Team name	Team Netherlands
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Rest of team members	Aditya Daryanani Himanshu Kumar Raviteja Rudra
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Title of the contribution	TBD
General method description	Gesture boundary detection based upon arm and hand movement creates intial gestures. With gesture boundaries in hand , a technique called active difference signatures creates motion based and difference from resting attributes which are dynamic time-warped to a constant 25-frame gesture. Basic statistics on the motion properties of the joints are also used as input features. The third feature is a normalized motion history image of the face. For classification, a radial basis function SVM is used as the main classifier. A sparse representation reconstruction model and regression tree help detect bogus gestures.
References	A. Savakis, R. Rudra, R.W. Ptucha, “Gesture Control Using Active Difference Signatures and Sparse Learning”, Proceedings of International Conference on Pattern Recognition, Stockholm, Sweden, 2014. R.W. Ptucha, A. Savakis, “LGE-KSVD: Robust Sparse Representation Classification”, IEEE Transactions on Image Processing, Volume 23, Issue 4, 2014.

Describe data preprocessing techniques applied (if any)	Dynamic time warping Motion history image
Describe features used or data representation model (if any)	Dynamic time warped skelton Motion history image of the facial area
Data modalities used, i.e. depth, rgb, skeleton… (if any)	Depth for gesture boundary Skeleton joints for boundary detection and classification Rgb image for facial region
Fusion strategy applied (if any)	If SVM model agrees with top 7 candidates of sparse representation classifier or top candidate of regression tree we have a real gesture, otherwise we ignore the gesture
Dimensionality reduction technique applied (if any)	Locality preserving projections, with is a linear approximation to the laplacian eigenmap. The authors are leveraging their LGE-KSVD work which jointly optimizes manifold learning with sparse representations

Temporal clustering approach (if any)	
Temporal segmentation approach (if any)	
Gesture representation approach (if any)	
Classifier used (if any)	SVM, sparse representation, regression trees
Large scale strategy (if any)	

Transfer learning strategy (if any)	
Temporal coherence and/or tracking approach considered (if any)	
Other technique/strategy used not included in previous items (if any)	
Method complexity analysis	

Qualitative advantages of the proposed solution	**Kernel based SVM has excellent classification results, but not so good detection of invalid gestures. Sparse representation methods are excellent at detecting invalid gestures. Regression trees are fast, and help make a decision when otherwise the method is unsure of what to do.**
Results of the comparison to other approaches (if any)	
Novelty degree of the solution and if is has been previously published	Both active difference signatures and LGE-KSVD are 2014 publications by the authors

Language and implementation details (including platform, memory, parallelization requirements)	**Python, matlab, C code** **No speed optimization has been performed** **Code runs on Windows 7**
Human effort required for implementation, training and validation?	Hunderds of man-hours were used for the underlying methods. Several man-weeks were invested specifically for thi s competition.
Training/testing expended time?	It takes about 1.5 days to train the model Validation takes about 1.5 hours
General comments and impressions of the challenge	Thank you for all your hard work.