

KES2012 Invited Session:

Knowledge Engineering Advances for Biomedical Applications

**16th International Conference on Knowledge-Based and Intelligent Information & Engineering
Systems (KES20120)**

**<http://kes2012.kesinternational.org/index.php>
San Sebastian, Spain
10-12 September 2012**

Name, Title and Affiliation of Chair:

Prof. Dr. Gloria Bueno (Universidad de Castilla - La Mancha)
Dr. Grégory Maclair (Vicomtech Research Centre)
Carlos Parra (Hospital Universitario Virgen del Rocío)

Details of Session (including aim and scope):

This session invites research papers discussing the applications of Knowledge Engineering to biomedical domain. Nowadays medical advances are being huge, but the medical and scientific community still requires more advanced knowledge management, representation and new knowledge discovery tools and techniques.

Every day larger quantities of data, biomarkers and medical results need to be analyzed by physicians and tools are needed to support them during decision making while prognosis, diagnosis, treatment and follow up of the evolution of patients. There is also a need of working on the underlying knowledge models of medical systems and solving interoperability issues between different ones. New knowledge discovery about the causes and the mechanisms of new or unknown diseases is also required for the medical community and new drugs need to be discovered for less invasive, more efficient and more personalized treatments. In addition, the interaction between a certain medicine and a patient should be expected before prescription. In fact, clinical trials are carried out during medical and pharmacological research, and tools are also needed to support the work of these medical researchers. In addition, clinicians in their daily practice require tools that provide them support to apply the appropriate medical evidence for patient care needs.

Papers approaching different biomedical applications are welcome, as far as that they describe original work and have significant level of intelligent systems content.

Relevant topics include but not limited to:

- Clinical Decision Support Systems
- Semantic interoperability in biomedical domain.
- Biomedical Ontologies
- Ontologies for genomics
- Biomedical Expert Systems
- Medical Knowledge Representation and Management
- Knowledge-based systems for Personalized Medicine
- Medical Knowledge Discovery and Data Mining
- Computer Aided Surgery in Smart Systems
- Drug discovery systems
- Application for clinical research
- Semantic Medical Imaging

- Medical Image Annotation
- Reasoning Systems for diagnosis of strange diseases
- Knowledge Engineering applications for Chronic Disease Management
- Semantics applied to medical Education and Training
- Neural Networks in Medicine
- Nutrition Support Systems
- Genetic Algorithms and Evolutionary Computing applied to rehabilitation, diagnosis or treatment
- eHealth for ageing (to support quality of life for older adults, aging in place and independence)
- Emerging eHealth applications
- Health monitoring, traffic characterization, & management
- Practical Applications of e-Health
- Medical Knowledge Management
- Hospital Management
- Semantic-Based Clinical Systems
- Biomedical ontology mapping
- Genomics and Pharmacogenomics applications
- Expert systems applied to neurodegenerative diseases

Proposed Dates:

- Submission of papers: by 1 March 2012
- Notification of Acceptance: by 14 April 2012
- Receipt of publication files: by 1 June 2012

Submission and Proceedings:

The conference proceedings will be published by [Springer-Verlag](#) in Lecture Notes in AI as part of the [LNCS/LNAI](#) series. When formatting papers, please refer to the Springer-Verlag web site, and strictly follow the [Instructions to LNCS Authors](#).

All papers for the conference must be submitted in electronic form using the PROSE software review system available at:

<http://kes2012.kesinternational.org/prose.php>

All submissions should be submitted in pdf format.

Email & Contact Details:

Prof. Dr. Gloria Bueno is a Lecturer and Principal Research at School of Engineering in UCLM, at Ciudad Real, Spain since 2002. She holds a PhD in Machine Vision obtained at Coventry University in 1998. She has carried on her research activities at different research centres, such as: Centre National de la Recherche Scientifique, Hôpitaux Civil & Telecommunication School, Univ. Louis Pasteur, Strasbourg (FR), Centro de Estudios e Investigaciones Técnicas de Guipuzkoa - San Sebastián (E), Warwick University (UK) and Gilbert Gilkes & Gordon Technology, Kendal (UK). She is leading different national and European research projects in biomedical image processing under [VISILAB Research Group](#). She is author of more than 50 articles, including book chapters. Her current interests are in signal and image processing, modeling and artificial intelligence, ontology, electronic health records and CAD systems.

