

Face Recognition Web App Tutorial

by Fatih Cagatay Akyon

Face Recognition App

Upload an image to see recognized character faces from LOTR

Face recognition using [FaceNet Pytorch Model](#) | Powered by Python, Flask, OpenCV, Caffe, Pytorch

Face detection using [Resnet10 SSD Caffe Model](#) | Powered by Python, Flask, OpenCV, Caffe

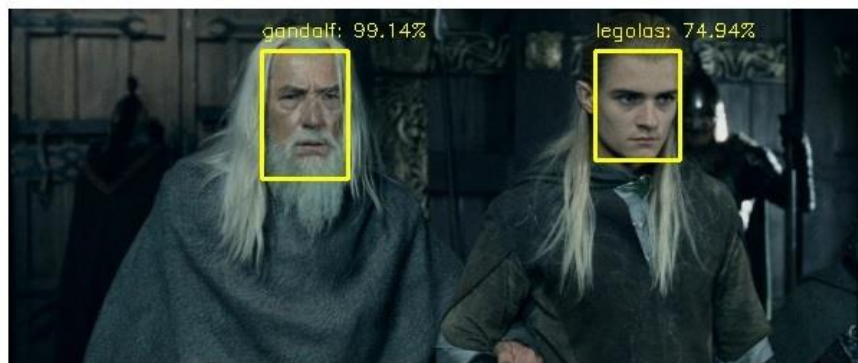
Image size limit: 2 MB

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Upload & Detect

Yes! 2 face(s) detected!



Web App Preview

- Live demo URL: <https://face-recognition-api-flask.herokuapp.com/>

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Upload & Detect

Who Am I

Fatih Cagatay Akyon



10+ IEEE papers
5 patents

Machine Learning
Deep Learning
Computer Vision
Object Detection
Radar Signal Detection
Modulation Classification



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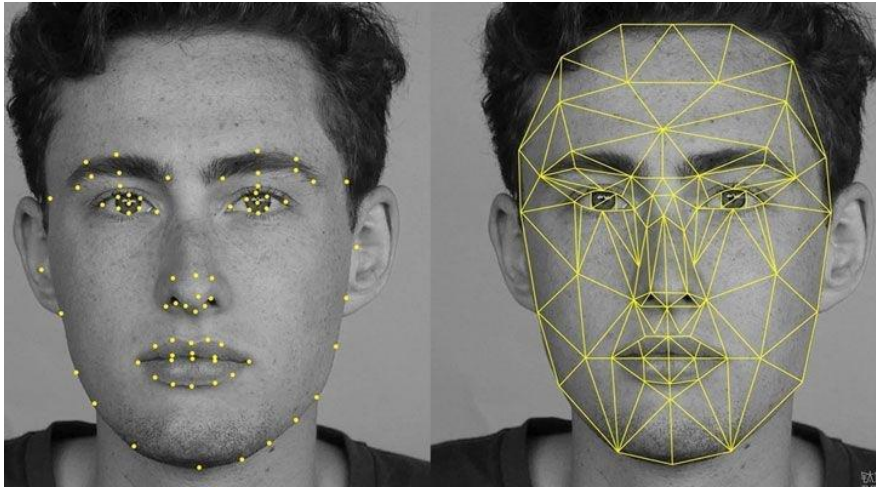
fcakyon@gmail.com

Outline

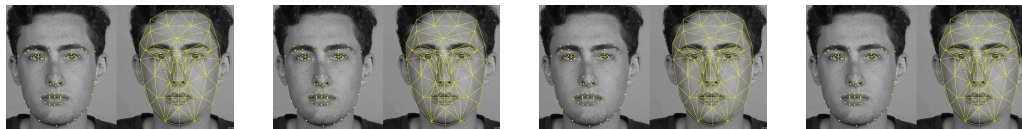
- Facial feature extraction
- SVM, Naïve Bayes, Multi Layer Perceptron
- LOTR Dataset
- Local project structure
- Online project structure
- Pushing our app to Github
- Deploying our app to AWS via Heroku

