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Information Fusion

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Image fusion techniques for remote sensing applications

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Abstract

Image fusion refers to the acquisition, processing and synergistic combination of information provided by various sensors or by the same sensor in many measuring contexts. The aim of this survey paper is to describe three typical applications of data fusion in remote sensing. The first study case considers the problem of the synthetic aperture radar (SAR) interferometry, where a pair of antennas are used to obtain an elevation map of the observed scene; the second one refers to the fusion of multisensor and multitemporal (Landsat Thematic Mapper and SAR) images of the same site acquired at different times, by using neural networks; the third one presents a processor to fuse multifrequency, multipolarization and mutiresolution SAR images, based on wavelet transform and multiscale Kalman filter (MKF). Each study case presents also the results achieved by the proposed techniques applied to real data.



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Keywords

Remote sensing; Synthetic aperture radar (SAR); SAR interferometry; Neural networks; Discrete wavelet transform (DWT); Multiscale Kalman filter (MKF)

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