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MULTI-SOURCE HIERARCHICAL CONDITIONAL RANDOM FIELD MODEL FOR FEATURE FUSION OF REMOTE SENSING IMAGES AND LIDAR DATA

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Abstract. Feature fusion of remote sensing images and LiDAR points cloud data, which have strong complementarity, can effectively play the advantages of multi-class features to provide more reliable information support for the remote sensing applications, such as object classification and recognition. In this paper, we introduce a novel multi-source hierarchical conditional random field (MSHCRF) model to fuse features extracted from remote sensing images and LiDAR data for image classification. Firstly, typical features are selected to obtain the interest regions from multi-source data, then MSHCRF model is constructed to exploit up the features, category compatibility of images and the category consistency of multi-source data based on the regions, and the outputs of the model represents the optimal results of the image classification. Competitive results demonstrate the precision and robustness of the proposed method.

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