adolescence-Limited Criminal Behaviour**  
  *Tibor Bosse, Charlotte Gerritsen and Michel C.A. Klein*

#### (AP1) Applications I  
*Chair: Peter Bosman*

- **Eye Movements Disclose Decisions in Set**  
  *Joost Broekens, Walter A. Kosters and Timo de Vries*

- **Evolutionary Multiobjective Optimization for Dynamic Hospital Resource Management**  
  *Anke K. Hutzschereuter, Peter A.N. Bosman and Han La Poutré*

- **Stable Scheduling of Airport Ground Handling Services by Heterogeneous Agents**  
  *Xiaoyu Mao, Nico Roos and Alfons Salden*

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<td>11:25 → 13:00</td>
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#### (G) Games  
*Chair: Jos Uiterwijk*

- **A step in the right direction: Botdetection in MMORPGs using movement analysis**  
  *Marliene van Kesteren, Jurriaan Langevoort and Franc Grootjen*

- **Solving SameGame and its Chessboard Variant**  
  *Frank W. Takes and Walter A. Kosters*
Monte-Carlo Tree Search in Poker using Expected Reward Distributions
Guy Van den Broeck, Kurt Driessens and Jan Ramon

Randomized Parallel Proof-Number Search
Jahn-Takeshi Saito, Mark H.M. Winands and H. Jaap van den Herik

(L) Logics in AI
Chair: Koen Hindriks

Preferential model and argumentation semantics
Nico Roos

Complete Extensions in Argumentation Coincide with Three-Valued Stable Models in Logic Programming
Martin Caminada and Yining Wu

Service Specification and Matchmaking using Description Logic
M. Birna van Riemsdijk, Rolf Hennicker, Martin Wirsing and Andreas Schroeder

Code Patterns for Agent-Oriented Programming
Peter Novak and Wojciech Jamroga

(DM) Datamining
Chair: Hendrik Blockeel

Approximation Bound for K-Means clustering of Binary Data
Nikolaj Tatti

Constraint Programming for Correlated Itemset Mining
Tias Guns, Siegfried Nijssen and Luc De Raedt

A new constraint for mining sets in sequences
Boris Cule, Bart Goethals and Celine Robardet

Descriptive Mining of Folk Music: A testcase
Jonatan Taminau, Ruben Hillewaere, Stijn Meganck, Darrell Conklin, Ann Nowé and Bernard Manderick

13:00 → 14:30 Lunch, Poster Session I & Demos

14:30 → 16:05 3 parallel sessions

(IA1) Intelligent Agents I
Chair: Gerhard Weiss

Nash Social Welfare in Multiagent Resource Allocation
Sara Ramezani and Ulle Endriss

Computing the fault tolerance of multi-agent deployment
Yingqian Zhang, Efrat Manisterski, Sarit Kraus, V.S. Subrahmanian and David Peleg

A Distributed Agent-based Approach to Stabilization of Global Resource Utilization
Evangelos Pournaras, Martijn Warnier and Frances Brazier

Multi-player Multi-issue Negotiation with Complete Information
Mengziao Wu, Mathijs de Weerdt, Han La Poutre, Chetan Yadati, Yingqian Zhang and Cees Witteveen

(A&R) Applications and Robotics
Chair: Jaap van den Herik

A Personalized Tourist Trip Design Algorithm for mobile Tourist Guides
Wouter Souffriau, Pieter Vansteenwegen, Joris Vertommen, Greet Vanden Berghe and Dirk Van Oudheusden

Intelligent Agent Modeling as Serious Game
Rick D.W.F. van Kweelden

Humanoid Robots are Retrieving Emotion from Motion Analysis
Tino Lourens and Emilia Barakova

Local sampling for indoor flight
Guido C.H.E. de Croon, Christophe de Wagter, Bart Remes and Rick Ruijsink
**(ML1) Machine Learning I**  
*Chair: Walter Kosters*

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| 16:30 → 17:30 | Invited Talk                                           | **Reliable Life-long Navigation for Mobile Robots**  
  *Prof. Wolfram Burgard*  
  Over the last years, there has been a tremendous progress in the area of mobile robot navigation. Robots are able to build large-scale maps of their environments and to use these maps for navigation. However, the final step towards fully autonomous robots in real-world scenarios and industrial applications has not entirely been taken. In this presentation, I will describe some state-of-the-art techniques for robot navigation, potentials, and open research questions for taking the leap towards truly autonomous robots operating over long periods of time in complex and dynamic application scenarios.  
| 17:30 → 17:35 | Announcements                                         |                                                                                  |
| 18:30 → . . . | Conference Dinner                                       |                                                                                  |
Machine Learning: Unity in Diversity  
*Peter Flach*

