

Presentation guidelines

1 - Problem statement and summary of the approach

The problem is video segmentation (clustering) using at least two types of data: Images (or its visual embeddings - the vectors!) and detected skeletons in the images.

Summarize the problem you tackled depending on which data you used, namely:

- 1- Video segmentation using the visual embeddings (images) only
- 2- Video segmentation by segmenting the pose (skeleton data) and indexing images through the pose only.
- 3 - Video segmentation by joint pose and image embeddings
- 4 - Adding extra information to the images and skeletons

Focus on the problem you consider more relevant (more difficult ? :-). If you actually did all of the above, say it.

Describe what is your goal and the processing steps to get there:

Divide the general problem into subproblems and succinctly describe the approach used to tackle each subproblem.

For example, consider the hypothetical steps: Data cleaning, estimation of relevant variables, data completion, subspace estimation, outlier removal, find clusters. In few sentences give a hint on what you do in each step.

2 - Data characterization (EDA) and cleaning

describe your input data.

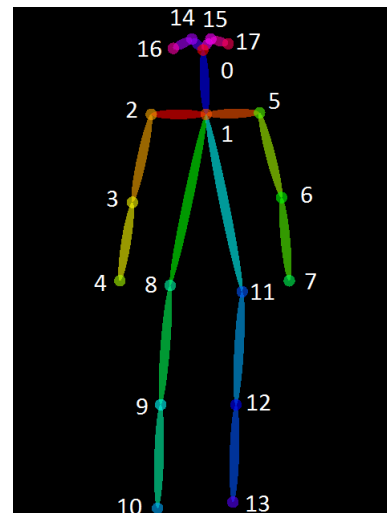
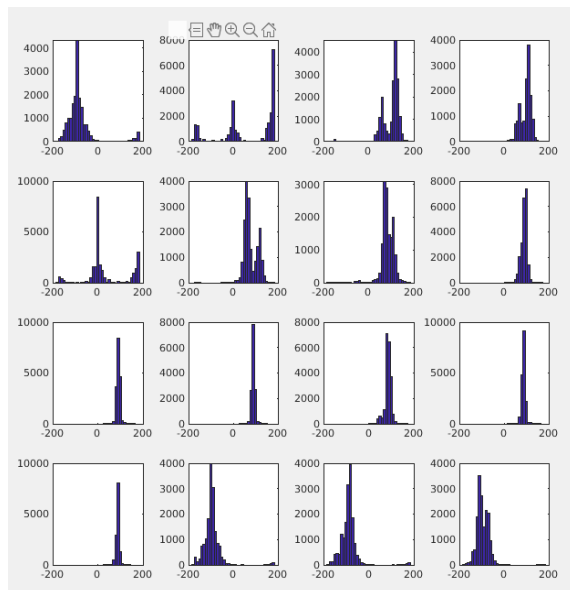
provide visualizations: reduce dimensionality to plot diagrams showing relevant features of the data, histograms of important variables, examples of outliers ...

For example, suppose I computed some feature from the skeleton features (angle of the joints, length of the joints, position in the image ...anything).

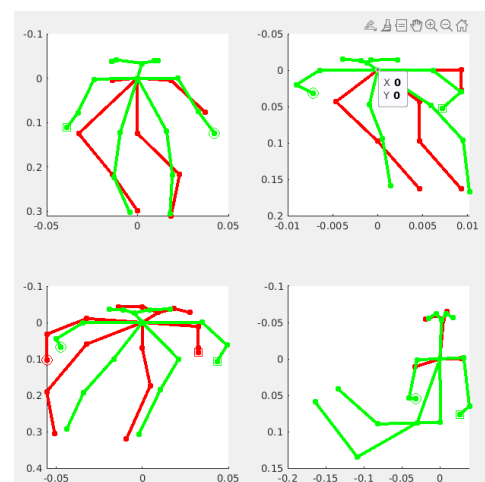
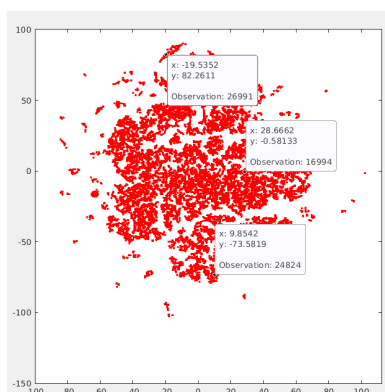
Plot graphs supporting assumptions you set to define relevant variables (rank, outliers). For example imagine I analyzed the skeletons and from the histograms

below I decided to remove part of the data (too much missing, tails of the distribution). In other words whatever decision you take should be supported by the “data”...show it ! Then visualize the results !

One hint...visualize the data of visible parts of the skeleton...and there are many ways in which you can represent the skeleton (the coordinates in the image, the coordinates “centered” in one point, polar coordinates, length and angle of joints ...). Example (angle of each point!).



Be it the skeletons or the visual embeddings, if you visualized the data and inspected manually some relevant points (e.g. centers of potential cluster) show them.



In summary, generate views of the data that help supporting your options. For example, you can select some prototypes of pose (a few manually selected types of pose) and use them to complete the missing data and/or reject “outliers” (everything that is not in those categories), show them.

3- Methodology

Describe how is your processing done. In other words detail the steps mentioned in 1- : Assume the data has been cleaned, what did you do to cluster the images, complete and cluster the skeletons, or complete and cluster the joint representations.

Detail the parameters you compute (singular values, approx rank, error functions) and the operations to obtain them (computations, derivations or algorithms)

4- Results

List the datasets you used and show the results you obtained. Again, the output is not unique, depending on the assumptions above you get different outcomes. Also describe any tuning performed. As you know there are many parameters defined by heuristics. If you tried several values show the outcomes and comment on the results.

All in all, segmenting data into “similar” parts depends on many things for which we have no prior knowledge, therefore we must make assumptions. We are interested in the result but above all in the path to get there ! That’s what your presentation should focus on.