Microsystems for Micromodal Sensor Applications

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Enhanced detection and tracking of targets in a cluttered background can be significantly enhanced by utilizing characteristic spectral or polarimetric signatures of candidate targets. Conventional optical systems for observing these signatures have traditionally made use of bandpass filters, polarizers, spectrometers, and other optical systems in front of the detector. Integrating compact single-pixel filters and polarizers directly on a detector array offers the potential for significant reduction in overall system cost and complexity, allowing hyperspectral / polarimetric imaging modes to be used in new applications that cannot easily justify more expensive optical systems. This talk will explore practical methods of integrating microfabricated spectral filters and polarizer arrays with detector arrays, novel detector / filter combinations, and performance models of these inexpensive optical systems in vehicle tracking applications.

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