

1 Visualization of neighborhoods

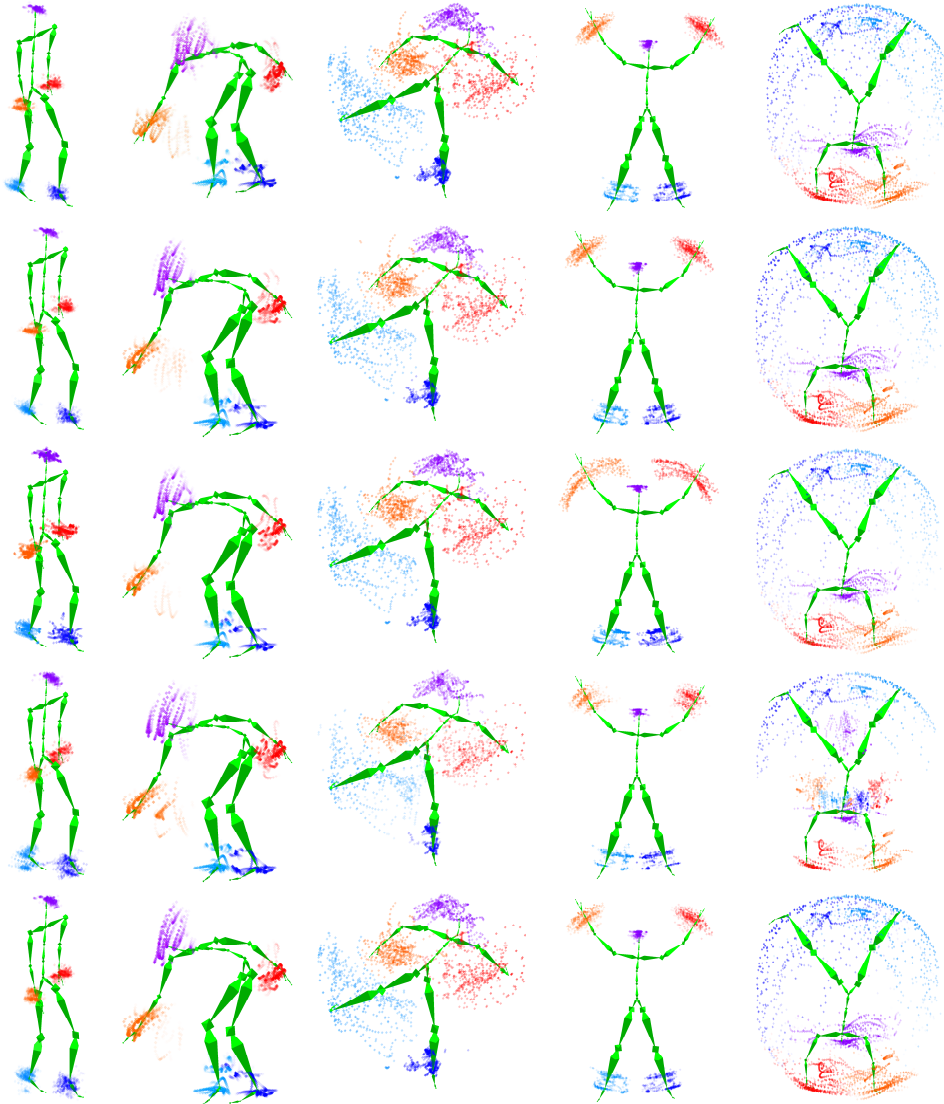


Figure 1.1: Visualization of the neighborhood of five poses from different motion classes (from left to right: walk, grab floor, kick, jumping jack and cartwheel) with respect to various feature sets (top down: \mathcal{F}_E^{15} , \mathcal{F}_E^{30} , $\mathcal{F}_E^{15 \times 3}$, \mathcal{F}_{pca}^8 and \mathcal{F}_{pca}^{16}).

