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Project Description

In this project we plan to solve the problem of face detection using a face detector. Once trained the face detector should be able to identify multiple faces within a picture.

Approaches

We plan to use Deep Learning techniques for doing the above task. The detector that we plan to use will not require pose/landmark annotation. It will be able to detect faces in a wide range of orientations using Deep Convolutional Neural Networks. The model does not require other components such as segmentation, bounding-box regression or SVM classifiers.
We plan to implement the Deep Learning Network using Theano/Caffe or something else that might make the task easier.

Research Papers

The main reference paper for our course project is as follows: https://arxiv.org/pdf/1502.02766.pdf
With our background we need some additional references for deep learning as well:
http://www.nature.com/nature/journal/v521/n7553/pdf/nature14539.pdf

Data Sets

As of now we think that we will be using the data sets kept at the UCI Machine learning Repository (https://archive.ics.uci.edu/ml/machine-learning-databases/faces-mld/). However the main paper cites the repository kept at https://lrs.icg.tugraz.at/research/aflw/. However this dataset requires some authentication for which we have already mailed the contact person mentioned in the website.
If we are able to get this data set, we plan to use that one since the paper uses this dataset.