CFP: A Special Session in JRS2013

Mining complex data with granular computing

Halifax, Nova Scotia, Canada, 2013

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A joint conference of the 14th International Conference on Rough Sets, Fuzzy Sets, Data Mining and Granular Computing (RSFDGrC13) and the Eighth International Conference on Rough Sets and Knowledge Technology (RSKT2013) will be held in Halifax, Nova Scotia, Canada, Oct 11-14, 2013.

http://cs.smu.ca/jrs2013/.

You are welcome to submit a paper to a special session in RSKT2013 titled "Mining complex data with granular computing". The details of the special session are described as follows.

Mining complex data with granular computing

Brief Description

Data collection, store, access and analysis are now central to scientific innovation, public health and welfare, public security and so on. “Big data” is now becoming a hot word. Complex datasets in big data come into existence in a lot of research and application domains. Most of the information is heterogeneous and time varying. How to understand and mine useful knowledge from these data is becoming a large challenging task. In the 11 February 2011 issue, *Science* together with colleagues from *Science Signaling*, *Science Translational Medicine*, and *Science Careers* provided a broad review on the issues surrounding the increasingly huge influx of research data. The related articles show the challenges and the opportunities brought by the data deluge (http://www.sciencemag.org/content/331/6018/692.short). It was pointed out that large integrated data sets can potentially provide a much deeper understanding of both nature and society and open up new avenues of research.

Granular computing, including fuzzy sets, rough sets, computing with words, etc. provides powerful tools for multiple-granularity and multiple-view data analysis, which is of vital importance for understanding complex data. Different users require understanding the data at different granularity levels. And also, different users also need analyze the data in different viewpoints. Granular computing has exhibited some capability and advantages in intelligent data analysis, pattern recognition, machine learning and uncertain reasoning. However, to the best of our knowledge, no research has gone deep into the nutshell of heterogeneous and complex data analysis so far. Some properties of the new tasks are listed as follows.

- Heterogeneous data. The information associated to a certain task is of different types, including numerical,

categorical, text, image or audio/video data.

- Dynamical data. The mechanism generating the related data changes at different times or different circumstances, which bring new uncertainty and difficulties for data analysis.
- Multiple sources. The collected information comes from different sources. As shown in the context of remote fault diagnosis, the collected data comes from different plants and equipments.
- High Dimensionality. Usually data are not collected for a special task. Although a large candidate set of attributes are provided, most of them are irrelevant or redundant. The superfluous features deteriorate the learning performance of most algorithms.

The objective of this special session is to provide a forum for the related researchers in science and engineering domains and spurs novel thinking and attracts new efforts in dealing with the critical issues in this domain.

Scope and Topics

Topics of this session focus on the theoretical and algorithmic issues in the following (but not limited to) fields:

- Mining heterogeneous data with time series, image and text
- Mining dynamical data for engineering and economic applications
- Mining multiple-source data for medical and social statistics
- Mining ultra-high dimensional data with efficient algorithms
- Mining data with vague representation
- Mining multiple relational data for complex tasks

Important Dates and Instructions for Authors

All submitted papers will be reviewed on the basis of technical quality, relevance, significance, and clarity. Each paper should have no more than eight (8) pages in the Springer-Verlag LNCS style, including figures, tables and references. Springer-Verlag author instructions are available at: **http://www.springer.com/lncs.** Selected papers will be extended and published in several international journals after conference. **The same electronic copy should also be submitted to: tsinghuahu@gmail.com.**

Please specify that the paper is for the "*mining complex data with granular computing*" **session**, and submit your paper in PDF format by May 10, 2013 via our electronic paper submission system. **The URL for paper submission system is:**

https://www.easychair.org/account/signin.cgi?conf=jrs2013

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