

# Convolutional Neural Networks for face classification

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## Objectives

The objective is to use CNN for face classification together with Haar Cascades for face detection so we can determine if the person we get on the input is on the selected picture.

## Data

Forty-four randomly selected people were chosen as classes plus the person for whom we want to decide whether is on the picture or not, for our input in CNN. Every person from forty-four selected has 1 to 6 samples. The class of the person we want to find on the picture has about 25 samples. Data set resource:  
<https://www.kaggle.com/atulanan djha/lfwpeople>

## Methodology

First, we use the Haar Cascades method on all our data that we prepared to isolate only the faces of people. Then we take those filtered data and bring them to the input of our CNN for training. CNN consists of (Convolutional layer + Activation layer + MaxPooling layer) \* 3 + (Fully connected layer + Activation layer) \* 3. When our training finishes than we take the picture in which we want to find our person and with Haar Cascades method isolate all faces. At the end we use prediction of CNN for every face we found on the picture. Result will be in form of array with rank (1,number\_of\_faces\_on\_the\_image,45). If there is only one array of those `number\_of\_faces\_on\_the\_image` arrays which have the value of 1 at zero indexes we can conclude that the face is on the image.

## Results and Conclusions

CNN prediction is tested on several samples. We get correct answers for only twenty per cent. The conclusion is that the data set needs to be more significant, with more classes and person samples.

