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Team website URL (if any)	None

Title of the contribution	Continuous Gesture Recognition with Cascade Classifiers
General method description	Three types of base features are extracted: 3D position of skeleton points, HoG in color video and HoG in depth video. The later two are represented using BoW method. Train 20 SVM classifiers for each feature type, using a sliding window of fixed length. The classifiers scores are concatenated as the input feature to train a HMM classifier for each gesture. To distinguish gesture and non-gesture intervals, 3 SVM classifiers are trained, respectively based on full skeleton feature, selected skeleton feature and HMM classifier scores. A sliding windows is used to scan the video and a multi-class SVM classifier, trained with HMM classifier scores as features, are used to determine the final gesture label.
References	None

Describe data preprocessing techniques applied (if any)	None
Describe features used or data representation model (if any)	1. 3D positions of skeleton joint points. 2. HoG features in color video (with BoW). 3. HoG features in depth video (with BoW).
Data modalities used, i.e. depth, rgb, skeleton… (if any)	Skeleton data, color and depth video.
Fusion strategy applied (if any)	Late fusion. Concatenate 3 modalities' HMM classifier score to train a multi-class SVM classifier.
Dimensionality reduction technique applied (if any)	None

Temporal clustering approach (if any)	None
Temporal segmentation approach (if any)	Sliding window of fixed length.
Gesture representation approach (if any)	None
Classifier used (if any)	SVM and HMM.
Large scale strategy (if any)	None

Transfer learning strategy (if any)	None
Temporal coherence and/or tracking approach considered (if any)	None
Other technique/strategy used not included in previous items (if any)	None
Method complexity analysis	During training, feature extraction and training SVM classifiers at the 1st layer is the most time consuming. During testing, feature extraction costs most of the time.

Qualitative advantages of the proposed solution	None
Results of the comparison to other approaches (if any)	None
Novelty degree of the solution and if is has been previously published	The applied method has not been formly proposed, to the best of our knowledge, but the similar idea (using previous classifiers' scores as the feature vector for the following classifier) is widely used in computer sciences.

Language and implementation details (including platform, memory, parallelization requirements)	**Matlab and C++.**
Human effort required for implementation, training and validation?	About 20 days for algorithm development and implementation.
Training/testing expended time?	On a single PC, training would cost around 2-3 days and testing would cost around 4-6 hours. The program can be executed in parallel.
General comments and impressions of the challenge	The competition is more interesting and challenging than the last year's competition. Wish could have more time for this competition.