Lisbon
ECAI
2010
PORTUGAL

19th European Conference on Artificial Intelligence

August 16-20, 2010
Lisbon, Portugal

Contents

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Paulo Vieira
Pedro Brito
Tony Tam

Program at a glance

Sunday, August 15

Registration desk opens from 14h00 until 18h30. **Location: building C6**

Monday, August 16

08:00 **Registration**
09:00 **Workshop Sessions (C8)** WS1 WS2 WS3 WS5 WS6 WS8 WS10 WS13 WS16 WS21
      Tutorial (C6) Sarit Kraus
      Tutorial (C6) João Marques-Silva
      STAIRS (C6) Session 1
10:30 **Coffee break**
11:00 **Workshop Sessions (C8)** WS1 WS2 WS3 WS5 WS6 WS8 WS10 WS13 WS16 WS21
      Tutorial (C6) Sarit Kraus
      Tutorial (C6) João Marques-Silva
      STAIRS (C6) Session 2
12:30 **Lunch**
14:00 **Workshop Sessions (C8)** WS1 WS2 WS3 WS5 WS6 WS8 WS10 WS13 WS16 WS21
      Tutorial (C6) Sarit Kraus
      Tutorial (C6) Paul E. Dunne
      STAIRS (C6) Session 3
15:30 **Coffee break**
16:00 **Workshop Sessions (C8)** WS1 WS2 WS3 WS5 WS6 WS8 WS10 WS13 WS16 WS21
      Tutorial (C6) Sarit Kraus
      Tutorial (C6) Paul E. Dunne
      STAIRS (C6) Session 4

Tuesday, August 17

08:00 **Registration**
09:00 **Workshop Sessions (C8)** WS1 WS4 WS5 WS9 WS11 WS12 WS14 WS17 WS19 WS20
      Tutorial (C6) Rina Dechter
      Tutorial (C6) Ulle Endriss
      STAIRS (C6) Session 5
10:30 **Coffee break**
11:00 **Workshop Sessions (C8)** WS1 WS4 WS5 WS9 WS11 WS12 WS14 WS17 WS19 WS20
      Tutorial (C6) Rina Dechter
      Tutorial (C6) Ulle Endriss
      STAIRS (C6) Session 6
12:30 **Lunch**
14:00 **Workshop Sessions (C8)** WS1 WS4 WS5 WS9 WS11 WS12 WS14 WS17 WS19 WS20
      Tutorial (C6) Ilkka Niemelä
      STAIRS (C6) Session 7
15:30 **Coffee break**
16:00 **Workshop Sessions (C8)** WS1 WS4 WS5 WS9 WS11 WS12 WS14 WS17 WS19 WS20
      Tutorial (C6) Ilkka Niemelä
      STAIRS (C6) Invited Talk
17:00 **STAIRS (C6)** Session 8
18:15 **Opening Session (C3)**
18:30 **Plenary Speaker (C3)** Ian Horrocks
19:30 **Welcome Reception (Museu da Cidade)**

Wednesday, August 18

08:00	**Registration**
09:00	**Plenary Speaker (C3)** Manuela Veloso
10:00	**Coffee break**
10:30	**Main Conference (C3)** Sessions 1B 1D
	Main Conference (C6) Sessions 1A 1C 1E
	PAIS (C3) Session 1F
12:30	**Lunch**
14:00	**Main Conference (C3)** Sessions 2B 2D
	Main Conference (C6) Sessions 2A 2C 2E
	PAIS Session 2F
15:30	**Coffee break**
16:00	**Main Conference (C3)** Sessions 3C
	Main Conference (C6) Sessions 3A 3B 3D
	ECCAI Award Talk 3E
	PAIS Session 3F

Thursday, August 19

09:00	**Plenary Speaker (C3)** Judea Pearl
10:00	**Coffee break**
10:30	**Main Conference (C3)** Sessions 4A 4C 4E
	Main Conference (C6) Sessions 4B 4D 4F
12:30	**Lunch**
14:00	**Poster Session (C3)**
15:30	**Coffee break**
16:00	**Main Conference (C3)** Sessions 5A 5E
	Main Conference (C6) Sessions 5B 5C 5D
20:00	**Conference Banquet**

Friday, August 20

09:00	**Plenary Speaker (C3)** Christos Papadimitriou
10:00	**Coffee break**
10:30	**Main Conference (C3)** Sessions 6D 6E 6F
	Main Conference (C6) Sessions 6A 6B 6C
12:30	**Lunch**
14:00	**Main Conference (C3)** Sessions 7A 7C 7D
	Main Conference (C6) Sessions 7B 7E 7F
15:00	**Closing Session**

Invited speakers

Ian Horrocks, Oxford University, UK
OWL: a Reasonable Ontology Language?
Tuesday, 17th August, 2010, 18h30 (3.2.14)

Manuela Veloso, CMU, USA
Autonomous Mobile Robots Coexisting with Humans in Indoor Environments
Wednesday, 18th August, 2010, 9h00 (3.2.14)

Judea Pearl, UCLA, USA
The Logic of Causes and Counterfactuals
Thursday, 19th August, 2010, 9h00 (3.2.14)

Christos Papadimitriou, UC Berkeley, USA
Computing Nash equilibria: The plot thickens
Friday, 20th August, 2010, 9h00 (3.2.14)

Ian Horrocks
OWL: a Reasonable Ontology Language?

The design of OWL was heavily influenced by description logics. One motivation for this was to enable the use of description logic inspired reasoning systems in OWL applications. In the more than six years since the publication of the standard, OWL has become a mainstream technology that is supported by major technology vendors and has been deployed in a wide range of applications. In this talk I will review our experience with OWL, consider the extent to which it has satisfied application requirements, and in particular examine both the usefulness and feasibility of OWL reasoning in practice.

SHORT BIO

Ian Horrocks is a Professor in the Oxford University Computing Laboratory where he jointly (with Georg Gottlob) leads the Information Systems Group. His research interests include description logics, ontology languages, and reasoning systems. He was centrally involved in the development of the OIL, DAML+OIL and OWL ontology languages, and was co-chair of the W3C Working Group that recently developed OWL 2. He also developed algorithms and implementation techniques that are employed in many reasoning systems. He has published more than 150 articles in conferences, journals and books. He is a BCS Fellow, an ECCAI Fellow, an EPSRC Senior Research Fellow and a past winner of the BCS Roger Needham award.

Manuela Veloso
Autonomous Mobile Robots Coexisting with Humans in Indoor Environments

We envision ubiquitous autonomous mobile robots that can help and coexist with humans. Such robots are still far from common, as our environments offer great challenges to robust robot perception, cognition, and action. We realize the envisioned robot and human coexistance as offering a symbiotic human-robot interaction, such that we view robots and humans with complementary limitations and expertise. I will present CoBot, our visitor's companion robot that can provide guidance to visitors unfamiliar with the building, while it can also identify and overcome its limitations by asking for human help. I will present CoBot's effective mobile robot indoor localization and navigation algorithms that use a WiFi signature perceptual map combined with geometric constraints of the building. I will illustrate CoBot's performance with examples of a few autonomous hours-long past runs of the robot in Wean Hall and very recent runs in the new Gates Hillman Center. I will then discuss the opportunities and tradeoffs raised by the symbiotic human-robot interaction, and present illustrative studies. I conclude with the presentation of our second CoBot robot and the presentation of our ongoing work towards having multiple robots and humans engaged in planning and coordination for a variety of tasks.

SHORT BIO

Manuela M. Veloso is Herbert A. Simon Professor of Computer Science at Carnegie Mellon University. She directs the CORAL research laboratory, for the study of agents that Collaborate, Observe, Reason, Act, and Learn, www.cs.cmu.edu/~coral. Professor Veloso is a Fellow of the Association for the Advancement of Artificial Intelligence, and the President of the RoboCup Federation. She recently received the 2009 ACM/SIGART Autonomous Agents Research Award for her contributions to agents in uncertain and dynamic environments, including distributed robot localization and world modeling, strategy selection in multiagent systems in the presence of adversaries, and robot learning from demonstration. Professor Veloso is the author of one book on "Planning by Analogical Reasoning" and editor of several other books. She is also an author in over 200 journal articles and conference papers.

Judea Pearl
The Logic of Causes and Counterfactuals

I will present a few basic principles and simple mathematical tools that are sufficient for solving most (if not all) problems involving causal and counterfactual relationships. The principles are based on non-parametric structural equation models, a natural generalization of those used by econometricians in the 1950-60s, yet cast in new mathematical underpinnings. This semantical framework, enriched with a few ideas from logic and graph theory, gives rise to a formal yet friendly calculus of counterfactuals that unifies all existing approaches to causation and resolves long-standing problems in several of the sciences. These include questions of confounding, causal effect estimation, policy analysis, legal responsibility, retrospective analysis, effect decomposition (mediation), instrumental variables, and the integration of data from diverse studies.
Reference: J. Pearl, Causality (Cambridge University Press, 2nd ed. 2009)
http://bayes.cs.ucla.edu/jp_home.html
http://bayes.cs.ucla.edu/IJCAI99
http://ftp.cs.ucla.edu/pub/stat_ser/r350.pdf

SHORT BIO
Judea Pearl is a professor of computer science and statistics at the University of California, Los Angeles. He is a graduate of the Technion, Israel Institute of Technology, and has joined the faculty of UCLA in 1970, where he currently directs the Cognitive Systems Laboratory and conducts research in artificial intelligence, causal inference and philosophy of science. He has authored three books: Heuristics (1984), Probabilistic Reasoning (1988), and Causality (2000). A member of the National Academy of Engineering, and a Founding Fellow the American Association for Artificial Intelligence (AAAI), Judea Pearl is the recipient of the IJCAI Research Excellence Award for 1999, the London School of Economics Lakatos Award for 2001 and the ACM Alan Newell Award for 2004. In 2008, he received the Benjamin Franklin Medal for Computer and Cognitive Science from the Franklin Institute.