Prof. Dr. Gloria Bueno

Universidad de Castilla - La Mancha

Escuela Técnica Superior de Ingenieros Industriales

Grupo de Visión y Sistemas Inteligentes, VISILab

Edificio Politécnico Avenida Camilo José Cela, s/n Campus Universitario

13071 Ciudad Real, Spain

Ph: +34 926 295 300 Ext.3842 / Fax: +34 926 295 361

gloria.bueno@uclm.es

Dr. Grégory Maclair is researcher in the Biomedical Applications Department at Vicomtech-IK4 (Spain) since June 2009 after obtaining his Computer Science PhD in the University of Bordeaux 1 ([LaBRI](#), France). He is also holding a Medical Imaging Computer Science Masters Degree which led him to work into a Medical Imaging laboratory ([IMF](#)) in the city of Bordeaux. He participated there to a project of tumor ablation with a High Focused Ultrasound heating device guided by Magnetic Resonance Imaging (MR-Guided HIFU). His main research interests are biomedical image processing methods, visualization, Magnetic Resonance Imaging and MR-guided therapy.

Dr. Grégory Maclair

Vicomtech Research Center

Mikeletegi Pasealekua, 57, Parque Tecnológico
20009 Donostia / San Sebastián, Spain
Ph: +34 943 30 92 30 / Fax +34 943 30 93 93
gmaclair@vicomtech.org

Mr. Parra is the Head of Technological Innovation at the Virgen del Rocío University Hospital in Seville, which is one of the largest hospitals in Spain. Mr. Parra is a graduate of economics at the University of Seville, and he earned a masters of research in change management in healthcare at the School of Engineering at the University of Seville. Mr. Parra is a Board Member of the Spanish Society of Health Informatics, a Board Member of HL7 Spain, and the Technical Manager of HL7 Spain. He is also a member of the Medical Informatics Technical Committee of the Spanish Agency for Standardization. Mr. Parra has deep experience in developing disruptive innovations in the fields of clinical informatics and telemedicine.

Carlos Parra

Hospital Universitario Virgen del Rocío

Servicio Andaluz de Salud
Consejería de Salud
Avda. Manuel Siurot S/N - 41013 Sevilla
Ph: +34 955 01 36 62 - (31 36 62)
carlos.parra.sspa@juntadeandalucia.es

Eduardo Carrasco is a graduate of the San Sebastián Higher School of Industrial Engineers where he read Electronic and Control Systems Engineering. From 1998 until 2000 Eduardo held the position of Assistant Researcher at Centro de Estudios e Investigaciones Técnicas de Gipuzkoa (CEIT). During the same period Eduardo was an Assistant Lecturer at the San Sebastian Higher School of Industrial Engineers. In 2001, he held the position of Visitor Researcher at the Fraunhofer Institut für Graphische Datenverarbeitung (Fraunhofer IGD). From 2003 onwards Eduardo has been a Staff Researcher at VICOMTech participating in several national and European projects on Human Computer Interaction, e-Inclusion and e-Health, such as I2HOME (FP6-33502), VITAL (FP6-30600), INREDIS (Spanish CENIT 2007-2010) & MIND (Spanish CENIT 2008-2011). Currently, Eduardo is the Head of the Independent Living Group at Vicomtech. Finally, he is the author of several scientific publications for relevant international journals and events.

Eduardo Carrasco

Vicomtech Research Center

Mikeletegi Pasealekua, 57, Parque Tecnológico
20009 Donostia / San Sebastián, Spain
Ph: +34 943 30 92 30 / Fax +34 943 30 93 93
ecarrasco@vicomtech.org