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Digital Imaging with Multispectral Filter Array (MSFA) Sensors

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Message from the Guest Editors

Current digital imaging systems (including digital cameras) often comprise a monochrome image sensor with a color filter array (CFA) for capturing color information. Bayer CFA is based on the primary color channels (red, green, and blue), and has been widely applied in general digital imaging. Furthermore, various CFAs have been developed for overcoming the physical limitations of Bayer CFA. Multispectral filter array (MSFA) has been recently proposed, which can capture the three primary color channels and additional spectral bands, such as near-infrared and broadband. The MSFA design determines the manner in which multiple bands of light will be received, because digital imaging aspects, such as sensitivity, resolution, and color reproduction, significantly depend on the filter pattern. The MSFA image sensor has a high sensitivity and can thereby enhance spatial resolution by incorporating additional information received from spectral wide bands. Hence, digital imaging based on the MSFA image sensor can provide novel solutions for addressing different conditions of image acquisition ...

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Special Issue



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