16th International Conference on Knowledge-Based and Intelligent Information & Engineering Systems – KES 2012

10, 11 & 12 September 2012
San Sebastián, Spain

Conference Programme
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Information processing has become a pervasive phenomenon in our civilization. Massive access to information resources and their use as intelligent systems in everyday applications is advantaged by the most recent research in information technologies. While the majority of information processing is becoming intelligent in a very broad sense, major research in semantics, artificial intelligence and Knowledge Engineering supports the domain specific applications that are becoming more and more present in our everyday living. Intelligent Systems are present in a wide range of situations that include facets of simple everyday actions and sometimes not so simple aspects such as transport systems and even the medical domain. Digital news, socialization of relations, and enhancements derived from the handling of expert decisions are but a few examples of everyday applications.

Ontologies play a major role in the development of knowledge engineering in various domains, from semantic web down to the design of specific decision support systems. They are used for the specification of natural language semantics, information modelling and retrieval in querying systems, geographical information systems, medical information systems, the list is growing continuously. Ontologies allow easy modelling of heterogeneous information, flexible reasoning for the derivation of consequents or the search of query answers, specification of a priori knowledge, increasing accumulation of new facts and relations, i.e. reflexive ontologies. Therefore, they are becoming key components of adaptable information processing systems. Classical problems such as ontology matching or instantiation, has new and more complex formulations and solutions, involving a mixture of underlying technologies, from traditional logic up to fuzzy logic. Research on ontologies and their applications is a highly active front of current computational intelligence science.

Much of modern machine learning has become a branch of statistics and probabilistic system modelling. The Bayesian paradigm is becoming dominant, because it allows the formulation of elegant chains of reasoning to deal with uncertainty. Linear approaches to feature extraction and enrichments for discriminant systems have also a surprising revival from the hand of kernel theory and Bayesian sparse modelling. In the background, the establishment of a sound methodology to assess the value of the systems is a continuous
endeavour that is also strongly anchored in statistics. approaches based on nature-inspired computing, such as artificial neural networks, have a broad application and are subject of active research.

A very specific new branch of developments is that of Lattice Computing, gathering works under a simple heading “use lattice operators as the underlying algebra for computational designs”. A traditional area of research that falls in this category is Mathematical Morphology as applied to image processing, where image operators are designed on the basis of maximum and minimum operations, a long track of successful applications support the idea that this approach could be fruitful in the framework of intelligent system design. The fruits have been innovative associative memories, image feature extraction and classification algorithms, which include lattice based techniques to manipulate heterogeneous information sources.

For more than 15 years, KES International and its annual organized events, have served as a platform for sharing the latest developments in Intelligent Systems. Organized by the Computational Intelligence Group of the University of the Basque Country and the computer graphics leading institute Vicomtech-IK4, the 16th Annual KES conference\(^1\), was held in the beautiful city of San Sebastian in the north of Spain. Extracted from the conference, this book presents the best contributions received and presented by leading experts all over the world who joined us to share their latest achievements in this domain. The quality of these contributions clearly show that knowledge engineering is more than a trendy topic, but a continuous living and evolving set of technologies aimed to the improve the design and understanding of systems and their relations with humans.

Prof. Manuel Graña

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\(^1\) [http://kes2012.kesinternational.org](http://kes2012.kesinternational.org)
Organization

Prof. Manuel Graña
University of the Basque Country, Spain
General Chair and Programme Co-Chair

Dr. Jorge Posada
Vicomtech-IK4 Research Centre, Spain
General Chair

Prof. Lakhmi C. Jain
University of South Australia, Australia
General Chair

Prof. Robert J. Howlett
Bournemouth University, UK
Executive Chair

Dr. Carlos Toro
Vicomtech-IK4 Research Centre, Spain
Programme Co-Chair

Prof. Alfredo Cuzzocrea
University of Calabria, Italy
Programme Co-Chair
Organizers

KES 2012 is hosted and organized by the University of the Basque Country (UPV/EHU)\(^2\), the Computational Intelligence Group\(^3\) and Vicomtech-IK4 Research Centre\(^4\).

The conference is being held at the Palacio Miramar and Hotel Costa Vasca in San Sebastián-Donosti (Spain), on September 10th-12th, 2012.

University of the Basque Country (UPV/EHU)

The University of the Basque Country is a teaching and research institution officially founded in 1985. The university employs over 7,000 people throughout 31 faculties and schools geographically distributed in three campuses with over 50,000 undergraduate and postgraduate students. The UPV/EHU is the Spanish University offering the highest number of degrees, one third of these degrees having a quality mention from the Spanish Ministry of Education.

UPV/EHU is not only one of the leading universities in Spain according to a recently published ranking (www.webometrics.info) but also one of the leading universities in the European area for the quality of its teaching, its commitment to continuous training and the excellence of its research, development and innovation. It holds agreements with more than 400 international universities. The UPV/EHU has 107 departments teaching about 78 courses up to the second cycle level.

Computational Intelligence Group

The Computational Intelligence Group research activities focus on the application of techniques of Artificial intelligence, based on bio-inspired and statistical techniques, to diverse aspects of perception and control systems. Those techniques include algorithms of clustering and vector quantization, neuronal networks, Hidden Markov Models, classification supervised algorithms, reinforcement learning and image processing. The applications range from advanced man-machine interaction systems, control of multi-robot systems, remote sensing image analysis, medical image and medical data processing, with a current emphasis in neurosciences applications. The group has hosted two previous international conferences: IWANN 2007, HAIS 2010.

\(^2\) http://www.ehu.es
\(^3\) http://www.ehu.es/computationalintelligence
\(^4\) http://www.vicomtech.es/
Vicomtech-IK4 Research Centre

Vicomtech-IK4 (Visual Interaction and Communication Technologies Centre) is an applied research centre for Interactive Computer Graphics and Multimedia located in the technology Park of San Sebastián (Spain).

Vicomtech-IK4 is a member of the IK4 Research Alliance, which is composed of 9 leading Basque technological centres. In the same way, Vicomtech-IK4 also belongs to the international GraphicsMedia.net, composed of several international prestigious applied research centres. All of its members work on Computer Graphics and Multimedia technologies, which gives the net an internationalization active and strategic profile to its research activity.

Vicomtech-IK4’s aim is to fulfill the innovation needs of the companies and institutions. For this, the Centre

- works in applied research and development of multimedia technologies for visual interaction and communication;
- fosters the mobility and formation of researchers;
- collaborates tightly with the industry, universities and institutions, and complements other technology centres.

Vicomtech-IK4’s research profile is to serve as a bridge between the local and the international environments. This philosophy of applied research helps the local companies to have new opportunities to access a worldwide environment, and to benefit from the latest technological advances in the international context. At the same time, Vicomtech-IK4’s participation in international projects complements and improves the main local activity of applied research.

Vicomtech-IK4 pursues to contribute to the general knowledge hosting co-chairing International Conferences, and fostering the training of young researchers, through the publication of results in renowned international journals and conferences.
# Executive Committee

## General chairs

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
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<tbody>
<tr>
<td>Prof. Manuel Graña</td>
<td>University of the Basque Country, Spain</td>
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<td>Dr. Jorge Posada</td>
<td>Vicomtech Research Centre, Spain</td>
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<tr>
<td>Prof. Lakhmi C. Jain</td>
<td>University of South Australia, Australia</td>
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## Executive chair

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<tr>
<td>Prof. Robert J. Howlett</td>
<td>Bournemouth University, UK</td>
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## Programme co-chairs

### General Track Coordinator

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<th>Name</th>
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<td>Prof. Manuel Graña</td>
<td>University of the Basque Country, Spain</td>
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### Special Sessions Coordinators

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<th>Name</th>
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<tr>
<td>Dr. Carlos Toro</td>
<td>Vicomtech-IK4 Research Centre, Spain</td>
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<tr>
<td>Prof. Alfredo Cuzzocrea</td>
<td>University of Calabria, Italy</td>
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<tr>
<td>Prof. Manuel Graña</td>
<td>University of the Basque Country, Spain</td>
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## Liaison chairs

### South-America:

<table>
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<th>Name</th>
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<tbody>
<tr>
<td>Prof. Juan D. Velasquez Silva</td>
<td>University of Chile, Chile</td>
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### Australia:

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<th>Name</th>
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<tr>
<td>Dr. Cesar Maldonado Sanín</td>
<td>University of Newcastle, Australia</td>
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### Germany:

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<th>Name</th>
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<tr>
<td>Prof. Dr. Udo Seiffert</td>
<td>Fraunhofer-Institute IFF Magdeburg, Germany Biosystems Engineering, Germany</td>
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### Italy:

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<th>Name</th>
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<tr>
<td>Prof. Germano Resconi</td>
<td>Catholic University, Brescia, Italy</td>
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Malaysia:
Prof. C. P. Lim University of Sciences, Malaysia

Poland:
Prof. Maria Ganzha University of Gdansk, Poland

United Kingdom:
Dr. Lyudmila Mihaylova Lancaster University, UK

USA:
Prof. Natacha Gueorguieva The City University of New York, USA

Organizing Committee

KES Operations Manager

Mr. Peter Cushion KES International, UK

KES Systems Support

Mr. Shaun Lee KES International, UK

Support Staff

Mrs. Ane Elizalde Vicomtech-IK4 Research Centre, Spain
Dr. Elsa Fernández University of the Basque Country, Spain
Mrs. Jennifer Hervás Vicomtech-IK4 Research Centre, Spain
Dr. Ramón Moreno University of the Basque Country, Spain
Dr. Miguel A. Veganzones University of the Basque Country, Spain
# Track Chairs

## Generic Topics

<table>
<thead>
<tr>
<th>Code</th>
<th>Track Title</th>
<th>Track Chair</th>
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<tbody>
<tr>
<td>GT01</td>
<td>Artificial Neural Networks, Connectionists Systems and Evolutionary Computation</td>
<td><strong>Prof. Bruno Apolloni</strong></td>
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<tr>
<td></td>
<td></td>
<td>University of Milan, Italy</td>
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<td></td>
<td></td>
<td><a href="mailto:apolloni@dsi.unimi.it">apolloni@dsi.unimi.it</a></td>
</tr>
<tr>
<td>GT02</td>
<td>Machine Learning and Classical AI</td>
<td><strong>Prof. Floriana Esposito</strong></td>
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<tr>
<td></td>
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<td>University of Bari, Italy</td>
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<td><a href="mailto:esposito@di.uniba.it">esposito@di.uniba.it</a></td>
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<tr>
<td>GT03</td>
<td>Agent and Multi-Agent Systems</td>
<td><strong>Prof. Ngoc Thanh Nguyen</strong></td>
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<td>Wroclaw University of Technology,</td>
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<td>Poland</td>
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<tr>
<td>GT04</td>
<td>Knowledge Based and Expert Systems</td>
<td><strong>Prof. Anne Hakansson</strong></td>
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<td>Royal Institute of Technology,</td>
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<td>Sweden</td>
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<td><a href="mailto:annehak@kth.se">annehak@kth.se</a></td>
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## Application Topics

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<tr>
<th>Code</th>
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<tbody>
<tr>
<td>GT05</td>
<td>Intelligent Vision, Image Processing and Signal Processing</td>
<td><strong>Prof. Tuan D. Pham</strong></td>
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<tr>
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<td>The University of Aizu, Japan</td>
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<td><a href="mailto:t.pham@adfa.edu.au">t.pham@adfa.edu.au</a></td>
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</tbody>
</table>
### Code | Track Title | Track Chair
---|---|---
GT06 | Knowledge Management, Ontologies and Data Mining | Prof. Ron Hartung  
Franklyn University, USA  
ronhartung@hotmail.com

GT07 | Web Intelligence, Text and Multimedia Mining and Retrieval | Prof. Andreas Nuernberger  
University of Magdeburg, Germany  
andreas.nuernberger@ovgu.de

GT08 | Intelligent Robotics and Control | Dr. Honghai Liu  
University of Portsmouth, UK  
honghai.liu@port.ac.uk

GT09 | Intelligent Tutoring Systems and E-Learning Environments | Prof. Toyohide Watanabe  
Nagoya University, Japan  
watanabe@is.nagoya-u.ac.jp