The last decade has seen the range of AI applications in everyday computing grow at an unprecedented rate. Necessitated by the ever-increasing volume of digital data, many of these applications involve some form of machine learning. That principles of machine learning are entering the computer science curriculum seems therefore entirely justifiable. Nevertheless, the field can appear impenetrable to a novice due to a bewildering diversity of possible methods and approaches. The aim of this talk is to emphasise the unifying elements in this diversity. Most of these elements have always been there but were perhaps not given the place they deserve. For instance, every machine learning model is built from features, yet features are typically taken for granted and discussed only in passing, if at all. I will also propose a novel and pragmatic distinction between splitting models and grading models, which offers several advantages over more common but ultimately somewhat arbitrary oppositions such as Bayesian, instance-based, rule-based, and the like.

(NLP) Natural Language Processing  
*Chair: Antal van den Bosch*

Token merging in language model-based confusible disambiguation  
*Herman Stehouwer and Menno van Zaanen*

Predicting the Past: Memory Based Copyist and Author Discrimination in Medieval Epics  
*Mike Kestemont and Karina Van Dalen-Oskam*

(EC) Evolutionary Computation  
*Chair: Ida Sprinkhuizen*

On Empirical Memory Design, Faster Selection of Bayesian Factorizations and Parameter-Free Gaussian EDAs  
*Peter A.N. Bosman*

Evolving and Transferring Probabilistic Policies for Relational Reinforcement Learning  
*Martijn van Otterlo and Tim De Vuyst*

(ML2) Machine Learning II  
*Chair: Peter Lucas*

Using a satisfiability solver to identify deterministic finite state automata  
*Marijn Heule and Sicco Verwer*

Adaptive Concept Drift Detection  
*Anton Dries and Ulrich Rickert*

Coffee break
(KRR) Knowledge Representation and Reasoning  
Chair: Birna van Riemsdijk

Identifying disease-centric subdomains in very large medical ontologies, a case-study on breast-cancer concepts in SNOMED
Krystyna Milian, Zharko Aleksovski, Richard Vdovjak, Frank van Harmelen and Annette ten Teije

Preferring maximum confirmation diagnoses
Nico Roos

Ontology-based Business Activity Monitoring Agent
Duco Ferro, Mark Hoogendoorn and Catholijn M. Jonker

Determining the Environment: A Modal Logic for Closed Interaction
Jan Broersen, Rosja Mastop, John Jules Ch. Meyer and Paolo Turrini

(CS) Complex Systems  
Chair: Martijn Schut

The Complex Dynamics of Sponsored Search Markets
Valentin Robu, Han La Poutré and Sander Bohte

Behavioral differences and the evolution of cooperation in adaptive social networks
Sevan Van Segbroeck, Francisco C. Santos, Tom Lenaerts and Jorge M. Pacheco

Adaptive Learning in Evolving Task Allocation Networks
Tomas Klos and Bart Nootboom

The Windmill Method for Setting up Support for Resolving Sparse Incidents in Communication Networks
Duco N. Ferro, Catholijn M. Jonker and Alfons H. Salden

Industry Track  
Chair: Mykola Pechenizkiy

Invited Talk

AI in the Wild: Decisioning, Predictive Analytics and Simulation for Customer Experience Optimization
Peter van der Putten

To put it mildly, the field of marketing doesn’t always have a positive image with the general public. To a large extent companies themselves are to blame because of bombarding random customers with untargeted, irrelevant and untimely sales messages. Companies are starting to realize that they are better off if they balance business priorities with actual customer needs at an individual customer level, and that interactions that the customer initiates are perhaps a better moment in time to make real time recommendations on how to get more value out of the company, leading to an improved customer experience. More visionary marketeers are using rule and machine learning based technologies such as real time predictive data mining and decisioning on a massive scale to enable this. In this talk I would like to give a peak behind the scenes and provide real world examples of the extent and type of use and what some the challenges are when deploying these technologies out of the lab, into the wild.

