Computational Spectral Imaging

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Message from the Guest Editors

Dear Colleagues,

Computational spectral imaging devices acquire multi- and hyper-spectral images of a scene by leveraging image and signal processing techniques. Examples of computational imaging devices are multispectral sensors based on spectral filter arrays, hyperspectral cameras based on compressed sensing, Fourier transform spectrometers, light field cameras, and multimodal sensors. Computational systems overcome the limits of conventional imaging devices allowing, for example, to acquire images that simultaneously sample the spatial, depth, and spectral information of a scene (i.e., snapshot), achieve a higher spatial and spectral resolution, and even to access additional information of a scene (e.g., depth).

However, computational devices require typically more complex processing of the acquisitions, relying on advanced signal and image processing techniques (e.g., compressed sensing, inverse problems for image reconstruction, demosaicing, and image fusion).

This Special Issue focuses on computational approaches for the acquisition of spectral images, comprising topics.

Special Issue

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Message from the Editor-in-Chief

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