### Other Topics

#### Code | Track Title | Track Chair
---|---|---
GT10 | Other / Misc. Intelligent Systems Topics | Dr. Carlos Toro  
Vicomtech-IK4 Research Centre, Spain  
ctoro@vicomtech.org
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<th>Code</th>
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<tr>
<td>IS03</td>
<td>Knowledge-Based Systems for e-Business</td>
<td>Chair: Professor Kazuhiko Tsuda, The University of Tsukuba, Tokyo, Japan Co-chaired by Dr Nobuo Suzuki, KDDI Corporation, Japan</td>
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<td>Co-chaired by Professor Masakazu Takahashi, University of Gumma, Japan</td>
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<tr>
<td>IS05</td>
<td>Skill Acquisition and Ubiquitous Human Computer Interaction</td>
<td>Chair: Prof. Hirokazu Taki, Wakayama University, Japan Co-chaired by Ass. Prof. Masato Soga, Wakayama University, Japan</td>
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<tr>
<td>IS08</td>
<td>Intelligent monitoring and high-level activity interpretation using multisensory systems</td>
<td>Chair: Prof. Antonio Fernández-Caballero, Universidad de Castilla-La Mancha, Spain Co-chaired by Ass. Prof. Rafael Martínez-Tomás, Universidad Nacional de Educación a Distancia, Spain</td>
</tr>
<tr>
<td>IS09</td>
<td>Social Knowledge Support Infrastructure for Human Activity and Creativity</td>
<td>Chair: Asst. Prof Naoto Mukai, Sugiyama Jo-gakuen University, Japan Co-chaired by Assoc. Prof. Takeotoshi Ushiama, Kyushu University, Japan</td>
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<td>Co-chaired by Prof. Toyohide Watanabe, Nagoya University, Japan</td>
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| IS10 | Learning Support for Intelligence: Functionality and Environment              | Chair: Assoc. Prof. Tomoko Kojiri, Kansai University, Japan  
Co-chaired by Prof. Toyohide Watanabe, Nagoya University, Japan                                                                 |
| IS11 | Population-based metaheuristics                                             | Chair: Prof. Piotr Jędrzejowicz, Gdynia Maritime University, Poland  
Co-chaired by Dr. Ireneusz Czarnowski, Gdynia Maritime University, Poland                                                                 |
| IS12 | Advanced Knowledge-based Systems                                             | Chair: Professor Alfredo Cuzzocrea, University of Calabria, Italy                                                                 |
| IS14 | Reasoning-based Intelligent Systems                                          | Chair: Prof. Kazumi Nakamatsu, University of Hyogo, Japan  
Co-chaired by Prof. Jair Minoro Abe, Paulista University, Brazil                                                                 |
| IS16 | Knowledge Engineering Solutions for Biomedical Applications                  | Chair: Prof. Gloria Bueno, Universidad de Castilla-La Mancha, Spain  
Co-chaired by Dr. Grégory Maclair, Vicomtech IK4, Research Centre, Spain  
Co-chaired by Carlos Parra, Hospital Universitario Virgen del Rocío, Spain                                                                 |
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<tr>
<td>IS17</td>
<td>Recent trends in knowledge Engineering, Smart Systems and their applications</td>
<td>Chair: Dr. Cesar Sanín, University of Newcastle, Australia</td>
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<td>Co-chaired by Dr. Carlos Toro, Vicomtech-IK4 Research Centre, Spain</td>
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<td>Co-chaired by Prof. Edward Szczerbicki, University of Newcastle, Australia</td>
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<td>IS18</td>
<td>Ontologies for decision-making</td>
<td>Chair: Dr Cecilia Zanni-Merk, BFO team, University of Strasbourg, France</td>
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<td>Co-chaired by Dr Gregory Zacharewicz, GRAI, University of Bordeaux 1, France</td>
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<td>IS19</td>
<td>Chance Discovery</td>
<td>Chair: Prof. Akinoro Abe, IREIIMS University, Japan</td>
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<td>Co-chaired by Prof. Yukio Ohsawa, Univ. of Tokyo, Japan</td>
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<td>IS20</td>
<td>Innovation and Automation using MAS</td>
<td>Chair: Dr. Jeffrey W. Tweedale, Defence Science and Technology Organisation / University of South Australia</td>
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<td>Co-chaired by Prof. Lakhmi Jain, University of South Australia</td>
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<td>IS21</td>
<td>Computational Intelligence in Multimedia Processing</td>
<td>Chair: Prof. Otoniel Mario López Granado, Universidad Miguel Hernández, Spain</td>
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<td>Co-chaired by Prof. Adriana Dapena Janeiro, Universidade Da Coruña, Spain</td>
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<td>Co-chaired by Prof. Nicolás Guil Mata, Universidad de Málaga, Spain</td>
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<td>IS22</td>
<td>Knowledge-Based Intelligent System and Application</td>
<td>Chair: Prof. Yuji Iwahori, Chubu University, Japan</td>
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<td>Co-chaired by Prof. Yoshinori Adachi, Chubu University, Japan</td>
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<td>Co-chaired by Prof. Nobuhiro Inuzuka, Nagoya Inst. of Technology, Japan</td>
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<td>IS23</td>
<td>Intelligent Network and Service</td>
<td>Chair: Prof. Jun Munemori, Wakayama University, Japan</td>
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<td>Co-chaired by Prof. Takaya Yuizono, Japan Advanced Institute Science and Technology, Japan</td>
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<td>IS24</td>
<td>Ontology-based Information Retrieval</td>
<td>Chair: Dr. Antonio Moreno, University Rovira i Virgili (URV), Spain</td>
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<td>Co-chaired by Dr. Hajer Baazaoui, University of La Manouba, Tunisia</td>
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<td>Co-chaired by Dr. Aida Valls, University Rovira i Virgili (URV), Spain</td>
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<td>Co-chaired by Nesrine Ben Mustapha, University of La Manouba, Tunisia</td>
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<td>IS25</td>
<td>Intelligent solutions in network economy and manufacturing</td>
<td>Chair: Dr. Arkadiusz Kawa, Poznan University of Economics</td>
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<td>Co-chaired by Dr. Pawel Pawlewski, Poznan University of Technology</td>
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<tr>
<td>IS26</td>
<td>Soft Computing Techniques and Their Intelligent Utilizations Toward Gaming, Stock Markets, Robotics, etc.</td>
<td>Chair: Prof. Norio Baba, Kansai University, Osaka Kyoiku University, Japan</td>
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<tr>
<td>IS27</td>
<td>Affective Engineering and Management Engineering Approaches to the Restructuring of Aging Society</td>
<td>Chair: Prof. Hisao Shiizuka, Kogakuin University, Japan</td>
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<td>Co-chaired by Prof. Junzo Watada, Waseda University, Japan</td>
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<td>IS28</td>
<td>Data Mining and Service Science for Innovation</td>
<td>Chair: Prof. Katsutoshi Yada, Kansai University, Japan</td>
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<td>Co-chaired by Prof. Takahira Yamaguchi, Keio University, Japan</td>
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<td>IS30</td>
<td>Second workshop on Hyperspectral image processing, intelligent systems for remote sensing and High Performance Computing</td>
<td>Chair: Prof. Manuel Graña, University of the Basque Country</td>
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<td>Co-chaired by Prof. Richard Duro, University de A Coruña, Spain</td>
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<td>Co-chaired by Prof. Antonio Plaza, University de Extremadura, Spain</td>
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<td>Co-chaired by Prof. Alicia d'Anjou, University of the Basque Country</td>
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<td>Co-chaired by Prof. Dora Blanco Heras, University of Santiago de Compostela, Spain</td>
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<td>IS31</td>
<td>Knowledge engineering and computational intelligence in medical image and medical data processing</td>
<td>Chair: Prof. Manuel Graña, University of the Basque Country</td>
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<td>Co-chaired by Alexandre Savio, University of the Basque Country</td>
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<td>Co-chaired by Darya Chyzhyk, University of the Basque Country</td>
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# International Program Committee

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<tr>
<th>Name</th>
<th>Affiliation</th>
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<tbody>
<tr>
<td><strong>Dr. Ahmad Taher Azar</strong></td>
<td>IGI Global, USA</td>
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<tr>
<td><strong>Prof. Isabelle Bichindaritz</strong></td>
<td>University of Washington Tacoma, USA</td>
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<td><strong>Dr Mihai Boicu</strong></td>
<td>George Mason University, USA</td>
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<td><strong>Dr Gloria Bordogna</strong></td>
<td>National Research Council of Italy , Italy</td>
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<tr>
<td><strong>Dr. Zaki Brahmi</strong></td>
<td>RIADI Laboratory, Manouba University, Tunisia.</td>
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<td><strong>Prof. Michele Ceccarelli</strong></td>
<td>University of Sannio, Italy</td>
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<td><strong>Dr. Igor Chikalov</strong></td>
<td>King Abdullah University of Science and Technology, Saudi Arabia</td>
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<td>University of Calabria, Italy</td>
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<td>Dr. Beata M Zielosko</td>
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Applied Soft Computing is an international journal promoting an integrated view of soft computing to solve real life problems. Soft computing is a collection of methodologies, which aim to exploit tolerance for imprecision, uncertainty and partial truth to achieve tractability, robustness and low solution cost. The focus is to publish the highest quality research in application and convergence of the areas of Fuzzy Logic, Neural Networks, Evolutionary Computing, Rough Sets and other similar techniques to address real world complexities.

http://www.softcomputing.org/
Keynote 1: Dr. Belur V. Dasarathy

Monday 10th September 2012

PM-A, 9:00h-10:00h

Dr. Belur V. Dasarathy

Information Fusion and Decision Systems Technologies

Title: “Information Fusion in the Context of Social Robotic”

Abstract:

This keynote address will offer an overview of the field of multi-sensor, and/or multi-source information fusion in the context of social robotics - a relatively new domain of activity in the long established field of robotics. Central to the developments in the area of social robotics is the ability to have reliable, robust, safe, near-instantaneous human-robot interaction. Just as humans process and fuse information from the five senses vision, audition, taction, olfaction and gustation, it is possible to envisage the fusion of information by the robot from its multiple sensors and sources. For human-robot interaction to be efficacious in successful deployment of social robots, it is necessary to have matching information fusion capability inculcated in the social robot being designed for interacting with the human. This overview of how information fusion can aid the development of social robots in presented through the mode of addressing the questions of what, why, when, and how, of information fusion in the context of such human-robot interaction.

Biography:

Dr. Belur V. Dasarathy, an IEEE Fellow, is an independent consultant offering services to commercial and government clients in the design and development of automated intelligent decision systems arising in a variety of applications. His expertise includes guidance, teaching, research and development (R&D)
and R&D management in the areas of intelligent decision systems, learning systems, multi-sensor multi-source information fusion, knowledge discovery through pattern recognition and data mining, image analysis and other related topics. His prior professional full-time affiliations have included Dynetics, Inc., Intergraph Corp., Computer Sciences Corp., Indian Institute of Science, Southern Methodist University, as well as adjunct positions at University of Alabama in Huntsville.


He is the founding Editor-in-chief of the International Journal on Information Fusion published by Elsevier Science, the very first journal dedicated to this evolving field. He has offered short courses in the information fusion arena under SPIE and other conference sponsorships as well as under individual company/ University/ Organization sponsored on-site programs.

Dr. Dasarathy was honored as the IEEE Huntsville Section Outstanding Engineer 1996, IEEE Region 3 Outstanding Engineer for 1997 and a recipient of the IEEE Third Millennium Medal. He was one of the founding members of the board of directors of the International Society on Information Fusion (ISIF) and served on it for three years. He was the guest editor of Optical Engineering for three special sections on Sensor Fusion. From 1997 to 2009, he has been the organizer and chairman of two annual SPIE Conferences on multi-sensor, multi-source information fusion and data mining, intrusion detection &
network security. He was the publicity chair for the International conferences on Information Fusion - Fusion 1998, Fusion 1999, Fusion 2001, a member of the executive committee of Fusion 2000, and is a member of the International Program committee for Fusion 2003. He has organized and chaired special sessions on Information Fusion and Data Mining at other conferences including IEEE Decision and Control 1998, International Joint Conference on Neural Networks 1999, IGARSS 2000, IECON-2000. He has been a member of the Scientific Committee for the annual workshop on Multiple Classifier Systems since 2000 including the one to be held in 2003. He was also the technical vice-chair for Autotestcon 2002.

Dr. Dasarathy has over 180 open literature publications with him as primary author in majority of these publications. He is the author of three IEEE Computer Society Press books: Decision Fusion, Nearest Neighbor (NN) Norms: NN Pattern Classification Techniques, and Image Data Compression: Block Truncation Coding. He has also contributed chapters/sections to other books, including one in the handbook on Data Mining and Knowledge Discovery (Oxford University Press, 2002). His publications have been cited in the literature in over 400 studies.

Keynote 2: Prof. Guang-Bin Huang

Monday 10th September 2012

PM-A, 13:30h-14:30h

Prof. Guang-Bin Huang
Nanyang Technological University, Singapore

Title: “Extreme Learning Machine: One Step towards Human Brain Alike Learning”

Abstract:
Neural networks (NN) and support vector machines (SVM) play key roles in machine learning and data analysis in the past 2-3 decades. However, it is known that these popular learning techniques face some challenging issues such as: intensive human intervene, slow learning speed, poor learning scalability. This talk will introduce a new learning technique referred to as Extreme Learning Machine (ELM). ELM not only learns up to tens of thousands faster than NN and SVMs, but also provides unified implementation for regression, binary and multi-class applications. ELM not only produces good results for sparse datasets but also is efficient for large size of applications. From both theoretical and practical points of view, NN and SVM/LS-SVM may only produce suboptimal solutions to ELM. ELM is efficient in time series, online sequential, incremental applications. More and more researchers are studying ELM and its potential applications in face recognition, EEG signal processing, brain computer interface, medical image processing, bioinformatics, disease prediction/detection, object recognition, knowledge discovery, semantic web, hardware implementation, cloud computing, etc.

Biography:
Guang-Bin Huang received the B.Sc degree in applied mathematics and M.Eng degree in computer engineering from Northeastern University, P. R. China, in 1991 and 1994, respectively, and Ph.D degree in electrical engineering from Nanyang Technological University, Singapore in 1999. During undergraduate
period, he also concurrently studied in Applied Mathematics department and Wireless Communication department of Northeastern University, P. R. China.

