



# Scene Classification Using Multi-Resolution WAHOLB Features and Neural Network Classifier



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**چکیده:**

This article approaches scene classification problem by proposing an enhanced bag of features (BoF) model and a modified radial basis function neural network (RBFNN) classifier. The proposed BoF model integrates the image features extracted by histogram of oriented gradients, local binary pattern and wavelet coefficients. The extracted features are obtained in a hierarchical multi-

resolution manner. The proposed approach is able to capture multi-level (the pixel-, patch-, and image-level) features. The histograms of features constructed by BoF model are then used for training a modified RBFNN classifier. As a modification, we propose using a new variant of particle swarm optimization, in which the parameters are updated adaptively, for determining the center of Gaussian functions in RBFNN. Experimental results demonstrate that our proposed approach significantly outperforms the state-of-the-art methods on scene classification of OT, FP, and LSP benchmark datasets.

**کلیدواژه‌ها:**

[Scene classification](#) - [Radial basis function neural network \(RBFNN\) classifier](#) - [Modified PSO](#) [OSD](#) ([mPSO](#) [OSD](#)) - [Bag of features \(BoF\)](#) - [Wavelet Transform](#) - [HOG](#) - [LBP](#)

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