Call for Papers
IET Image Processing

Special Issue:
Advances in Big Data Methods for Image Processing

Nowadays, big data analysts in scientific, government, industrial, and commercial domains are confronted with the challenges associated with rapidly-growing volumes of data that are collected in multiple applications, such as biochemical and genetics research, fundamental physical experiments and astronomical observations, social networks, and consumer behaviour studies. In these applications, large amounts of raw data can be applied for decision making and action planning, yet their volume and increasingly complex structure limit the applicability of multiple well-known approaches that are widely utilised with small datasets, including principal component analysis, singular value decomposition, and spectral analysis. Visual data in particular usually includes a large amount of image data, massive unstructured pixels and multispectral images. Visual data has always been ‘Big Data’, which includes surveillance, multimedia, YouTube/Flickr, and medical imaging by image analysis techniques – for example feature extraction, dimensionality reduction, parallel/GPU processing, and tracking. New paradigms, techniques, and algorithms are required to address the issue of big data. Several approaches have been put forward for representing and processing large datasets with complex structures. Multi-dimensional data, described by multiple parameters, can be expressed and analysed using multi-way arrays, which have been applied in image processing, biomedical signal processing, telecommunications and sensor array processing as well as other domains. The main goal of large image data processing is to extract the characteristics of the image itself, including semantics, quality, relevancy, and other physical senses.

This Special Issue calls for high quality, up-to-date technology related to the processing of large amounts of image data and multispectral imaging, and aims to serve as a forum for researchers all over the world to discuss their works and recent advances in this field. The Special Issue will showcase the most recent achievements and developments in large image processing data approaches, discovery and exploration. Both theoretical studies and state-of-the-art practical applications are welcome for submission. All submitted papers will be peer-reviewed and selected on the basis of both their quality and their relevance to the theme of this Special Issue.

The list of possible topics includes, but is not limited to:

- Big visual data analysis
- Multispectral and hyperspectral imagery for motion tracking and analysis
- Parallel processing on very large images
- Big visual data based shape understanding and interactive techniques
- Large scale point cloud processing
- 3D model retrieval, reconstruction and texture synthesis
- GPU cluster enhanced massive image
- Visual data processing for multimedia systems
- Multisensory interactive techniques for multimedia devices and data
- Fuzzy algorithms and deep neural networks for big visual data analysis
- Image registration and visual data fusing
- Knowledge-oriented image modelling
- Virtual reality and augmented reality in big data era
- Geography/remote sensing/biosignal and medical massive image data analysis
- Graphics, image, shape, graph signal processing

All submissions are subject to the journal’s peer-review procedures. The authors should follow the journal’s Author Guide at http://digital-library.theiet.org/journals/author-guide when preparing papers for submission to the Special Issue.

Important dates:
Submission deadline: 30 Nov 2016
Publication date: Oct 2017

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