

## **175. CLASSIFICATION OF GEOGRAPHICAL TERRAINS FROM HYPERSPECTRAL IMAGES USING IMAGE FUSION**

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This project is based on hyperspectral image classification. Hyperspectral satellite sensors provides images of the earth's surface in multiple spectral bands. Geographical terrains are classified from hyperspectral images (HSI) using image processing techniques. High dimensions of HSI cause redundancy, which may be reduced by performing wavelet based image fusion technique. Feature extraction is known to be an effective way in both reducing computational complexity and increasing accuracy of hyperspectral image classification. Here, the hyperspectral image is partitioned into multiple subsets of adjacent hyperspectral bands. Here, the bands are fused together by wavelet based image fusion, which is one of the simplest image fusion methods. Genetic algorithm is proposed for feature selection and optimization. Finally, the fused bands are processed with transform domain recursive filtering to get the resulting features for classification. The accuracy of the SVM classifier can be improved significantly.

Key words—Feature extraction, hyperspectral image, SVM classifier, genetic algorithm, image fusion (IF), recursive filtering.

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