Mathematical Problems in Engineering

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Special Issue on

Mathematical Methods for Three-dimensional Imaging and Processing

CALL FOR PAPERS

Conventional methods for image processing operate with two-dimensional (2D) images obtained with a monocular camera by performing a perspective projection of a three-dimensional (3D) scene. The processing of 2D images discards relevant information about an observed 3D scene such as depth information. Over the years, several scientific approaches have been considered for the development of reliable methods for solving 3D imaging problems, including 3D data acquisition and representation, processing, calibration, visualization, compression, and transmission. The development of efficient methods for 3D imaging and processing represents a scientific and technological challenge for nowadays applications.

This special issue invites researchers around the world to submit scientific papers on the development of 3D imaging methods for solving engineering problems, from a mathematical point of view, including mathematical modeling of optical systems for 3D imaging, optimization methods and algorithms for image processing and filtering, statistical object recognition and tracking, algorithms for optical 3D object digitalization and system calibration, and fast algorithms for 3D image representation and visualization.

Potential topics include but are not limited to the following:

- Mathematical imaging methods: 2D, 3D, integral, optical, and digital
- Image restoration and enhancement algorithms by optimization of objective criteria
- Image encryption
- Superresolution techniques
- Statistical object recognition and tracking: 2D and 3D
- Optodigital 3D object digitalization
- Optical vision systems and calibration
- 3D scene synthesis and mapping
- Real-time image processing using high-performance computing
- Image compression and transmission: 2D and 3D
- Video processing

Authors can submit their manuscripts through the Manuscript Tracking System at http://mts.hindawi.com/submit/journals/mpe/mmtip/.

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Manuscript Due
Friday, 28 July 2017

First Round of Reviews
Friday, 20 October 2017

Publication Date
Friday, 15 December 2017