Christos Papadimitriou
Computing Nash equilibria: The plot thickens

Roger Myerson argued in 1999 that the Nash equilibrium lies at the foundations of modern economic thought. Seven years later, it was proven (by Daskalakis, Goldberg, and the speaker) that the concept's universality, famously established by Nash in 1950, is problematic, in that the problem of finding a Nash equilibrium is computationally intractable. Since then many more aspects of Nash equilibria in games and markets have been explored from the complexity standpoint, and the dark computational side of the concept keeps getting gloomier. We review several recent results establishing that playing repeated games, or playing games under considerations of risk, or disambiguating games via equilibrium selection a`-la Harsanyi-Selten, or computing equilibria by the homotopy method, are all rife with more and more serious complexity impediments.

SHORT BIO
Christos H. Papadimitriou is C. Lester Hogan Professor of Computer Science at UC Berkeley. Before joining Berkeley in 1996 he taught at Harvard, MIT, Athens Polytechnic, Stanford, and UCSD. He has written five textbooks and many research articles on algorithms and complexity, and their applications to optimization, databases, AI, economics, and the Internet. He holds a PhD from Princeton, and honorary doctorates from ETH (Zurich), the University of Macedonia, the University of Athens, and the University of Cyprus. He is a member of the American Academy of Arts and Sciences and of the National Academy of Engineering, and the National Academy of Sciences of the USA, and a fellow of the ACM. His novel Turing was published by MIT Press in 2003, and his graphic novel Logicomix (with Apostolos Doxiadis) by Bloomsbury in 2008.

List of Workshops

WS1   CLIMA
11th International Workshop on Computational Logic in Multi-Agent Systems
Organisers Jürgen Dix, Guido Governatori, Wojtek Jamroga and João Leite

WS2   ConfWS
13th Workshop on Configuration
Organisers Lothar Hotz and Alois Haselboeck

WS3   M-PREF
5th Multidisciplinary Workshop on Advances in Preference Handling
Organisers Jérôme Lang and Patrice Perny

WS4   MRC
6th International Workshop on Modelling and Reasoning in Context
Organisers Jörg Cassens, Anders Kofod-Petersen, Marielba Zacarias and Rebekah Wegener

WS5   ARCOE
2nd Workshop on Automated Reasoning about Context and Ontology Evolution
Organisers Alan Bundy, Jos Lehmann, Guilin Qi and Ivan Varzinczak

WS6   ExaCt
5th International Workshop on Explanation-aware Computing
Organisers Thomas Roth-Berghofer, Nava Tintarev, David Leake and Daniel Bahls

WS8   CMNA
10th International Workshop on Computational Models of Natural Argument
Organisers Chris Reed, Floriana Grasso and Nancy Green

WS9   PlanLearn
3rd Planning to Learn Workshop
Organisers Pavel Brazdil, Abraham Bernstein and Jörg-Uwe Kietz

WS10   ERLARS
3rd International Workshop on Evolutionary and Reinforcement Learning
for Autonomous Robot Systems
Organisers Nils Siebel, Josef Pauli and Yohannes Kassahun

WS11 BIMRS
Benchmarking Intelligent (Multi-)Robot Systems
Organisers Xiao Ping Chen, Adam Jacoff, Pedro U. Lima and Daniele Nardi

WS12 I-KBET
Intelligent Engineering Techniques for Knowledge Bases
Organisers Alexander Felfernig and Franz Wotawa

WS13 UDM
Ubiquitous Data Mining
Organisers João Gama, Manuel Filipe Santos, Nuno Marques and Paulo Cortez

WS14 WASSA
Workshop on Computational Approaches to Subjectivity and Sentiment Analysis
Organisers Andrés Montoyo, Patricio Martínez-Barco, Alexandra Balahur, Ester Boldrini

WS16 LaTeCH Language Technology for Cultural Heritage,
Social Sciences, and Humanities
Organisers Caroline Sporleder, Kalliopi A. Zervanou, Lars Borin, Antal van den Bosch and Piroska Lendvai

WS17 IAT4EB
Intelligent Agents and Technologies for e-Business
Organisers Ana Paula Rocha, Eugénio Oliveira, Frank Dignum, Juan Antonio Rodríguez-Aguilar and Virginia Dignum

WS19 KR4HC
2nd Workshop on Knowledge Representation for Health Care
Organisers Annette ten Teije, David Riaño, Silvia Miksch and Mor Peleg

WS20 AILog
Artificial Intelligence and Logistics
Organisers Kerstin Schill, Bernd Scholz-Reiter and Lutz Frommberger

WS21 STeDY
Spatio-Temporal Dynamics
Organisers Mehul Bhatt, Hans Guesgen and Shyamanta Hazarika

Workshops Program

Workshops will take place in the rooms below, according to the general schedule.

ID	Acronym	16-Ago	17-Ago
W1	CLIMA	8.2.38	8.2.38
W2	ConfWS	8.2.06	-
W3	M-PREF	8.2.39	-
W4	MRC	-	8.2.12
W5	ARCOE	8.2.19	8.2.19
W6	ExaCt	8.2.15	-
W8	CMNA	8.2.02	-
W9	PlanLearn	-	8.2.06
W10	ERLARS	8.2.12	-
W11	BIMRS	-	8.2.02
W12	I-KBET	-	8.2.16
W13	UDM	8.2.04	-
W14	WASSA	-	8.2.15
W16	LaTeCH	8.2.16	-
W17	IAT4EB	-	8.2.04
W19	KR4HC	-	8.2.11
W20	AILog	-	8.2.39
W21	STeDY	8.2.11	-

Tutorial Speakers

Sarit Kraus
T1: Automated negotiation

Part 1: Coordination and cooperation of automated agents
Monday morning, 16th August, 2010, Room 6.2.53

Part 2: Automated agents that interact
proficiently with people
Monday afternoon, 16th August, 2010, Room 6.2.53

Each part will be a standalone.

Negotiation is an important mechanism for resolving conflicts between agents. In this tutorial we will present the key approaches for designing automated negotiators. These include game theoretic and heuristics and their integration with machine learning methods. Game theory provides an elegant mathematical framework for modeling and analyzing strategic interaction between self-interested fully rational agents. However, implementation of these models for agents that need to interact with people is problematic since the latter are rationally bounded.

In Part 1 of the tutorial, we will first provide a short introduction on game theory. Then we will present the model of alternating offers and its applications in multi-agent settings. We will also discuss auction mechanisms for multi-agent applications.

In Part 2 we will survey methods for automated negotiators interacting with people with focus on general opponent modeling for improving agent-human interactions.

SHORT BIO
Sarit Kraus (Ph.D. Computer Science, Hebrew University, 1989) is a Professor of Computer Science at Bar-Ilan University and Adjunct Professor at the Institute for Advanced Computer Studies, University of Maryland (UMIACS). Her research interests are in multi-agent systems, specially negotiation and cooperation among agents, open agent environments, learning and information agents, personalization and optimization of complex systems. In 1995 Kraus was awarded the IJCAI Computers and Thought Award (the premier award for a young AI scientist). In 2001 she was awarded the IBM Faculty Partnership Award and in 2002 she was elected as AAAI fellow. In 2007 she was awarded the ACM SIGART Agents Research award and her paper with Prof. Barbara Grosz was a winner of the IFAA-MAS influential paper award (joint winner). In 2008 she was elected as ECCAI fellow. She has published over 250 papers in leading journals and major conferences and is an author of the book Strategic Negotiation in Multiagent Environments(2001) and a co-author of a book on Heterogeneous Active Agents (2000); both published in MIT Press. She served as an associate editor of the Artificial Intelligence journal during 2004- 2008 and since 2002 she is the Senior Associate Editor of the Annals of Mathematics and Artificial Intelligence.

Ilkka Niemelä

T2: Answer set programming
Tuesday afternoon, 17th August, 2010, Room 6.2.53

Answer set programming (ASP) is a novel declarative programming paradigm where the basic idea is similar to, for example, SAT-based planning or constraint programming: an application problem is solved by encoding it using logic program type rules so that the solutions to the problem are captured by the stable models of the rules. Then an ASP solver capable of computing stable models can provide solutions to the original problem. What makes the approach particularly interesting is that, on one hand, ASP provides a powerful knowledge representation language for effective problem encoding and, on the other hand, a number of efficient ASP systems have already been developed. This has led to applications in areas such as planning, decision support, product configuration, computer aided verification, VLSI routing, network management, security protocol analysis, linguistics, and diagnosis.

The tutorial explains the theoretical foundations of ASP, introduces the ASP programming paradigm, outlines computational techniques used in current ASP solvers, and discusses some interesting applications of the approach..

SHORT BIO
Ilkka Niemelä is Professor of Computer Science at Aalto University School of Science and Technology where he is the Chair of the Degree Program of Computer Science and Engineering. Dr. Niemelä received his doctoral degree in computer science in 1993 from Helsinki University of Technology and has worked in 1993 as an International Fellow at SRI International, in 1995-1996 as a research scientist and acting professor in the Department of Computer Science of the University of Koblenz-Landau, Germany and in 1998-2000 as a senior research fellow of the Academy of Finland.

Dr. Niemelä's current research interests include automated reasoning, knowledge representation, computational complexity, computer aided verification, automated testing and product configuration. At Aalto University he leads the computational logic group which has developed a number of the state-of-the-art software tools for automated reasoning, such as the Smodels system for answer set programming and BCSat for Boolean circuit satisfiability checking, leading to applications in areas like automated planning, product configuration, and bounded model checking. Dr. Niemelä is an author of more than 150 papers, has been a member of the program committee for over 50 international conferences, has given several invited talks and tutorials and is serving as the Editor-in-Chief of Theory and Practice of Logic Programming.

