



Mathematical Problems in Engineering

Special Issue on **Optimization for Detection and Recognition in Images and Videos**

CALL FOR PAPERS

With increasing demand of intelligent systems on mobile and robot applications, automatic identification and extraction of attributes related to a higher semantic level in a given image and video have become critical in these days. The optimization techniques have a great ability to provide huge opportunities for efficiently and accurately finding a solution for a given task. Therefore, such mathematical skills have been popularly employed to resolve traditional problems in the field of image and video processing, for example, camera calibration, denoising, and segmentation, and now start to be applied for more advanced applications such as object detection, classification, and recognition. Toward further improvement for mobile-based and robot-based scenarios under the limited-computing power environment, a variety of optimization methods need to be applied in a more efficient way. To this end, many researchers have devoted considerable efforts to constructing simple yet powerful optimization frameworks.

We kindly invite investigators to contribute review as well as original papers describing recent findings and breakthrough developments which are expected to revolutionize the field of image and video processing by optimization techniques.

Potential topics include, but are not limited to:

- ▶ Convex optimization and its conceptual study for image and video processing
- ▶ Active contour models based on the variational optimization technique
- ▶ Total variations and their applications including illumination normalization, segmentation, denoising, and recoloring
- ▶ Sparse representation and low-rank-based image and video processing approaches
- ▶ Optimization for decomposition of the image (e.g., a technique discriminating textures from the structural information in a given image)
- ▶ Combinatorial optimization for visual recognition
- ▶ Optimization for learning the deep neural network (including the convolutional neural network (CNN) for visual recognition)
- ▶ Bayesian optimization under uncertainty and Gaussian processes
- ▶ Optimization for learning convolutional deep belief networks

Authors can submit their manuscripts via the Manuscript Tracking System at <http://mts.hindawi.com/submit/journals/mpe/oivu/>.

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Manuscript Due

Friday, 1 July 2016

First Round of Reviews

Friday, 23 September 2016

Publication Date

Friday, 18 November 2016