

Real-time joint transform correlator using compressed reference images

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Abstract

A real-time implementation of a joint transform correlator by using JPEG-compressed reference images is proposed in order to solve storage problems and improve the time response of automatic target recognition systems. The correlation performance is studied quantitatively by using two types of images with different spatial-frequency contents. The simulation results show that in comparison with the compressed high-spatial-frequency images, the joint transform correlator using the compressed low-spatial-frequency reference image offers better recognition performance in that it is robust to noise and contrast difference for a wide range of compression levels.