

14<sup>th</sup> Mini-EURO Conference

## HCP'2003

### HUMAN CENTRED PROCESSES

#### Distributed decision making and human-machine cooperation

5-7 May 2003, Luxembourg

#### Attendance

Around 80 scientists, from 23 countries and four continents attended the HCP'2003 Conference in Luxembourg organized by the EURO Working Group on Human Centred Processes. Its purpose was to gather: *practitioners* from industry and administration who are confronted with issues related to cognition and domain expertise and computer assisted collaborative work, *researchers* who have expertise in Cognitive Psychology or more generally Cognitive Science, Artificial Intelligence and Computer Science, and *operational Researchers* interested in discussing human centred approaches applied to complex industrial and administrative problems.

#### History

This 14<sup>th</sup> Mini EURO conference on Human Centred processes represents the third event in a serie of three conferences started in 1994 in Luxembourg with the First European Conference on Cognitive Science in Industry. This initial conference was followed five years later by the 10<sup>th</sup> Mini EURO Conference on Human Centred Processes, organized in Brest, France. Recurrent topics appear in all three conferences such as cognitive decision making and knowledge engineering.

#### Venue

The conference was hosted by the Luxembourg Congress Center, the hemicycle of the European Parliament in Luxembourg. The sessions were organised in three of the working rooms of the Council of the European Union. One of these rooms has entered history in 1999 for having hosted the very last deciding session on the creation of the common European currency, the EURO.



#### Programme synopsis

The focus of the 14<sup>th</sup> Mini-EURO Conference went for distributed decision making and human-machine cooperation. An extensive refereeing process resulted in the selection for presentation of 47 out of 78 submitted individual research papers.

The Programme Committee invited three distinguished guest speakers in the persons of Dr. Peter Todd (Berlin, D), Pr. Paul Slovic (Oregon, USA), and Pr. Ola Svenson (Stockholm, SE) to give three plenary sessions providing a comprehensive view of the

state of the art in the psychology of decision making field.

Collectively, the authors accepted for presentation at the HCP'2003 Conference represent 21 countries and four continents: Algeria, Belgium, Brazil, Canada, Finland, France, Germany, Greece, Italy, Lithuania, Luxembourg, Mexico, The Netherlands, Poland, Portugal, Spain, Sweden, Switzerland, Ukraine, United Kingdom, and United States of America (<http://www.cu.lu/hcp2003/sessions.html>).



In addition, the program contained two practitioner panels focusing on critical decision making: one on military applications, and the second on human-machine cooperation in aviation. Both panels consisted of domain practitioners and academics specializing in the respective fields. The purpose of these panels was to provide the HCP'2003 research community with evidence of practical crew resource management problems appearing in the field of aviation and critical military systems. The discussions mainly focused on key issues such as: safety and risk management, global system synergy and leadership.

One regular presentation session was also devoted to critical decision making. Here, the contributions of Fields and Amaldi focused on air traffic control issues, whereas that of Kersten, Michalowski and Wilk addressed triage support for mobile clinical systems.

The individual sessions ranged from the very specific to the broad and fundamental. The presentations fell into five general categories: *In-depth modeling of specific problem areas* (Agent Modeling, Annualized Work Time, and Visualization in Large Databases), *Applications* (Industrial and New Technology), *Basic Concepts and Theory* (Communities of Practice, Complex Systems, and Contextual Knowledge), *Distributed Collaborative/Decision Systems/Learning*, and *Methods* (Data Mining, Heuristics, Mathematical Approaches to HCP, and Novel Methods).

Within the '*in-depth modeling of specific problem areas*' grouping, Ferraris, Fioretti, and Remondino focused on key aspects of agent modeling, Azmat and Widmer, Chan,

Zemmouri and Weill, and Corominas and Lusa on annualized work time modeling, and Noirhomme, Thanh-Nghi and Poulet, and Noy and Schroeder on visualization techniques in large databases.

