Special issue on “Hierarchical Representation Learning for Big Complex Multimedia Data”

Call for Papers

Big multimedia data and deep learning are two high-focus of multimedia data study. The sheer volume of multimedia data is growing exponentially due to the availability of ubiquitous and cheap sensors, which also enables both public and private to collect massive amounts of domain-specific information containing useful information about problems such as surveillance intelligence, cyber security, text/image/video understanding in social networks. With the ever-increasing speed of generating, processing, and sharing multimedia data, the necessity of extracting compact representations from large-volume multimedia data is on demand, and will impact existing and future technologies. However, providing solutions to multimedia data in complexity such as unconstrained videos and images captured in the wild and multimodal data brings about a higher level of difficulty at attempting to understand their contents. Also, we need to address some important problems in big multimedia data analytics, including extracting complex patterns from massive volumes of data, semantic indexing/retrieval, fast information retrieval, and simplifying discriminative tasks. Deep learning algorithms extract high-level, complex abstractions as data representations through a hierarchical learning process. Complex abstractions are learned at a given level based on relatively simpler abstractions formulated in the preceding level in the hierarchy. A key benefit of deep learning is the analysis and learning of massive amounts of unsupervised data, making it valuable for big complex multimedia analytics where raw multimedia data is often yet largely unlabeled and non-categorized.

This special issue is committed to focus on the most recent progress in deep learning techniques in solving complex multimedia data modeling and understanding. We aim at encouraging original research and promoting activities contributive to different types of cutting-edge techniques towards big complex multimedia data systems. The primary objective of this special issue is to attract focused attention on the latest research progress in this emerging area. The list of potential topics includes but not limited to:

- Supervised/unsupervised deep feature learning
- Multimedia data tagging
- Data security issues for multimedia data including forensic watermarking, forensic utilization of biometrics
- High-dimensional data embedding and modeling
- Content analysis and mining for multimedia big data
- Semantic indexing and hashing
- Semantic retrieval of multimedia data
- Distributed and parallel computing in big multimedia analytics
- Data preparation and representation extraction for discriminative and indexing tasks
- Applications of deep learning in big multimedia data analytics
- Trust and privacy issues in big multimedia data systems
- Learning invariant feature representations from multi-modal data
Deep learning and cloud computing for complex multimedia data
- Data collections, benchmarking and performance evaluations
- Security and privacy applications in multimedia systems
- Innovative and incentive applications in big complex multimedia data in various fields (e.g., search, health care, marketing, medical informatics)

Submitted papers should present original, unpublished work, relevant to one of the topics of the Special Issue. All submitted papers will be evaluated on the basis of relevance, significance of contribution, technical quality, scholarship, and quality of presentation, by at least three independent reviewers. It is the policy of the journal that no submission, or substantially overlapping submission, be published or be under review at another journal or conference at any time during the review process. Authors should prepare their manuscript according to the Instructions for Authors available from the online submission page of the journal of Multimedia Tools and Applications at springer.com. Notes: when submitting your manuscript, at the step of “Select Article Type”, please choose this special issue ‘1095 – Hierarchical Representation Learning for Big Complex Multimedia Data’.

**Important Dates**
Article submission deadline: 31 May 2018

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