Team Skeletal Insights

Update 1: 7/10/2017

The beginning of our implementation period has been focused on determining the type and amount of data that we will need to collect in order to appropriately train our models. Since a corpus of labeled yoga poses does not currently exist, we have decided to scrape images from google search results and remove unrelated images. The search term will serve as the label for these images. These searches will not provide a sufficient training set on their own, so we will be adding noise to the images to expand our labeled pose dataset. We have yet to determine the specific method that we shall be using. This will be our next step for this stage of the implementation.

In terms of our work on the neural network training, we have been training the DeepPose neural net on the MPII and LSP datasets. However, when we ran the trained model on yoga pose images, we noticed a major issue. The model handles upright poses quite well, but does not do well with poses where the torso is lowered and the arms are near the legs. We think this might be due to the nature of the training dataset (i.e. most of the training poses are upright). Currently, we are discussing the best method for dealing with this issue. Our options include just running the neural net model straight through to classification (skipping the joint location stage), only focusing on upright poses, or building a yoga calibration layer on top of our original neural net. This decision will be based on the situation of the yoga pose dataset mentioned earlier -- we need to ascertain how big we can make that dataset.

Next steps:

1. Decide which noise-introducing methods to take with regards to pose images.
2. Build yoga pose labeled dataset.
3. Make a decision regarding the upright poses issue.