Joao Marques-Silva

T3: Boolean Satisfiability & Optimization Algorithms & Applications
Monday morning, 16th August, 2010, Room 6.1.36

The development of efficient Boolean Satisfiability (SAT) solvers is a success story in computer science. Although SAT is NP-complete, current SAT solvers can handle problem instances with hundreds of thousands of variables and millions of clauses. This success has been further underlined by the many practical applications of SAT, which include software and hardware verification, termination analysis of programs and haplotype inference, among many others. The success of SAT has also led to its use in optimization problems, including Boolean optimization and Maximum Satisfiability (MaxSAT), and to its extension to more expressive logics, including Pseudo-Boolean (PB) constraints, Quantified Boolean Formulas (QBF), and Satisfiability Modulo Theories (SMT). This tutorial provides an overview of SAT, and covers the most widely used SAT algorithms, well-known extensions of SAT, standard modelling solutions, and representative applications.

SHORT BIO
Joao Marques-Silva is SFI Stokes Professor at University College Dublin, Ireland, and has held academic positions at the University of Southampton, UK, and at IST, Portugal. He holds a PhD degree from the University of Michigan, USA, and the Habilitation, MSc and BSc degrees from IST, Portugal. Joao Marques-Silva is co-recipient of the CAV 2009 Award, for fundamental contributions to the development of high-performance Boolean satisfiability solvers. His research interests include decision and optimization procedures, with applications in Artificial Intelligence, Bioinformatics, Formal Methods and Design Automation.

Rina Dechter
Robert Mateescu, Radu Marinescu

T4: Advances in Search
and Inference for Graphical Models
Tuesday morning, 17th August, 2010, Room 6.1.36

Algorithms for processing graphical models are of two pri-
mary types: inference-based and search-based. Inference-based
algorithms (e.g., variable elimination, join-tree clustering) are
time and space exponentially bounded by the tree-width of the
problem's graph. Search-based algorithms (e.g., branch and
bound) can be executed in linear space and often outperform
their worst-case predictions. The thrust of advanced schemes
is in combining inference and search yielding a spectrum of
memory-sensitive algorithms applicable to numerous optimi-
zation tasks across variety of graph-based knowledge bases
such as constraint optimization, Bayesian networks and
Markov decision processes.

The goal of this talk is to present the algorithmic principles
behind the progress that has been made in the past decade in
this area in the graphical models communities such as Constraint
networks and Probabilistic networks, focusing on optimization
queries and likelihood and counting queries. It will focus on:
(1) how bounded-inference (e.g., mini-bucket and mini-clus-
tering schemes) can be used to generate lower-bound and
upper bound approximations and on their use as heuristics for
search; (2) how these heuristics are contrasted and compare
with those based on linear programming and on soft arc-
consistency; (3) the role of caching goods during search; (4)
how problem decomposition can be incorporated into search
using AND/OR search spaces; (5) how problem structure can
be exploited to yield more efficient compilation schemes for
probabilistic inference and post-optimality analysis. All these
enhancements yield a new generation of search algorithms
(e.g., branch and bound or best-first search) that can trade-off
time and space using a few controlling parameters.

Complexity analysis and empirical demonstration of all algo-
rithms will be presented on variety of benchmarks for Max-CSP,
for the Most Probable Explanation (MPE) task for probabilistic
reasoning, for Integer Programming and for general constraint
optimization tasks. Example benchmarks include radio-fre-
quency problems, linkage analysis, combinatorial auctions,
and coding networks.

SHORT BIOS
Rina Dechter is a professor of Computer Science at the Uni-
versity of California, Irvine. She received her PhD in Computer
Science at UCLA in 1985, an MS degree in Applied Mathemat-
ic from the Weizmann Institute and a B.S in Mathematics and
Statistics from the Hebrew University, Jerusalem. Her research
centers on computational aspects of automated reasoning and
knowledge representation including search, constraint process-
ing and probabilistic reasoning.
Professor Dechter is an author of Constraint Processing pub-
lished by Morgan Kaufmann, 2003, has authored over 100
research papers, and has served on the editorial boards of:
Artificial Intelligence, the Constraint Journal, Journal of Arti-
ficial Intelligence Research and Logical Method in Computer
Science (LMCS). She was awarded the Presidential Young in-
vestigator award in 1991, is a fellow of the American association
of Artificial Intelligence since 1994, was a Radcliffe Fellowship
2005-2006 and received the 2007 Association of Constraint
Programming (ACP) research excellence award.

Robert Mateescu is a postdoc researcher at Microsoft Research
Cambridge UK. He received his PhD and MS degrees in Infor-
mation and Computer Science (in 2007 and 2003) from the
University of California Irvine, advised by Professor Rina Dech-
ter. Between 2007-2009 he was a postdoc at Caltech, hosted
by Professor Jehoshua Bruck. His current research is focused
on efficiently solving very large scale optimization problems,
and in particular SAT solving. Some of the topics of the past
work include AND/OR search for graphical models, message-
passing algorithms, compilation schemes for graphical mod-
els, data representation and coding for flash memory.

Radu Marinescu is a postdoctoral scholar at the Cork Constraint
Computation Centre (4C), University College Cork, Ireland
working with Professor Eugene Freuder. He received his PhD
and MS degrees in Computer Science from the University of
California Irvine (in 2004 and 2008, respectively) working with
Professor Rina Dechter. His research focuses on automated
reasoning with emphasis on high performance methods exploit-
ing AND/OR search spaces for solving optimization tasks in
probabilistic and deterministic graphical models. His recent
interests are centered on decision analysis and multi-objective
optimization. He co-authored papers appearing in the AIJ, JAIR,
AAAI, IJCAI, UAI, CP and CPAIOR.

Ulle Endriss

T5: Computational Social Choice

Tuesday morning, 17th August, 2010, Room 6.2.53

Social choice theory deals with questions regarding the design and analysis of methods for collective decision making. Examples for such methods include voting procedures and protocols for fairly dividing a set of goods amongst the members of a group. In recent years there has been a growing interest in the computational aspects of collective decision making, giving rise to the field of computational social choice. This tutorial will give an overview of this new field, highlighting contributions of and opportunities for AI. It will be accessible to anyone working in AI.

SHORT BIO

Ulle Endriss is an assistant professor at the Institute for Logic, Language and Computation (ILLC) at the University of Amsterdam, where he carries out research at the interface of logic, AI, and mathematical economics. In 2006, he organised the inaugural edition of the International Workshop on Computational Social Choice (COMSOC).

Paul E. Dunne

T6: Argumentation in AI

Monday afternoon, 16th August, 2010, Room 6.1.36

Argumentation has become a core study in AI with applications found in areas such as practical reasoning, negotiation in multiagent systems, non-monotonic logics, etc. A significant focus of research over the last decade has concentrated on computational questions such as formal representations for argumentation settings, proposals aimed at defining concepts of collection of acceptable arguments together with associated algorithmic issues. A common basis found in much of this work being the concept of abstract argumentation frameworks (AFs).

This tutorial has three main aims:

1. To provide a basic introduction to argumentation in AI, including traditional application domains.
2. Focusing on abstract argumentation frameworks, to review the established properties and concepts of interest within these.
3. To offer a detailed overview of recent work that builds on abstract argumentation frameworks, which will include discussion of recent novel proposals for argumentation semantics, together with the development of approaches to ̈preferences between arguments ̈ and the nature of argument interactions.

SHORT BIO

Paul Dunne is a professor of Computer Science at the University of Liverpool where he has been a member of the Dept. of Computer Science since 1985. His current research focuses on algorithmic and complexity aspects of argumentation with particular reference to semantics and developments of Dung's abstract argumentation frameworks, a field in which he has published extensively over the last decade.

Tutorials Program

		16-Ago		17-Ago	
		morning	afternoon	morning	afternoon
T1	Automated Negotiation	6.2.53	6.2.53	-	-
T2	Answer Set Programming	-	-	-	6.2.53
T3	Boolean Satisfiability and Optimization algorithms and Applications	6.1.36	-	-	-
T4	Advances in Search and Inference for Graphical Models	-	-	6.1.36	-
T5	Computational Social Choice	-	-	6.2.53	-
T6	Argumentation in AI	-	6.1.36	-	-

ECAI 2010 SCHEDULE
STAIRS

All sessions in room 6.2.56

Monday, August 16

09:00-09:05 Opening

09:05-10:30 STAIRS SESSION 1: LEARNING AND CLASSIFICATION I

10:30-11:00 Coffee break

11:00-12:30 STAIRS SESSION 2: ONTOLOGIES

12:30-14:00 Lunch break

14:00-15:30 STAIRS SESSION 3: AGENT PROGRAMMING AND PLANNING

15:30-16:00 Coffee break

16:00-18:00 STAIRS SESSION 4: LOGIC AND REASONING

Tuesday, August 17

09:00-10:30 STAIRS SESSION 5: ECONOMIC APPROACHES

10:30-11:00 Coffee break

11:00-12:30 STAIRS SESSION 6: LEARNING AND CLASSIFICATION II

12:30-14:00 Lunch break

14:00-15:40 STAIRS SESSION 7: GAMES AND DIALOGOUE SYSTEMS

15:40-16:00 Coffee break

16:00-17:00 Invited talk: Toby Walsh (NICTA and UNSW), ¨How to Write a Paper¨

17:00-17:45 STAIRS SESSION 8: USER PREFERENCES AND INTERESTS

STAIRS SESSION 1: LEARNING AND CLASSIFICATION I

Indrajit Saha, Ujjwal Maulik, Sanghamitra Bandyopadhyay and Dariusz Plewczynski.
Cancer Classification using SVM-boosted Multiobjective Differential Fuzzy Clustering

Jonas Ullberg, Silvia Coradeschi and Federico Pecora.
On-line ADL Recognition with Prior Knowledge

Quang-Thang Dinh, Matthieu Exbrayat and Christel Vrain.
Generative structure learning for Markov Logic Networks

Marcia Oliveira and Joao Gama.
MEC - Monitoring Clusters' Transitions

STAIRS SESSION 2: ONTOLOGIES

Hugo Goncalo Oliveira and Paulo Gomes.
Onto.PT: Automatic Construction of a Lexical Ontology for Portuguese

Xavier Aime, Frederic Furst, Pascale Kuntz and Francky Trichet.
Improving the efficiency of ontology engineering by introducing prototypicality

Mauro Dragoni, Celia da Costa Pereira and Andrea G.B. Tettamanzi.
Ontology-Based Document and Query Representation may Improve Information Retrieval

Gaston Tagni, Stefan Schlobach, Annette ten Teije, Frank van Harmelen and Georgios Karafotias.
A Workbench for Anytime Reasoning by Ontology Approximation With a case study on instance retrieval

STAIRS SESSION 3: AGENT PROGRAMMING AND PLANNING

Michelle Blom and Adrian Pearce.
Relaxing Regression for a Heuristic GOLOG

David Pattison and Derek Long.
Domain Independent Goal Recognition

Matthieu Queva, Christian W. Probst and Laurent Ricci.
Maintaining Arc Consistency in Non-Binary Dynamic CSPs using Simple Tabular Reduction

Caroline Ponzoni Carvalho Chanel, Jean-Loup Farges, Florent Teichteil-Kˆnigsbuch
and Guillaume Infantes.
POMDP solving: what rewards do you really expect at execution?

