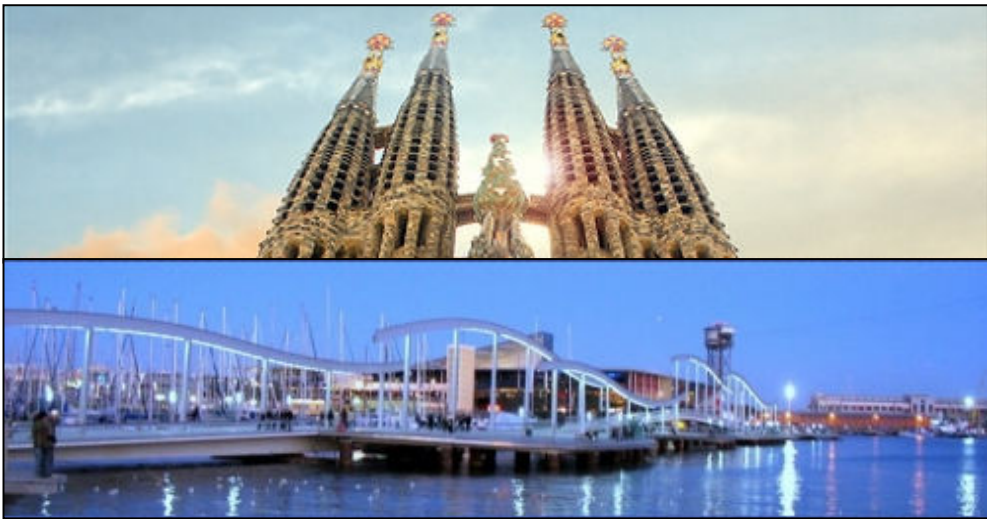


HIS 2008

8th International Conference on Hybrid
Intelligent Systems

Final Program



September 10-12, 2008
Technical University of Catalonia
Barcelona, Spain
<http://his2008.lsi.upc.edu>

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Welcome from the HIS 2008 General Chairs

Welcome to Barcelona and to the 8th International Conference on *Hybrid Intelligent Systems* (HIS 2008), held at the Technical University of Catalonia (Spain), September 10-12th, 2008.

Hybridization of intelligent systems is a promising research field of modern artificial/computational intelligence concerned with the development of the next generation of intelligent systems. A fundamental stimulus to the investigations of Hybrid Intelligent Systems (HIS) is the awareness in the academic communities that combined approaches will be necessary if the remaining tough problems in Artificial and computational intelligence are to be solved. Recently, Hybrid Intelligent Systems are getting popular due to their capabilities in handling several real world complexities involving imprecision, uncertainty and vagueness.

HIS 2008 builds on the success of last year's HIS 2007 edition held during September 17-19, 2007, Kaiserslautern - Germany. HIS 2008 is the Eighth International conference that brings together researchers, developers, practitioners, and users of soft computing, computational intelligence, agents, logic programming, and several other intelligent computing techniques.

HIS 2008 focused on the following themes:

- Hybrid Intelligent Systems: Architectures and Applications
- Soft Computing for Image and Signal Processing
- Intelligent Internet Modeling, Communication and Networking
- Intelligent Data mining
- Computational Biology and Bioinformatics
- Intelligent Business Information Systems
- Soft Computing for Control and Automation
- Multi Agent Systems and Applications
- Special topics

HIS 2008 is technically co-sponsored by IEEE Systems, Man & Cybernetics Society, European Neural Network Society, International Fuzzy Systems Association and European Society for Fuzzy Logic and Technology.

Many people have collaborated and worked hard to produce a successful HIS-2008 conference. First and foremost, we would like to thank all the authors for submitting their papers to the conference, for their presentations and discussions during the conference. Our thanks to Program Committee members and reviewers, who carried out the most difficult work by carefully evaluating the submitted papers. We would like to give special thanks to the PC Chairs Francisco Herrera (University of Granada, Spain), Enrique Alba (University of Málaga, Spain) and Andreas Koenig (University of Kaiserslautern, Germany) for their work and great efforts in preparing an interesting technical programme.

HIS 2008 has marked an important shift in the number of submissions received and in attracting a larger audience of researchers. In this edition, in conjunction with HIS 2008 we have 5 Workshops and 3 Special Sessions that complemented HIS 2008 program with contributions for specific topics. We would like to thank the Workshop & Special Sessions Chair Dr. José Manuel Benítez (University of Granada, Spain) for his excellent work in selecting and coordinating the workshops and special sessions.

In this edition of HIS 2008 we had 5 plenary talks. We would like to thank José Luis Balcázar (Technical University of Catalonia, Barcelona, Spain), Stefano Cagnoni (Università degli Studi di Parma, Italy), Andries Engelbrecht (University of Pretoria South Africa), Imre Rudas (Budapest Tech, Hungary) and Albert Y. Zomaya (The University of Sydney, Australia) for providing very interesting plenary talks and support to HIS2008. We would like to thank the excellent work and efforts of Josep Piqué and Ana Majó (22@ Barcelona Innovation District), Ricard Jiménez (ASCAMM Foundation), Angel Alejandro Juan (Open University of Catalonia) and Santi Caballé (Open University of Catalonia), in the organization of the Industrial Track.

We would like to thank Leonor Frías, Pau Fernández, Josefina López and all the Local Organizing Committee members as well as the Administration Staff of Technical University of Catalonia for their support and help in local arrangements of the conference. The support of Generalitat de Catalunya (Comissionat per a Universitats i Recerca) is also acknowledged.

Our special thanks to Ms. Lisa O'Conner of IEEE Computer Society Press for all the support and help related to the production of this important scientific work. HIS2008 conference used EasyChair Conference system; Andrei Voronkov's support is much appreciated.

We look forward to seeing you in Barcelona, Spain, during HIS 2008.

Fatos Xhafa, Ajith Abraham and Mario Köppen (General Chairs)

Welcome from the HIS 2008 Program Chairs

First of all, we are so delighted to welcome all the participants of the 8th International Conference on Hybrid Intelligent System (HIS2008). The conference aims to presents the latest development in theories and applications of hybrid intelligent systems, soft computing and computational intelligence, emphasizing the hybridization of the basic techniques concerning with the development of the next generation of intelligent systems.

HIS2008 received 269 submissions. Each paper was reviewed by at least 3 reviewers in a standard peer-review process. Papers belonged to three categories: regular papers of 6 pages (from main conference and Workshop/Special sessions), short papers of 4 pages and poster papers of 2 pages. The acceptance rate of the regular papers of the main conference was 46% (77 papers accepted out of 165 submissions). Finally, 14 papers were accepted as short papers and 3 as poster papers. The final program consists of 5 plenary talks, 25 ordinary sessions consisting of 77 regular papers, 5 workshops consisting of 54 papers, 3 special sessions consisting of 16 papers, and a poster session consisting of 14 short papers (presented as posters) and 3 posters.

The themes of the contributions and scientific sessions range from theories to applications, reflecting a wide spectrum of coverage of the hybrid intelligent systems and computational intelligence areas.

Many people have given their best efforts to make this conference a successful event. We would like to thanks all authors for their submissions, session and workshop organizers, and last but not least the reviewers for their continued interest, energy, and support.

We heartily wish all HIS 2008 participants enjoy attending conference sessions and activities, meeting friends and colleagues and having pleasant stays in Barcelona

Francisco Herrera, Andreas König and Enrique Alba (Program Chairs)

Welcome from the HIS 2008 Workshops and Special Session Chair

HIS International Conference series have become an international prestigious meeting point for experts in Hybrid Intelligent Systems, who gather to share experiences and exchange knowledge. The Workshops and Special Sessions have become an essential ingredient of these successful events.

They are focused on interesting subjects and draw the attention of active researchers and practitioners in the corresponding fields, who submit contributions describing bleeding-edge applications or new foundations for combination of the basic intelligent components.