2 Rank correlations

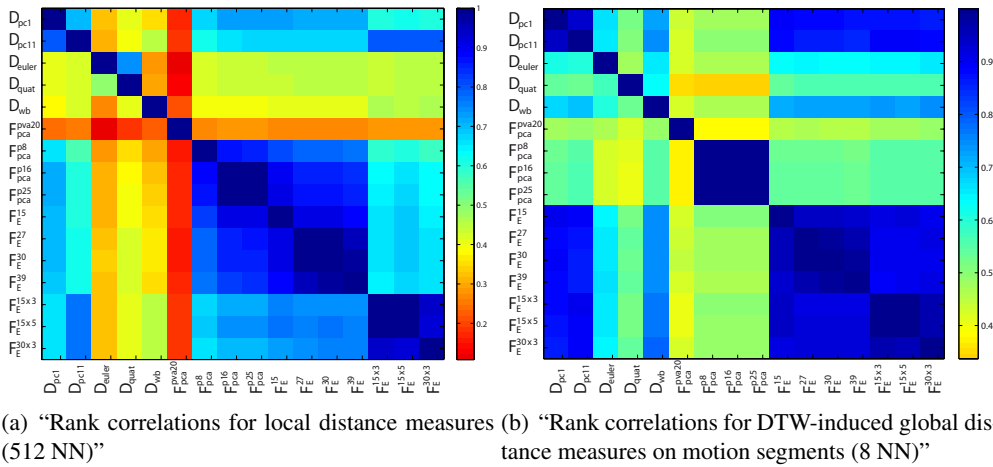
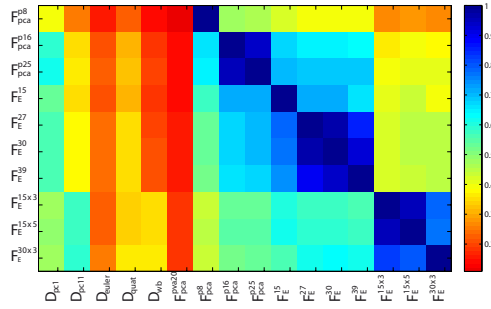
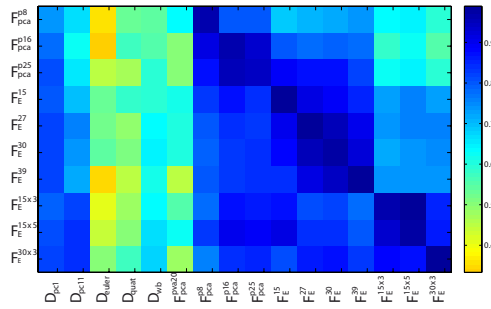


Figure 2.1: Rank correlations between various distance measures and feature sets on an example database based on 76 motion clips taken from the HDM05 database: (a) Average values for 1024 random samples choosing 512 nearest neighbors according to the feature set given in the vertical axis with the distance measure given in the horizontal axis. (b) Average values for all 76 motion clips choosing 8 nearest neighbors (restricted to the set of 76 cut motion clips) according to the feature set on the vertical axis. The distances between all motion clips were computed by DTW on the distance measures on the horizontal axis as well as on the vertical axis.



(a) “Rank correlations for local distance measures (512 NN)”



(b) “Rank correlations for induced global distances according to the fast neighborhood search versus DTW-induced global distance measures on motion segments (8 NN)”

Figure 2.2: Rank correlations between various distance measures and feature sets on the entire HDM05 database: (a) Average values for 1024 random samples choosing 512 nearest neighbors according to the feature set given in the vertical axis with the distance measure given in the horizontal axis. (b) Average values for 76 motion clips choosing 8 nearest neighbors found by the fast global neighborhood search out of the entire HDM database according to the feature set on the vertical axis. For feature sets on the vertical axis the global distances according to the fast neighborhood search were ranked against the global distances computed by DTW on the distance measures on the horizontal axis.

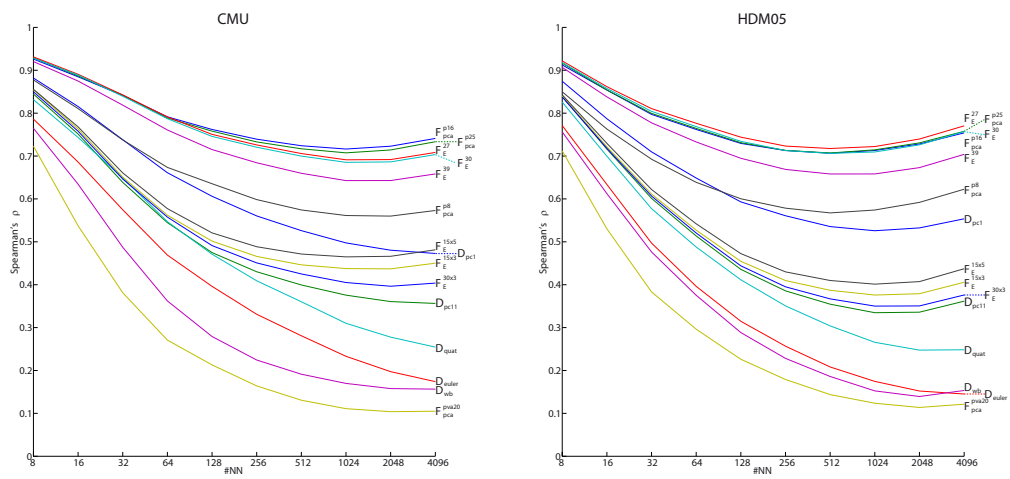


Figure 2.3: Rank correlations between feature set \mathcal{F}_E^{15} and other feature sets on the entire HDM05 and CMU databases depending on the number of nearest neighbors involved.