STAIRS SESSION 4: LOGIC AND REASONING

Magdalena Ivanovska and Martin Giese.
Probabilistic Logic with Conditional Independence Formulae

Valerio Genovese, Dov Gabbay, Leon van der Torre and Daniele Rispoli.
Modal Access Control Logic: Axiomatization, Semantics and FOL Theorem Proving

Dominik Luecke and Till Mossakowski.
 A much better polynomial time approximation of consistency in the LR calculus

Espen H. Lian, Arild Waaler and Einar Broch Johnsen.
Confluent Term Rewriting for Only-knowing Logics

Fahad Khan.
The Decidability of RPTL

Tarek Abudawood and Peter Flach.
The Advantages of Seed Examples in First-Order Multi-class Subgroup Discovery

STAIRS SESSION 5: ECONOMIC APPROACHES

Javier Murillo and Beatriz Lopez.
Fair Mechanisms for Recurrent Multi Unit Combinatorial Auctions

Rui Figueiredo, Joao Carmo and Rui Prada.
"Do you trust me or not?" - Trust games in agent societies

Anja Rey and Jorg Rothe.
Merging and Splitting for Power Indices in Weighted Voting Games and Network Flow Games on Hyper-graphs

Jordan Berg, Amy Greenwald, Victor Naroditskiy and Eric Sodomka.
Bidding Heuristics for Ad Auctions with Applications to TAC AA

STAIRS SESSION 6: LEARNING AND CLASSIFICATION II

Bogdan Pogorelc.
Detection of Health Problems through Gait Patterns of Elderly

Andreas Arzt and Gerhard Widmer.
Towards Effective 'Any-Time' Music Tracking

Borut Sluban, Dragan Gamberger and Nada Lavrac.
Ensemble Based Filtering Approaches to Class Noise Detection

Muralikrishna Sridhar, Anthony G Cohn and David C Hogg.
Relational Graph Mining for Discovering Events from Video

STAIRS SESSION 7: GAMES AND DIALOGUE SYSTEMS

Colm Sloan, Brian Mac Namee and John D. Kelleher.
A Comparison of Computer Game Behavior Control Systems for Background Characters in a Simulated Hospital Environment

Petr Jarusek and Radek Pelanek.
Difficulty Rating of Sokoban Puzzle

Nicholas Wilkinson, Terry Bossomaier, Mike Harre and Allan Snyder.
Strategic planning through topological inference in the game of Go. A non-linear oscillator network model

Sara L. Uckelman.
Obligationes as Formal Dialogue Systems

Wassila Ouerdane, Nicolas Maudet and Alexis Tsoukias.
Dealing with the dynamics of proof-standard in argumentation-based decision aiding

STAIRS SESSION 8: USER PREFERENCES AND INTERESTS

Mauro Dragoni, Celia da Costa Pereira and Andrea G.B. Tettamanzi.
Learning Fuzzy Models of User Interests in a Semantic Information Retrieval System

Jennifer Redpath, David Glass, Sally McClean and Luke Chen.
User-based Collaborative Filtering: Sparsity and Performance

ECAI 2010 SCHEDULE
MAIN CONFERENCE and **PAIS**

Tuesday, August 17

18.15 - 18.30 (3.2.14) Opening Session -
18.30 - 19.30 (3.2.14) Invited Talk: Ian Horrocks, Oxford
19.30 Welcome reception - Museu da Cidade

Wednesday, August 18

09.00-10.00 (3.2.14) Invited Speaker: Manuela Veloso, CMU
10.00-10.30 Coffee break
10.30-12.30 Technical Sessions:
  * SESSION 1A: (6.2.53) PROPOSITIONAL LOGIC
  * SESSION 1B: (3.2.14) DESCRIPTION LOGICS & ONTOLOGIES
  * SESSION 1C: (6.2.56) COOPERATION
  * SESSION 1D: (3.2.13) DIAGNOSIS & DISCOVERY
  * SESSION 1E: (6.1.36) ARGUMENTATION & DIALOGUE
  * SESSION 1F: (3.2.16) **PAIS** SESSION ONE - Learning-based aplications
12.30-14.00 Lunch break
14.00-15.30 Technical Sessions:
  * SESSION 2A: (6.2.53) ROBOTICS & AUTONOMOUS SYSTEMS
  * SESSION 2B: (3.2.14) COALITIONS & TEAMS
  * SESSION 2C: (6.1.36) PLANNING
  * SESSION 2D: (3.2.13) UNCERTAINTY - BAYESIAN METHODS -
  * SESSION 2E: (6.2.56) PREFERENCE MODELLING AND PREFERENCE AGGREGATION
  * SESSION 2F: (3.2.16) **PAIS** SESSION TWO - Biology - and nature - related aplications
15.30-16.00 Coffee break
16.00-18.00 Technical Sessions:
  * SESSION 3A: (6.2.56) CLUSTERING & CLASSIFICATION
  * SESSION 3B: (6.1.36) PLANNING
  * SESSION 3C: (3.2.13) REINFORCEMENT LEARNING
  * SESSION 3D: (6.2.53) NEGOTIATION & ALLOCATION
  * SESSION 3E: (3.2.14) ECCAI DISTINGUISHED DISSERTATION AWARD TALK
  * SESSION 3F: (3.2.16) **PAIS** SESSION THREE - Adaptive systems

Thursday, August 19

09.00-10.00 (3.2.14) Invited Talk: Judea Pearl, UCLA
10.00-10.30 Coffee break
10.30-12.30 Technical Sessions:
  * SESSION 4A: (3.2.13) MACHINE LEARNING - KERNEL METHODS
  * SESSION 4B: (6.1.36) PLANNING
  * SESSION 4C: (3.2.14) DESCRIPTION LOGICS & ONTOLOGIES
  * SESSION 4D: (6.2.56) NATURAL LANGUAGE PROCESSING & INFORMATION RETRIEVAL
  * SESSION 4E: (3.2.16) LOGICAL FOUNDATIONS OF MAS
  * SESSION 4F: (6.2.53) AUCTIONS & TRADING SYSTEMS
12.30-14.00 Lunch break
14.00-15.30 Poster Session (C3 Atrium)
15.30-16.00 Coffee Break
16.00-17.30 Technical Sessions
  * SESSION 5A: (3.2.14) TRUST & RECOMMENDATION
  * SESSION 5B: (6.1.36) BELIEF REVISION, UPDATE, AND MERGING
  * SESSION 5C: (6.2.53) BELIEF-DESIRE-INTENTION ARCHITECTURES
  * SESSION 5D: (6.2.56) APPLICATIONS
  * SESSION 5E: (3.2.13) PROCESSES AND STOCHASTIC MODELS

Friday, August 20

09.00-10.00 (3.2.14) Invited talk: Christos Papadimitriou, Berkeley
10.00-10.30 Coffee break
10.30-12.30 Technical sessions
  * SESSION 6A: (6.2.53) LOGICAL FOUNDATIONS OF KR
  * SESSION 6B: (6.1.36) SEARCH & HEURISTICS
  * SESSION 6C: (6.2.56) NATURAL LANGUAGE PROCESSING
  * SESSION 6D: (3.2.13) MACHINE LEARNING & DATA MINING
  * SESSION 6E: (3.2.16) CLUSTERING & CLASSIFICATION
  * SESSION 6F: (3.2.14) CONSTRAINTS
12.30-14.00 Lunch
14.00-15.00 Technical sessions:
  * SESSION 7A: (3.2.14) ACTION, TIME, AND CHANGE
  * SESSION 7B: (6.2.56) FOUNDATIONS OF LOGICAL REASONING
  * SESSION 7C: (3.2.13 NEURAL NETS)
  * SESSION 7D: (3.2.16) ORIGINS OF LANGUAGE
  * SESSION 7E: (6.2.53) UNCERTAINTY IN AI
  * SESSION 7F: (6.1.36) LOGIC PROGRAMMING & ANSWER SET PROGRAMMING
15.00 (6.1.36 + c6 atrium) Closing reception

SESSION 1A: PROPOSITIONAL LOGIC
Chair: Pierre Marquis

Top-Down Algorithms for Constructing Structured DNNF: Theoretical and Practical Implications
Knot Pipatsrisawat, Adnan Darwiche

On the Use of Logical Interactions for Establishing Decomposability
Knot Pipatsrisawat, Adnan Darwiche

On Computing Backbones of Propositional Theories
João Marques-Silva, Mikolas Janota, Ines Lynce

Extending Clause Learning DPLL with Parity Reasoning
Tero Laitinen, Tommi Junttila, Ilkka Niemela

SESSION 1B: DESCRIPTION LOGICS & ONTOLOGIES
Chair: Volker Haarslev

Complexity of Axiom Pinpointing in the DL-Lite Family of Description Logics
Rafael Peñaloza, Baris Sertkaya

Tractable Reasoning with DL-Programs over Datalog-rewritable Description Logics
Stijn Heymans, Thomas Eiter, Guohui Xiao

Enriching EL-Concepts with Greatest Fixpoints
Carsten Lutz, Robert Piro, Frank Wolter

