Special Issue Proposal

Neural Computing and Applications (Springer)

Special Issue on Multi-Source Data Understanding (MSDU)

Summary and Scope:

The massive increase in the amount of data collected in business, social media, engineering sciences, and computer science makes accessing and analyzing structured, unstructured, and semi-structured data is becoming increasingly important. Ability to semantically understand the content of the data can substantially enhance the applications of big data. However, the performance of data understanding is heavily dependent on the learning techniques. In addition to volume, data are naturally comprised of multiple representations or sources in real applications in which multi-source data provides enriched information from different perspectives. Multi-source data understanding is hence one of the most interesting and hottest topics in research and business nowadays, and is remarkably useful for practical applications.

Analyzing multi-source big data is a challenging task due to massive volume and multi-source structure of the data. The study of Multi-Source Data Understanding (MSDU) has been a very popular topic recently in the fields of machine learning and computer vision for developing more efficient data analytical models and real-time decision making frameworks. Meanwhile the advent of multi-source data creates a number of challenges in current study.

Therefore, developing novel learning techniques for multi-source data is a crucial step for data understanding. In this special issue, we invite papers to address many challenges of multi-source data understanding. To provide readers of the special issue with a state-of-the-art background on the topics, we will invite one survey paper, which will undergo peer review. The list of possible topics include, but not limited to:

- Data understanding on single-source data
  - Data preprocessing (missing value imputation and feature selection, clustering, hashing, and synthesizing/fusion)
  - Distributed/paralleled techniques and sampling techniques for big data
Knowledge discovery from big data or medical image data

- Multi-source multimedia data understanding and analysis
  - Representation learning (e.g., deep learning, global and local feature extractions)
  - Multi-source multimedia tools and applications (e.g., search, storing, ranking, hashing, and retrieval)
  - Structured/semi-structured multi-source multimedia understanding and analysis (e.g., zero-shot learning, one-shot learning, supervised learning, unsupervised learning and semi-supervised learning)
  - Cross-model multimedia understanding and analysis (e.g., search and retrieval)

- Data understanding and analysis for multi-task learning, domain adaptation and transfer learning
  - Similarities/dissimilarities learning from multiple tasks
  - Regularization strategies in multi-task learning, domain adaptation, and transfer learning
  - Multi-task learning, domain adaptation and transfer learning for big computer vision and multimedia analysis
  - Deep Learning for multi-task learning, domain adaptation, and transfer learning
  - Large tasks (modals), small sample size learning for multi-task learning, domain adaptation, and transfer learning
  - Cross-model multimedia understanding and analysis (e.g., search and retrieval)

Submission Guideline

Submissions to this special issue for possible publications MUST be original and MUST NOT be under consideration for publication in any other journal or conference.

Authors must follow the formatting and submission instructions of NCAA at https://www.editorialmanager.com/ncaa/default.aspx, and follow the "Submit Online" link on that page. Please make sure you mention in your cover letter that you are submitting to this special issue.

Important Dates:
- Paper submission due: June 10, 2018
- First notification: August 10, 2018
- First revision: October 1, 2018
- Second notification: November 10, 2018
- Second revision: December 10, 2018
- Final decision: December 30, 2018
- Publication date: spring 2019 (Tentative)

**Guest Editors:**

- Dr. Xiaofeng Zhu, Guangxi Normal University, China (xfzhu0011@hotmail.com) (Leading Guest Editor)
- Dr. Chong-Yaw Wee, National University of Singapore, Singapore (cywee2000@gmail.com)
- Dr. Minjeong Kim, University of North Carolina at Chapel Hill, NC, USA (mjkim78@gmail.com)