A Modular Hybrid Recommender Engine
Marco Tiemann, Steffen Pauws and Fabio Vignoli

Applying Bayesian Networks for Intelligent Adaptable Printing Systems
Arjen Hoomersom, Peter Lucas, Ren Waarsing and Pieter Koopman
14:10 → 15:45

3 parallel sessions

(IA2) Intelligent Agents II
Chair: Ann Nowé

Automated Visual Attention Manipulation (Extended Abstract)
Tibor Bosse, Rianne van Lambalgen, Peter-Paul van Maanen and Jan Treur

Filtering Algorithm for Agent-Based Incident Communication Support in Mobile Human Surveillance
Duco N. Ferro, and Catholijn M. Jonker

Coordination by design and price of autonomy
Chetan Yadati, Adriaan ter Mors, Cees Witteveen and Yingqian Zhang

Approximating the Qualitative Vickrey Auction by a Negotiation Protocol
Koen V. Hindriks, Dmytro Tykhonov and Mathijs de Weerdt

(SW) Semantic Web
Chair: Leon van der Torre

Reasoning with Spatial Plans on the Semantic Web
Rinke Hoekstra, Radboud Winkels and Erik Hupkes

Using Semantic Distances for Reasoning with Inconsistent Ontologies
Zhisheng Huang and Frank van Harmelen

Knowledge Engineering rediscovered: Towards Reasoning Patterns for the Semantic Web
Frank van Harmelen, Annette ten Teije and Holger Wache

Genetic Algorithms for RDF Chain Query Optimization
Alexander Hogenboom, Viorel Milea, Flavius Frasincar and Uzay Kaymak

Industry Track & Applications II
Chair: Mykola Pechenizkiy

Industry Track
Data mining for intelligence led policing
Rob van der Veer

(AP2) Applications II
Chair: Virginia Dignum

Multi-Agent Based Simulation for Boarding
Jan Audenaert, Katja Verbeeck and Greet Vanden Berghe

Automatic Web Site Authoring with SiteGuide
Viktor de Boer, Vera Hollink and Maarten van Someren

The Free Speech Engine: Conversational web service compatibility for free
Ruud Stegers, Frank van Harmelen and Annette ten Teije

15:45 → 16:00
Coffee Break

16:00 → 16:30
Award Session

16:30 → …
Farewell Reception
Posters

Poster Session I  
Thursday, Lunchbreak, Voorhof

Meaningful Representations Prevent Catastrophic Interference  
Jordi Bieger, Ida Sprinkhuizen-Kuyper and Iris van Rooij

Checking Consistency in role oriented Dependence Networks  
Guido Boella, Valerio Genovese, Leon van der Torre and Serena Villata

Bayesian Networks: the Range of the Prior Convergence Error  
Janneke H. Bolt

White Manipulation in Judgment Aggregation  
Davide Grossi, Gabriella Pigozzi and Marija Slavkovska

Immobile Random Sensor Networks for Surveillance and Rescue  
Theo M. Hupkens, Raymundo R. Hordijk and Oscar J.G. Somsen

False information and the emergence of conflict  
Steven de Jong

Exploring Stable and Emergent Network Topologies  
Paul D. van Klaveren, Herman Monsuur, Rene H.P. Janssen, Martijn C. Schut and Aguston E. Eiben

Negotiation Protocols in Distributed Nurse Rostering  
Ruben Lagatie, Stefaan Haspeslagh and Patrick De Causmaecker

The application of complex systems concepts in a military context  
Anthonie van Lieburg, Nanne Le Grand and Martijn Schut

Optimized online learning for QoE prediction  
Vlado Menkovski, Adetola Oredope, Antonio Liotta and Antonio Cuadra Sánchez

Towards prediction of algorithm performance in real world optimisation problems  
Tommy Messelis, Stefaan Haspeslagh, Burak Bilgin, Patrick De Causmaecker and Greet Vanden Berghe

Using Intelligent Search Techniques to Play the Game Khet  
Pim J.A.M. Nijssen and Jos W.H.M. Uiterwijk

Visual Concept Detection using MOD Salient Points  
Ard Oerlemans, Erwin M. Bakker and Michael S. Lew

Matching and Maximizing? A neurally plausible model of stochastic reinforcement learning  
Jered Vroon, Iris van Rooij and Ida Sprinkhuizen-Kuyper

Combining Visual Exploration and Searching for Interactive Texture Retrieval  
Bart Thomee, Mark. J. Huiskes, Erwin Bakker and Michael S. Lew

