Action Bank for Large-Scale Action Classification

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Abstract

In this notebook paper, we describe our experiment setups for THUMOS Challenge.

1. Introduction

We apply the standard action bank for THUMOS Challenge. The related information about action bank please refers to the project web page (http://www.cse.buffalo.edu/~jcorso/r/actionbank/).

We follow the competition track evaluation setup. Given the videos, we extract action bank feature first. Considering the large number of videos, we down-sample the size of the video to $160 \times 120$ and then generate action bank feature representation. In classification process, we adopt the provided three train/test splits. In each split, clips from 7 of the 25 groups are used as test samples, and the rest for training. Just as the action bank paper [3], linear SVM [1] is applied for classification. We submit results under above mentioned method as UCF101_Classification_ActionBank_DT_Fusion.zip.

In addition, we conduct experiments to fuse Action Bank with Dense Trajectory [4]. To extract dense trajectory feature, we use version 1.1 of the software provided by authors (http://lear.inrialpes.fr/people/wang/dense_trajectories) and apply default parameter setup (i.e. length of trajectory is 15 frames, spatial stride for sampling feature points is 5 pixels, neighborhood size for computing descriptor is 32 pixels, number of cells in xy axis is 2 and number of cells in t axis is 3). We build a codebook with 4000 visual words from 100,000 randomly selected training dense trajectory features using kmeans. For classification we train a $\chi^2$ kernel SVM [2] with encoded histograms. For fusion, we simply calculate arithmetic mean of predicted scores from Action Bank and Dense Trajectory then predict class label, and the results are submitted as UCF101_Classification_ActionBank_DT_Fusion.zip.

References