At HIS 2008 we are pleased to count on with five workshops and three special sessions, all of them of the highest level. Their topics cover a wide spectrum of the basic research and a host of applications of hybrid intelligent systems.

All the contributions submitted to the special sessions have gone under a thorough peer-review process, in which each paper have been evaluated by three to four experts, with an average of 2.7 reviewers per paper. The overall acceptance rate is 72%, yielding a total of 70 accepted papers.

The success of these workshops and special sessions is the final and deserved fruit of the hard work and effort of many people. To begin with I would like to deliver my gratitude to authors, who provide the basic matter. Next, to guarantee the quality of papers, a fine evaluation has to be performed. The members of the program committee for these special sessions have earned a special thank because of their generosity evaluating a good share of papers, when we all know they all are really busy. Finally, I have intentionally left for the end, a quintessential role: the organizers. They all know that setting up a special sessions means a lot of fun, but also a good deal of hard work and exchanging an “infinity” of e-mail messages. I have been fortunate enough to count on with their continuous support, encourage, collaboration and patience. I am deeply indebted to all you.

Now the work is done and ready to be presented at the Conference. I do wish you all to enjoy, and gain a lot of inspiring ideas!

José Manuel Benítez (Special Session Chair)

Welcome from the HIS 2008 Industrial Track Chairs

It is our great pleasure to welcome you in Barcelona for the International Industrial & Exhibition Track on Open Innovation. This track is held in conjunction with the 8th International Conference on Hybrid Intelligent Systems (HIS2008) that will take place on September 10th, 2008, Barcelona, Spain.

The objective of this track is to improve the communication between the research community and industry with the objective to shorten the gap between the two communities. The aim is to benefit from HIS2008 as a joint forum for both academic and industry research communities. HIS2008 will thus serve as a platform, where research and industry can mutually benefit. Hybrid Intelligent Systems' areas are gaining more attention as important research topics of R+D of many industries world-wide. Industries using techniques from Soft computing, AI and Multi-agents have increased their benefits and effectiveness in supporting the development of innovative products.

Hybrid Intelligent Technologies are within reach of any size of company. They are the spark that put in motion many innovative start-ups. They are also the complement allowing small and medium enterprises to become more competitive in an always changing globalized economy. Big companies are obliged to take profit of them if they want to ensure a suitable usage of their vast and dispersed resources of knowledge. So, the Industrial Track of HIS 2008 aims also at demonstrating that size does not matter when using hybrid intelligent systems.

A further innovation of this track is to establish and develop the willingness to build an open innovation model between the Academia, Research and Technology Institutes, Administration and Industry as the main actors performing an important role in this joint forum. The concept of this track is to support and deepen the communication between the research community and industry, by the better understanding of the current research, on the Hybrid Intelligent Systems, and the industrial needs. In addition, in view of increasing importance of international cooperation among competition authorities while the economy is getting globalised, HIS 2008 track has been working on strengthening this relationship and also actively engaging in the works in multilateral frameworks in general.

Therefore scientists and researchers are encouraged to attend the open platform of communication of HIS industrial track, in order to:

- Meet and network with companies of their specialty.
- Discuss their interests and needs with business people and key decision makers.
- Participate and exchange their views with eminent professionals during the networking cocktail.
- Acquire knowledge, discover new directions and develop their career.
- Detect the industrial opportunity for research transfer.

We wish you a very fruitful Industrial Track!

**Josep Piqué, Ricard Jiménez, Ana Majó, Angel Alejandro Juan and Santi Caballé
(Industrial Track Chairs)**

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Hybrid Intelligent Systems for Data Reduction in Data Mining

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Hybrid Learning for Neural Networks: Architecture and Applications

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Hybrid Metaheuristics and their Applications

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Neural Networks and Neuro fuzzy systems

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Intelligent Systems and Data Mining Techniques for Bioinformatics

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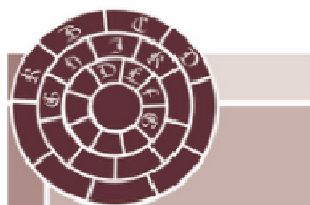


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Plenary Keynotes

The Logics of Association Rule Mining

José Luis Balcázar
Universitat Politècnica de Catalunya, Spain

Abstract

Association rules are exact or approximate implications found empirically on relational data. The logic of exact implications has been studied deeply in several disciplines. The study of the logic of partial, or approximate, implications is also advanced, but not to a similar extent at all. Nowadays, the Data Mining field provides ample room for case studies focusing on the goal of extracting implications from data. This contribution belongs to a large research program contemplating the need of further, deeper scientific knowledge about the combinatorics of partial implications. Existing, important progress on various mathematical problems of direct practical relevance for the task of mining associations from data is, currently, somewhat hindered by the lack of deep knowledge about these combinatorics. We propose here an approach based on the most classical, elementary notions of Mathematical Logic: the propositional logic domain, with its traditional semantics in terms of Boolean algebra and entailment, and with its traditional approaches to syntactic calculi for deductive inference.

The intuition of entailment can be formulated in a number of ways, but their algorithmic difficulties range from exponential time (co-NP-completeness) up to sheer undecidability. Even purportedly simple cases such as the propositional domains still present formidable difficulties for a number of algorithmic problems. Modeling rationality asks, in fact, for even further expressiveness, but this leads to extremely inefficient algorithmics. There is an intuitively natural choice of a logic of about as much expressivity as possible under the constraint of fast deduction algorithms: Horn logic. Association Rules constitute a very close relative, whose logical, combinatorial, and algorithmic properties are still not fully understood. They can be interpreted as an answer to the following question: how can Propositional Horn Logic, limited in expressiveness but enjoying very efficient entailment tests, help us in the analysis of existing phenomena, given through either interaction with some unknown or only partially known system, or plainly as a static dataset with information gathered about the phenomenon. Many important tasks fall into such a category: scientific discovery from large masses of data gathered by instruments or sensors, decision making in economically crucial environments such as production sectors or forecast in stock market investments and gambling, or processing of information related to human communication like ontologies or social networks.

We will describe some recent advances in the topic of inference of implications from data, first, in the active learning setting, where we will explain an important conceptual advance that allows us to simplify the proof of the well-known AFP algorithm and reach a profound understanding of the properties that make it work. Then, we will focus on three problems of inference from static data: the lack of scientific guidance to set to appropriate values the free parameters, such as intensity of implication, inherent to all such data mining algorithms; the problem of constructing a principled approach to process of structured data where the interdependences go beyond the case of plain relational models; and the question of how to react in the case of huge sets of output rules, which is, in practice, almost always.

We will describe our Logic-based approach to these problems, and explain in detail how a semantic notion of entailment encompasses the existing notions of redundancy in Association Rules, how it can be characterized by a syntactic deductive calculus, and how these progresses allow us to construct axiomatizations of partial association rules that can be proved to be of absolutely minimum size with respect to the corresponding notion of redundancy.

Cilib: A Component-based Framework for Plug-and-Simulate Hybrid Computational Intelligence Systems

Andries Engelbrecht
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South Africa

Abstract

Research in Computational Intelligence (CI) has produced a huge collection of algorithms, grouped into the main CI paradigms. These CI algorithms are increasingly being used to create hybrid intelligent systems, where different algorithms from different CI paradigms are combined to form a new model. Implementation of a hybrid system requires that the underlying CI algorithms be implemented. While most hybrid systems have specialized implementations focusing only on specific CI algorithms, the development process usually requires different variations of a CI technique to be implemented and tested in order to find the best combination of CI algorithms for the hybrid system. This process usually demands a re-implementation of existing algorithms, and sometimes even rewrites of the hybrid system skeleton. In addition to the CI components of a hybrid system, a communications protocol for information (or state) exchange among CI components needs to be defined and implemented. Here it may also become necessary to implement and test different communications protocols. When a final hybrid system has been produced, this system has to be thoroughly evaluated and benchmarked against other models.

