Call for Papers
Springer Multimedia Tools and Applications, Special Issue on "Multi-source Weak Data Management under Big Data"

Low-cost sensors, content sharing platforms, and cloud storage have propelled the tremendous growth of audio, video, and image data. Conventional sample-level labeling required by fully-supervised learning paradigms is labor-intensive and prohibitively expensive for large-scale multimedia computing. Today, researchers are turning to different sources of weak supervisions to facilitate and accelerate large-scale modeling, for example, image/video-level labels have been utilized to learn segmentation models to semantically annotate regions in an image or video frame. In addition, weakly-supervised HMMs (hidden Markov models) have been developed to facilitate part-of-speech tagging and speech translation. Despite of the advantage of learning efficiency, multimedia modeling by leveraging weak labels still needs to overcome several challenges. The first is the learning quality; models learned from weak labels typically bear an inferior quality compared to those learned from strong sample-level labels. The second is the relatively limited types of label sources; only visual-based weak labels are used comprehensively, while others such as audio-based, socially-aware, and biologically-inspired cues are not as well exploited for media modeling. The third is the lack of benchmark data sets. As far as we know, there is no public data set for evaluating the performance of multi-label video annotation and speech tagging using weak labels. In addition, there is only one standard data set, the LMO (LabelMe Outdoor), for weakly-supervised multi-label image labeling.

This special issue will focus on the most recent progress in utilizing various sources of supervisions for media modeling. We aim at discovering new types of weak labels to speed up multimedia computing. Submissions related to new audio/video/image benchmarks for testing the performance of weakly-supervised learning are also welcome. The primary objective of this special issue is to foster focused attention on the latest research progress in this cutting-edge area. We solicit original contributions that address the challenges of media modeling with various types of weak labels. This special issue targets researchers and practitioners from both industry and academia.

The topics of interest include (but not limited to):

o   Weakly-supervised media modeling for image and video annotation;
o   Speech recognition, tagging, and translation by utilizing weak labels;
o   Weakly supervised acoustic feature engineering for audio applications;
o   Audio, video, and image retrieval and categorization using weak labels;
o   Image processing, e.g., retargeting, rendering, based on weak labels;
o   Weakly-supervised multimodal feature fusion for media applications;
o   Action, event, and abnormal behavior detection by weak supervision;
o   Learning weak attributes for media semantic modeling;
o   The gap between models trained from different types of weak labels;
o   Discovering new types of weak labels for media modeling;
o   New benchmark data sets for evaluating weakly-supervised algorithms;
o   Theories on fusing various weakly-/fully-supervised cues;
o   Audio, video, and image quality prediction by leveraging weak labels;
o   Exploiting social signals for weakly-supervised media modeling;
o   Weakly-supervised indexing/hashing for large-scale media management;

- o Weakly-supervised learning modules in multimedia systems;
- o Survey articles on the existing weakly-supervised learning techniques; and
- o Weakly-supervised acceleration methods for speech-based applications, such as speech-based emotions recognition and speech-driven 3D expression animation.

Important Dates:

- Full paper submission deadline: Dec 30 2017
- First round review decision: Feb 15 2018
- Subsequent Revision : April 1 2018
- Notification of acceptance: July 30 2018

Submission Procedures:

- Authors should prepare manuscripts using instructions for authors on the website of the Journal of Multimedia Tools and Applications. Authors should choose this Article Type "1093 -- Multi-source Weak Data Management under Big Data" when submitting to the special issue.
- Papers submitted for this special issue must not be submitted or has not been copyrighted or published and is not being submitted for publication elsewhere.
- 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.

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