Tableau-based Forgetting in ALC Ontologies
Zhe Wang, Kewen Wang, Xiaowang Zhang, Rodney Topor

Verifying Properties of Infinite Sequences of Description Logic Actions
Franz Baader, Hongkai Liu, Anees ul Mehdi

SESSION 1C: COOPERATION
Chair: Sarit Kraus

Hybrid Continuous Max-Sum Algorithms for Decentralised Coordination
Thomas Voice, Ruben Stranders, Alex Rogers, Nicholas R. Jennings

BnB-ADOPT+ with Several Soft AC Levels
Patricia Gutierrez, Pedro Meseguer

Optimal Task Migration in Service-Oriented Systems: Algorithms and Mechanisms
Sebastian Stein, Enrico Gerding, Nicholas R. Jennings

Modeling the problem of many hands in organisations
TIAGO DE LIMA, LAMBÈR ROYAKKERS, FRANK DIGNUM

Learning better together : the roles of broadcast and forgetness
Gauvain Bourgne, Henry Soldano, Amal EL Fallah Seghrouchni

SESSION 1D: DIAGNOSIS & DISCOVERY
Chair: Peter Lucas

Event Model Learning from Complex Videos using ILP
Krishna Dubba, Anthony Cohn, David Hogg

A Decentralised Symbolic Diagnosis Approach
Anika Schumann, Yannick Pencolé, Sylvie Thiébaux

Diagnosability Analysis of Discrete Events Systems with Autonomous Components
Lina Ye, Philippe DAGUE

Diagnosing Process Trajectories Under Partially Known Behavior
Gerhard Friedrich, Wolfgang Mayer, Markus Stumptner

SESSION 1E: ARGUMENTATION & DIALOGUE
Chair: Rafael H. Bordini

Computation in Extended Argumentation Frameworks
Paul Dunne, Sanjay Modgil, Trevor Bench-Capon

An Argumentation-based Approach to Database Repair
Emanuel Santos, Joao Pavão Martins, Helena Galhardas

A Common Computational Framework for Semiring-based Argumentation Systems
Stefano Bistarelli, Francesco Santini

Behavior-oriented Commitment-based Protocols
Matteo Baldoni, Cristina Baroglio, Elisa Marengo

SESSION 1F: PAIS SESSION ONE: LEARNING-BASED APPLICATIONS

Using Crowdsourcing and Active Learning to Track Sentiment in Online Media
Anthony Brew, Derek Greene, Padraig Cunningham

Multiscale Adaptive Agent-Based Management of Storage-Enabled Photovoltaic Facilities
Rongxin Li, Peter Wang

Non-Intrusive Detection of Driver visual Distraction using Machine Learning Algorithms
Fabio Tango, Marco Botta, Luca Minin, Roberto Montanari

Learning and Meta-Learning for Coordination of Autonomous Unmanned Vehicles
Predrag Tosic, Ricardo Vilalta

Classification of Dreams Using Machine Learning
Stan Matwin, Amir Razavi, Joseph De Koninck, Ray Reza Amini

SESSION 2A: ROBOTICS & AUTONOMOUS SYSTEMS
Chair: Francisco Melo

Deep Reasoning in Clarification Dialogues with Mobile Robots
Cui Jian, Desislava Zhekova, Hui Shi, John Bateman

Stream-Based Reasoning Support for Autonomous Systems
Fredrik Heintz, Jonas Kvarnstrom, Patrick Doherty

Variable Level-Of-Detail Motion Planning in Environments with Poorly Predictable Bodies
Stefan Zickler, Manuela Veloso

SESSION 2B: COALITIONS & TEAMS
Chair: Mike Wooldridge

Computational Aspects of Extending Shapley Value to Coalitional Games with Externalities
Tomasz Michalak, Macin Szamotulski, Dorota Marciniak, Talal Rahwan, Nicholas R. Jennings

On the stability of an Optimal Coalition Structure
Stephane Airiau, Sandip Sen

SESSION 2C: PLANNING
Chair: Lars Kotthoff

Planning with Concurrency under Resources and Time Uncertainty
Eric Beaudry, Froduald Kabanza, Francois Michaud

Brothers in Arms? On AI Planning and Cellular Automata
Joerg Hoffmann, Nazim Fates, Hector Palacios

Landmarks in Hierarchical Planning
Mohamed Elkawkagy, Bernd Schattenberg, Susanne Biundo

SESSION 2D: UNCERTAINTY -- BAYESIAN METHODS
Chair: Karim Tabia

The Necessity of Bounded Treewidth for Efficient Inference in Bayesian Networks
Johan H.P. Kwisthout, Hans L. Bodlaender, Linda van der Gaag

Context-Specific Independence in Directed Relational Probabilistic Models
Daan Fierens

Bayesian Monte Carlo for the Global Optimization of Expensive Functions
Perry Groot, Adriana Birlutiu, Tom Heskes

SESSION 2E: PREFERENCE MODELLING AND PREFERENCE AGGREGATION
Chair: Francesca Rossi

An Empirical Study of the Manipulability of Single Transferable Voting
Toby Walsh

Dynamic Matching with a Fall-back Option
Sujit Gujar, David Parkes

Learning conditionally lexicographic preference relations
Richard Booth, Yann Chevaleyre, Jerome Lang, Jerome Mengin, Chattrakul Sombattheera

SESSION 2F: PAIS SESSION TWO: BIOLOGY - AND NATURE - RELATED APPLICATIONS

Identifying Necessary Reactions in Metabolic Pathways by Minimal Model Generation
Takehide Soh, Katsumi Inoue

Interval Forecast of Water Quality Parameters
Orlando Ohashi, Luis Torgo, Rita Ribeiro

Datamining for Biodiversity Prediction in Forests
Barry O'Sullivan, Steven Keady, Sandra Irwin, John O'Halloran

SESSION 3A: CLUSTERING & CLASSIFICATION
Chair: Ronan Cummins

Boosting Clustering by Active Constraint Selection
Viet-Vu Vu, Nicolas Labroche, Bernadette Bouchon-Meunier

A Very Fast Method for Clustering Big Text Datasets
Frank Lin, William W. Cohen

Active Testing Strategy to Predict the Best Classification Algorithm via Sampling and Metalearning
Rui Leite, Pavel Brazdil

Improving Hierarchical Classification with Partial Labels
Nam Nguyen

SESSION 3B: PLANNING
Chair: Ivan Bratko

Implicit Learning of Compiled Macro-Actions for Planning
M.A.Hakim Newton, John Levine

Strengthening Landmark Heuristics via Hitting Sets
Bonet Blai, Malte Helmert

Sound and Complete Landmarks for And/Or Graphs
Emil Keyder, Silvia Richter, Malte Helmert

Iterative Bounding LAO*
Hakan Warnquist, Jonas Kvarnstrom, Patrick Doherty

SESSION 3C: REINFORCEMENT LEARNING
Chair: Michele Sebag

Analysis of Inverse Reinforcement Learning with Perturbed Demonstrations
Francisco Melo, Ricardo Ferreira, Manuel Lopes

Case-Based Multiagent Reinforcement Learning: Cases as Heuristics for Selection of Actions
Reinaldo Bianchi, Ramon Lopez de Mantaras

Uncertainty Propagation for Efficient Exploration in Reinforcement Learning
Alexander Hans, Steffen Udluft

The Dynamics of Multi-Agent Reinforcement Learning
Luke Dickens, Krysia Broda, Alessandra Russo

SESSION 3D : NEGOTIATION & ALLOCATION
Chair: Paul Dunne

An Efficient Procedure for Multi-agent Negotiation with CP-nets
Minyi Li, Bao Vo, Ryszard Kowalczyk

Modelling Multilateral Negotiation in Linear Logic
Daniele Porello, Ulle Endriss

Fair Division under Ordinal Preferences: Computing Envy-Free Allocations of Indivisible Goods
Sylvain Bouveret, Ulle Endriss, Jerome Lang

LP Solvable Models for Multiagent Fair Allocation problems
Julien Lesca, Patrice Perny

SESSION 3E: ECCAI DISTINGUISHED DISSERTATION AWARD TALK
Chair: Ramon Lopez de Mantaras

SESSION 3F: PAIS SESSION THREE: ADAPTIVE SYSTEMS

Using Bayesian Networks in an Industrial Setting: Making Printing Systems Adaptive
Arjen Hommersom, Peter Lucas

Context-aware Media Agent for Public Spaces
Ichiro Satoh

An Iterative A* Algorithm for Planning of Airport Ground Movements
Charles LESIRE

A Fault-model-based Debugging Aid for Data Warehouse Applications
Peter Struss, Vikas Shivashankar, Mohamed Zahoor

SESSION 4A: MACHINE LEARNING - KERNEL METHODS
Chair: Perry Groot

Kernel-Based Hybrid Random Fields for Nonparametric Density Estimation
Antonino Freno, Edmondo Trentin, Marco Gori

Multitask Kernel-based Learning with Logic Constraints
Michelangelo Diligenti, Marco Gori, Marco Maggini, Leonardo Rigutini, Leonardo Rigutini

Kernel Methods for Revealed Preference Analysis
Sebastien Lahaie

Regression Learning with Multiple Noisy Oracles
Kosta Ristovski, Debasish Das, Vladimir Ouzienko, Yuhong Guo, Zoran Obradovic

SESSION 4B: PLANNING
Chair: Patrik Haslum

Constraint Based Planning with Composable Substate Graphs
Peter Gregory, Derek Long, Maria Fox

Knowledge Compilation Using Interval Automata and Applications to Planning
Alexandre Niveau, Hélène Fargier, Cédric Pralet, Gérard Verfaillie

Compiling Uncertainty Away in Non-Deterministic Conformant Planning
Alexandre Albore, Héctor Palacios, Hector Geffner

Analyzing Flexible Timeline-based Plans
Amedeo Cesta, Alberto Finzi, Simone Fratini, Andrea Orlandini, Enrico Tronci