The development and evaluation of a hybrid system can then become a tedious and time consuming process. Furthermore, re-implementation of existing CI algorithms may lead to code bugs and wastes time. Trying to implement a new generic hybrid system framework for each new research study can become a nightmare.

This plenary talk will introduce a new, open source component-based framework which

- provides a generic framework to implement any CI algorithm, or variation of that algorithm,
- facilitates the process of implementing a generic hybrid system, where any of the CI algorithms (components) can be used within the hybrid system,
- provides a generic framework for implementing any communications protocol,
- allows easy implementation of the problem to be solved,
- provides an XML interface to easily glue components together to form the hybrid system, and
- provides a simulator to manage the process of running a specified number of simulations on all specified benchmark problems.

The talk will discuss this library, called Cilib, in detail and will show that it provides an environment for plug-and-simulate hybrid systems, and doing so with minimal development effort.

Hybrid Intelligent Methods for Solving Mobility Management Problems

Albert Y. Zomaya
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Abstract

In order to support a wide range of data transfer and user applications, mobility management becomes a crucial factor when designing infrastructure for wireless mobile networks. Mobility management requests are often initiated either by a mobile terminal movement (crossing a cell boundary) or by deterioration in the quality of a received signal on a currently allocated channel. Due to the anticipated increase in the usage of the wireless services in the future, the next generation of mobile networks should be able to support a huge number of users and their bandwidth requirements.

The talk will address some of the key algorithmic and computational challenges associated with the mobility management problem. The talk will present several scenarios for static and dynamic mobility management instances incorporating a combination of metaheuristics. The studies show that hybrid approaches are more capable at producing efficient solutions. From a practical standpoint, these approaches have the potential to lead to massive savings in the number of network signal transactions made to locate users. Several hybrid approaches are used with a number of test networks to show their advantages to the currently implemented GSM standards. The results provide new insights into the mobility management problem.

Albert Y. ZOMAYA currently holds the Chair of High Performance Computing and Networking in the School of Information Technologies at Sydney University. He is the author/co-author of seven books, more than 300 papers, and the editor of eight books and eight conference proceedings. He serves as an associate editor for 16 leading journals. Professor Zomaya is the recipient of the *Meritorious Service Award* (in 2000) and the *Golden Core Recognition* (in 2006), both from the *IEEE Computer Society*. He is a Chartered Engineer (CEng), a Fellow of the American Association for the Advancement of Science, the IEEE, the Institution of Engineering and Technology (U.K.), and a Distinguished Engineer of the ACM.

Conference Program Overview

Day 1 – Wednesday Sep. 10th

Day 1	Time	Room A	Room B	Room C	Room D
WED. Sept. 10th	08:00-09:00	REGISTRATION			
	09:00 - 10:30	Plenary Room Opening + Keynote 1: JL Bazar Coffee			
	11:00 - 13:00	Metaheuristics and Optimization Chair: Ashraf Saad #216 #233 #217 #225 #19	Evolutionary Algorithms and Applications Chair: Mokhtar Belghem #106 #77 #159 #26 #98	Hybrid Intelligent Systems for Learning and Knowledge Discovery I Chair: Masumilshikawa #132 #133 #18 #172 #94	LCS (SS) Chair: Ester B. Amado-Manali #240 #110 #237 #171 #266
	Lunch				
	14:30 - 15:30	Hybrid Intelligent Systems for Robotics Chair: Masumilshikawa #186 #245 #215	Hybrid Intelligent Systems for Distributing and Simulation Systems Chair: Ashraf Saad #22 #123 #155	Hybrid Intelligent Systems and Neural Networks I Chair: Andre Carvalho #45 #85 #158	Workshop HISDRDM I Chair: Jose Manuel Benitez #79 #263 #210
	Departure to Torre Mapfre				
	16:00 - 20:00 20h	INDUSTRIAL TRACK Shuttle bus from conference site			Workshop NNNF I Chair: Luis J. Herrera #59 #167 #250
	WELCOME RECEPTION & DINNER	22@ Barcelona			Mapfre Tower

Day 2 – Thursday Sep. 11th

Day 2	Time	Activity	Chair	Session #	Workshop	Chair	Session #	Workshop
Thu	09:00 - 10:00	KEYNOTE	imre Rudas					
		Coffee						
	10:30 - 12:00	PARALLEL SESSIONS III						
		Hybrid Intelligent Systems for Image Processing	Chair: Mokhtar Beljelem	#113 #57 #66 #125	Workshop NNWF II	Chair: Ignacio Rojas	#127 #195 #103 #135	Hybrid Intelligent Systems for Information Retrieval and Text Mining
								Workshop BECDMT I
								Chair: Maria José de Jesus
								#27 #241 #62 #247
								#224 #108 #243 #30
								#52 #74 #248 #104
								Chair: Pedro Issasi
	12:00 - 13:00	PARALLEL SESSIONS IV						
		Network Design, Optimization and Applications I	Chair: Mario Koeppen	#162 #122 #174	Workshop NNWF III	Chair: Luis J. Herrera	#60 #161 #12	Decision Making and Fuzzy Logic
								Workshop BECDMT II
								Chair: Jose Antonio Gomez
								#220 #130 #140 #231
								#261 #37 #230
								Chair: Francisco Herrera
								#139 #137 #231
								Chair: Pedro Issasi
	14:30 - 15:30	KEYNOTE	Albert Zomaya					
	15:30-16:30	DISCUSSION PANEL	Chair: Ajith Abraham					
		Coffee						
	17:00 - 18:00	PARALLEL SESSIONS V						
		Hybrid Multiobjective Optimization I	Chair: Xiao-Zhi Gao	#93 #116 #40	Hybrid Fuzzy Modeling I	Chair: Teress Ludermit	#24 #83	Hybrid Intelligent Systems and Neural Networks II
								Workshop BECDMT III
								Chair: Jose Antonio Gomez
								#117 #48 #105 #190
								#192 #62 #88 #190
								Chair: Pedro Issasi
								#102 #118 #137 #264
								Chair: Pedro Issasi
	20:00	GALA DINNER						

Industrial & Exhibitions Track (SynergyS22@Barcelona)

Within the program of HIS2008, on the afternoon of the 10th of September 2008, the first SynergyS22@Barcelona will take place at the "Torre Mapfre" (see Map for location), a skyscraper located at the Barcelona Olympic Port.



Mission of the HIS2008 Industrial & Exhibition Track

Hybrid Intelligent Systems are gaining more attention as an important research topic of R+D of many industries world-wide. Industries using techniques from Soft computing, Artificial Intelligence, Multi-agents have increased their benefits and effectiveness in supporting the development of innovative products. During the last years new research topics, such as Intelligent Internet Modeling, Communication and Networking, Computational Biology and Bioinformatics, Intelligent Data mining, Intelligent Business Information Systems, Intelligent eLearning systems, etc. are becoming important to the research community as well as to companies. Moreover, hybridization of intelligent systems is a promising research field of computational intelligence focusing on synergistic combinations of multiple approaches to develop the next generation of intelligent systems, which are have a positive impact on R+D of companies.

The 8th Hybrid Intelligence Conference to be held in Barcelona is committed to improve the communication between the research community and the industry with the objective to shorten the gap between the two communities. The aim is to benefit from HIS2008 as a joint forum for both academic and industry research communities. HIS2008 will thus serve as a platform, where research and industry can mutually benefit. Companies are thus encouraged to present and discuss their systems, software, products, etc. in the area of HIS as well as to express their needs and interest in recent trends of HIS.

SynergyS22@Barcelona



22@Barcelona, with the help of KIMbcn (Knowledge Innovation Market Barcelona), organizes this year the first SynergyS22@Barcelona in the context of the Industrial Track of HIS in order to extract the maximum value of the scientific congresses, which take place in Barcelona and connect them with the Barcelona's economical activity.

