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Cognitive Systems and Big Data Analytics

Invited Session in 11th International KES Conference on INTELLIGENT INTERACTIVE MULTIMEDIA: SYSTEMS AND SERVICES KES-IIMSS-18
20-22 June 2018
Mantra on View Hotel, Gold Coast, Australia

http://iimss-18.kesinternational.org/

Indexed in Scopus and Thomson_Reuters Conference Proceedings Citation Index (CPCI) and the Web of Science
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Call for Papers
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We are delighted to invite contributions to the invited session named "Cognitive Systems and Big Data Analytics" within the main conference 11th International KES Conference on INTELLIGENT INTERACTIVE MULTIMEDIA: SYSTEMS AND SERVICES (KES-IIMSS-18). Proposals for papers to be presented and published in the Session from industry or research centers are welcome.

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Session Scope
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The Session on “Cognitive Systems and Big Data Analytics” provides an interdisciplinary forum for researchers and developers to present and discuss experiences, ideas, and research results regarding artificial intelligent systems able to learn and reason with neuromorphic problem solving features, as well as statistical and machine learning methodologies to extract, manipulate and model ever-increasing amounts of high-dimensional data.
It is focused on two main research areas, strictly related among them: i) human-like cognitive systems, ii) big data analytics on heterogeneous data. Both these research areas today are challenging for the entire scientific community and for the largest companies in Information Technology.
The research area of “human-like cognitive systems” studies methodologies, algorithms and techniques for developing systems able to support human beings or increase their natural intelligence, in order to solve, in an efficient and optimal way, problems, even extremely complex and articulated, in specific fields of action. Such systems are intended to emulate human cognitive abilities, such as learning from experience, reasoning and generating hypotheses, solving new problems not known a priori, perceiving, understanding and communicating with the external environment. The research in this area combine three aspects: artificial vision and natural language processing to perceive and understand the external environment, automatic high-performance learning from huge amounts of heterogeneous data to generate inferences and formulate hypotheses, multimodal natural interaction to communicate with humans in a simple and adaptive manner according to the behavior and the environmental context.
The research area of “big data analytics” studies methodologies, algorithms and techniques for the analysis of large amounts of data being generated continuously by interconnected systems of people and things -- click data, audio/speech data, natural language text (in multiple languages), images / video data. These solutions are intended to analyze the information content in these vast, continuous data streams, use them for descriptive and predictive analytics in various domains, build more robust and intelligent learning systems. The research in this area is aimed at exploring the opportunities of Big Data focusing both on applications of artificial intelligence to Big Data problems and on the use of Big Data in Artificial Intelligence (e.g. in modeling, learning, problem-solving, multi-modal analytics).
The Session provides an opportunity to explore how approaches from the two research areas could be better combined and integrated to design and realize artificial intelligence systems of new generation. In particular, original contributions are sought, covering the whole range of theoretical and practical aspects, technologies and systems in such research areas.
Submitted papers will be evaluated on the basis of significance, originality, technical quality, and exposition. Papers should clearly establish their research contribution and the relation to the goals of the Session.

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Session Topics
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Topics are encouraged, but not limited to, at least one of the following areas:

- Representation of Heterogeneous, Ambiguous and Textual knowledge
- Automatic Learning from Heterogeneous Data Sources
- Human-like Reasoning and Neuromorphic Problem Solving

- Visual Recognition from Images and/or Videos
- Natural Language Processing and Question-answering Systems
- Semantic Information Retrieval
- Cognitive Architectures
- Big data systems and architectures
- New programming models and platforms for big data computing
- Cloud/grid/stream computing for big data
- Data Fusion and Multi Modal Analytics
- Sentiment analysis and social media systems
- Trust management and Privacy in Big Data as a Service
- Descriptive and Predictive Analytics on Big Data
- Complex Cognitive Systems and Big Data Applications in Science, Engineering, Medicine, Healthcare, Finance, Business, Law, Education, Transportation, Retailing, Telecommunication, Multimedia

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Proceedings
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The conference proceedings will be published by Springer as book chapters in a volume of the KES Smart Innovation Systems and Technologies series, submitted for indexing in Scopus and Thomson_Reuters Conference Proceedings Citation Index (CPCI) and the Web of Science.

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Dates and Deadlines
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Submission of Papers: 4 March 2018

Notification of Acceptance: 8 March 2018

Upload of Final Publication Files: 16 March 2018

Conference Sessions: 20 -22 June 2018

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Organisation
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Chairs:
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Location

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Mantra on View Hotel, Gold Coast, Australia

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Further Information
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Please note the above deadlines are preliminary and may change. Further details for all of the above are available online via the website
http://iimss-18.kesinternational.org/