Two sessions were devoted to industrial and new technology *applications*, respectively. The contribution by Thibault, Lanouette, Fonteix, Kiss, and Zaras addressed decision making applied to a high yield pulping process, whereas that of Escobar-Toledo and López-García presented a model for assigning maintenance priorities in an oil production setting, and Habbi and Zelmat a drum boiler linguistic model for complexity reduction and interpretability improvement. The presentations in the new technology grouping consisted of an ethical multi-criteria decision support web-based system (Kaklauskas, Zavadskas, Kaklauskienė, and Trinkunas), a simulation of a smart wheelchair in a virtual scene (Niniss and Nadif), and a framework for assessing the impact of new technology in sports annotation (Kilner, Trepess, Economou, Jennings and Winter).

The '*basic concepts and theory*' grouping consisted of three quite varied components: communities of practice, complex systems, and contextual knowledge. Figueiro discussed collaborative platforms and distributed decision in the public sector, Dargam and Barnhart took steps toward decision support systems for planning distance learning, and Huis in't Veld, Soekijad and Enserink explored learning in inter-organizational communities of practice. Within the complex systems grouping, Müller-Merbach discussed challenges of self-leadership, and DeTombe complex issues associated with large cities. Finally, Brézillon, Pomerol and Brézillon, and Lundberg discussed the role of contextual knowledge on decision making. Here, the discussion was focusing on contextual graphs, the proceduralization of contextual knowledge, and the spontaneous emergence of context.

The contributions in the '*distributed collaborative/decision systems*' grouping addressed collaborative learning (Grosjean, Pudelko and Henri, Hautecouverture, Grégori, Charoy, Godart, Patten, and Faugeras, and Heraud), distributive collaborative systems (Lourenço and Costa, Melo and Costa, and Antunes, Melo, and Costa), and distributed decision systems (Gachet and Haettenschwiler, Coppin and Skryzniarz, and Papamichail and Robertson). The varied contributions addressed collaborative distance learning, share and re-use experience in training, public participation in support systems, the collaboration studio, the differences and similarities between individual and distributed decision aids, and alternative generation and screening in distributed decision processes.

Finally, four important sessions were devoted to *methodology*: data mining, heuristics, mathematical approaches to HCP, and novel methods. Vaillant, Picouet and Lenca presented a platform for rule quality benchmarking, Blanchard, Guillet and Briand developed a virtual reality environment for knowledge mining, and Boniver and Meyer explored market investigation and knowledge acquisition through data observation. Within the heuristics sub-grouping, Papamichail applies the k-means range algorithm to personalized data clustering in e-commerce, Ridwan's non-shortest paths route choice model is based on fuzzy preference relations, whereas Schweigert applies a fuzzy-based expert system to management by exception. The mathematical approaches to HCP sub-group contained contributions by Labreuche and Grabisch and Marichal, addressing the Choquet integral's applicability to ratio scales and aggregation, and by Koshlai and Mikhalevich who presented a hierarchical procedure aiding human expertise. Finally, under the novel methods umbrella, De Smets

presented multicriteria auctions, Janetzko the case of Bayesian networks for user modeling, and Labreuche and Grabisch the importance of bi-cooperative games.

## Social events

The Conference participants were welcomed on the first day by Mrs. Erna Hennicot-Schoepges, the Minister for Culture, Higher Education and Research at the occasion of a reception offered by the Luxembourg Government.



The traditional conference banquet took place in the historic castle of Bourglinster, where the Michel Pilz Trio (D) finished the pleasant evening with a short free jazz performance (<http://www.cu.lu/hcp2003/PhotoGallery>)

## Institutional support

The Association of European Operational Research Societies, EURO (<http://www.euro-online.org/>)

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SOGESCI-B.V.W.B (<http://mathro.fpms.ac.be/sogescibvwb/society.shtml>)

ROADEF (<http://www.roadef.org/>)

Centre Universitaire de Luxembourg (<http://www.cu.lu>).

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