SynergyS22@Barcelona joins the research community with the industry, transforms personal relations into business opportunities and provides the participant companies with the opportunity of a free access to the new emergent technologies and research that could increase their competitiveness.

This event offers the opportunity to perform the first SynergyS22@Barcelona, between the researchers and the companies related to the fields of Hybrid Intelligent Systems applications. Companies related to Hybrid Intelligent Systems sector will expose their needs, challenges and trends to more than 150 researchers, experts on this promising research field. SynergyS22@Barcelona is aimed to have an informal character in order to have an open and fluent information exchange between the participants.

Agenda

16:45 – 17:15 Arrival & Coffee

17:15 - 17:40 Opening Session

17:15 - Fatos Xhafa – HIS organizer

17:20 - Jordi William Carnes - President / Josep Piqué – CEO 22@Barcelona

17:30 - What's the event about

17:40 – 18:40 Companies challenges (10-12 Companies)

17:40 - New tendencies in technology field. Trend hunter

17:50 - 5 Companies Challenges.

18:10 - New tendencies in human behavior. Trend hunter

18:20 - 5 Companies Challenges.

All participants have a dossier with information about the researchers' technology expertise and the companies' challenges.

19:00 – 20:30 Networking cocktail – Time to work!

*The event will be in casual wear.

Regular Papers Program (with paper ID)

Day 1 – Wednesday Sep. 10th

Metaheuristics and Optimization

Plenary Room, Wednesday, 11:00

216 DANTE - The Combination between an Ant Colony Optimization Algorithm and a Depth Search Method

Pedro Cardoso, Mário Jesus and Alberto Márquez

233 A Neurogenetic Approach and Its Application to Constrained Nonlinear Convex Optimization Problems with Joint and Disjoint Feasible Regions

Fabiana Bertoni, Ivan Silva and Matheus G. Pires

217 Solving the Railway Traveling Salesman Problem via a Transformation into the Classical Traveling Salesman Problem

Bin Hu and Gunther Raidl

225 SR-2: An Hybrid Algorithm for the Capacitated Vehicle Routing Problem

Angel Juan, Javier Faulin, Josep Jorba Esteve, Scott Grasman and Barry Barrios

19 A Simulated Annealing Algorithm for Single Objective Trans-Dimensional Optimization Problems

Hemant Singh, Amitay Isaacs, Tapabrata Ray and Warren Smith

Evolutionary Algorithms and Applications

Room A, Wednesday, 11:00

106 Prune and Plant: a New Bloat Control Method for Genetic Programming

Eva Alfaro-Cid, Anna Esparcia-Alcazar, Ken Sharman, Francisco Fernandez de Vega and Juan J. Merelo

77 Assignment of Students to Preferred Laboratory Groups using a Hybrid Grouping Genetic Algorithm

Luis Agustin-Blas, Sancho Salcedo-Sanz, Angel Perez-Bellido, Emilio Ortiz and Antonio Portilla-Figueras

159 Tracking Extrema in Dynamic Fitness Functions with Dissortative Mating Genetic Algorithms

Carlos Fernandes, Juan J. Merelo and Agostinho Rosa

26 Double-Deck Elevator System Using Genetic Network Programming with Genetic Operators Based on Pheromone Information

Lu Yu, Jin Zhou, Fengming Ye, Shingo Mabu, Kaoru Shimada and Kotaro Hirasawa

98 A GRASP Algorithm using RNN for Solving Dynamics in a P2P Live Video Streaming Network

Marcelo Martínez, Alexis Morón, Franco Robledo, Pablo Rodríguez-Bocca and Hector Cancela

Hybrid Intelligent Systems for Learning and Knowledge Discovery I

Room B, Wednesday, 11:00

132 REPMAC: A New Hybrid Approach to Highly Imbalanced Classification Problems

Hernan Ahumada, Guillermo L. Grinblat, Lucas C. Uzal, Pablo M. Granitto and Alejandro Ceccatto

18 Bagging for a Region Oriented Symbolic Classifier

Renata Souza and Andre Saboia

172 Multicategory SVMs by Minimizing the Distances Among Convex-Hull Prototypes

Ricardo Nanculef, Carlos Concha, Hector Allende, Diego Candel and Claudio Moraga

94 Adaptive Prediction by Anticipatory Reasoning Based on Temporal Relevant Logic

Jing de Cheng

29 Hibridization of Behaviours in Cognitive Architectures Using an Evolutionary Model

Óscar Romero López and Angélica de Antonio

Special Session

Learning Classifier Systems: New Trends and Challenges (LCS)

Room C, Wednesday 11:00

240 Towards Self-Adjustment of Adapted Pittsburgh Classifier System Cognitive Capacity on Multi-Step Problems

Mathias Peroumalnaik and Gilles Enee

110 New Crossover Operator for Evolutionary Rule Discovery in XCS

Sergio Morales-Ortigosa, Albert Orriols-Puig, Ester Bernadó-Mansilla

237 Modified Himmelblau Function Approximation with rGCS System

Lukasz Cielecki and Olgierd Unold

171 Artificial Data Sets based on Knowledge Generators: Analysis of Learning Algorithms Efficiency

Joaquin Rios-Boutin, Albert Orriols-Puig, Josep M. Garrell-Guiu

266 Self-Adaptation of Parameters in a XCS-Based Ensemble Machine

Maciej Troć and Olgierd Unold

Special Session

Hybrid Intelligent Business and Industrial Information Systems (HIBI2S)

Room D, Wednesday, 11:00

92 Developing of an Intelligent System for Fuels Quality Control and Monitoring

Reinaldo Silva, Sofiane Labidi, Milson Monteiro, Osevaldo S. Farias

55 Hybrid Approach for Machine Scheduling Optimization in Custom Furniture Industry

Juan C. Vidal, Alberto Bugarín, Manuel Mucientes, Manuel Lama Penín

153 An Evolutionary Approach to Provide Flexible Decision Dialogues in Intelligent Decision Support Systems

Flávio R. S. Oliveira, Fernando B. de Lima Neto

9 Using a CBR Approach Based on Ontologies for Recommendation and Reuse of Knowledge Sharing in Decision Making

José Luis Garrido, María Visitación Hurtado, Manuel Noguera, José Manuel Zurita

13 A Hybrid Reasoning Architecture for Business Intelligence Applications

Hans-Ulrich Krieger, Bernd Kiefer

Hybrid Intelligent Systems for Robotics

Plenary Room, Wednesday, 14:30

186 Brain-Inspired Emergence of Behaviors in Mobile Robots by Reinforcement Learning with Internal Rewards

Masumi Ishikawa, Takao Hagiwara and Naoyuki Yamamoto

245 Quadratic Leaky Integrate-and-Fire Neural Network Tuned with an Evolution-Strategy for a Simulated 3D Biped Walking Controller

Lukasz Wiklendt, Stephan Chalup and Maria Seron

215 Gait Optimization in AIBO Robots Using an Estimation of Distribution Algorithm

Juan Ignacio Alonso Barba, José A. Gámez, José M. Puerta and Ismael García Varea

Hybrid Intelligent Systems for Distributing and Simulation Systems

Room A, Wednesday, 14:30

22 FPGA Implementation of Hybrid Additive Programmable Cellular Automata Encryption Algorithm

Petre Anghelescu, Silviu Ionita and Emil Sofron

123 Improving the Performance of Partitioning Methods for Crowd Simulations

Guillermo Viguera, Miguel Lozano, Juan M. Orduña and Francisco Grimaldo

155 Combining Distributed Matchmaking and Clustering to Prune the Solution Space in Distributed Optimization Problems—Demonstrated in the RailCab System

Benjamin Klöpper, Dietrich Dürksen, Wilhelm Dangelmaier, Daniel Ruth and Christof Thonemann