From June 1998 to May 2001, he worked as Research Fellow in Singapore Institute of Manufacturing Technology (formerly known as Gintic Institute of Manufacturing Technology) where he has led/implemented several key industrial projects (e.g., Chief architect/designer and technical leader of Singapore Changi Airport Cargo Terminal Upgrading Project, etc). From May 2001, he has been working as an Assistant Professor and Associate Professor (with tenure) in the School of Electrical and Electronic Engineering, Nanyang Technological University. His current research interests include machine learning, computational intelligence, extreme learning machine, pattern recognition, games, and human/brain computer interface. He has been invited to give keynote speeches and talks in international conferences and top-ranked universities. He severed as General Chairs and Plenary Chairs in different international conferences. He was Program Chair of IEEE TENCON2009 (IEEE Region 10 flagship conference with 550+ registered participants). He serves as an Associate Editor of Neurocomputing and IEEE Transactions on Systems, Man and Cybernetics - Part B. He is a senior member of IEEE.

Keynote 3: Prof. Edward Szczerbicki

Monday 10th September 2012

PM-A, 16:15h-17:15h

Prof. Edward Szczerbicki
University of Newcastle, Australia

Title: “Set of Experience and Experiential Decisional DNA”

Abstract:

Typically, decisional experiences are not stored, unified, improved, reused, shared, or distributed. This fact motivated the research outlined in this presentation that aims at capturing, improving and reusing the vast amount of knowledge amassed in past decisional experience. We illustrate our approach with a
number of case studies and implementations in industry, banking, medicine, and energy.

In nature, deoxyribonucleic acid (DNA) contains the genetic instructions used in the development and functioning of all known living organisms. The idea behind our research is to develop an artificial system, an architecture that would support discovering, adding, storing, improving and sharing information and knowledge among agents and organisations through experience. We propose a novel Knowledge Representation (KR) approach in which experiential knowledge is represented by Set of Experience (SOE), and is carried into the future by Decisional DNA (DDNA). Using SOE and DDNA, we further establish principles and the concept of Technological Trust and global e-Decisional Collaborative Community.

This research has enormous and exciting potential of opening entirely new and so far not conceptually conceived scientific horizons. With fully developed Decisional DNA embedded in Knowledge Cloud we would be able to pursue directions of research and implementations similar to those that set today the ground breaking research frontiers in genetic engineering. We would be able, by studying and "improving" Decisional DNA of man-built systems, to enhance systems performance, improve quality of operation, services, and products, avoid disasters by eliminating "bad decisional genes", predict operations of mergers and integrations by combining the individual Decisional DNA, clone systems that perform best, rebuild systems that stopped to operate but their Decisional DNA was stored. This research has the potential of opening up a new global market - Knowledge Market with services changing our individual and communal lives.

**Biography:**

Prof Szczerbicki has had very extensive experience in the area of intelligent systems development over an uninterrupted 30 year period, 20 years of which he spent in the top systems research centers in the USA, UK, Germany, and Australia. In this area he contributed to the understanding of information and knowledge management in systems operating in environments characterized by informational uncertainties and dynamics. He has published 300+ refereed papers which attracted close to 600 citations. His DSc degree (1993) and the Title of Professor (2006) were gained in the area of information science for his international published contributions. The research of prof. Szczerbicki
contributes significantly to the area of smart information use in modeling and development of intelligent systems. With his papers published in the beginning of the nineties in "IEEE Transactions on Systems, Man and Cybernetics" he developed autonomous systems based on information processing for the purposes of intelligent decision support. This was his unique contribution to the emerging cross-disciplinary researches area of smart decisional support for which information and knowledge have a value, are treated as a resource, and are the basis for intelligent decision making. Prof. Szczerbicki was invited to serve as a Board Member of International Academic Advisory Council for Natural and Artificial Intelligence Systems Organization (NAISO), Canada. He was also invited to join Editorial Boards of a number of cognitive, systems, and knowledge engineering related international journals. His academic experience includes ongoing positions with Gdansk University of Technology, Gdansk, Poland; Strathclyde University, Glasgow, Scotland; The University of Iowa, Iowa City, USA; University of California, Berkeley, USA; and The University of Newcastle, Newcastle Australia.

Keynote 4: Prof. Maja Pantic

Tuesday 11th September 2012

PM-A, 9:00h-19:00h

Prof. Maja Pantic

Imperial College London, UK

Title: “Machine Understanding of Human Behaviour”

Abstract:

A widely accepted prediction is that computing will move to the background, weaving itself into the fabric of our everyday living spaces and projecting the human user into the foreground. To realize this prediction, next-generation computing should develop anticipatory user interfaces that are human-centred, built for humans, and based on naturally occurring multimodal human behaviour such as affective and social signaling.
This talk discusses a number of components of human non-verbal behavior like facial expressions and vocal outbursts, and a number of specific behaviors like affective states and social signals, how they can be automatically sensed and analysed by computer, what is the past research in the field conducted by the iBUG group at Imperial College London, and how far we are from enabling computers to understand human behavior.

**Biography:**

Maja Pantic received the M.S. and PhD degrees in computer science from Delft University of Technology, the Netherlands, in 1997 and 2001. From 2001 to 2005, she was an Assistant and then an Associate professor at Delft University of Technology, Computer Science Department. In April 2006, she joined the Imperial College London, Department of Computing, UK, and continued working on machine analysis of human non-verbal behaviour and its applications to Human-Computer Interaction (HCI). In October 2010, she became Professor of Affective & Behavioural Computing and the leader of the Intelligent Behaviour Understanding Group (iBUG). From November 2006, she also holds an appointment as the Professor of Affective & Behavioural Computing at the University of Twente, Computer Science Department, the Netherlands.

In 2002, for her research on Facial Information for Advanced Interface (FIFAI), Prof. Pantic received Dutch Research Council Junior Fellowship (NWO Veni), awarded annually to 7 best young scientists in exact sciences in the Netherlands. In 2008, for her research on Machine Analysis of Human Naturalistic Behavior (MAHNOB), she received European Research Council Starting Grant, awarded annually to 2% best young scientists in any research field in Europe. In 2011, Prof. Pantic received BCS Roger Needham Award, awarded annually to a UK based researcher for a distinguished research contribution in computer science within ten years of their PhD.

Prof. Pantic currently serves as the Editor in Chief of Image and Vision Computing Journal (IVCJ), an Associate Editor for both the IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) and the IEEE Transactions on Systems, Man, and Cybernetics Part B (TSMC-B), and a member of the Steering Committee of the IEEE Transactions on Affective Computing (TAC). She is also a member of the IEEE Systems, Man and Cybernetics Society Board of Governors. She was and is the organizer of
several conferences including IEEE SMC 2004, IEEE FG 2008 and 2013, and ACII 2009, and she is the initiator and co-organiser of both CVPR for Human Communicative Behaviour Analysis (CVPR4HB 2008-2011) and Social Signal Processing Workshop (SSPW 2009-2011).

Maja Pantic published more than 150 technical papers in the areas of machine analysis of facial expressions and emotions, machine analysis of human body gestures, and human-centered HCI. She has more than 4500 citations to her work, and has served as the Key Note Speaker, Chair and Co-Chair, and an organization/ program committee member at numerous conferences in her areas of expertise. For more info, see: http://ibug.doc.ic.ac.uk/~maja/

**Keynote 5: Prof. Antonio Plaza**

*Tuesday 11th September 2012*

*PM-A, 13:30h-14:30h*

**Prof. Antonio Plaza**

**University of Extremadura, Spain**

**Title:** “High Performance Computing Systems for Intelligent Information Extraction from Remotely Sensed Hyperspectral Images”

**Abstract:**

The incorporation of latest-generation sensors to airborne and satellite platforms for remote observation of the Earth is currently producing a nearly continual stream of high-dimensional data, and this explosion in the amount of collected information has rapidly created new processing and information extraction challenges. For instance, hyperspectral signal processing is a new technique in remote sensing that generates up to thousands of spectral bands at different wavelength channels for the same area on the surface of the Earth. In recent years, several efforts have been directed towards the design advanced information extraction techniques and their efficient implementation for accelerating computations in remote sensing missions. The ultimate goal is to be able to exploit these systems in applications which require near real-time performance, such as wild land fire tracking,
biological threat detection, monitoring of oil spills and other types of chemical contamination. With the aim of providing an overview of current and new trends in parallel and distributed systems for remote sensing applications, this presentation describes several different strategies for efficient implementation and advanced information retrieval from remotely sensed hyperspectral data sets, including implementations on parallel clusters and heterogeneous networks of workstations, as well as on specialized hardware devices suitable for onboard data analysis, such as field programmable gate arrays (FPGA) and graphics processing units (GPUs). Combined, these parts deliver an excellent snapshot of the state-of-the-art in those areas, and offer a thoughtful perspective on the potential and emerging challenges of designing new systems for intelligent and computationally efficient information extraction from remotely sensed hyperspectral data.

Biography:

Antonio Plaza received the M.S. and Ph.D. degrees in computer engineering from the University of Extremadura, Caceres, Spain. He was a Visiting Researcher with the Remote Sensing Signal and Image Processing Laboratory, University of Maryland Baltimore County, Baltimore, with the Applied Information Sciences Branch, Goddard Space Flight Center, Greenbelt, MD, and with the AVIRIS Data Facility, Jet Propulsion Laboratory, Pasadena, CA. He is currently an Associate Professor with the Department of Technology of Computers and Communications, University of Extremadura, Caceres, Spain, where he is the Head of the Hyperspectral Computing Laboratory (HyperComp). He was the Coordinator of the Hyperspectral Imaging Network (Hyper-I-Net), a European project designed to build an interdisciplinary research community focused on hyperspectral imaging activities. He has been a Proposal Reviewer with the European Commission, the European Space Agency, and the Spanish Government. He is the author or coauthor of around 300 publications on remotely sensed hyperspectral imaging, including more than 60 Journal Citation Report papers, 20 book chapters, and over 200 conference proceeding papers. His research interests include remotely sensed hyperspectral imaging, pattern recognition, signal and image processing, and efficient implementation of large-scale scientific problems on parallel and distributed computer architectures. Dr. Plaza has coedited a book on high-performance computing in remote sensing and guest edited seven special issues on remotely sensed hyperspectral imaging for different journals, including the
IEEE TRANSACTIONS ON GEOSCIENCE AND REMOTE SENSING (for which he serves as Associate Editor on hyperspectral image analysis and signal processing since 2007), the IEEE JOURNAL OF SELECTED TOPICS IN APPLIED EARTH OBSERVATIONS AND REMOTE SENSING (for which he serves as a member of the steering committee since 2011), the International Journal of High Performance Computing Applications, and the Journal of Real-Time Image Processing. He is also serving as an Associate Editor for the IEEE GEOSCIENCE AND REMOTE SENSING NEWSLETTER. He has served as a reviewer for more than 280 manuscripts submitted to more than 50 different journals, including more than 140 manuscripts reviewed for the IEEE TRANSACTIONS ON GEOSCIENCE AND REMOTE SENSING. He has served as a Chair for the IEEE Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing in 2011. He has also been serving as a Chair for the SPIE Conference on Satellite Data Compression, Communications, and Processing since 2009, and for the SPIE Remote Sensing Europe Conference on High Performance Computing in Remote Sensing since 2011. Dr. Plaza is a recipient of the recognition of Best Reviewers of the IEEE GEOSCIENCE AND REMOTE SENSING LETTERS in 2009 and a recipient of the recognition of Best Reviewers of the IEEE TRANSACTIONS ON GEOSCIENCE AND REMOTE SENSING in 2010. He is currently serving as Director of Education activities and member of the Administrative Committee of the IEEE GEOSCIENCE AND REMOTE SENSING SOCIETY.

Keynote 6: Prof. Emilio S. Corchado

Tuesday 11th September 2012

PM-A, 16:15h-17:15h

Prof. Emilio S. Corchado

University of Salamanca, Spain

Title: “Unsupervised Models for Industrial Applications”

Biography:

Emilio S. Corchado is an Associate Professor of Computer Science at University of Salamanca.- (BISITE Research Group and GICAP Research Group). He is
chair of the IEEE Systems, Man and Cybernetics-Spanish Chapter; member of
the IEEE Spanish Section Board and member of the IEEE R8 PA subcommittee.
He is or was member of some European networks of Excellence as Nature-
inspired Smart Information Systems (NiSIS) and COST Action IC0806:
Intelligent Monitoring, Control and Security of Critical Infrastructure Systems
(IntelliCIS). He is reviewer and evaluator for the European Commission for the
7FP since 2007.

His research interests include neural networks, with a particular focus on
exploratory projection pursuit, maximum likelihood hebbian learning, self-
organising maps, multiple classifier systems and Hybrid Artificial Systems and
its applications to industrial and environmental problems. He has published
over 200 peer-reviewed articles in a range of topics from modelling of
industrial processes, knowledge management and risk analysis, intrusion
detection systems, food industry, artificial vision, and so on.

He is member of the Editorial Boards of the International Journal of
Computational Intelligence and Applications (IJCIA) and also of the
International Journal of Reasoning-based Intelligent Systems (IJRIS). Dr.
Corchado is guest editors of several special issues of reputed journals as
Information Science (Elsevier), Knowledge and Information Systems
(Springer), Neurocomputing (Elsevier), International Journal of Neural
Systems (World Scientific), Logic Journal Of the IGPL (Oxford Journals),
Neural Networks World (Institute of Computer Science AS CR and Faculty of
Transportation Sciences), Expert Systems (Wiley-Blackwell). He is general
chair for the following conferences: International Conference on Hybrid
Artificial Intelligence Systems (HAIS), International Conference on Soft
Computing Models in Industrial and Environmental Applications (SOCO) and
International Conference on Computational Intelligence in Security for
Information Systems (CISIS).

