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IEEE Transactions on Multimedia
Special Issue on Video Analytics: Challenges, Algorithms, and Applications

Video analytics, also known as video content analysis, refers to the capability of automatically analyzing video to extract knowledge/information and detect and determine temporal and spatial events. Video analytics is still an emerging technology with techniques that are continuously being developed to help make widespread implementation feasible in the years ahead. Such analytics has been typically used in semantic categorization and retrieval of video databases. A goal of this special issue is to focus on the real time systems aspect of video analytics beyond categorization and retrieval.

With increasing hardware capability and advances in algorithms used, real-time video analytics is now being used in a wide range of domains including entertainment, health-care, retail, automotive, transport, home automation, emotion analysis, aesthetics, inappropriate content detection, safety and security. From the sensing aspect, 3D cameras such as RGB-D and LiDAR (Light Detection and Ranging) cameras are becoming more and more affordable, enabling additional areas of research and applications, such as, self-driving cars employing video analytics on LiDAR captured data for path planning as well as obstacle detection. Research advances in hardware has facilitated miniaturization of components needed for image sensing, processing, communication and rendering. This miniaturization has also led to Internet of Things (IoT) devices and solutions with visual information processing at the core. Since video analytics on wearable/IoT/mobile devices need to work with small computational resources on-board, distributed algorithms are being developed to have these devices work in tandem with servers in cloud and high performance computing clusters.

This special issue aims to provide the much needed research forum for sharing the challenges and recent advances in video analytics algorithms and applications. We envisage that this forum will bring together researchers working on new approaches in multiple, related fields: camera (both 2D and 3D) pipeline processing, machine learning, video content analysis, wearable/mobile devices, and application domains.

The topics of interest to this special issue include, but not limited to:

Systems for Real-time Video Analytics Including:

(a) 2D and 3D Camera pipeline processing strategies; (b) GPU as well as specialized hardware based acceleration techniques; (c) Large scale analytics on the Cloud and High Performance Computing Clusters; (d) Analytics on/with/using mobile and wearable devices for real-time feedback.

Novel Algorithms for Real-time Video Analytics Including:

(a) Efficient Deep Learning Models Addressing High Video Analytics Complexity; (b) Distributed Algorithms for Analyzing Videos over Large-Scale Camera Networks or Client-Server Systems; (c) Algorithms Addressing Complexity, Storage, and Power Constraints of Large-Scale Video Analytics.

Application Domains:

(a) Entertainment, health-care, retail, automotive, transport, home automation, egocentric video, safety and security; (b) New benchmark datasets supporting real-time video analytics-based applications.

Important Dates

Paper submission due: May 5, 2017 (Extended);
Revision Due: August 15, 2017;
Final manuscript due: December 1, 2017;
First-round review completed: July 1, 2017
Second-round review completed: November 1, 2017
Publication date: Early-2018

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Submission Procedure: http://mc.manuscriptcentral.com/tmm-ieee