Hybrid Intelligent Systems and Neural Networks I

Room B, Wednesday, 14:30

45 Neural Networks and Exponential Smoothing Models for Interval-Valued Time Series Processing — Applications in Stock Market

Andre L. S. Maia and Francisco de A. T. De Carvalho

81 Improvement of Temperature based ANN Models for ETo Prediction in Coastal Locations by Means of Preliminary Models and Exogenous Data

Pau Martí, Álvaro Royuela, Juan Manzano and Guillermo Palau

158 A Formal Neural Network Approach to Motion Estimation with Discontinuities

Mohamed Berkane, Patrick Clarysse and Isabelle Magnin

Workshop

Hybrid Intelligent Systems for Data Reduction in Data Mining (HISDRDM) I

Room C, Wednesday, 14:30

79 Fuzzy Feature Subset Selection Using the Wang & Mendel Method

Marcos Cintra, Heloisa Camargo, and Maria Carolina Monard

263 Empirical Study of Feature Selection Methods in Classification

Antonio Araúzo-Azofra and José M. Benítez

210 Feature Subset Selection by Means of a Bayesian Artificial Immune System Ensembles

Pablo Castro and Fernando J. Von Zuben

Workshop

Neural Networks and Neuro-Fuzzy Systems (NNNF) I

Room D, Wednesday, 14:30

59 SoC-Based Implementation of the Backpropagation Algorithm for MLP

Ramón J. Aliaga, Rafael Gadea, Ricardo J. Colom, José M. Monzó, Christoph W. Lerche, Jorge D. Martínez, Angel Sebastiá and Fernando Mateo

167 A Novel Hybrid Optimization Method with Application in Cascade-Correlation Neural Network Training

Xiao-Zhi Gao, Xiaolei Wang and Seppo Ovaska

250 Signal Processing and Perceptrons in an Auditory based Brain-Computer Interface

Miguel Lopez, Hector Pomares, Alberto Prieto, Francisco Pelayo, Javier Perez and Jose Urquiza

Day 2 – Thursday Sep. 11th

Hybrid Intelligent Systems for Image Processing

Plenary Room, Thursday, 10:30

113 Evaluation of Human Visual Impressions in Gray Scale Textures Using Morphological Manipulation

Liang Li, Akira Asano and Chie Muraki Asano

57 A Hybrid Approach for Tissue Recognition on Wound Images

Héctor Mesa, Francisco J. Veredas and Laura Morente

66 Classification and Segmentation of Visual Patterns Based on Receptive and Inhibitory Fields

Bruno Fernandes, George Cavalcanti and Tsang Ren

125 A Sequential Learning Resource Allocation Network for Image Processing Applications

Stefan Wildermann and Juergen Teich

Workshop

Neural Networks and Neuro-Fuzzy Systems (NNNF) II

Room A, Thursday, 10:30

127 Optimal Pruned K-Nearest Neighbors: OP-KNN -- Application to Financial Modeling

Qi Yu, Antti Sorjamaa, Yoan Miche, Amaury Lendasse, Alberto Guillen, Alberto Guillen and Fernando Mateo

195 Neural Network Acquisition Estimator for Multiresolutive Adaptive PN Acquisition Scheme in Multiuser Non Selective Fast SNR Variation Environments

Rosa Maria Alsina Pages, Claudia Mateo Segura, Joan Claudi Socoro Carrie and Marc Deumal Herraiz

103 Recommendation Rule Extraction by a Neuro-Fuzzy Approach

Giovanna Castellano, Anna Maria Fanelli and Torsello Maria Alessandra

135 Hierarchical Type-2 Neuro-Fuzzy BSP Model

Roxana Jimenez, Marley Vellasco and Ricardo Tanscheit

Hybrid Intelligent Systems for Information Retrieval and Text Mining

Room B, Thursday, 10:30

224 Visualizing the Hybridizations Between the Fuzzy Logic Field and the Other Soft-Computing Techniques

Antonio Gabriel López-Herrera, Manuel Jesús Cobo, Enrique Herrera-Viedma and Francisco Herrera

108 Hidden Markov Models and Text Classifiers for Information Extraction on Semi-Structured Texts

Eduardo Silva, Flavia Barros, Ricardo Prudencio, Valmir Macario and Andre Camara

243 Implicit User Modelling Using Hybrid Meta-heuristics

Pavel Kromer, Vaclav Snasel, Jan Platos and Ajith Abraham

30 Improved Semantic Mapping and SOM Applied to Document Organization

Renato Correa and Teresa Ludermit

Workshop

Bioinspired and Evolutionary Computation Based Data Mining Techniques (BECDMT) I

Room C, Thursday, 10:30

27 A Short Study on the Use of Genetic 2-Tuples Tuning for Fuzzy Rule Based Systems

Alberto Fernández, Maria Jose del Jesus and Francisco Herrera

241 Efficient Distributed Genetic Algorithm for Rule Extraction

Antonio Peregrin and Miguel Angel Rodriguez

82 Non-Ordered Data Mining Rules Through Multi-Objective Particle Swarm Optimization: Dealing with Numeric and Discrete Attributes

André B. de Carvalho and Aurora Pozo

247 Evaluating Ranking Composition Methods for Multi-Objective Optimization of Knowledge Rules

Rafael Giusti, Gustavo Batista and Ronaldo Prati

Workshop

Hybrid Metaheuristics and their Applications (HMA) I

Room D, Thursday, 10:30

52 Density Avoided Sampling: An Intelligent Sampling Technique for Rapidly Exploring Random Trees

Sohrab Khanmohammadi and Amin Mahdizadeh

74 A Self-Adaptive Evolutionary Algorithm for Cluster Geometry Optimization

Francisco Pereira and Jorge M. C. Marques

248 A GRASP with Path Relinking for the Single Machine Total Weighted Tardiness Problem

José E. C. Arroyo, André G. Santos, Fabrício L. S. Silva and Alexandre Fraga de Araújo

104 Embedding the Electromagnetism-like Algorithm with a Constraint-Handling Technique for Engineering Optimization Problems

Ana M.A.C. Rocha and Edite M.G.P. Fernandes

Network Design, Optimization and Applications I

Plenary Room, Thursday, 12:00

162 Using Genetic Algorithm for Hybrid Modes of Collaborative Filtering in Online Recommenders

Simon Fong and Yvonne Ho

122 A Fuzzy Admission Controller in a QoS-aware Web Server Architecture

Victor Barros, Alexandre Oliveira and Mario Meireles Teixeira

174 An Artificial Neural Network Approach for Mechanisms of Call Admission Control in UMTS 3G Networks

Anna Izabel Ribeiro, Fátima Duarte-Figueiredo, Gabriel Novy, Sérgio Dias and Luis E. Zárate

Workshop

Neural Networks and Neuro-Fuzzy Systems (NNNF) III

Room A, Thursday, 12:00

60 Fuzzy Model Based Control: Application to an Oil Production Separator

Miguel Ramírez and Eliezer Colina

161 New Parameter Determining Mechanism for Radial Basis Neural Networks

Yasantha Hettiarachchi and H.L. Premerathne

12 A Granular Unifying Framework for Learning Fuzzy Systems

Mokhtar Beldjehem

Decision Making and Fuzzy Logic

Room B, Thursday, 12:00

261 A Decision Making Model Based on Dempster-Shafer Theory and Linguistic Hybrid Aggregation Operators

Jose M. Merigo, Montserrat Casanovas and Luis Martinez

37 Ranking of Weighted Strategies in the Two-Player Games with Fuzzy Entries of the Payoff Matrix

Elisabeth Rakus-Andersson, Maria Salomonsson and Hang Zetervall

230 Value-at-Risk Estimation with Fuzzy Histograms

Rui Jorge Almeida and Uzay Kaymak

Workshop

Bioinspired and Evolutionary Computation Based Data Mining Techniques (BECDMT) II