He has given plenary talks at several international conferences and been
visiting professor at universities in Poland and Czech Republic.
Keynote 7: Dr. Ajith Abraham

Wednesday 12th September 2012

PM-A, 9:00h-10:00h

Prof. Ajith Abraham

Machine Intelligence Research Labs (MIR Labs), USA

Title: “Data + Evolving Representations = Intelligent Systems”

Biography:

Ajith Abraham received the Ph.D. degree in Computer Science from Monash University, Melbourne, Australia. He is currently the Director of Machine Intelligence Research Labs (MIR Labs), Scientific Network for Innovation and Research Excellence, USA, which has members from more than 85 countries. He has a worldwide academic and industrial experience of over 20 years. He works in a multidisciplinary environment involving machine intelligence, network security, various aspects of networks, e-commerce, Web intelligence, Web services, computational grids, data mining, and their applications to various real-world problems. He has numerous publications / citations (h-index 40) and has also given more than 50 plenary lectures and conference tutorials in these areas.

Since 2008, he is the Chair of IEEE Systems Man and Cybernetics Society Technical Committee on Soft Computing and a Distinguished Lecturer of IEEE Computer Society representing Europe (since 2011). Dr. Abraham is a Senior Member of the IEEE, the Institution of Engineering and Technology (UK) and the Institution of Engineers Australia (Australia), etc. He is the founder of several IEEE sponsored annual conferences, which are now annual events. More information at: http://www.softcomputing.net
Keynote 8: Prof. Peter Sussner

Wednesday 12th September 2012

PM-A, 13:30h-14:30h

Prof. Peter Sussner
University of Campinas, Brazil

Title: “An Overview of Morphological Neural Networks”

Abstract:

Morphological neural networks (MNNs) were devised by incorporating concepts of mathematical morphology (MM) into artificial neural networks. Specifically, an MNN is often defined as a type of artificial neural network that performs an operation of mathematical morphology at every node, possibly followed by the application of an activation function. The reasons why several models of MNNs employ operations of the mathematical theory of minimax algebra are twofold: First of all, classical grayscale MM (umbra approach) can be embedded into minimax algebra. Secondly, minimax algebra grants an easy access to the definition of real-valued weights in MNNs.

There are two viewpoints on MM that have heavily influenced the development of morphological neural networks and their learning algorithms: From the geometrical or topological perspective, MM represents a theory for processing and analyzing objects, i.e., images or signals, by means of other objects called structuring elements. From the lattice-algebraic perspective, MM is a theory of operators on complete lattices that has recently been extended to complete inf-semilattices.

This talk presents an overview of MNNs and briefly addresses some applications in classification, pattern recognition, image and signal processing, computer vision, and prediction. Furthermore, we will discuss the underlying mathematical lattice structures for different types of MNNs. Thus far, the majority of MNN models is based on grayscale MM, i.e., on minimax algebra, and fuzzy MM. In the near future, the development of MNNs should benefit from recent extensions of fuzzy MM since interval Type-2 and intuitionistic
fuzzy sets have become increasingly important in rule-based systems for applications in engineering and computing with words as well as in approximate reasoning. The lattice-ordering of other classes of information granules offers additional prospects for MNNs in granular computing.

Biography:

Peter Sussner is an associate professor at the Department of Applied Mathematics, University of Campinas, Brazil, where he will head the Mathematical Imaging and Computational Intelligence Group by the end of 2012. He also acts as a researcher for CNPq, the Brazilian National Science Foundation, and holds a membership of the IEEE Computational Intelligence Society. In addition, he was recently awarded funding from FAPESP, the research foundation of the State of São Paulo, for a research project on methods of computational intelligence and image processing based on mathematical morphology and lattice algebra. He previously worked as a research assistant and visiting professor at the Center of Computer Vision and Visualization at the University of Florida where he completed his Ph.D. in mathematics - partially supported by a Fulbright Scholarship - in 1996.

Peter Sussner has (co)authored more than a hundred articles in prestigious international journals, book chapters, and conference proceedings in the areas of artificial neural networks, fuzzy systems, computer vision, global optimization, mathematical morphology and lattice algebra. His work has received over 500 citations in the ISI Web of Science database. He serves as a reviewer for more than twenty scientific journals and is currently a member of the editorial board of the Journal of Mathematical Imaging and Vision. His research interests include computational intelligence, mathematical morphology, and lattice algebra with an emphasis on the following topics: foundations of mathematical morphology in lattice theory, extensions of fuzzy mathematical morphology and applications in image processing, computational intelligence based on lattice theory, morphological neural networks, applications in pattern recognition and prediction.
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<td>16:15h</td>
<td>Keynote 3: Prof Edward Szczerbicki</td>
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<td>17:20h</td>
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<td>9:00h</td>
<td>Keynote 4: Prof. Maja Pantic</td>
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<td>13:30h</td>
<td>Keynote 5: Prof. Antonio Plaza</td>
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<td>9:00h</td>
<td>Keynote 7: Dr. Ajith Abraham</td>
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<td>13:30h</td>
<td>Keynote 8: Prof. Peter Sussner</td>
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<td>14:35h</td>
<td>Session 8</td>
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<td>IS11-II</td>
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<tr>
<td>17:35h</td>
<td>Preview of KES 2013 – Closing of the conference</td>
</tr>
</tbody>
</table>
Conference rooms

Miramar Palace

There will be three conference rooms in the Miramar Palace, denoted as PM-A, PM-B and PM-C in the program schedule.

Coffee and beverages will be served at the coffee-break room in the Miramar Palace, denoted as PM-coffee.

The registration desk will be located in the hall of the Miramar Palace.

Costa Vasca hotel

There will be four conference rooms in the Costa Vasca hotel, denoted as CV-A, CV-B, CV-C1 and CV-C2 in the program schedule.

Lunches will be served at the lunch room in the Costa Vasca hotel, denoted as CV-lunch.
Monday 10th September 2012 Programme

8:30h-9:00h Opening of the KES 2012 conference
Venue: PM-A.

9:00h-10:00h Keynote 1: “Information Fusion in the Context of Social Robotic”
Dr. Belur V. Dasarathy.
Information Fusion and Decision Systems Technologies.
Venue: PM-A.

10:00h-10:20h Coffee Break
Venue: PM-coffee.

10:20h-12:20h Session 1

<table>
<thead>
<tr>
<th>Venue</th>
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<tr>
<td>PM-A</td>
<td>GT5: Intelligent Vision, Image Processing and Signal Processing. Chair: Prof. Tuan D. Pham, University of Aizu, Japan.</td>
</tr>
<tr>
<td>PM-B</td>
<td>IS3-I: Knowledge-Based Systems for e-Business. Chair: Prof. Kazuhiko Tsuda, University of Tsukuba, Tokyo, Japan. Co-chaired by Dr. Nobuo Suzuki, KDDI Corporation, Japan. Co-chaired by Prof. Masakazu Takahashi, University of Gumma, Japan.</td>
</tr>
</tbody>
</table>
| CV-B    | IS16: Knowledge Engineering Solutions for Biomedical Applications.  
|         | Chair: Prof. Gloria Bueno, Universidad de Castilla-La Mancha, Spain.  
|         | Co-chaired by Dr. Grégory Maclair, Vicomtech-IK4 Research Centre, Spain.  
|         | Co-chaired by Carlos Parra, Hospital Universitario Virgen del Rocío, Spain.  |
| PM-C    | IS17-I Recent trends in Knowledge Engineering, Smart Systems and their applications.  
|         | Chair: Dr. Cesar Sanín, University of Newcastle, Australia.  
|         | Co-chaired by Dr. Carlos Toro, Vicomtech IK4, Research Centre, Spain.  
|         | Co-chaired by Prof. Edward Szczerbicki, University of Newcastle, Australia.  
|         | Chair: Prof. Yuji Iwahori, Chubu University, Japan.  
|         | Co-chaired by Prof. Yoshinori Adachi, Chubu University, Japan.  
|         | Co-chaired by Prof. Nobuhiro Inuzuka, Nagoya Inst. of Technology, Japan.  |
| CV-C1   | IS24 Ontology-based Information Retrieval.  
|         | Chair: Dr. Antonio Moreno, University Rovira i Virgili (URV), Spain.  
|         | Co-chaired by Dr. Hajer Baazaoui, University of La Manouba, Tunisia.  
|         | Co-chaired by Dr. Aida Valls, University Rovira i Virgili (URV), Spain.  
|         | Co-chaired by Nesrine Ben Mustapha, University of La Manouba, Tunisia.  |

**GT5: Intelligent Vision, Image Processing and Signal Processing**

*Chair: Prof. Tuan D. Pham, University of Aizu, Japan.*


*Adriana Dapena, Josmary Labrador, Paula M. Castro, and José A. García-Naya.*

Pawel Biernacki.

[11:00h] Prosodic feature normalization for emotion recognition by using synthesized speech.

Motoyuki Suzuki, Shohei Nakagawa, and Kenji Kita.


Tuan D. Pham.


Jacek Rudzinski and Marcin Luckner.

[12:00h] Motion Detection based on Simulated Depth Measurement.

Chern Hong Lim, Alexander Kadyrov, Chee Seng Chan, and Honghai Liu.

**IS3-I: Knowledge-Based Systems for e-Business**

*Chair: Prof. Kazuhiko Tsuda, University of Tsukuba, Tokyo, Japan.*

*Co-chaired by Dr. Nobuo Suzuki, KDDI Corporation, Japan.*

*Co-chaired by Prof. Masakazu Takahashi, University of Gumma, Japan.*


Carlos Lamsfus, David Martin, Aurkene Alzua-Sorzabal, Diego López-de-Ipiña, and Emilio Torres-Mansanera.


Setsuya Kurahashi and Takahisa Shirakawa.

[11:20h] Discovering shoppers’ journey in retail environment by using RFID.

Marin Vukovic, Ignac Lovrek and Hrvoje Kraljevic.


Masakazu Takahashi, Hiroki Azuma, Masanori Ikeda and Kazuhiko Tsuda.
IS5: Skill Acquisition and Ubiquitous Human Computer Interaction

Chair: Prof. Hirokazu Taki, Wakayama University, Japan.
Co-chaired by Ass. Prof. Masato Soga, Wakayama University, Japan.
Atsuko K. Yamazaki and Kaoru Eto.

[10:40h] Project-Based Learning with Small Serendipity for Multi-cultural Digital Archive.
Taizo Miyachi, Saiko Iga, Takashi Furuhata, and Atsushi Ogiue.

[11:00h] RCA based Local Image Feature Transform and its Application to Object Recognition.
Tomoki Nishimura, Haiyuan Wu, Qian Chen, Hirokazu Taki.

[11:20h] Message reply method by making use of node location advertisement in VANET.
Hirokazu Miura, Muneyuki Noguchi, Noriyuki Matsuda, Masato Soga, Hirokazu Taki.

[11:40h] A New Method for Non-Dominant Motion Skill Learning by Using Motion Navigator.
Masato Soga, Kazuki Ishii, Tomoyasu Nishino, Hirokazu Taki.

IS16: Knowledge Engineering Solutions for Biomedical Applications

Chair: Prof. Gloria Bueno, Universidad de Castilla-La Mancha, Spain.
Co-chaired by Dr. Grégory Maclair, Vicomtech-IK4 Research Centre, Spain.
Co-chaired by Carlos Parra, Hospital Universitario Virgen del Rocío, Spain.
Marcos Martínez-Romero, José M. Vázquez-Naya, Javier Pereira1, Alejandro Pazos, Miguel Pereira and Gerardo Baños.

[11:00h] Evolved artificial neural networks for controlling Topological Active Nets deformation and for medical image segmentation.
Cristina V. Sierra, Jorge Novo, Jose Santos, and Manuel G. Penedo.

Eider Sanchez, Carlos Toro, Arkaitz Artetxe, Manuel Graña, Eduardo Carrasco and Frank Guijarro.

Iñigo Barandiaran, Gregory Maclair, Izaro Goienetxe, Carlos Jauquicoa, and Manuel Graña.

IS17-I: Recent trends in Knowledge Engineering, Smart Systems and their applications

Chair: Dr. Cesar Sanín, University of Newcastle, Australia.
Co-chaired by Dr. Carlos Toro, Vicomtech-IK4 Research Centre, Spain.
Co-chaired by Prof. Edward Szczerbicki, University of Newcastle, Australia.

Paul Prickett, Gwyn Davies and Roger Grosvenor.

Pawe Swiatek, Piotr Klukowski, Krzysztof Brzostowski, and Jaroslaw Drapala.

Jaroslaw Pastuszak, Adam Czarnecki, Cezary Orlowski.

Leszek Borzemski and Anna Kaminska-Chuchma.

[11:40h] The concept of knowledge bases supporting the IT Systems Integration Model
Cezary Orlowski, Tomasz Sitek, Krzysztof Bartosiewicz, Łukasz SzczygIELski
IS24 Ontology-based Information Retrieval.

Chair: Dr. Antonio Moreno, University Rovira i Virgili (URV), Spain.
Co-chaired by Dr. Hajer Baazaoui, University of La Manouba, Tunisia.
Co-chaired by Dr. Aida Valls, University Rovira i Virgili (URV), Spain.
Co-chaired by Nesrine Ben Mustapha, University of La Manouba, Tunisia.

