

Guest Editorial: Image and Video Processing and Analysis

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Published online: 19 January 2013
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This special issue of Journal of Mathematical Imaging and Vision contains expanded versions of papers presented at Sibgrapi 2011, the 24th Conference on Graphics, Patterns, and Images. Sibgrapi is the most traditional meeting in Latin America on Computer Graphics, Image Processing, Pattern Recognition and Computer Vision.

This special issue contains eight articles on different aspects of image and video processing and analysis, covering topics from image enhancement and segmentation to shape representation and target tracking in videos.

The first article, entitled “Spatio-Temporal Resolution Enhancement of Vocal Tract MRI Sequences—A Comparison Among Wiener Filter Based Methods” exploits Wiener filter-based approaches for resolution enhancement of vocal tract images.

The article “Analysis of Scalar Maps for the Segmentation of the Corpus Callosum in Diffusion Tensor Fields” also focuses on medical images. In this article, the authors propose the use of new scalar maps based on mathematical morphology operators for segmenting the corpus callosum represented by means of Diffusion Tensor Imaging.

In another article dedicated to segmentation-related research challenges, “Spectral Image Segmentation Using Image Decomposition and Inner Product-Based Metric”, the

authors propose a new segmentation framework based on combining image decomposition, an inner product-based similarity metric, and spectral graph theory.

Video encoding using fast fractal-based compression is the objective of the research described in the article entitled “3D Searchless Fractal Video Encoding at Low Bit Rates”.

Effective shape contour description and analysis is the main objective of the article “Multiscale Corner Detection in Planar Shapes”. In this work, the authors introduce a direct method for identifying salient points in a shape contour by exploiting a Mexican hat wavelet decomposition of the angulation signal.

Two articles of this special issue focus on pattern recognition algorithms. The first one, “Handwritten Data Clustering Using Agents Competition in Networks”, addresses the problem of handwriting recognition by proposing a new clustering method based on using a competitive learning scheme on large-scale graphs. The second article, entitled “Fast component-based QR code detection in arbitrarily acquired images”, proposes a two-step approach based on using components and geometric restrictions to detect QR codes.

Finally, the last article, entitled “Target Tracking using Multiple Patches and Weighted Vector Median Filters” introduces a new approach for tracking objects in videos by means of multiple patches.

The richness of this issue can be mainly credited to the authors and to the reviewers. We thank them a lot for their insightful contributions and discussions.

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