SESSION 4C: DESCRIPTION LOGICS & ONTOLOGIES
Chair: Baris Sertkaya

A Unified Framework for Non-standard Reasoning Services in Description Logics
Simona Colucci, Tommaso Di Noia, Eugenio Di Sciascio, Francesco Donini, Azzurra Ragone

Parallel TBox Classification in Description Logics - First Experimental Results
Mina Aslani, Volker Haarslev

Logical Ontology Validation Using an Automatic Theorem Prover
Tim vor der Bruck, Holger Stenzhorn

Integrating Bipolar Fuzzy Mathematical Morphology in Description Logics for Spatial Reasoning
Céline HUDELOT, Jamal Atif, Isabelle Bloch

Computing Data Semantics of WSDL Specifications via Gradient Boosting
Alexandros Valarakos, George Vouros

SESSION 4D: NATURAL LANGUAGE PROCESSING & INFORMATION RETRIEVAL
Chair: Lars Kotthoff

Opinion Question Answering: Towards a Unified Approach
Alexandra Balahur, Ester Boldrini, Andrés Montoyo, Patricio Martínez-Barco

From Bursty Patterns to Bursty Facts: The effectiveness of temporal text mining for news
Ilija Subasic, Berendt Bettina

Extraction of Places Related to Flickr Tags
Yukino Baba, Fuyuki Ishikawa, Shinichi Honiden

Automatic free-text-tagging of online news archives
Richárd Farkas, Berend Gabor, István Hegedus, András Kárpáti, Balázs Krich

Learning Aggregation Functions for Expert Search
Cummins Ronan, Mounia Lalmas, Colm O'Riordan

SESSION 4E: LOGICAL FOUNDATIONS OF MAS
Chair: Juergen Dix

Parallel Model Checking for Epistemic Logics
Marta Kwiatkowska, Alessio Lomuscio, Hongyang Qu

The Complexity of Epistemic Model Checking: Clock Semantics and Branching Time
Huang Xiaowei, Ron van der Meyden

Higher-Order Coalition Logic
Valerio Genovese, Guido Boella, Dov Gabbay, Leendert van der Torre

Mental State Ascription Using Dynamic Logic
Michal Sindlar, Mehdi Dastani, John-Jules Meyer

Is it Possible to Model Check Resource-Bounded Agents? Part I: (Un)decidablity
Nils Bulling, Berndt Farwer

SESSION 4F: AUCTIONS & TRADING SYSTEMS
Chair: Michael Wooldridge

An Equilibrium Analysis of Competing Double Auction Marketplaces using Fictitious Play
Bing Shi, Enrico Gerding, Perukrishnen Vytelingum, Nicholas R. Jennings

Addressing the Exposure Problem of Bidding Agents Using Flexibly Priced Options
Valentin Robu, Ioannis Vetsikas , Enrico Gerding, Nicholas R. Jennings

Designing a Successful Adaptive Agent for TAC Ad Auction
Meng Chang, Minghua He, Xudong Luo

EA^2: The Winning Strategy for the Inaugural Lemonade Stand Game Tournament
Adam M. Sykulski, Archie Chapman, Enrique Munoz de Cote, Nicholas R. Jennings

SESSION 5A: TRUST & RECOMMENDATION
Chair: Archie Chapman

Propagation of Opinions in Structural Graphs
Nardine Osman, Carles Sierra, Jordi Sabater-Mir

Social Recommendation with Interpersonal Influence
Junming Huang, Jiafeng Guo, Huawei Shen, Kun Yang, Xueqi Cheng

Recommendations Over Domain Specific User Graphs
Makoto Nakatsuji, Yasuhiro Fujiwara, Akimichi Tanaka, Tadasu Uchiyama, Toru Ishida

SESSION 5B: BELIEF REVISION, UPDATE, AND MERGING
Chair: Lutz Schroeder

Foundations of Tree-like Local Model Updates
Yan Zhang, Michael Kelly, Yi Zhou

The epistemic view of belief merging: can we track the truth?
Patricia Everaere, Sebastien Konieczny, Pierre Marquis

Majority Merging: from Boolean Spaces to Affine Spaces
Jean-François Condotta, Souhila Kaci, Pierre Marquis, Nicolas Schwind

SESSION 5C: BELIEF-DESIRE-INTENTION ARCHITECTURES
Chair: Michael Wooldridge

Semantics for the Jason Variant of AgentSpeak (Plan Failure and some Internal Actions)
Rafael Bordini, Jomi Hubner

Belief-Goal Relationships in Possibilistic Goal Generation
Célia da Costa Pereira, Andrea Tettamanzi

Predicting Responsiveness of BDI Agent
Huiliang Zhang

SESSION 5D: APPLICATIONS
Chair: Pádraig Cunningham

Automating Layouts of Sewers in Subdivisions
Robert Holte, Neil Burch, Jonathan Schaeffer

Adaptive Gaussian Process for Short-Term Wind Speed Forecasting
Xiaoqian Jiang, Bing Dong

Introducing Personality into Team Dynamics
Prada Rui, Samuel Ma, João Camilo

SESSION 5E: PROCESSES AND STOCHASTIC MODELS
Chair: Perry Groot

EP for Efficient Stochastic Control with Obstacles
Thomas Mensink, Jakob Verbeek, Bert Kappen

Constraint-based Controller Synthesis in Non-Deterministic and Partially Observable Domains
Cedric Pralet, Gérard Verfaillie, Michel Lemaitre, Guillaume Infantes

Decision-theoretic Optimal Sampling with Hidden Markov Random Fields
Regis Sabbadin, Nathalie peyrard

SESSION 6A: LOGICAL FOUNDATIONS OF KR
Chair: Juergen Dix

Metric propositional Neighborhood Logics: Expressiveness, Decidability, and Undecidability
Davide Bresolin, Dario Della Monica, Valentin Goranko, Angelo Montanari, Guido Sciavicco

An Axiom System for a Spatial Logic with Convexity
Adam Trybus

Optimal Tableaux for Conditional Logics with Cautious Monotonicity
Lutz Schroder, Dirk Pattinson, Daniel Hausmann

Linear Logic for Non-Linear Storytelling
Anne-Gwenn Bosser, Marc Cavazza, Ronan Champagnat

ProbLog Technology for Inference in a Probabilistic First Order Logic
Maurice Bruynooghe, Luc De Raedt, Gerda Janssens, Angelika Kimmig, Theofrastos Mantadelis, Joost Vennekens

SESSION 6B: SEARCH & HEURISTICS
Chair: Tomasz Michalak

A note on the complexity of some multiobjective A* search algorithms
Lawrence Mandow, José Luis Pérez-de-la-Cruz

Contract Search : Heuristic Search under Node Expansion Constraints
Sandip Aine

Fast Local Search for Fuzzy Job Shop Scheduling
Jorge Puente, Camino R Vela, Ines Gonzalez Rodriguez

Stronger Abstractions for the Pancake Problem
Malte Helmert, Gabriele Roger

ISAC - Instance-Specific Algorithm Configuration
Serdar Kadioglu, Yuri Malitsky, Meinolf Sellmann, Kevin Tierney

SESSION 6C: NATURAL LANGUAGE PROCESSING
Chair: Michael Wooldridge

Using background knowledge to support coreference resolution
Volha Bryl, Claudio Giuliano, Luciano Serafini, Kateryna Tymoshenko

Detecting Ironic Intent in Creative Comparisons
Tony Veale, Yanfen Hao

Cross-Domain Contextualisation of Sentiment Lexicons
Stefan Gindl, Albert Weichselbraun, Arno Scharl

Learning to Author Text with textual CBR
Ibrahim Adeyanju, Nirmalie Wiratunga, Juan Recio-Garcia, Robert Lothian

Classifier Ensemble using Multiobjective Optimization for Named Entity Recognition
Asif Ekbal, Sriparna Saha

SESSION 6D: MACHINE LEARNING & DATA MINING
Chair: Nakatsuji Makoto

Mining Outliers with Adaptive Cutoff Update and Space Utilization (RACAS)
Chi-Cheong Szeto, Edward Hung

Feature Selection by Approximating the Markov Blanket in a Kernel-Induced Space
Qiang Lou, Zoran Obradovic

Recognising Agent Behaviour During Variable Length Activities
Rolf Baxter, David Lane

Continuous Conditional Random Fields for Regression in Remote Sensing
Vladan Radosavljevic, Slobodan Vucetic, Zoran Obradovic

Combining Local and Global KNN With Cotraining
Víctor Laguna, Alneu Lopes

SESSION 6E: CLUSTERING & CLASSIFICATION
Chair: Pavel Brazdil

Multi Grain Sentiment Analysis using Collective Classification
Shivashankar S, Ravindran B

Temporal Relations Learning with a Bootstrapped Cross-document Classifier
Seyed Abolghasem Mirroshandel, Gholamreza Ghassem-Sani

Describing the Result of a Classifier to the End-User: Geometric-based Sensitivity
Isabelle Alvarez, Sophie Martin, Salma Mesmoudi

Soft Nearest Convex Hull Classifier
Georgi Nalbantov, Evgueni Smirnov

Using Domain Knowledge to Guide Lattice-based Complex Data Exploration
Nizar Messai, Marie-Dominique Devignes, Amedeo Napoli, Malika Smail-Tabbone

SESSION 6F: CONSTRAINTS
Chair: Archie Chapman

Adaptive Branching for Constraint Satisfaction Problems
Thanasis Balafoutis, Kostas Stergiou

Symmetries of Symmetry Breaking Constraints
George Katsirelos, Toby Walsh

Solving Pseudo-Boolean Modular Constraints
Carlos Ansótegui, Ramón Béjar, César Fernández, Francesc Guitart, Carles Mateu

Learning When to Use Lazy Learning in Constraint Solving
Ian Gent, Chris Jefferson, Lars Kotthoff, Ian Miguel, Neil Moore, Peter Nightingale, Karen Petrie

SESSION 7A: ACTION, TIME, AND CHANGE
Chair: Nils Bulling

LTL Goal Specifications Revisited
Patrik Haslum, Andreas Bauer

On the Verification of Very Expressive Temporal Properties of Non-terminating Golog Programs
Jens Classen, Gerhard Lakemeyer