[10:20h] Unsupervised Semantic Feature Matching in Information Retrieval using User-Oriented Ontology
Lei Shi and Rossitza Setchi

[10:40h] Ontology-driven Keyword-based Search on Linked Data
Carlos Bobed, Guillermo Esteban, and Eduardo Mena

[11:00h] FirstOnt: Automatic Construction of Ontologies out of Multiple Ontological Resources
Carlos Bobed, Eduardo Mena, and Raquel Trillo

[11:20h] Conceptual Indexing Documents in IR based on Ontology Enrichment
Lamia Ben Ghezaiel, Chiraz Latiri, and Mohamed Ben Ahmed

[11:40h] Sem-PubMed: a Semantic Medical Digital Library that Integrates Ontology Learning and Query Reformulation
Safa EL KAFSI, Nesrine BEN MUSTAPHA, Hajer BAZAIOUI ZGHAL and Antonio MORENO

12:20h-13:20h Lunch

Venue: CV-lunch.

13:30h-14:30h Keynote 2: “Extreme Learning Machine: One Step towards Human Brain Alike Learning”

Prof. Guang-Bin Huang

Nanyang Technological University, Singapore

Venue: PM-A.
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<tr>
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<td>GT6-I: Knowledge Management, Ontologies and Data Mining. Chair: Prof. Ron Hartung, Franklyn University, United States.</td>
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<tr>
<td>PM-B</td>
<td>IS3-II: Knowledge-Based Systems for e-Business. Chair: Prof. Kazuhiko Tsuda, University of Tsukuba, Tokyo, Japan. Co-chaired by Dr. Nobuo Suzuki, KDDI Corporation, Japan. Co-chaired by Prof. Masakazu Takahashi, University of Gumma, Japan.</td>
</tr>
<tr>
<td>PM-C</td>
<td>IS17-II Recent trends in Knowledge Engineering, Smart Systems and their applications. Chair: Dr. Cesar Sanín, University of Newcastle, Australia. Co-chaired by Dr. Carlos Toro, Vicomtech-IK4 Research Centre, Spain. Co-chaired by Prof. Edward Szczerbicki, University of Newcastle, Australia.</td>
</tr>
<tr>
<td>CV-C1</td>
<td>IS27 Affective Engineering and Management Engineering Approaches to the Restructuring of Aging Society. Chair: Prof. Hisao Shiizuka, Kogakuin University, Japan. Co-chaired by Prof. Junzo Watada, Waseda University, Japan.</td>
</tr>
<tr>
<td>CV-A</td>
<td>IS28-I Data Mining and Service Science for Innovation. Chair: Prof. Katsutoshi Yada, Kansai University, Japan.</td>
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</tbody>
</table>
GT6-I: Knowledge Management, Ontologies and Data Mining
Chair: Prof. Ron Hartung, Franklyn University, United States.
[14:35h] Incorporating Farthest Neighbours in Instance Space Classification.
Daniel Vaccaro-Senna and Mohamed Medhat Gaber.
Pavel Krbalek and Milos Vacek.
[15:15h] Reducing the size of ontological representation of services using ontology recomposition.
Tomasz Rybicki.
Daniela Briola, Riccardo Caccia, Michele Bozzano, and Angela Locoro.

IS3-II: Knowledge-Based Systems for e-Business
Chair: Prof. Kazuhiko Tsuda, University of Tsukuba, Tokyo, Japan.
Co-chaired by Dr. Nobuo Suzuki, KDDI Corporation, Japan.
Co-chaired by Prof. Masakazu Takahashi, University of Gumma, Japan.
[14:35h] Lecture Notes in Computer Science: An effective index to learn Software Engineering by using ITSS.
Rasha El-Agamy, Chikako Morimoto, Kazuhiko Tsuda.
[14:55h] Decision table expansion method for software testing.
Keiji Uetsuki, Tohru Matsuodani, Masakazu Takahashi and Kazuhiko Tsuda.
Koichi Tsujii, Takashi Ikoma, and Kazuhiko Tsuda.
Emil Petre, Dan Selişteanu, Dorin Şendrescu.

IS17-II: Recent trends in Knowledge Engineering, Smart Systems and their applications
Chair: Dr. Cesar Sanín, University of Newcastle, Australia.
Co-chaired by Dr. Carlos Toro, Vicomtech-IK4 Research Centre, Spain.
Co-chaired by Prof. Edward Szczerbicki, University of Newcastle, Australia.
[14:35h] Advancing Knowledge Quality and Quantity in Knowledge Markets.
Leonardo Mancilla-Amaya, Edward Szczerbicki, Cesar Sanín.

Aleksander Orlowski, Edward Szczerbicki.

[15:15h] Speed-up of a Knowledge-Based Clinical Diagnosis System using Reflexive Ontologies.
Arkaitz Artetxe, Eider Sanchez, Carlos Toro, Cesar Sanin, Edward Szczerbicki, Manuel Graña, Jorge Posada.

[15:35h] Business process modelling and simulation using formal experience record
Bartosz Kucharski, Edward Szczerbicki

IS27: Affective Engineering and Management Engineering Approaches to the Restructuring of Aging Society
Chair: Prof. Hisao Shiizuka, Kogakuin University, Japan.
Co-chaired by Prof. Junzo Watada, Waseda University, Japan.
Hisao Shiizuka and Ayako Hashizume.
Thisana Waripan and Junzo Watada.

IS28-I: Data Mining and Service Science for Innovation
Chair: Prof. Katsutoshi Yada, Kansai University, Japan.
Co-chaired by Prof. Takahira Yamaguchi, Keio University, Japan.
Shuhei Hamaoka and Wataru Sunayama
Motoi Iwashita
Knowledge Discovery in Web Access Log of E-commerce Site with FACT-Graph and Sequential Probability Ratio Test
Ryosuke Saga, Mauricio Letelier, Naoki Kaisaku, Yukihiro Takayama, and Hiroshi Tsuji

IS31-I: Knowledge engineering and computational intelligence in medical image and medical data processing.
Chair: Prof. Manuel Graña, University of the Basque Country, Spain.
Co-chaired by Alexandre Savio, University of the Basque Country, Spain.
Co-chaired by Darya Chyzhyk, University of the Basque Country, Spain.
Alexandre Savio.

[14:55h] Impact of Analysis Circularity: a Case Study in Cocaine Addiction detection on MRI.


15:55h-16:10h Coffee-Break
Venue: PM-coffee.

16:15h-17:15h Keynote 3: “Set of Experience and Experiential Decisional DNA”
Prof. Edward Szczerbicki.
University of Newcastle, Australia.
Venue: PM-A.
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| PM-B  | GT2 Machine Learning and Classical AI.  
Chair: Prof. Floriana Esposito, University of Bari, Italy. |
| PM-A  | GT6-II: Knowledge Management, Ontologies and Data Mining.  
Chair: Prof. Ron Hartung, Franklyn University, United States. |
| CV-A  | GT9 Intelligent Tutoring Systems and E-Learning Environments.  
Chair: Prof. Toyohide Watanabe, Nagoya University, Japan. |
| PM-C  | IS17-III Recent trends in Knowledge Engineering, Smart Systems and their applications.  
Chair: Dr. Cesar Sanín, University of Newcastle, Australia.  
Co-chaired by Dr. Carlos Toro, Vicomtech-IK4 Research Centre, Spain.  
Co-chaired by Prof. Edward Szczerbicki, University of Newcastle, Australia. |
| CV-C1 | IS20 Innovation and Automation using MAS.  
Chair: Dr. Jeffrey W. Tweedale, Defence Science and Technology Organisation and University of South Australia.  
Co-chaired by Prof. Lakhmi Jain, University of South Australia. |
| CV-B  | IS31-II Knowledge engineering and computational intelligence in medical image and medical data processing.  
Chair: Prof. Manuel Graña, University of the Basque Country, Spain.  
Co-chaired by Alexandre Savio, University of the Basque Country, Spain.  
Co-chaired by Darya Chyzhyk, University of the Basque Country, Spain. |
GT2: Machine Learning and Classical AI
Chair: Prof. Floriana Esposito, University of Bari, Italy. Chair: Prof. Ron Hartung, Franklyn University, United States.
Iñigo Mendialdua, Noelia Oses, Basilio Sierra and Elena Lazkano.
[17:40h] An Analysis of Clustering Approaches to Distributed Learning on Heterogeneously Distributed Datasets.
Diego Peteiro-Barral and Bertha Guijarro-Berdiñas.
[18:00h] Unsupervised Discretization Method based on Adjustable Intervals.
Mohamed Bennasar, Rossitza Setchi and Yulia Hicks.
Tadeusz Lasota, Zbigniew Telec, Bogdan Trawinski, Grzegorz Trawinski.

GT6-II: Knowledge Management, Ontologies and Data Mining
Chair: Prof. Ron Hartung, Franklyn University, United States.
Richard Okelo Angole, Peter Jehopio, Gilbert Maiga and Godfrey Omoda-Onyait.
[17:40h] Transitions-Based System.
Thomas Raimbault, David Genest and Stephane Loiseau.
[18:00h] Ontology Based Patterns for Software Security Engineering.
Esmiralda Moradian, Anne Håkansson, Jan-Olof Andersson.
Germán Bravo.

GT9: Intelligent Tutoring Systems and E-Learning Environments
Chair: Prof. Toyohide Watanabe, Nagoya University, Japan.
Sepehr Ghazinoory, Masoud Afshari-Mofrad.
Jingyun Wang, Takahiko Mendori.
[18:00h] A method for detecting tense errors in learner English.
Ryo Nagata and Vera Sheinmana.

**IS17-III Recent trends in Knowledge Engineering, Smart Systems and their applications.**

*Chair: Dr. Cesar Sanín, University of Newcastle, Australia.*

*Co-chaired by Dr. Carlos Toro, Vicomtech IK4, Research Centre, Spain.*

[17:20h] The Development of Decisional DNA DIGITAL TV

*Haoxi Zhang, Cesar Sanin, Edward Szczerbicki*

[17:40h] Resource Allocation Problems in Network Processors for the Future Internet

*Andrzej Kozik, Radosaaw Rudek, Pawel Swiatek, and Adam Grzech*

[18:00h] A fuzzy negotiation model to assign variable’s domain in Constraint Satisfaction Problems: An agent based collaborative engineering modeling case

*Ricardo Mejía-Gutiérrez, Alejandro Cálad-Álvarez, Daniel Zuluaga-Holguín*

[18:20h] Decisional DNA with Embedded RELIEF-F and Linear Regression for Knowledge and Experience Management

*Peng Wang, Cesar Sanin and Edward Szczerbicki*

**IS20: Innovation and Automation using MAS**

*Chair: Dr. Jeffrey W. Tweedale, Defence Science and Technology Organisation and University of South Australia.*

*Co-chaired by Prof. Lakhmi Jain, University of South Australia.*


*Kate Foster.*

[17:40h] Multi-Agent Based System for Analysing Stress using the StressCaffe.

*Anusua Ghosh, Jeffery W. Tweedale, Andrew Nafalski, Maureen Dollard.*

[18:00h] Using Mutli-Agent Systems to Improve the Level of Autonomy for Operators Controlling Unmanned Vehicles.

*Dr Jeffrey W. Tweedale.*
IS31-II: Knowledge engineering and computational intelligence in medical image and medical data processing.

Chair: Prof. Manuel Graña, University of the Basque Country, Spain.
Co-chaired by Alexandre Savio, University of the Basque Country, Spain.
Co-chaired by Darya Chyzhyk, University of the Basque Country, Spain.

[17:20h] Optimized segmentation of Brain MRI using GHSOM and evolutive computing.
Andres Ortiz, Juan M. Gorriz, Javier Ramirez, Diego Salas-Gonzalez.


[18:00h] Bootstrapped Dendritic Classifiers for Alzheimer’s Disease classification on MRI features.
Darya Chyzhyk.

18:40h End of day
Tuesday 11th September 2012 Programme

9:00h-10:00h Keynote 4: “Machine Understanding of Human Behaviour”

Prof. Maja Pantic
Imperial College London, UK
Venue: PM-A.

10:00h-10:20h Coffee Break
Venue: PM-coffee.

