CALL FOR PAPERS

IEEE Transactions on Emerging Topics in Computational Intelligence

Special Issue on Emerging Computational Intelligence Techniques for Decision Making with Big Data in Uncertain Environments

I. AIM AND SCOPE

Decision making in a big-data environment poses many challenges because of the high dimensional, heterogeneous, complex, unstructured, and unpredictable characteristics of the data which often suffer from different kinds of uncertainty. The uncertainty in the data may arise due to many factors including missing values, imprecise measurements, changes in process characteristics during the data generation period, lack of appropriate monitoring of data measurement process to name a few. Internet-of-Things (IoT) systems usually generate a large amount of unstructured and heterogeneous data demanding specialized techniques for data analytics. Thus, decision making in such an environment poses significant challenges and often demands new and innovative design techniques and algorithms for decision making. The proposed special issue will focus on new /emerging computational intelligence (CI) based theories and methodologies for decision making with big data under uncertain environment. The emerging CI techniques under consideration cover a broad range of nature-inspired, multidisciplinary computational methodologies, such as fuzzy logic, computing with words (fuzzy and non-fuzzy), neural networks, artificial life, evolutionary computing, cognitive computing, learning theory, probabilistic methods, their extensions, and judicious integration. How CI models and their variants can be adapted, augmented and extended to deal with applications involving very large scale data and how to cope with different kinds of difficult applications scenarios therein.

II. TOPICS

The areas of interests in this special issue include, but are not limited to, the following:

- Explainable decision making systems in uncertain environments
- Handling of imprecise/incomplete/missing information using CI techniques
- Granular computing for decision support systems
- Fuzzy-rough sets-based decision support algorithm
- Trust and confidence analysis of decision making system
- Probabilistic/Fuzzy neural networks for big data analysis in uncertain environments
- Multi-level/-criteria fuzzy decision-making process
- Self-organizing learning methods with uncertainty for decision support system
- Interval analysis-based decision support systems
- Efficient adaptation and extension of evidence theory for decision making
- Multi-agent decision support system for big data analysis

- Data-distribution-aware decision support model and system
- Dynamic multi-objective decision support systems
- Evolutionary computing and swarm intelligence for decision making system
- Deep learning to support the decision process of big data in uncertain environments
- Probabilistic/Approximate/Case-based/Social reasoning for decision making
- Applications of innovative CI techniques in different areas including Business, IoT, Brain Computer Interface, Bio-Medicine/healthcare, and so on.

III. SUBMISSIONS

Manuscripts should be prepared according to "Information for Authors" section of the journal (https://cis.ieee.org/publications/t-emerging-topics-in-ci/tetci-information-for-authors) and manuscript submissions should be done through journal submission website: https://mc.manuscriptcentral.com/tetci-ieee, by selecting Manuscript Type of "Emerging Computational Intelligence Techniques for Decision Making with Big Data in Uncertain Environments" and clearly marking "Emerging Computational Intelligence Techniques for Decision Making with Big Data in Uncertain Environments" as comments to the Editor-in-Chief. Submitted papers will be reviewed by at least three different expert reviewers as it is done for regular submissions. Submission of a manuscript implies that it is the authors' original unpublished work and is not being submitted for possible publication elsewhere.

IV. IMPORTANT DATES

Paper submission deadline: November 30, 2019
Notice of the 1st round review results: February 29, 2020
Revision due: April 30, 2020
Final notice of acceptance/reject: July 31, 2020

V. GUEST EDITORS

Weiping Ding, Nantong University, China;
ding.wp@ntu.edu.cn; dwp9988@163.com
Nikhil R. Pal, Indian Statistical Institute, India;
nrpal59@gmail.com
Chin-Teng Lin, University of Technology Sydney, Australia;
chin-teng.lin@uts.edu.au
Yiu-ming Cheung, Hong Kong Baptist University, Hong Kong, China; ymc@comp.hkbu.edu.hk
Zehong Cao, University of Tasmania, Australia;
zhcaonctu@gmail.com
Wenjian Luo, University of Science and Technology of China, China; wjluo@ustc.edu.cn