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Special Session

Better Artificial Intelligence Methods for Bigger Data Mining

Pervasive sensor networks and internet services distribute and integrate a range of temporal scales of data. In line with these technological developments, there is almost no limit to generate and collect data. It is estimated that 2.5 quintillion bytes of data from a wide range of sources are generated daily, which is called "big data"[1] with general characteristic features of higher volume and dimension, multi-source and higher velocity, and potentially greater level of uncertainty. As analyzing and understanding big data is essential in order to extract life-saving and profitable knowledge in various domains, this large amount of data can be used to understand human needs and behaviours over time and improve system performance. Artificial Intelligence (AI) has been playing a key role in data mining with tangible outcomes. However, such classical AI-based methods are limited to deal with these characteristic features of self-growing big data with almost infinite number of dimensions being collected instantly from several sources, which makes its real-word application not only difficult but also impractical. This special session aims to address these challenges in multi-disciplinary environments and provide AI-based innovative solutions for big data mining and its real-world intensive data-driven applications in the following areas (but not limited to):

Artificial Intelligence Methods:

- Storing and managing big data
- Scaling and distributing big data
- Feature selection from ultra-high dimensional data
- Clustering, classification and regression for big data
- Hybrid, ensemble and distributed AI methods for big data mining
- Big data stream mining
- Web mining
- Secure integration of data sources
- Measuring and dealing with uncertainty in big data
- Visualisation
- Temporal difference-based learning and optimisation models for self-growing data
- High performance computing for big data
- Multi-agent systems and agent-based computing for big data

Applications in big data mining:

- Internet of things
- Smart city
- Cyber security
- Social networks
- Mobile and wireless sensors
- Personalised data analytics and advising model using big data

[1] http://www-01.ibm.com/software/data/bigdata/ [last accessed on 17/11/2012]

- Business analytics
- Implementation of big data mining tools using Cloud, GPU and FPGA
- Biological and clinical decision support systems
- Bio-medical image informatics
- Bioinformatics, computational biology and systems biology
- Next generation genome sequencing
- Discovery of personalized diagnostic, prognostic and screening biomarkers, therapy and drug
- In-silico discovery of protein, peptide and small molecule drug candidates

Submission Procedure

Submitted paper should not have been previously published or be under consideration for publication elsewhere at the time of its submission. **Authors should submit the paper by selecting the Special Session entitled "Better Artificial Intelligence Methods for Bigger Data Mining"**. Information about paper template and submission procedure can be found at **http://smc2016.org/node/37** . In case of further details, contact the organizers.

Journal Special Issue

Selected papers to be presented at the session will be invited for consideration of publication in the following journal special issue. It should be noted that the invited papers are expected to be expanded substantially and subject to usual peer-review process

"Efficient fuzzy systems for mining large scale, imprecise, uncertain and vague data"
International Journal of Fuzzy Systems

Important dates

Paper submission deadline : 15 April 2016
Notification of outcome : 25 May 2016
Camera ready paper deadline : 9 July 2016

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