

Human Action Categorization Using Discriminative Local Spatio-Temporal Feature Weighting

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Abstract: New methods based on local spatio-temporal features have exhibited significant performance in action recognition. In these methods, feature selection plays an important role to achieve a superior performance. Actions are represented by local spatio-temporal features extracted from action videos. Action representations are then classified by applying a classifier (such as k-nearest neighbor or SVM). In this paper, we have proposed two feature weighting methods to better discriminate similar actions. We have proposed a definition of feature discrimination power to be used in the feature selection process. Our proposed weighting schemes have greatly improved the final categorization accuracy on the well-known KTH and Weizmann datasets.

Keywords: Human Action Categorization, Feature Weighting, Local Spatio-Temporal Features, Bag of Spatio-Temporal Words, Feature Space Discriminating.