Room C, Thursday, 12:00

220 Evolving Set of Classifiers into a Single Symbolic Classifier Using Genetic Algorithms

Flavia Bernardini, Ronaldo Prati and Maria Carolina Monard

130 Multi-Objective Learning of Multi-Dimensional Bayesian Classifiers

Juan Diego Rodríguez and Jose Antonio Lozano

142 Genetic-Based Synthetic Data Sets for the Analysis of Classifiers' Behavior

Núria Macià, Albert Orriols-Puig and Ester Bernadó-Mansilla

Workshop

Hybrid Metaheuristics and their Applications (HMA) II

Room D, Thursday, 12:00

139 Hybrid Ant Colony System to Solve a 2-Dimensional Strip Packing Problem

Carolina Salto, Mario Guillermo Leguizamón, Enrique Alba and Juan Miguel Molina

140 Variable Neighborhood Search as Genetic Algorithm Operator for DNA Fragment Assembling Problem

Gabriela Minetti, Gabriel Luque and Enrique Alba

231 Genetic Algorithms for Bi-Objective Job Shop Scheduling Problem

Mayron César de Oliveira Moreira, José Elias Claudio Arroyo, Tiago de Oliveira Januario and Paulo Lúcio Oliveira Júnior

Hybrid Multiobjective Optimization I

Plenary Room, Thursday, 17:00

93 A Hybridised Evolutionary Algorithm for Multi-Criterion Minimum Spanning Tree Problems

Madeleine Davis-Moradkhan and Will Browne

116 Hybrid Interactive Planning under Many Objectives: An Application to the Vehicle Routing Problem

Wolf Wenger and Martin Josef Geiger

40 How Preferences Affect Productivity in the Sugarcane Harvest Problem – a Comparative Study of a Two-Steps MOEA

Diogo F. Pacheco, Tarcísio D.P. Lucas and Fernando B. de Lima Neto

Hybrid Fuzzy Modelling I

Room A, Thursday, 17:00

24 Hybrid Genetic-Fuzzy Optimization of a Type-2 Fuzzy Logic Controller

Nohe Cazarez, Luis T. Aguilar and Oscar Castillo

83 An Experiment on the Description of Sequences of Fuzzy Perceptions

Gracian Trivino and Albert van der Heide

Hybrid Intelligents Systems and Neural Networks II

Room B, Thursday, 17:00

117 Evolving Neural Networks for Word Sense Disambiguation

Antonia Azzini, Célia da Costa Pereira, Mauro Dragoni and Andrea Tettamanzi

48 A Neural Network Classifier of Chess Moves

Cezary Dendek and Jacek Mandziuk

105 Music Composition Using Combination of Genetic Algorithms and Recurrent Neural Networks

Peyman Sheikholharam and Mohammad Teshnehlab

Workshop

Bioinspired and Evolutionary Computation Based Data Mining Techniques (BECDMT) III

Room C, Thursday, 17:00

192 Study of the Robustness of a Meta-Algorithm for the Estimation of Parameters in Artificial Neural Networks Design

Elisabet Parras-Gutierrez, Victor M. Rivas, Maria Jose del Jesus and Juan J. Merelo

62 Hybrid System to Determine the Ranking of a Returning Participant in Eurovision

Alberto Ochoa, A. Hernández, S. Heras, A. Muñoz, A. Padilla

88 Mining for Rhetorical Knowledge from Natural-Language Texts

John Atkinson, Anita Ferreria and Elvis Aravena

190 Multiple Instance Learning with MultiObjective Genetic Programming for Web Mining

Amelia Zafra Gómez, Eva Lucrecia Gibaja Galindo and Sebastián Ventura Soto

Workshop

Hybrid Metaheuristics and their Applications (HMA) III

Room D, Thursday, 17:00

102 Automatic Circle Detection on Images Using Annealed Differential Evolution

Swagatam Das, Sambarta Dasgupta, Arijit Biswas and Ajith Abraham

118 Island Based Distributed Differential Evolution: An Experimental Study on Hybrid Testbeds

Javier Apolloni, Mario Guillermo Leguizamon, José García-Nieto and Enrique Alba

137 Towards a Highly Scalable Hybrid Metaheuristic for Haplotype Inference under Parsimony

Stefano Benedettini, Luca Di Gaspero and Andrea Roli

264 Testing BOI and BOB Algorithms for Solving the Winner Determination Problem in Radio Spectrum Auctions

Yago Saez, Asuncion Mochon, Jose Luis Gomez and Pedro Isasi

Day 3 – Friday Sep. 12th

Metaheuristics for Parameter Optimization

Plenary Room, Friday, 10:30

85 The Impact of Local Search on Protein-Ligand Docking Optimization

Jorge Tavares, Alexandru-Adrian Tantar, Nouredine Melab and El-Ghazali Talbi

15 Ant Colony Optimization for Continuous Domains: Application to Reservoir Operation Problems

Abbas Afshar and Shahrbanou Madadgar

34 Multi-Ring Dispersed Particle Swarm Optimization

Carmelo J. A. Bastos Filho, Marcel Caraciolo, Péricles Miranda and Danilo F. Carvalho

169 Modified Harmony Search Methods for Uni-modal and Multi-modal Optimization

Xiao-Zhi Gao, Xiaolei Wang and Seppo Ovaska

Hybrid Fuzzy Modelling II

Room A, Friday, 10:30

170 Context-Sensitive Clustering in the Design of Fuzzy Models

Tatiane Nogueira and Heloisa Camargo

256 Fuzzy Case-Based System for Classification Tasks on Missing and Noise Data

Yanet Rodriguez, Bernard De Baets, Carlos Morell and Maria M. Garcia Lorenzo

273 A Hybrid Optimization Method for Fuzzy Classification Systems

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144 Feature Selection for Time Series Forecasting: A Case Study

Rubén García Pajares, J.M. Benítez and Gregorio Sáinz Palmero

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Kuncup Iswandy and Andreas Koenig

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Hadi Panahi and Masoud Rabbani

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Francisco Nascimento Junior, Ing Ren Tsang and George Cavalcanti

270 Bio-Inspired Parameter Tuning of MLP Networks for Gene Expression Analysis

André L. D. Rossi, Andre Carvalho and Carlos Soares

271 Metalearning for Gene Expression Data Classification

Bruno Feres de Souza, Andre Carvalho and Carlos Soares

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251 A Hybrid Evolutionary Multi-Objective Algorithm to Setup Explicit Routes in MPLS Networks

Fernando Afonso Santos and Geraldo Robson Mateus

269 Intelligent Operators for Localisation of Dynamic Smart Dust Networks

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Workshop

Hybrid Learning for Artificial Neural Networks: Architectures and Applications (HLNN-AA) III

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Gaston L'Huillier, Richard Weber, Cristian Bravo and Jose Luis Lobato

84 Conflict Detection and Bayesian Conditioning for Estimating the Reliability of each LVQ Network in a Group Engaged at Iris Biometric Identification

Germano Vallesi, Anna Montesanto and Aldo Franco Dragoni

228 Drawing Graphs in Parallel Lines with Artificial Neural Networks

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Michael Knowles and Stefan Wermter

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Araken Santos, Anne Canuto and João Carlos Xavier Junior³

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Leo Iaquina, Marco de Gemmis, Pasquale Lops, Giovanni Semeraro, Michele Filannino and Piero Molino

Information Systems

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70 A Model for Semantic Service Matching with Leftover and Missing Information

Christian Sánchez and Leonid Sheremetov

86 A Scheme for Simplification of Entity Networks for Fusion of Unstructured Data

Xinghu Zhang, Hian-Beng Lee and Ho-Keong Chan

131 Modeling and Building an Ontology for Neuropediatric Physiotherapy Domain

Luciana V. Castilho, Heitor Lopes and César A. Tacla

87 Generating Effective Feedback for Intelligent Tutoring of Foreign Language

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Workshop

Hybrid Learning for Artificial Neural Networks: Architectures and Applications (HLNN-AA) IV

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Matheus Pires, Ivan Silva and Fabiana Bertoni

75 Video Object Segmentation with Multivalued Neural Networks

Rafael Marcos Luque, Domingo López-Rodríguez, Enrique Mérida-Casermeiro and Esteban José Palomo

Additional Information

Welcome Reception at “Torre Mapfre”

The Welcome Reception will take place at the top of **Torre Mapfre**

Location: C/ Marina 14-16 Barcelona

Date: September 10th at 16:45.