SESSION 7B: FOUNDATIONS OF LOGICAL REASONING
Chair: Guido Sciavicco

The Complexity of Handling Minimal Solutions in Logic-Based Abduction
Reinhard Pichler, Stefan Woltran

Abduction of distributed theories through local interactions
Gauvain Bourgne, Nicolas Maudet, Katsumi Inoue

SESSION 7C: NEURAL NETS
Chair: Alexander Hans

A NEAT Way for Evolving Echo State Networks
Kyriakos Chatzidimitriou, Pericles Mitkas

Unsupervised Layer-wise Model Selection in Deep Neural Networks
Ludovic Arnold, Hélène Paugam-Moisy, Michele Sebag

SESSION 7D: ORIGINS OF LANGUAGE
Chair: Michael Wooldridge

Acquisition of Grammar in Autonomous Artificial Systems
Kateryna Gerasymova, Michael Spranger

Open-ended Grounded Semantics
Michael Spranger, Martin Loetzsch, Simon Pauw

SESSION 7E: UNCERTAINTY IN AI
Chair: Edward Hung

Adaptive Markov Logic Networks: Learning Statistical Relational Models with Dynamic Parameters
Dominik Jain, Andreas Barthels, Michael Beetz

Min-based causal possibilistic networks : Handling interventions and analyzing the possibilistic co
Karim Tabia, Salem Benferhat

SESSION 7F: LOGIC PROGRAMMING & ANSWER SET PROGRAMMING
Chair: João Marques-Silva

On Testing Answer-Set Programs
Tomi Janhunen, Ilkka Niemela, Johannes Oetsch, Joerg Puehrer, Hans Tompits

On Semantic Update Operators for Answer-Set Programs
Martin Slota, João Leite

Short Papers

Accepted short papers will be presented as posters.
Poster presentation takes place at the main atrium of building C3.
Thursday, 19, 14h00- 15h30

Accepted short papers:
Arc-removal in Bayesian networks: detailing the effects of model simplification
Silja Renooij

On devising dependable cooperative encounters
Fiorino Humbert

Agent-based Homeostatic Control for Green Energy in the Smart Grid
Perukrishnen Vytelingum, Sarvapali Ramchurn, Alex Rogers, Nicholas R. Jennings

Logical, graph-based norm explanation
Madalina Croitoru, Nir Oren, Simon Miles, Michael Luck

Adaptive Efficient Long-Term Information Collection with Energy Harvesting Wireless Sensors
Long Tran-Thanh, Alex Rogers, Nicholas R. Jennings

A unified framework for dispute derivations in argumentation
Francesca Toni

The Granular Description of Qualitative Change
John Stell, Michael Worboys

A Logical Semantics for Description Logic Programs
Michael Fink, David Pearce

Minimal Knowledge and Belief via Minimal Topology
David Pearce, Levan Uridia

Policies to Reason About Incomplete Information in Databases
Vanina Martinez, Cristian Molinaro, John Grant, V. S. Subrahmanian

Haplotype Inference from Polyallelic and Polyploid Genotypes using Answer Set Programming
Ozan Erdem, Esra Erdem

Robotic Experiments in Event Structure Marking
Remi van Trijp, Michael Spranger, Simon Pauw

Completeness-Preserving State-Space Pruning for Cost-Optimal Planning
Amanda Coles, Andrew Coles

Project Scheduling as a Disjunctive Temporal Problem
Angelo Oddi, Riccardo Rasconi, Amedeo Cesta

On Finding Compromise Solutions in Multiobjective Markov Decision Processes
Patrice Perny, Paul Weng

A Decision-Theoretic Approach for Cooperative Control and Adjustable Autonomy
Abdel-Illah Mouaddib, Shlomo Zilberstein, Aurelie Beynier, Laurent Jeanpierre

Learning action effects in partially observable domains
Kira Mourao, Ron Petrick, Mark Steedman

A Probabilistic Approach to Appearance-Based Localization and Mapping
Francisco Campos, Luis Correia, Joao Calado

Coalition Formation Strategies for Self-Interested Agents in Hedonic Games
Thomas Genin, Samir Aknine

A Network Flow Approach to Coalitional Games
Talal Rahwan, Tomasz Michalak, Madalina Croitoru, Jacek Sroka, Nicholas R. Jennings

Taking the Final Step to a Full Dichotomy of the Possible Winner Problem in Pure Scoring Rules
Dorothea Baumeister, Joerg Rothe

Complexity of Merging and Splitting for the Probabilistic Banzhaf
Power Index in Weighted Voting Games
Anja Rey, Joerg Rothe

Alice and Bob Will Fight: The Problem of Electing a Committee in the Presence of Candidate Interdepend-
ence
Joel Uckelman

Egalitarian Utilities Divide-and-Coordinate: Stop arguing about decisions, let's share rewards!
Meritxell Vinyals, Juan Antonio Rodriguez-Aguilar, Jesus Cerquides

Reasoning about Norm Compliance with Rational Agents
Moser Fagundes, Holger Billhardt, Sascha Ossowski

Collective Sensor Configuration in Uncharted Environments
Norman Salazar, Juan A. Rodriguez-Aguilar, Josep Lluis Arcos

On the Life-Cycle of BDI Agent Goals
John Thangarajah, James Harland, David Morley, Neil Yorke-Smith

A unified interaction-aware goal framework
Michael Winikoff, Mehdi Dastani, M. Birna van Riemsdijk

An Alternative Approach for Reasoning about the Goal-Plan Tree Problem
Patricia Shaw, Rafael Bordini

Trust in Complex Actions
Julien Bourdon, Guillaume Feuillade, Andreas Herzig, Emiliano Lorini

Analogical learning using dissimilarity between tree-structures
Anouar Ben Hassena, Miclet Laurent

Complexity in Analogy Tasks: An Analysis and Computation Model
Philip Stahl, Marco Ragni

Efficient Explanations for Inconsistent Constraint Sets
Alexander Felfernig, Monika Schubert, Monika Mandl, Gerhard Friedrich, Erich Teppan

Improving RFID's Location Based Services by means of Hidden Markov Models
Teresa Garcia-Valverde, Alberto Garcia-Sola, Juan A. Botia

Human Activity Recognition in Intelligent Home Environments: An Evolving Approach
Jose Antonio Iglesias, Plamen Angelov, Agapito Ledezma, Araceli Sanchis

Joint Handling of Rational and Behavioral Reactions in Assistant Conversational Agents
Jean-Paul Sansonnet, Francois Bouchet

What if it Suddenly Fails? Behavioural Aspects of Advanced Driver Assistant Systems
on the Example of Local Danger Alerts
Angela Mahr, Yujia Cao, Mariet Theune, Veronika Dimitrova-Krause, Tim Schwartz, Christian Muller

Selecting Information based on Artificial Forms of Selective Attention
Luis Macedo

ANTIPA: an agent architecture for intelligent information assistance
Jean Oh, Felipe Meneguzzi, Katia Sycara

Nested Monte-Carlo Expression Discovery
Tristan Cazenave

Vectorial Pattern Databases
Carlos Linares Lopez

Improving the Global Constraint SoftPrec
David Lesaint, Deepak Mehta, Barry O'Sullivan, Luis Quesada, Nic Wilson

Data-Driven Detection of Recursive Program Schemes
Martin Hofmann, Ute Schmid

Horn Belief Change: A Contraction Core
Richard Booth, Thomas Meyer, Ivan Varzinczak, Renata Wassermann

A Motivation-Based Mechanism to Deign Behaviors
Tony Dujardin, Jean-Christophe Routier

Preferential vs Rational Description Logics: which one for Reasoning About Typicality?
Laura Giordano, Valentina Gliozzi, Nicola Olivetti, Gian Luca Pozzato

Refining the Notion of Effort
Bernhard Heinemann

A constructive conditional logic for access control: a preliminary report
Valerio Genovese, Laura Giordano, Valentina Gliozzi, Gian Luca Pozzato

A Logical Model of Intention and Plan Dynamics
Emiliano Lorini, Hans van Ditmarsch, Tiago de Lima

Non-elementary speed up for model checking synchronous perfect recall
Mika Cohen, Alessio Lomuscio

Querying in EL+ with Nonmonotonic Rules
Matthias Knorr, Jose Julio Alferes

Improving the efficiency of ontology engineering by introducing prototypicality
Xavier Aime, Frederic Furst, Pascale Kuntz, Francky Trichet

Implementing Simple Modular ERDF ontologies
Carlos Damasio, Anastasia Analyti, Grigoris Antoniou

Local search algorithms on the Stable Marriage Problem: Experimental Studies
Mirco Gelain, Maria Silvia Pini, Francesca Rossi, Kristen Brent Venable, Toby Walsh

A Combined Calculus on Orientation with Composition Based on Geometric Properties
Frank Dylla, Jae Hee Lee

Knowledge-based adaptive thresholding from shadows
Paulo Santos, Hannah Dee, Valquiria Fenelon

A Qualitative Representation of Route Networks
Jochen Renz, Stefan Woelfl

Restarts and Nogood Recording in Qualitative Constraint-based Reasoning
Matthias Westphal, Stefan Wolfl, Jason Jingshi Li

Strategic planning in the game of Go using coupled non-linear oscillators
Nick Wilkinson, Terry Bossomaier, Michael Harre, Allan Snyder

Semi-Automatic Revision of Formalized Knowledge
Nadejda Nikitina

Instruction Cache Prediction Using Bayesian Networks
Mark Bartlett, Iain Bate, James Cussens

Unsupervised Feature Generation using Knowledge Repositories for Effective Text Categorization
Rajendra Prasath, Sudeshna Sarkar

Discovering an Event Taxonomy from Video using Qualitative Spatio-temporal Graphs
Muralikrishna Sridhar, Anthony Cohn, David Hogg