10:20h-12:20h Session 4

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| PM-C  | GT4-I Knowledge Based and Expert Systems.  
Chair: Prof. Anne Hakansson, Royal Institute of Technology, Sweden. |
| PM-A  | GT6-III Knowledge Management, Ontologies and Data Mining.  
Chair: Prof. Ron Hartung, Franklyn University, United States. |
| CV-A  | GT7-I Web Intelligence, Text and Multimedia Mining and Retrieval.  
Chair: Prof. Andreas Nuernberger, University of Magdeburg, Germany. |
| PM-B  | GT10-I Other / Misc. Intelligent Systems Topics.  
Chair: Dr. Carlos Toro, Vicomtech-IK4, Spain. |
| CV-C1 | IS8 Intelligent monitoring and high-level activity interpretation using multisensory systems.  
Chair: Prof. Antonio Fernández-Caballero, Universidad de Castilla-La Mancha, Spain.  
Co-chaired by Ass. Prof. Rafael Martínez-Tomás, Universidad Nacional de Educación a Distancia, Spain. |
| CV-C2 | IS9 Social Knowledge Support Infrastructure for Human Activity and Creativity.  
Chair: Asst. Prof Naoto Mukai, Sugiyama Jo-gakuen University, Japan.  
Co-chaired by Assoc. Prof. Takeyoshi Ushiama, Kyushu University, Japan.  
Co-chaired by Prof. Tohyode Watanabe, Nagoya University, Japan. |
| CV-B | IS18 Ontologies for decision-making.  
Chair: Dr. Cecilia Zanni-Merk, BFO team, University of Strasbourg, France.  
Co-chaired by Dr. Gregory Zacharewicz, GRAI, University of Bordeaux 1, France. |

**GT4-I: Knowledge Based and Expert Systems**  
*Chair: Prof. Anne Hakansson, Royal Institute of Technology, Sweden.*

[10:20h] Multi-Agent Logic with Distances, Uncertainty and Interaction Based on Linear Temporal Frames.  
*Vladimir Rybakov*

*Ángel Fernández-Leal, Diego Álvarez-Estevez, José María Fernández-Pastoriza, Vicente Moret-Bonillo*

[11:00h] On the Continuous Evaluation of the Macrostructure of Sleep  
*Diego Alvarez-Estevez, José M. Fernández-Pastoriza, Elena Hernández-Pereira, Vicente Moret-Bonillo*

[11:20h] Entropic Dimensionality Reduction in Discriminating Between Alzheimer's Disease and Vascular Dementia  
*Diman Todorov, Rossi Setchi, and Antony Bayer*

*Seiji Tsuchiya, Misako Imono, Eriko Yoshimura and Hirokazu Watabe*

[12:00h] Method of Constructing the Integral OLAP-model based on Formal Concept Analysis  
*Tatiana Penkova, Anna Korobko*
GT6-III: Knowledge Management, Ontologies and Data Mining
Chair: Prof. Ron Hartung, Franklyn University, United States.
[10:20h] Using OWL ontology for reasoning about schema mappings in data exchange systems.
Tadeusz Pankowski.
[10:40h] Using Differential Evolution to Set Weights to Segments with Different Information Content in the Piecewise Aggregate Approximation
Muhammad Marwan Muhammad Fuad
[11:00h] Ontology Integration by Using Context and Ontology Violation Check
Dan Wu and Anne Haakansson
Shereen Albitar, Bernard Espinasse, Sébastien Fournier
[11:40h] Mobile Sentiment Analysis
Lorraine Chambers, Erik Tromp, Mykola Pechenizkiy, Mohamed Medhat Gaber

GT7-I: Web Intelligence, Text and Multimedia Mining and Retrieval.
Chair: Prof. Andreas Nuernberger, University of Magdeburg, Germany.
[10:20h] A Customized Dependency Tree Kernel for Effective Sentiment Classification
Zhou Sun, Chao Gu, Chunping Li
[10:40h] Judgment of Depressive Tendency from Emotional Fluctuation in Weblog
Kazuyuki Matsumoto, Nobuhiro Yoshioka, Kenji Kita, and Fuji Ren
[11:00h] User Personalization via W-kmeans
Christos Bouras and Vassilis Tsogkas
Yoshiaki KUROSAWA, Norinobu HATAMOTO, Shogo HAMADA, and Toshiyuki TAKEZAWA
[11:40h] Automatically generating multilingual, semantically enhanced, descriptions of digital audio and video objects on the Web
Bernardo Pereira Nunes, Alexander Mera, Marco A. Casanova, Ricardo Kawase
GT10-I Other / Misc. Intelligent Systems Topics.
Chair: Dr. Carlos Toro, Vicomtech-IK4, Spain.
[10:20h] Optimization of Approximate Decision Rules Relative to Number of Misclassifications
Talha Amin, Igor Chikalov, Mikhail Moshkov, and Beata Zielosko
[10:40h] Pros and Cons of Horizontal Axis Wind Turbines Linear Identification
Dan Stefanoiu, Florin Sebastian Tudo
[11:00h] Croatian Language N-Gram System
Šandor Dembitz, Bruno Blašković, Gordan Gledec
[11:20h] Multi-Agent Stock Trading Algorithm – A Neural Network Approach
Monica Tirea, Ioan Tandau and Viorel Negru
G. García, J. Maiora A. Tapia, M. De Blas
[12:00h] A Human-Computer Interaction System Facilitating Communication with Hearing-Impaired People
Wojciech Koziol, Hubert Wojtowicz, Kazimierz Sikora, and Wieslaw Wajs

IS8: Intelligent monitoring and high-level activity interpretation using multisensory systems.
Chair: Prof. Antonio Fernández-Caballero, Universidad de Castilla-La Mancha, Spain.
Co-chaired by Ass. Prof. Rafael Martínez-Tomás, Universidad Nacional de Educación a Distancia, Spain.
[10:20h] Accumulative Computation and Fuzzy Sets for Robust Fall Detection in Color Video
Juan Serrano-Cuerda, Marina V. Sokolova, Antonio Fernandez-Caballero, Maria T. Lopez and Jose
Carlos Castillo
[10:40h] Intelligent Monitoring and Activity Interpretation Framework – INT3-Horus General Description
Jose Carlos Castillo, Antonio Fernandez-Caballero, Juan Serrano-Cuerda, and Marina V. Sokolova
Intelligent Monitoring and Activity Interpretation Framework – INT3-Horus Ontological Model
Marina V. Sokolova, Jose Carlos Castillo, Antonio Fernandez-Caballero and Juan Serrano-Cuerda

Identification of alarming behaviour introduced by monitoring based in the integration of ontologies
Héctor F Gómez A1, Rafael Martínez Tomás and Susana Arias Tapia

Group Behavior Recognition Issue, Feature Analysis on Defending Pick and Roll Basketball Move
Alberto Pozo, Miguel A. Patricio, Jesus García, and Jose M. Molina and Ignacio Refoyo

IS9: Social Knowledge Support Infrastructure for Human Activity and Creativity
Chair: Asst. Prof Naoto Mukai, Sugiyama Jo-gakuen University, Japan.
Co-chaired by Assoc. Prof. Taketoshi Ushiama, Kyushu University, Japan.
Co-chaired by Prof. Toyohide Watanabe, Nagoya University, Japan.

Aggregation of News Articles, being Time-dependent on Particular Topic
Yoshimune Tabuchi, Yusuke Koyanagi, and Toyohide Watanabe

Augmenting Social Media Monitoring through Human Collaboration
Nikos Karacapilidis, Ralf Loeffler, Doris Maassen and Manolis Tzagarakis

An Overview of a News Map System for Local News in Newspapers
Hideaki Ito

Design and implementation of a topic providing system with inference of daily life behavior
Seiji Suzuki, Go Tanaka, Ken Ohta, Hiroshi Inamura, Tadanori Mizuno, and Hiroshi Mineno

Focusing Target Estimation for Supporting Awareness of Individual Learning Activity in Collaborative Learning
Junya Tanaka Yuki Hayashi and Tomoko Kojiri

An Interface for Browsing Electronic Novels Using Attractiveness Map
Souichi Murai and Taketoshi Ushiama
IS18: Ontologies for decision-making.

Chair: Dr. Cecilia Zanni-Merk, BFO team, University of Strasbourg, France.
Co-chaired by Dr. Gregory Zacharewicz, GRAI, University of Bordeaux 1, France.

[10:20h] Ontology modeling for intelligence: the ONTO-CIF model
Valentina Dragos

[10:40h] Using an Ontology for Modeling Decision-Making Knowledge
Elena Kornyshova, Rébecca Deneckère

[11:00h] A Heuristic TRIZ Problem Solving Approach based on Semantic Relatedness and Ontology Reasoning
Wei Yan, Cecilia Zanni-Merk, François Rousselot, Denis Cavallucci, and Pierre Collet

Maximiliano Cravero, François de Bertrand de Beuvron, Cecilia Zanni-Merk, and Stella Marc-Zwecker

Fuqi Song, Gregory Zacharewicz, and David Chen

12:20h-13:20h Lunch

Venue: CV-lunch.


Prof. Antonio Plaza
University of Extremadura, Spain
Venue: PM-A.
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<tr>
<td><strong>PM-A</strong></td>
<td>GT6-IV Knowledge Management, Ontologies and Data Mining. Chair: Prof. Ron Hartung, Franklyn University, United States.</td>
</tr>
<tr>
<td><strong>PM-B</strong></td>
<td>GT10-II Other / Misc. Intelligent Systems Topics. Chair: Dr. Carlos Toro, Vicomtech-IK4, Spain.</td>
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<tr>
<td><strong>CV-C2</strong></td>
<td>IS10-I Learning Support for Intelligence: Functionality and Environment. Chair: Assoc. Prof. Tomoko Kojiri, Kansai University, Japan. Co-chaired by Prof. Toyohide Watanabe, Nagoya University, Japan.</td>
</tr>
<tr>
<td><strong>CV-B</strong></td>
<td>IS12-I Advanced Knowledge-based Systems. Chair: Professor Alfredo Cuzzocrea, University of Calabria, Italy.</td>
</tr>
<tr>
<td><strong>CV-C1</strong></td>
<td>IS26-I Soft Computing Techniques and Their Intelligent Utilizations Toward Gaming, Stock Markets, Robotics, and etc. Chair: Prof. Norio Baba, Kansai University, Osaka Kyoiku University, Japan.</td>
</tr>
<tr>
<td><strong>CV-A</strong></td>
<td>IS28-II Data Mining and Service Science for Innovation. Chair: Prof. Katsutoshi Yada, Kansai University, Japan.</td>
</tr>
</tbody>
</table>
GT6-IV: Knowledge Management, Ontologies and Data Mining
Chair: Prof. Ron Hartung, Franklyn University, United States.
[14:35h] Deterministic Approach for Biclustering of Co-Regulated Genes from Gene Expression Data
S Roy, D K Bhattacharyya, and J K Kalita3

[14:55h] Metanode Composition Method for Multilingual Parallel-text Having Many-to-many Relationship
Taku Fukushima and Takashi Yoshino

[15:15h] Tensor-based Relational Learning for Ontology Matching
Andrzej Szwabe, Pawel Misiorek, and Przemyslaw Walkowiak

[15:35h] Privacy Aware Community based Recommender Service for Conferences Attendees
Ahmed M. Elmisery, Kevin Doolin and Dmitri Botvich

GT10-II: Other / Misc. Intelligent Systems Topics.
Chair: Dr. Carlos Toro, Vicomtech-IK4, Spain.
[14:35h] Overlapping Community Detection in VCoP using Topic Models
Ricardo Munoz and Sebastian A. Rios

[14:55h] Evaluation of a Thermal-Comfort Control System Using Real Data
Pablo Bermejo, Luis Redondo, Luis dela Ossa, Daniel Rodriguez, M. Julia Florez, Carmen Urea, Jose A.
Gamez, Jesus Martinez-Gomez, M. Puerta

[15:15h] A model for content generation in On-line social network
Pablo E. Roman, Miguel E. Gutierrez, and Sebastian A. Rios

[15:35h] Wi-Fi Localization via Particle Filtering and Use for M-commerce
John Garofalakis, Dimitris Varvaras

IS10-I: Learning Support for Intelligence: Functionality and Environment.
Chair: Assoc. Prof. Tomoko Kojiri, Kansai University, Japan.
Co-chaired by Prof. Toyohide Watanabe, Nagoya University, Japan.
[14:35h] Discussion Support to Train Meta-cognitive Skill by Improving Internal Self-Conversation for Knowledge Co-creation Workshop
Kazuhisa SETA, Liang CUI, Mitsuru IKEDA and Noriyuki MATSUDA
[14:55h] Supporting Self-Regulated Training on a Web-based Community-Environment for Runners  
Kenji Matsuura, Kazuhide Kanenishi, Hiroki Moriguchi  

[15:15h] Dynamic Utterance Role Restriction on CSCL  
Kaori Go, Yasuhisa Tamura  

[15:35h] Effect of Arrangement in Digitized Note on Short-Term Remembrance  
Motoki Miura and Ryo Kudo  

IS12-I: Advanced Knowledge-based Systems.  
Chair: Professor Alfredo Cuzzocrea, University of Calabria, Italy.  
[14:35h] MMDW: A Multi-dimensional and Multi-granular Schema for Data Warehousing  
Nadeem Iftikhar  

[14:55h] Effective Detection of XML Outliers  
Alfredo Cuzzocrea, Giuseppe Manco, and Elio Masciar  

[15:15h] Latent Informative Links Detection  
Liang Hu, Jian Cao, Guandong Xu, Zhiping Gu  

[15:35h] Axiomatizing Inconsistency Metrics for Integrity Maintenance  
Hendrik Decker  

IS26-I: Soft Computing Techniques and Their Intelligent Utilizations Toward Gaming, Stock Markets, Robotics, and etc.  
Chair: Prof. Norio Baba, Kansai University, Osaka Kyoiku University, Japan.  
[14:35h] Relationality Design and Relationality-oriented Systems Design  
Katsunori Shimohara  

[14:55h] The Experiment of Sweden Game and the Effect of Students Education  
Masashi Kawaguchi, Kiyotaka Atsumi, Norio Baba,  


Norio Baba, Yuta Arase, Masaki Takeda, Hisashi Handa,
IS28-II: Data Mining and Service Science for Innovation
Chair: Prof. Katsutoshi Yada, Kansai University, Japan.
Co-chaired by Prof. Takahira Yamaguchi, Keio University, Japan.
[14:35h] Estimation of the demand function and calculation of optimal prices taking externalities into consideration. An analysis of the book market in Japan
Keita Kinjo and Takeshi Ebina

[14:55h] An Examination of the Impact of Neurophysiologic and Environmental Variables on Shopping Behavior of Customers in a Grocery Store in Japan
Marina Kholod Katsutoshi Yada

[15:15h] The Influence of Sales Areas and Bargain Sales on Customer Behavior in the Grocery Store
Natsuki Sano and Katsutoshi Yada

IS30-I: Second workshop on Hyperspectral image processing, intelligent systems for remote sensing and High Performance Computing.
Chair: Prof. Manuel Graña, University of the Basque Country.
Co-chaired by Prof. Richard Duro, University de A Coruña, Spain.
Co-chaired by Prof. Antonio Plaza, University de Extremadura, Spain.
Co-chaired by Prof. Alicia d’Anjou, University of the Basque Country.
Co-chaired by Prof. Dora Blanco Heras, University of Santiago de Compostela, Spain.
[14:35h] Hyperspectral Image Segmentation by t-Watershed and Hyperspherical Coordinates
Ramón Moreno, and Alicia d’Anjou

[14:55h] On hyperspectral morphology by lattice auto-associative memories supervised orderings
Miguel A. Veganzones

[15:15h] Efficient segmentation of hyperspectral images on commodity GPUs
Pablo Quesada-Barriuso, Francisco Arguello, and Dora B. Heras

[15:35h] C-means Clustering of Lattice Auto-Associative Memories for Endmember Approximation
Gonzalo Urcid, and Gerhard X. Ritter
### 15:55h-16:10h Coffee-Break

Venue: PM-coffee.