After the Reception there will be a dinner.

There will be special transportation for all participants to get to the Reception. Shuttle buses will depart from the Conference place from 15:30 to 16:00.

Conference Dinner

The Conference Dinner will take place at the **Hotel Catalonia Duques de Bergara**.

Location: C/ Bergara, 11 Barcelona (by Plaza Catalunya and Las Ramblas).

Date: September 11th at 20:00.

Wi-Fi Access to Internet

During the conference, there will be free Wi-Fi access to Internet for all registered participants. Detailed information about this Wi-Fi access (SSID, user & password, etc.) will be available at the conference information desk (Vertex building).

Visits to the MareNostrum Supercomputing Center

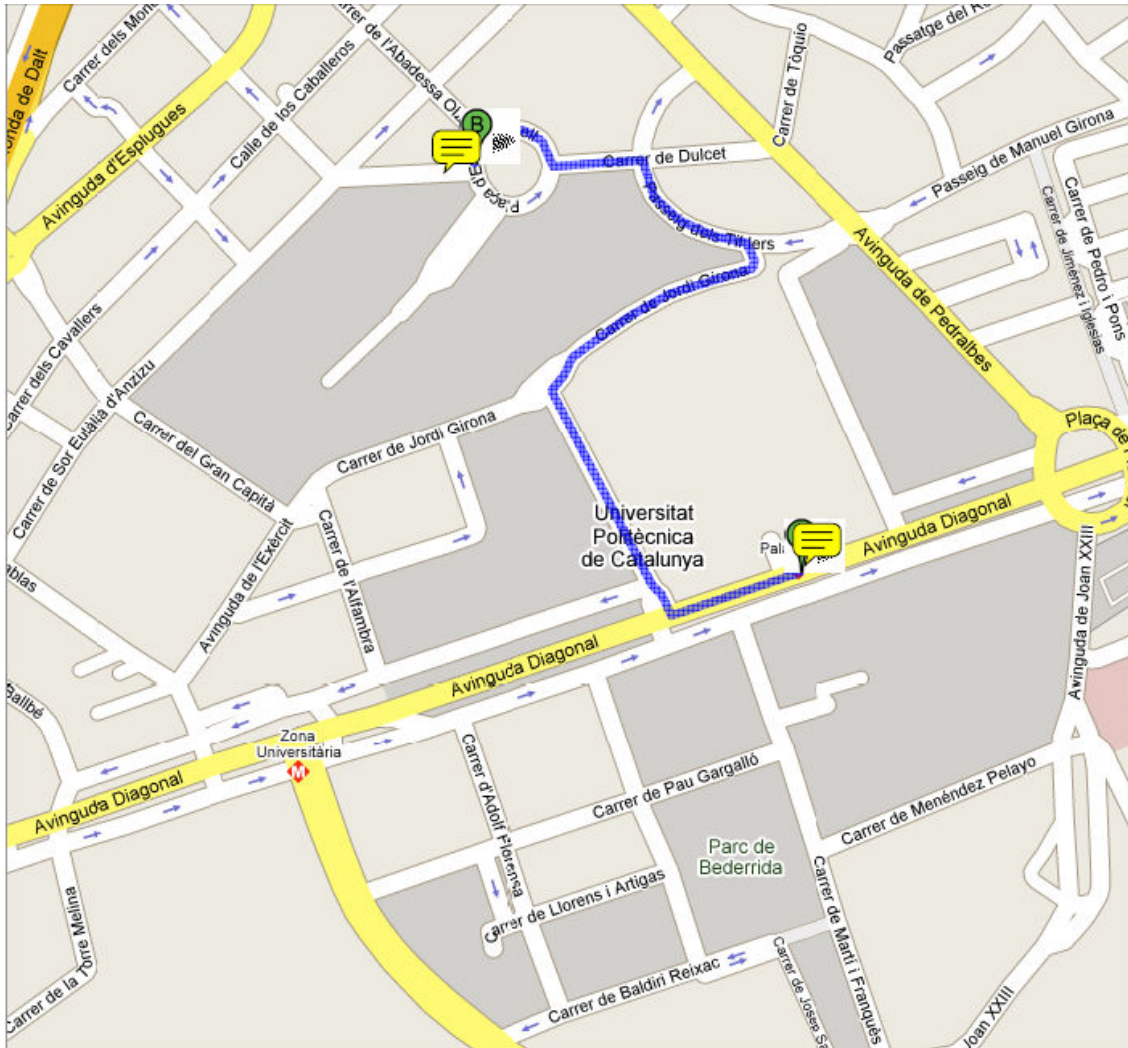
HIS 2008 organizes three free guided tours to the MareNostrum Supercomputing Center of Barcelona. All three visits will take place on September 10th (Wednesday), between 13:00 and 14:30 hours. Each visit will last for about 30 minutes. People interested in attending one of these tours can register themselves at the conference information desk (Vertex building).

MAPS

Location of the Conference Site

Metro: Line 3, green, stop at Palau Reial.

From Palau Reial (Diagonal Av.) to the Conference Site (Vertex building, Polytechnic University of Catalonia - UPC):



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Vertex building
Plaça d'Eusebi Güell, 6
08034, Barcelona

