Visual Thing Recognition with Binary Scale-Invariant Feature Transform and Support Vector Machine Classifiers Using Color Information

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Abstract : The demands of smart visual thing recognition in various devices have been increased rapidly for daily smart production, living and learning systems in recent years. This paper proposed a visual thing recognition system, which combines binary scale-invariant feature transform (SIFT), bag of words model (BoW), and support vector machine (SVM) by using color information. Since the traditional SIFT features and SVM classifiers only use the gray information, color information is still an important feature for visual thing recognition. With color-based SIFT features and SVM, we can discard unreliable matching pairs and increase the robustness of matching tasks. The experimental results show that the proposed object recognition system with color-assistant SIFT SVM classifier achieves higher recognition rate than that with the traditional gray SIFT and SVM classification in various situations.