### 16:15h-17:15h Keynote 6: “Unsupervised Models for Industrial Applications”

**Prof. Emilio S. Corchado**  
University of Salamanca, Spain  
Venue: PM-A.

### 17:20h-18:40h Session 6

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| CV-A  | GT7-II Web Intelligence, Text and Multimedia Mining and Retrieval.  
       | Prof. Andreas Nuernberger, University of Magdeburg, Germany. |
| CV-C2 | IS10-II Learning Support for Intelligence: Functionality and Environment.  
       | Chair: Assoc. Prof. Tomoko Kojiri, Kansai University, Japan.  
       | Co-chaired by Prof. Toyohide Watanabe, Nagoya University, Japan. |
| CV-B  | IS12-II Advanced Knowledge-based Systems.  
       | Chair: Professor Alfredo Cuzzocrea, University of Calabria, Italy. |
| PM-B  | IS25 Intelligent solutions in network economy and manufacturing.  
       | Chair: Dr. Arkadiusz Kawa, Poznan University of Economics.  
       | Co-chaired by Dr. Pawel Pawlewski, Poznan University of Technology. |
| CV-C1 | IS26-II Soft Computing Techniques and Their Intelligent Utilizations Toward Gaming, Stock Markets, Robotics, and etc.  
       | Chair: Prof. Norio Baba, Kansai University, Osaka Kyoiku University, Japan. |
**IS30-II Second workshop on Hyperspectral image processing, intelligent systems for remote sensing and High Performance Computing.**
Chair: Prof. Manuel Graña, University of the Basque Country.
Co-chaired by Prof. Richard Duro, University de A Coruña, Spain.
Co-chaired by Prof. Antonio Plaza, University de Extremadura, Spain.
Co-chaired by Prof. Alicia d’Anjou, University of the Basque Country.
Co-chaired by Prof. Dora Blanco Heras, University of Santiago de Compostela, Spain.

**GT7-II Web Intelligence, Text and Multimedia Mining and Retrieval.**
*Prof. Andreas Nuernberger, University of Magdeburg, Germany.*

[17:20h] WNtags: A Web-Based Tool For Image Labeling And Retrieval With Lexical Ontologies
*Marko Horvat, Anton Grbin, Gordan Gledec*

[17:40h] An Algorithm for Tolerance Value Generator in Tolerance Rough Sets Model
*Gloria Virginia and Hung Son Nguyen*

[18:00h] A cognitive model of the web user
*Pablo E. Roman and Juan D. Velasquez*

[18:20h] Multilayered Class Discrimination in Large-Scale Taxonomies
*Juan Carlos Gomez and Marie-Francine Moens*

**IS10-II Learning Support for Intelligence: Functionality and Environment.**
*Chair: Assoc. Prof. Tomoko Kojiri, Kansai University, Japan.*
*Co-chaired by Prof. Toyohide Watanabe, Nagoya University, Japan.*

[17:20h] Proposal of an Interactive Remote Lecturing System with Complementary Features of Nonverbal Information
*Hisayoshi Kunimune and Masaaki Niimura*
[17:40h] Consideration on the Relationship between Changes in Learners’ Learning Preferences and the Differences in e-Learning Modes of a Course
Kazunori Nishino, Tetsuo Mayumi, Yurie Iribe, Shinji Mizuno, Nobuyuki Ogawa, Kuniaki Yajima, Kumiko Aoki, Yoshimi Fukumura

[18:00h] Sub-exercise Generation Support Environment for Logical Understanding of Mathematics
Yusuke NOGAMI and Tomoko KOJIRI

IS12-II Advanced Knowledge-based Systems.
Chair: Professor Alfredo Cuzzocrea, University of Calabria, Italy.

Paolo Fosci, Giuseppe Psaila

[17:40h] Modeling and Managing Uncertainty in Concurrent Database Transactions
Alfredo Cuzzocrea, Hendrik Decker, and Francesc D. Muñoz-Escot

[18:00h] Vertical Frequent Pattern Mining from Uncertain Data
Bhavek P. Budhia, Alfredo Cuzzocrea, and Carson K. Leung

IS25 Intelligent solutions in network economy and manufacturing.
Chair: Dr. Arkadiusz Kawa, Poznan University of Economics.
Co-chaired by Dr. Pawel Pawlewski, Poznan University of Technology.

[17:20h] A declarative approach for AGVs modeling and cyclic scheduling
Bocewicz Grzegorz, Banaszak Zbigniew, Pawlewski Paweł

[17:40h] Advanced polymeric film production data analysis and process optimization by clustering and classification methods
Michael Kohlert and Andreas König Initiative.
IS26-II Soft Computing Techniques and Their Intelligent Utilizations Toward Gaming, Stock Markets, Robotics, and etc.

Chair: Prof. Norio Baba, Kansai University, Osaka Kyoiku University, Japan.

[17:20h] Mutual complement networks use a school building based on evaluation by simulation
Toshio Nakamura, Kyohei Toyoda, Shota Oda, Shunsuke Ozawa, Phalla So, Shunya Huijwara, Yuya Issiki, Tadanori Mizuno, and Kunihiro Yamada

[17:40h] Controlling multimicroprocessor memory competition and noise
Katsunao Toraguchi, Yuta Kenmochi, Kunihiro Yamada

[18:00h] Towards a real time simulation of Linked Multi-Component Robotic Systems
Jose Manuel Lopez-Guede, Borja Fernandez-Gauna, Ekaitz Zulueta

Mieko Tanaka-Yamawaki, Takemasa Kido, and Atsushi Yamamoto

IS30-II Second workshop on Hyperspectral image processing, intelligent systems for remote sensing and High Performance Computing.

Chair: Prof. Manuel Graña, University of the Basque Country.

Co-chaired by Prof. Richard Duro, University de A Coruña, Spain.

Co-chaired by Prof. Antonio Plaza, University de Extremadura, Spain.

Co-chaired by Prof. Alicia d’Anjou, University of the Basque Country.

Co-chaired by Prof. Dora Blanco Heras, University of Santiago de Compostela, Spain.

[17:20h] Towards Automatic Estimation of the Body Condition Score of Dairy Cattle Using Hand-held Images and Active Shape Models
Rafael Tedin, J. A. Becerra, and Richard J. Duro, Ismael Martinez Lede

[17:40h] Unsupervised Segmentation of Hyperspectral Images through Evolved Cellular Automata
Blanca Priego, Daniel Souto, Francisco Bellas, Richard J. Duro

[18:00h] Evaluation of interest point detectors for image information extraction
Iñigo Barandiaran, John Congote, Jon Goenextea, and Oscar Ruiz
A Semilattice Approach towards Sparsely Connected Associative Memories

Peter Sussner and Marcos Eduardo Valle

18:40h End of day
Wednesday 12th September 2012 Programme

9:00h-10:00h Keynote 7: “Data + Evolving Representations = Intelligent Systems”

Prof. Ajith Abraham
Machine Intelligence Research Labs (MIR Labs), USA
Venue: PM-A.

10:00h-10:20h Coffee Break
Venue: PM-coffee.

10:20h-12:20h  Session 7

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| PM-A  | GT1 Artificial Neural Networks, Connectionists Systems and Evolutionary Computation.  
Chair: Prof. Bruno Apolloni, University of Milan, Italy. |
| PM-C  | GT4-II Knowledge Based and Expert Systems.  
Chair: Prof. Anne Hakansson, Royal Institute of Technology, Sweden. |
| PM-B  | GT10-III Other / Misc. Intelligent Systems Topics.  
Chair: Dr. Carlos Toro, Vicomtech-IK4, Spain. |
| CV-C1 | IS19 Chance Discovery.  
Chair: Prof. Akinoro Abe, IREIIMS University, Japan.  
Co-chaired by Prof. Yukio Ohsawa, Univ. of Tokyo, Japan. |
| CV-B  | IS22 Knowledge-Based Intelligent System and Application.  
Chair: Prof. Yuji Iwahori, Chubu University, Japan.  
Co-chaired by Prof. Yoshinori Adachi, Chubu University, Japan.  
Co-chaired by Prof. Nobuhiro Inuzuka, Nagoya Inst. of Technology, Japan. |
GT1: Artificial Neural Networks, Connectionists Systems and Evolutionary Computation.

Chair: Prof. Bruno Apolloni, University of Milan, Italy.

[10:20h] An Estimation of Distribution Algorithm for Solving the Quay Crane Scheduling Problem with Availability Constraints
Christopher Exposito Izquierdo, Belen Melian Batista, and J. Marcos Moreno Vega

[10:40h] Performance comparison of non-RNN and RNN in Emergence of Discrete Decision Making through Reinforcement Learning.
Mohamad Faizal Samsudin and Katsunari Shibata

[11:00h] Genetic Algorithm Solving Orienteering Problem in Large Networks
Joanna Karbowska-Chilinska, Jolanta Koszelew, Krzysztof Ostrowski and Pawel Zabielski

Mohamed Medhat Gaber and Mohamed Bader-El-Den

[11:40h] A Learning Based Evolutionary Algorithm For Distributed Multi-Depot VRP
A. Soeanu, S. Ray, M. Debbabi, J. Berger, and A. Boukhtouta

GT4-II: Knowledge Based and Expert Systems.

Chair: Prof. Anne Hakansson, Royal Institute of Technology, Sweden.

[10:20h] Semantically Enhanced Text Stemmer (SETS) for Document Clustering
Ivan Stankov, Diman Todorov, Rossitza Setchi

[10:40h] Prosaico: Characterisation of objectives within the scope of an intelligent system for sport advising
E. Mosqueira-Rey, D. Prado-Gesto, A. Fernandez-Leal, and V. Moret-Bonillo

[11:00h] Exploiting the Self-Organizing Financial Stability Map
Peter Sarlin
[11:20h] Knowledge-Driven Method for Object Qualification in 3D Point Cloud Data  
Helmi Ben Hmida, Christophe Cruz, Christophe Nicolle and Frank Boochs

[11:40h] SAC³ – A Rule-Based System to Include Context in the Durability Analysis of Civil Structures. An Application in Reinforced Concrete Structures  
Carlos Armando López Solano, Germán Enrique Bravo Córdoba

[12:00h] Predicting the Final Result of Sporting Events Based on Changes in Bookmaker Odds  
Karol Odachowski, Jacek Grekow

GT10-III: Other / Misc. Intelligent Systems Topics.  
Chair: Dr. Carlos Toro, Vicomtech-IK4, Spain.

[10:20h] Thermal Fluids Transfer Systems Supervision Using NN Based Models  
Ramón Ferreiro García, José Luis Calvo-Rolle, Francisco Javier Pérez Castelo

[10:40h] A Complex System Approach for Smart Grid Analysis and Modeling  
Guillaume Guerard, Soufian Ben Amor, and Alain Bui

[11:00h] Decomposing the Global Financial Crisis: A Self-Organizing Time Map  
Peter Sarlin

[11:20h] Networks of Polarized Evolutionary Processors as Problem Solvers  
Pedro Pablo Alarcon, Fernando Arroyo, Victor Mitrana

[11:40h] Trust in communication and multiagent systems  
Manuel Graña, Adrian Agreda

IS19: Chance Discovery.  
Chair: Prof. Akinoro Abe, IREIIMS University, Japan.  
Co-chaired by Prof. Yukio Ohsawa, Univ. of Tokyo, Japan.

[10:20h] Logical Analysis for Chance Discovery in Multi-Agents’ Environment  
Vladimir V. Rybakov

[10:40h] Supporting Intra-Team Communication based on Psychological Tagging and Indirect Communication  
Ruediger Oehlmann and Zoya Syed
Yumiko Nara

[11:20h] Sticky Tsugoes underlying Sticky Information
Yukio Ohsawa, Kenichi Horie, Masahiro Akimoto

[11:40h] Eye Movement and Time Perception in Combinatorial Thinking
Katsuo Miyamoto, Yukio Ohsawa

[12:00h] Chance discovery and black swan: from the viewpoint of abduction and affordance
Akinori Abe

**IS22: Knowledge-Based Intelligent System and Application**

*Chair: Prof. Yuji Iwahori, Chubu University, Japan.*
*Co-chaired by Prof. Yoshinori Adachi, Chubu University, Japan.*
*Co-chaired by Prof. Nobuhiro Inuzuka, Nagoya Inst. of Technology, Japan.*

[10:20h] Development of a System to Predict Understanding Level by Blink Frequency.
Yoshinori Adachi, Kei Konishi, Masahiro Ozaki, and Yuji Iwahori.