Location of the Conference Dinner

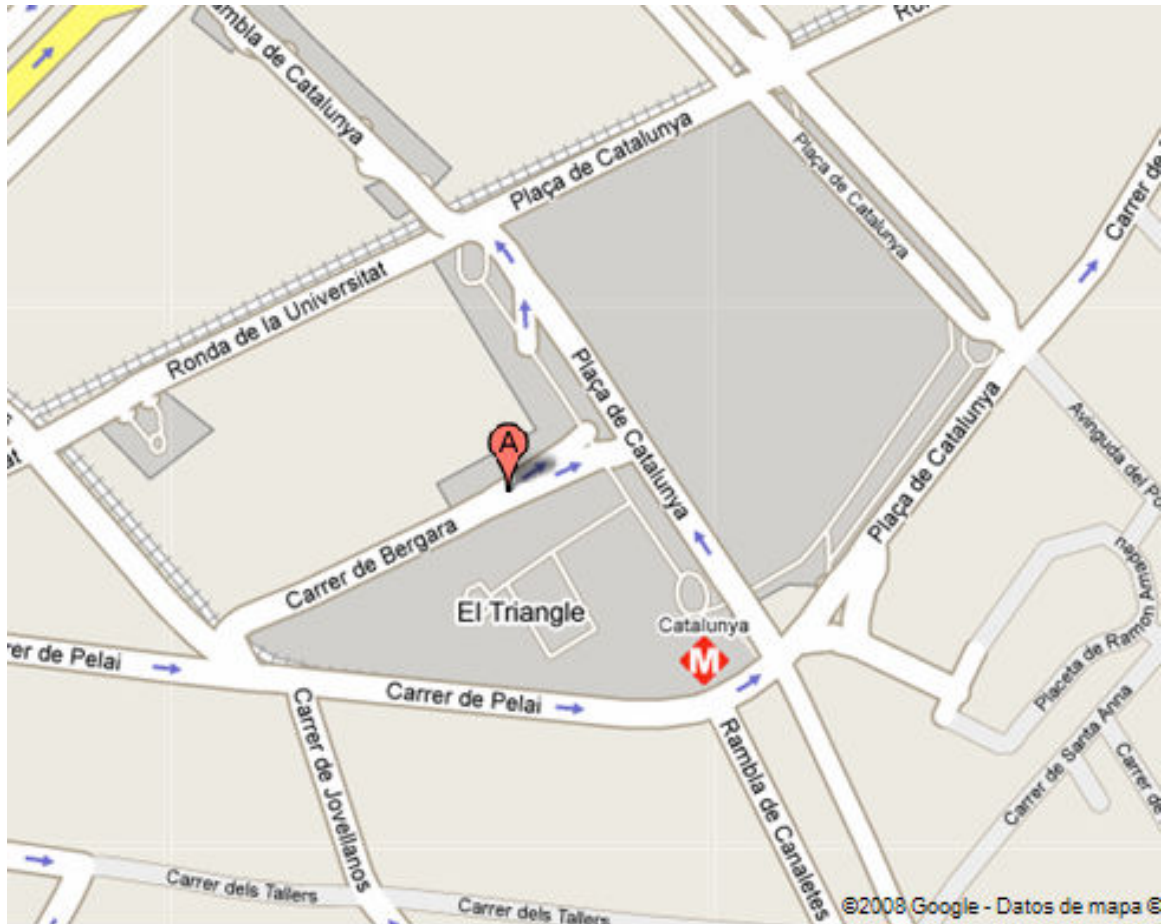
Hotel Catalonia Duques de Bergara

C/ Bergara, 11 Barcelona

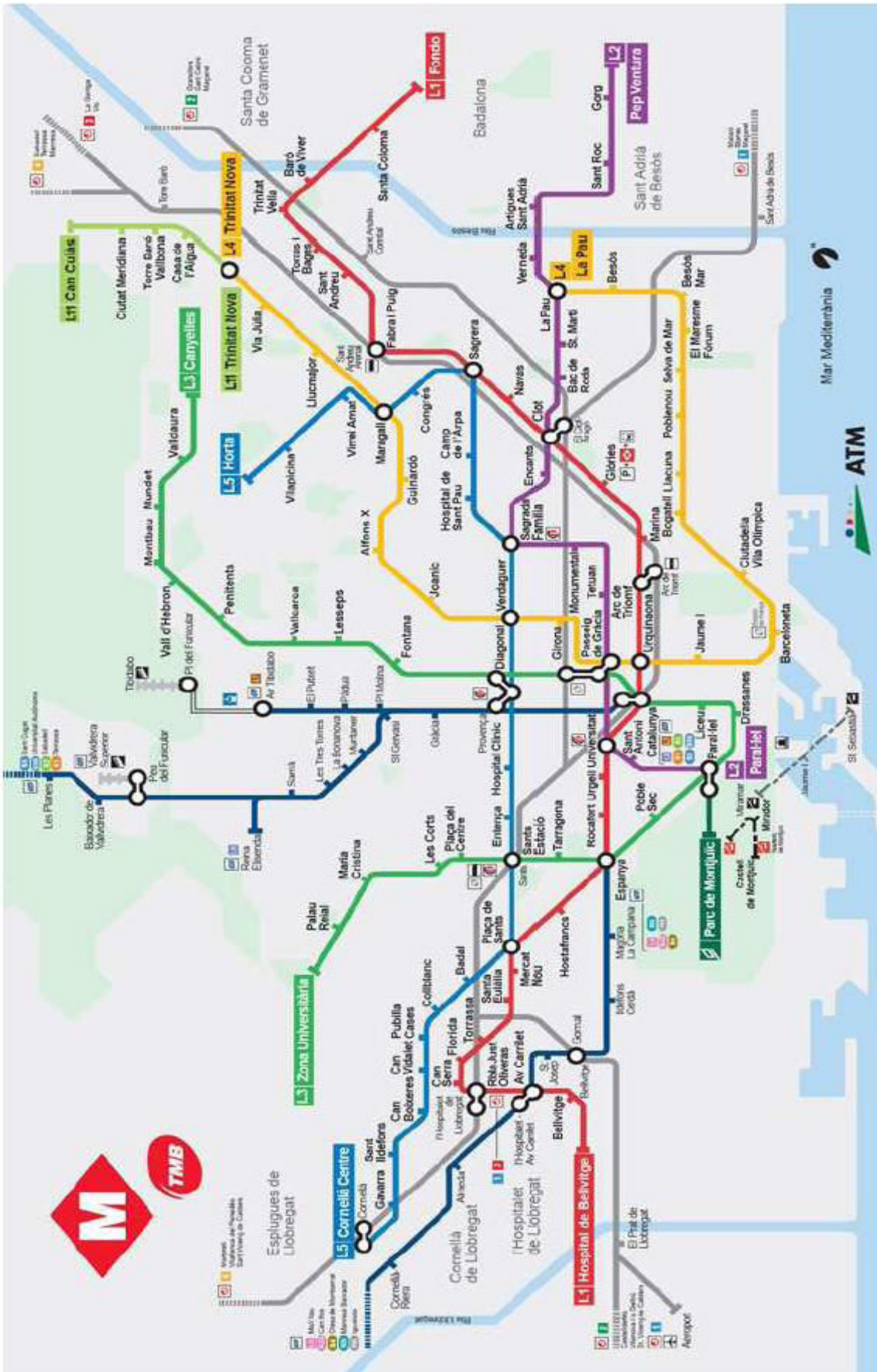
Transportation from the conference place:

Metro: Line 3 (green), Stop at Plaça Catalunya.

From Plaça Catalunya to Conference Dinner:



Metro Map of Barcelona






Restaurant Guide (on the conference site area)

Lunch is included in the conference at a restaurant located in the same conference building. You will find lunch tickets in the conference bag.
For those who would like to enjoy special food the following is a list of the restaurants in the conference site area:



- | | |
|--|--|
| 1. Restaurant Self-service Polimenú*La Cup: Bufet Libre
C / Jordi Girona, 1-3 Telf: 934017107 / 932044020 | 10. Restaurant Rovell d'Ou: Cocina Catalana
C / Jordi Girona, 6 Telf: 932057871 |
| 2. Restaurant Notable *La Cup:
C / Jordi Girona, 3*5 Telf: 934017107 / 932044020 | 11. Restaurant Zure Etxea: Cocina Vasca
C / Jordi Girona, 10 Telf: 932038390 |
| 3. Restaurant FIB
UPC Campus Nord, Edf. B6 | 12. Restaurant Julivert Meu: Cocina Catalana
C / Jordi Girona, 12 Telf: 932041196 / 932057821 |
| 4. Restaurant Facultad de Caminos
UPC Campus Nord, Edf. B2 | 13. Restaurant Pati Blau: Cocina Catalana
C / Jordi Girona, 14 Telf: 932042215 |
| 5. Restaurant Vertex
UPC Campus Nord, Edf. Vertex Telf: 932805126 | 14. Restaurant Triton: Cocina Mediterranea
C / Alfambra, 16 Telf: 932033085 |
| 6. Restaurant Nexus
UPC Campus Nord, Edf. Nexus Telf: 932802223 | 15. Bar Restaurant La Tassa: Cocina de Mercado
C / Alfambra, 15 Telf: 932048865 |
| 7. Restaurant Poliesportiu UPC
UPC Campus Nord, Edf. Poliesportiu | 16. Restaurant Can Tornem-hi: Cocina Casera
Av Exèrcit, 8*10 Telf: 932804814 |
| 8. Restaurant Cantabria
C / Sor Eulalia D'Anzizu, 45 Telf: 932039556 | 17. Restaurant Païradis Temporada
Pg Manuel Girona, 7 Telf: 932037637 |
| 9. Restaurant Frankfurt Pedralbes *Jordi Girona
C / Jordi Girona, 2*4 Telf: 932052717 | |

Referential prices:

-  until 12 € p/p
-  between 20€ and 40 € p/p
-  more than 40€ p/p