One Shot Learning Gesture Recognition from RGBD Images

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Local approach

1. Local approach

2. Future work: Transfer learning approach
Local approach

Future work: Transfer learning approach

Local features + Bag-of-Words

Video sequences → Local features

HOG3D
SIFT
HOG/HOF
SURF

→ Bag-of-features

Fail!!!
Local approach

Future work: Transfer learning approach

- Local features + Bag-of-Words

  Video sequences  →  Local features  →  Bag-of-features
  
  HOG3D
  SIFT
  HOG/HOF
  SURF
  ...

- Fail!!!
Why the local approach not working?

- The local patterns used for training the codebook are not sufficient.
- The Bag-of-Words histogram representation is not discriminative.
Transfer learning approach

- To incorporate more information into the supervised one-shot-learning task

Target domain

 Supervised one-shot-learning task

Source domain

Unlabeled data
Transfer learning approach

Different from those action categories running or kicking, the given gesture categories are uniquely designed so that it is difficult to find related data that contains similar gestures as the given ones.

One possible approach is to utilise the unlabelled data from the development/validation batches to generate a more informative codebook or generate a higher level representation of the input.