[10:40h] Analog Real Time Learning Neural Network using Multiple and Sample Hold Circuits.
Masashi Kawaguchi, Takashi Jimbo, and Naohiro Ishii.

Shinji Fukui, Yasuchika Takeda, Gaku Watanabe, Yuji Iwahori, and Robert J. Woodham.

Javier Andrade, Juan Ares, Rafael García, Santiago Rodríguez, and Sonia Suárez.

Yuji Iwahori, Kazuhiro Shibata, Haruki Kawanaka, Kenji Funahashi, Robert J. Woodham, and Yoshinori Adachi.

Tomoyuki Katayama, Naotaka Oda, Atsuko Mutoh, and Nobuhiro Inuzuka.
IS23-I: Intelligent Network and Service.
Chair: Prof. Jun Munemori, Wakayama University, Japan.
Co-chaired by Prof. Takaya Yuizono, Japan Advanced Institute Science and Technology, Japan.

[10:20h] Acquisition of the Life Log Using Home Electric Appliances and its Application
Yuya Uesugi, Jun Sawamoto, Norihisa Segawa, Eiji Sugino, Hiroshi Yajima

[10:40h] A batch Update Method of Database for Mass Data during Online Entry
Tsukasa Kudo, Yui Takeda, Masahiko Ishino, Kenji Saotome, and Nobuhiro Kataoka

[11:00h] Analysis comparison between wave and wave at the learning status by simple electroencephalography
Kouji Yoshida, Yuuta Sakamoto, Isao Miyaji, Kunihiko Yamada

Jun Munemori, Hiroshi Fukuda, Junko Itou

Kobkrit Viriyayudhakorn and Susumu Kunifuji

12:20h-13:20h Lunch
Venue: CV-lunch.

13:30h-14:30h Keynote 8: “An Overview of Morphological Neural Networks”

Prof. Peter Sussner
University of Campinas, Brazil
Venue: PM-A.
### Venue Details

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| PM-A | **GT3-I Agent and Multi-Agent Systems.**  
Chair: Prof. Ngoc Thanh Nguyen, Wroclaw University of Technology, Poland. |
| PM-B | **GT8 Intelligent Robotics and Control.**  
Chair: Dr. Honghai Liu; University of Portsmouth, UK. |
| PM-C | **IS11-I Population-based metaheuristics.**  
Chair: Prof. Piotr Jędrzejowicz, Gdynia Maritime University, Poland.  
Co-chaired by Dr. Ireneusz Czarnowski, Gdynia Maritime University, Poland. |
| CV-B | **IS14-I Reasoning-based Intelligent Systems.**  
Chair: Prof. Kazumi Nakamatsu, University of Hyogo, Japan.  
Co-chaired by Prof. Jair Minoro Abe, Paulista University, Brazil. |
| CV-C1 | **IS21-I Computational Intelligence in Multimedia Processing.**  
Chair: Prof. Otoniel Mario López Granado, Universidad Miguel Hernández, Spain.  
Co-chaired by Prof. Adriana Dapena Janeiro, Universidade Da Coruña, Spain.  
Co-chaired by Prof. Nicolás Guil Mata, Universidad de Málaga, Spain. |
| CV-A | **IS23-II Intelligent Network and Service.**  
Chair: Prof. Jun Munemori, Wakayama University, Japan.  
Co-chaired by Prof. Takaya Yuizono, Japan Advanced Institute Science and Technology, Japan. |
GT3-I: Agent and Multi-Agent Systems.

Chair: Prof. Ngoc Thanh Nguyen, Wroclaw University of Technology, Poland.

[14:35h] A logic for strategies in persuasion dialogue games
Magdalena Kacprzak, Katarzyna Budzynska, and Olena Yaskorska

[14:55h] Multi-Agent Logic based on Temporary Logic TS4Kn serving Web Search
Vladimir Rybakov

John N. Crossley and Lito Perez Cruz

[15:35h] Adaptive organization for cooperative systems
Nadia Abchiche-Mimouni

GT8: Intelligent Robotics and Control.

Chair: Dr. Honghai Liu; University of Portsmouth, UK.

[14:35h] A Multi-sensor Switching Scheme with Tolerance to Delay and Packet Loss
Nikola Stankovic, Sorin Olaru and Silviu-Iulian Nicu

[14:55h] A model predictive control approach for the Pantograph-Catenary positioning system
Andrei Ioan Chiriac, Sorin Olaru, Pedro Rodriguez-Ayerbe

IS11-I: Population-based metaheuristics.

Chair: Prof. Piotr Jêdrzejowicz, Gdynia Maritime University, Poland.

Co-chaired by Dr. Ireneusz Czarnowski, Gdynia Maritime University, Poland.

[14:35h] Guaranteeing the quality of service in cluster-based Web systems
Krzysztof Zatwarnicki, Leszek Borzemski

[14:55h] An Approach to Cluster Initialization for RBF Networks
Ireneusz Czarnowski and Piotr Jedrzejowicz

[15:15h] Impact of Migration Topologies on Performance of Teams of A-Teams
Piotr Jedrzejowicz and Izabela Wierzbowska

[15:35h] Combined classifier constructed from the reduced dataset obtained using fuzzy C-means and differential evolution algorithms
Joanna Jedrzejowicz and Piotr Jedrzejowicz
IS14-I: Reasoning-based Intelligent Systems.

Chair: Prof. Kazumi Nakamatsu, University of Hyogo, Japan.
Co-chaired by Prof. Jair Minoro Abe, Paulista University, Brazil.

[14:35h] Early Smoke Detection in Outdoor Space by Spatio-temporal Clustering using a Single Video Camera
Margarita Favorskaya, Konstantin Levtin

[14:55h] Intelligent Texture Reconstruction of Missing Data in Video Sequences Using Neural Networks
Margarita Favorskaya, Mikhail Damov, Alexander Zotin

[15:15h] One Approach for Grayscale Image Decorrelation with Adaptive Multi-level 2D KLT
Roumen Kountchev and Kazumi Nakamatsu

[15:35h] Risk based Government Audit Planning using Naïve Bayes Classifiers
Remis Balaniuk Pierre Bessiere, Emmanuel Mazer, Paulo Cobbe

IS21-I: Computational Intelligence in Multimedia Processing.

Chair: Prof. Otoniel Mario López Granado, Universidad Miguel Hernández, Spain.
Co-chaired by Prof. Adriana Dapena Janeiro, Universidade Da Coruña, Spain.
Co-chaired by Prof. Nicolás Guil Mata, Universidad de Málaga, Spain.


[14:55h] Hybrid Precoding Scheme with Partial CSI at the Transmitter
Josmary Labrador, Paula M. Castro, Francisco J. Vazquez-Araujo, and Adriana Dapena

Rosario Garrido-Cantos, Jan De Cock, José Luis Martínez, Sebastiaan Van Leuven, Pedro Cuenca, and Antonio Garrido

[15:35h] Pixel-based background initialization using spatio-temporal restrictions
Juan Villalba-Espinosa, Jose M. Gonzalez-Linares, Julian R. Cozar, and Nicolas Guil
**IS23-II: Intelligent Network and Service.**

*Chair: Prof. Jun Munemori, Wakayama University, Japan.*

*Co-chaired by Prof. Takaya Yuizono, Japan Advanced Institute Science and Technology, Japan.*

[14:35h] Support System for Creating Communication Opportunities Using SNS in Community of Japanese College Students

*Junko Itou, Hiroto Kanai and Jun Munemori*


*Takahiro Nyu and Motoki Miura*

[15:15h] An Efficient Algorithm to Predict Three-way Interaction of Proteins from Expression Data Based on Conditional Probability

*Takatoshi Fujiki, Etsuko Inoue, Takuya Yoshihiro, and Masaru Nakagawa*


*Takaya Yuizono and Zeying Yu*

**15:55h-16:10h Coffee-Break**

*Venue: CV-lunch.*

**16:15h-17:35h Session 9**

<table>
<thead>
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<th>Venue</th>
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<tbody>
<tr>
<td><strong>PM-A</strong></td>
<td><strong>GT3-II Agent and Multi-Agent Systems.</strong>&lt;br&gt;Chair: Prof. Ngoc Thanh Nguyen, Wroclaw University of Technology, Poland.</td>
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<tr>
<td><strong>PM-B</strong></td>
<td><strong>IS11-II Population-based Metaheuristics.</strong>&lt;br&gt;Chair: Prof. Piotr Jędrzejowicz, Gdynia Maritime University, Poland.&lt;br&gt;Co-chaired by Dr. Ireneusz Czarnowski, Gdynia Maritime University, Poland.</td>
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GT3-II Agent and Multi-Agent Systems.

Chair: Prof. Ngoc Thanh Nguyen, Wroclaw University of Technology, Poland.

[16:15h] An optimal tactic for intelligent agents to conduct search & detection operations based on multiple look angles
Bao U. Nguyen and François-Alex Bourque

[16:35h] A complex system approach for a reliable Smart Grid modeling
Coralie Petermann, Soufian Ben Amor, and Alain Bui

[16:55h] A Comparison Analysis of Consensus Determining Using One and Two-level Methods
Adrianna Kozierkiewicz-Hetmanska, Ngoc Thanh Nguyen

IS11-II Population-based Metaheuristics.

Chair: Prof. Piotr Jedrzejowicz, Gdynia Maritime University, Poland.
Co-chaired by Dr. Ireneusz Czarnowski, Gdynia Maritime University, Poland.

[16:15h] Fuzzy Evidence Reasoning and Position Fixing
Wodzimierz Filipowicz

[16:35h] An Agent-Based Implementation of the Multiple Neighborhood Search for the Capacitated Vehicle Routing Problem
Dariusz Barbucha

[16:55h] Team of A-Teams for Solving the Resource-Constrained Project Scheduling Problem
Piotr Jedrzejowicz and Ewa Rata jczak-Ropel
IS14-II Reasoning-based Intelligent Systems.
Chair: Prof. Kazumi Nakamatsu, University of Hyogo, Japan.
Co-chaired by Prof. Jair Minoro Abe, Paulista University, Brazil.
[16:15h] A study on the variables related to software quality: a data mining based approach
Hércules Antonio do Prado, Fábio Bianchi Campos, Edilson Ferneda, Nildo Nunes Cornelio, Aluizio Haendchen Filho
[16:35h] A knowledge-based process for selecting management professionals
Edilson Ferneda, Hercules A. do Prado, Alexandre G. Cancian Sobrinho
[16:55h] Aspects of Curry Algebras, Computability, Constructibility, and Topological Spaces
Jair Minoro Abe, Kazumi Nakamatsu, Seiki Akama
[17:15h] An Overview of Paraconsistent Artificial Neural Networks and Applications
Jair Minoro Abe, Helder F. S. Lopes, Kazumi Nakamatsu

IS21-II Computational Intelligence in Multimedia Processing.
Chair: Prof. Otoniel Mario López Granado, Universidad Miguel Hernández, Spain.
Co-chaired by Prof. Adriana Dapena Janeiro, Universidade Da Coruña, Spain.
Co-chaired by Prof. Nicolás Guil Mata, Universidad de Málaga, Spain.
[16:35h] Reducing Vocabulary Size in Human Action Classification
J.R. Cozar, R. Hernandez, Y. Heredia, J.M. Gonzalez-Linares, and N. Guil
[16:55h] Person Identification Based on Lattice Computing k-Nearest-Neighbor Fingerprint Classification
Theodore Pachidis and Vassilis G. Kaburlasos
[17:15h] CommunyFilm: A social network for collaborative video creation
Diego Prado-Gesto and Eva Gil Pons

17:40h Preview of KES 2013 - Closing of the conference.
The conference will take place in the **Miramar Palace**, a beautiful English "cottage" overlooking La Concha Bay and surrounded by magnificent gardens in front of the sea, and in the **Costa Vasca hotel**, close located to the Miramar Palace.

The Miramar Palace has four access. It can be accessed from the Costa Vasca hotel through a narrow passage, and from the beaches, Ondarreta (left) and La Concha (right). There is a fourth access to the main garden from the Antiguo (Old) town. The conference building has two entries. The main one gives straightforward access to the conference place. The secondary entry leads to the Palacio Miramar offices and information desk. There will be good signage to easily guide the visitor to the conference place from this entry.

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5 Satellite images obtained by Google Maps.
Conference Office and Registration

**Days:** Sun (17:00h – 19:00h) / Mon / Tue / Wed  
**Place:** Miramar Palace - Hall  
**Time:** 8:00h – 17:00h

**Coffee Breaks**

**Days:** Mon / Tue / Wed  
**Place:** Miramar Palace – Coffee Room (PM-Coffee)  
**Time:** 10:00h – 10:20h and 15:55h – 16:15h

**Lunch**

**Days:** Mon / Tue / Wed  
**Place:** Costa Vasca Hotel – Lunch Room (CV-Lunch)  
**Time:** 12:20h – 13:20h