Advances in Class Noise Detection
Borut Sluban, Dragan Gamberger, Nada Lavrac

Time-Slice Density Estimation for Semantic Based Tourist Destination Suggestion
Michelangelo Ceci, Annalisa Appice, Donato Malerba

Knowledge Compilation for Itemset Mining
Hadrien Cambazard, Tarik Hadzic, Barry O'Sullivan

Towards Argumentation-based Multiagent Induction
Santiago Ontanon, Enric Plaza

The Advantages of Seed Examples in First-Order Multi-class Subgroup Discovery
Tarek Abudawood, Peter Flach

Generating time series reference models based on event analysis
Juan A. Lara, Aurora Perez, Juan P. Valente, Africa Lopez-Illescas

Mining Physiological Data for Discovering Temporal Patterns on Disease Stages
Corrado Loglisci, Michelangelo Ceci, Donato Malerba

Drift Severity Metric
Petr Kosina, Joao Gama, Raquel Sebastiao

Prediction of Attributes and Links in Temporal Social Networks
Vladimir Ouzienko, Yuhong Guo, Zoran Obradovic

Reliable Predictive Intervals for the Critical Frequency of the F2 Ionospheric Layer
Harris Papadopoulos, Haris Haralambous

Decentralised Supply Chain Formation: A Belief Propagation-based Approach
Michael Winsper, Maria Chli

MAPS
University of Lisbon Campus

Faculty of Science

- Room names are structured as follows: Building.Floor.Number

- Orange lines (▸ |) are entrances

Building C6

6.1.36

Coffee Break

Bar

Registration

6.2.56
STAIRS

6.2.53

Second Floor

Building C8

8.2.02

8.2.04

8.2.06

8.2.38

8.2.11

8.2.12

8.2.39

8.2.15

8.2.16

8.2.19
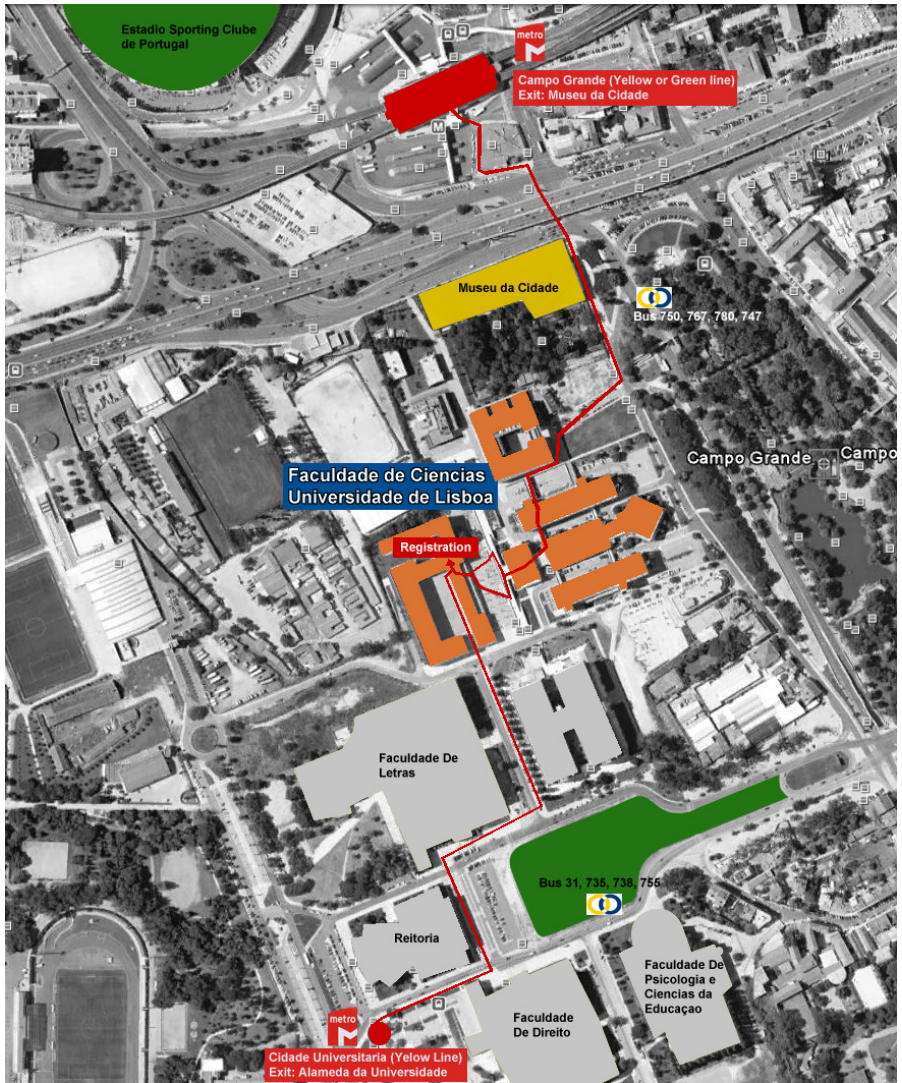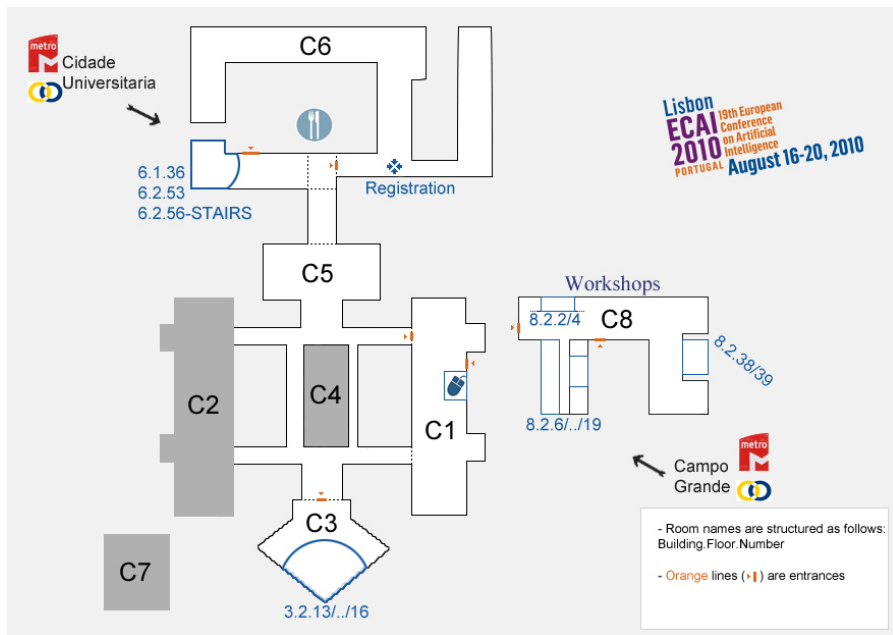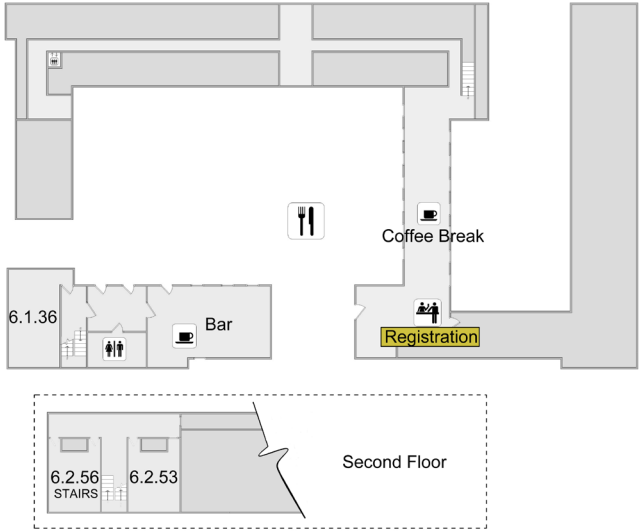
SOCIAL PROGRAM

WELCOME RECEPTION
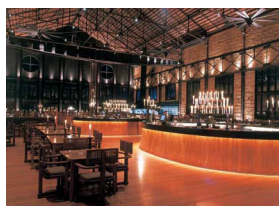Tuesday, 17, 19h45, at the gardens of ¨Museu da Cidade¨.
Museu da Cidade is just next to the FCUL campus. During the reception, Sextant Trio will provide musical entertainement.

CONFERENCE DINNER
Thursday, 19, at 20h00 in KAIS restaurant, located in Doca de Santos, close to the river Tejo. During the banquet, Bernardo Couto Trio will provide musical entertainment.

GENERAL INFORMATION
ECAI 2010 TAKES PLACE AT THE FACULTY OF SCIENCES OF THE UNIVERSITY OF LISBON.

REGISTRATION DESK IS LOCATED IN THE MAIN ENTRANCE OF BUILDING C6 AND IS OPEN:
Sunday, 15, from 14h00 until 18h30
Monday, 16 to Thursday, 19, from 8h00 until 18h30
Friday, 20, from 8h30 until 12h00

OFFICIAL OPENING SESSION
Tuesday, 17, 18h15, at amphitheatre 3.2.14 (buiding C3)
Includes first Plenary Talk, starting at 18h30
and is followed by the Welcome Reception at ¨Museu da Cidade¨

CONFERENCE DINNER
Thursday, 19, at 19h30
Takes place at KAIS restaurant, located by the river

COFFEE-BREAKS
Monday and Tuesday
10h30-11h00 and 15h30-16h00
served in buildings C6 (near Tutorial and STAIRS sessions) and C8 (near the workshops location)
Wednesday till Friday:
10h00-10h30 and 15h30-16h00
served in building C6

LUNCHES
Lunches are included for all conference participants (from Wednesday to Friday) and for workshop
and STAIRS participants
Lunches are served between 12h30 and 14h00 in building C6

INTERNET ACCESS
Wireless internet access is available all over the campus
Participants from eduroam institutions can use their usual authentication process
Other participants can use the following authentication:
user: ecai2010@alunos.fc.ul.pt
password: ecai2010
Desktop PCs will be available at ¨Espaço Estudante¨, a room in building C1

Homepage
ecai2010.appia.pt

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