

Special Session NF_SS6: Fuzzy Pattern Recognition and its application for Big Data Modeling

Organized by

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In real world applications, information is often imperfect, and human knowledge and natural language have a big deal of imprecision and ambiguity. Traditional database models assume that the models are a correct reflection of the world and further assume that the stored data is known, accurate and complete. It is rarely the case in real life that all or most of these assumptions are met. In many real world problems, we confront with high uncertain information and knowledge. In such situations, type-1 or interval type-2 fuzzy set theory can be used to model and solve problems with vague information and knowledge. In some problems, the information is too vague to model the problem with either type-1 or interval valued type-2 fuzzy sets, so full type-2 or higher level fuzzy sets are used to model these systems. In addition, in the field of pattern recognition due to the fundamental involvement of human perception and inadequacy of standard mathematics to deal with its complex and ambiguously defined system, different fuzzy techniques have been applied as an appropriate alternative.

Scope and Topics

Regarding to the increasing need for developing type-1 or higher level fuzzy systems, this session welcomes the researchers and papers in the area of theory and applications of fuzzy pattern recognition for big data modeling. The topics of this session include but are not limited to the following areas:

- Fuzzy classification and clustering methods
- Fuzzy Graph-based Methods in Pattern Recognition
- Web/Text/Image Mining
- Fuzzy rule-based knowledge representation in big data processing
- Information uncertainty handling in big data processing
- Unstructured big data visualization
- Statistical, Structural and Syntactic Pattern Recognition
- Kernel methods in pattern recognition
- Learning methods for fuzzy pattern recognition
- Fuzzy intelligent agent systems
- Unsupervised, semi-supervised, and supervised fuzzy deep learning
- Uncertain data presentation and fuzzy knowledge modeling in big data sets

- Computational intelligence methods for big data analytics
- Techniques to address concept drifts in big data
- Feature selection and extraction techniques for big data processing
- Granular modeling, classification and control
- Evolving and adaptive fuzzy systems in big data
- Uncertain data presentation and modeling in data-driven decision support systems
- Uncertain data presentation and modeling in cloud computing
- Information uncertainty handling in social network and web services
- Real-world applications of fuzzy pattern recognition in control, robotics, finance, economics, engineering, medicine, image processing, and computer vision.