Team Happy Demo

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MoCap Classification

- Main objective of project is to segment MOCAP files into isolated behaviours.
- For ex. if given a MOCAP file where the first 10 seconds is walking, and the next 10 is running, our program outputs a label for each frame.
- The first 10 seconds of frames with the walking behaviour would be labelled ‘group 1’, the next 10 seconds of frames with running would be labelled group 2 etc…
- How is this accomplished?

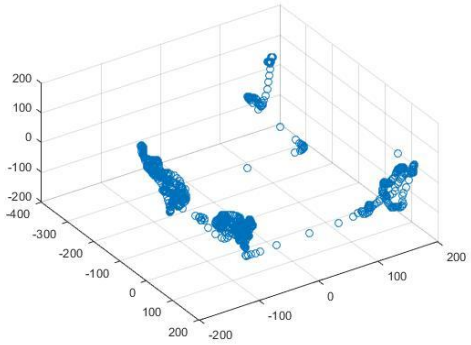
Implementation

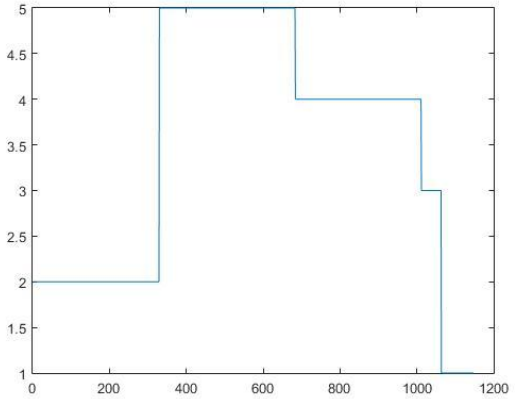
```
%% reduce the channels using PCA
[coeff, score] = pca(channels);

%% get the kmeans for channels
[ch_labels, ch_centroid] = kmeans(channels, ch_kmean);
```

```
%% calculating the distance between root and joints
distance = zeros(ch_row,num_joints-1);
for frames = 1:ch_row
    points = bvh2xyz(skel, channels(frames, :));
    for joints = 2:num_joints
        distance(frames, joints-1) = pdist2(points(1, :), points(joints,:));
    end
end

%% reduce the matrix using PCA
pcaDistance = pca(distance);

%% get the kmean for distance
[dis_labels, dis_centroid] = kmeans(distance, dis_kmean);
```

Results - 1.bvh

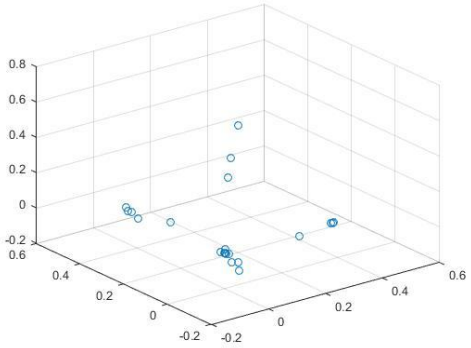
Channel data:

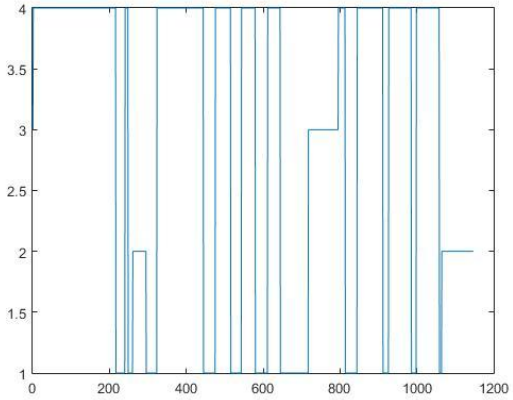




Result - 1.bvh

Distance feature





Result - Video

https://drive.google.com/open?id=0Bx_m5D2zRQCKbVB2QURCQjJ1eGc

Conclusion

- There are MOCAP classification methods which would allow more accurate classification, however we are happy with the trade off between ease of use and accuracy.
- For the most part, we found that at least one of the features we used to classify the files provided a reasonable grouping of the MOCAP.
- Questions??