An Agent Model of Temporal Dynamics in Relapse and Recurrence in Depression  
Azizi A. Aziz, Michel C.A. Klein, and Jan Treur

Development of Virtual Agents with a Theory of Emotion Regulation  
Tibor Bosse and Frank P. J. de Lange

Discrimination Aware Classification  
Faisal Kamiran and Toon Calders

Poster Session II  
Friday, Lunchbreak, Voorhof

An Agent Model for a Human’s Functional State and Performance  
Tibor Bosse, Fiemke Both, Roanne M. van Lambalgen and Jan Treur

Truth, Lies and BS; distinguishing classes of dishonesty  
Martin Caminada

Reasoning About Multi-Attribute Preferences  
Koen V. Hindriks, Catholijn M. Jonker and Wietske Visser

The Influence of Culture on ABMP Negotiation Parameters  
Gert Jan Hofstede, Catholijn M. Jonker and Tim Vereeckt

Incorporating BDI agents into human-agent decision making research  
Bart Kamphorst, Arlette van Wissen, Virginia Dignum

AH 12 Years Later: a Comprehensive Survey of Adaptive Hypermedia Methods and Techniques  
Evgeny Knutov, Paul De Bra and Mykola Pechenizkiy
Argumentation Mining: The Detection, Classification and Structuring of Arguments in Text  
Raquel Mochales Palau and Marie-Francine Moens

Towards nature-inspired communication in Peer-To-Peer networks  
Christophe Guéret

Social diversity favors the emergence of cooperative behavior  
Francisco C. Santos, Marta D. Santos, Sven Van Segbroeck and Jorge M. Pacheco

Dynamic Service Reconfiguration and Enactment Using an Open Matching Architecture  
Sander van Splunter, Frances Brazier, Julian Padget and Omer Rana

Quiescence Search for Stratego  
Maarten P.D. Schadd and Mark H.M. Winands

Opponent Modeling in Stratego  
Jan A. Stankiewicz and Maarten P.D. Schadd

Intelligent Assistants in Crisis Management: from PDA to TDA  
Jurriaan van Diggelen, Robbert-Jan Beun and Peter J. Werkhoven

Extracting the Main Content from HTML Documents  
Samuel Louvan

Prediction of Successful Participation in a Lifestyle Activity Program using Data Mining Techniques  
Marten Pijl, Joyce Lacroix, Steffen Pauws and Annelies Goris

In Search for Intelligence: Automatically Estimating the Implicitness of Police Officers Observation Messages, an Ongoing Action Research  
Xandra van de Putte, Paul Oling and Jan-Kees Schakel

eHealth Personalization in the Next Generation RPM Systems  
Aleksandra Tesanovic, Goran Manev, Mykola Pechenizkiy and Ekaterina Vasilyeva

Context Aware Sales Prediction  
Indrė Žliobaitė, Jorn Bakker and Mykola Pechenizkiy

Demonstrations  

Friday & Thursday, Lunchbreak, Voorhof

Developing Novel Extensions to Support Prototyping for Interactive Social Robots  
Martijn ten Bhömer, Christoph Bartneck, Jun Ha, Rene Ahn, Karl Tuyls, Frank Delbressine and Loe Feijs

Cobes: The clean, safe and hospitable metro  
Tom van Bergen, Maarten Brugmans, Bart Dohmen and Niels Molenaar

SmartGoals: a Hybrid Human-Agent Soccer Training System  
Mark de Graaf, Harm van Essen and Pepijn Reijnbout

Tourist Decision Support for Mobile Navigation Systems: a Demonstration  
Joris Maervoet, Wouter Souffriau, Pieter Vansteenwegen, Greet Vanden Berghe and Dirk Van Oudheusden

Finding malfunctions in HVAC installations  
Siem Opschoor

Simulating Knowledge and Dishonesty in a Client-Consultant Setting  
Eugen Staab and Martin Caminada

Multi-agent Train Driver Rescheduling: Simulating Environment Dynamics  
Erwin J.W. Abbink, Pieter-Jan Fioole, David Mobach, Leo Kroon, Eddy van der Heijden and Niek Wijnjaards

Large Scale Text Mining with Highly Accurate Detection of Negatives  
Jakub Zavrel, Remko Bonnema, Martijn Spitters, Gert Meijerink and Gerard Mulder
Notes
Notes
Notes