Traditional face recognition

- Extract features



- Store them in a db



User A

User B

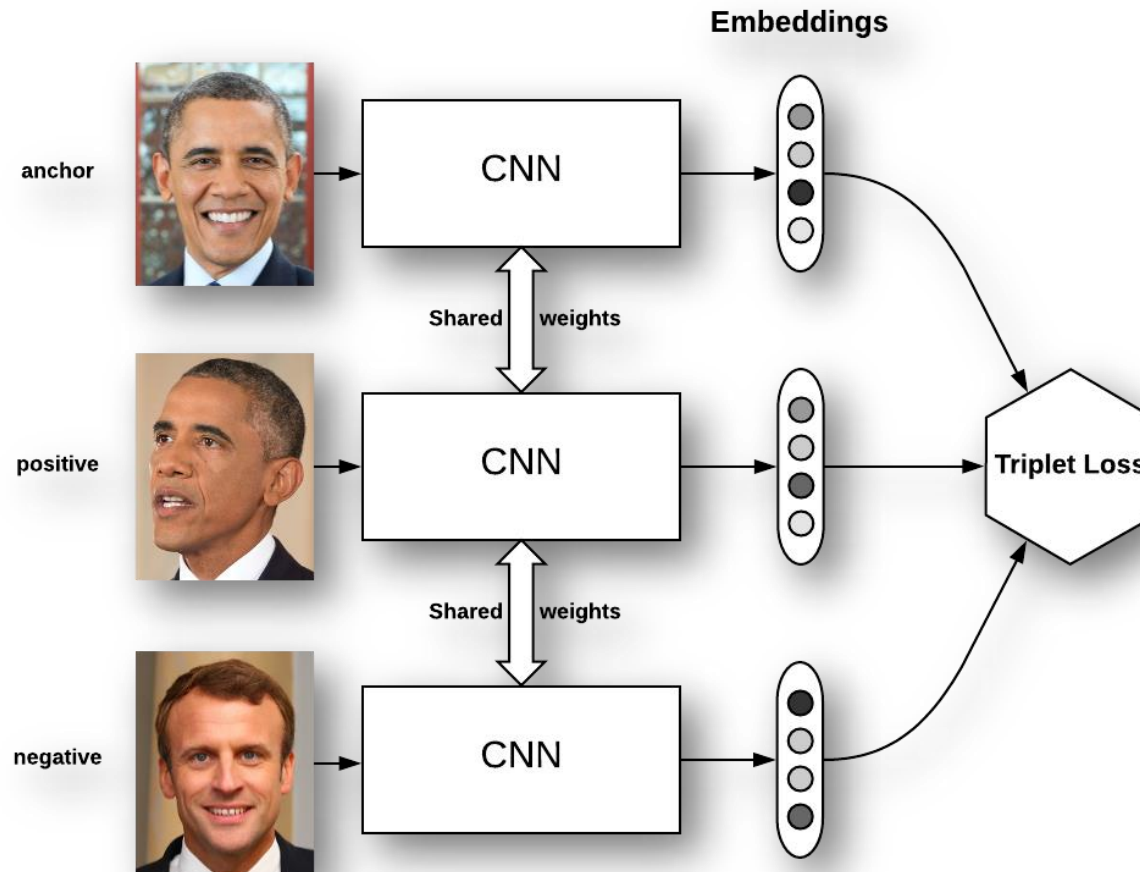
User C

User D

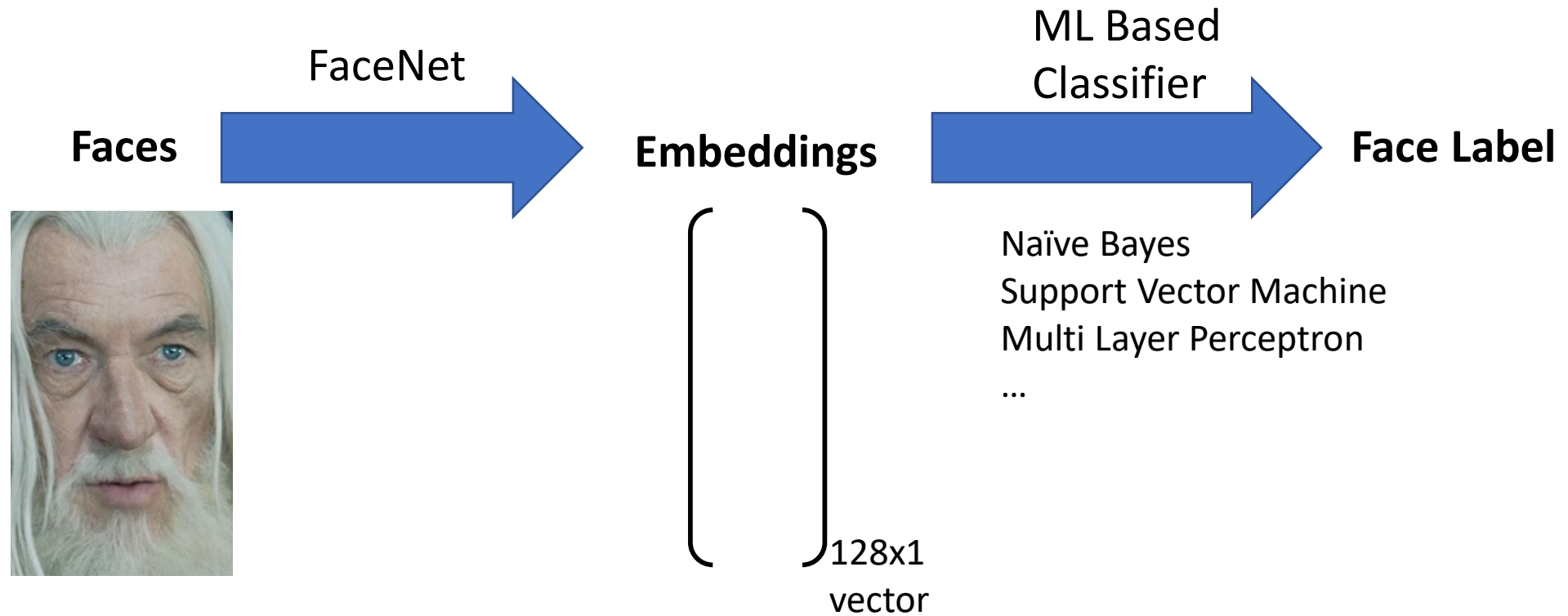
- Compare new face features with db

Deep learning based facial embedding extraction

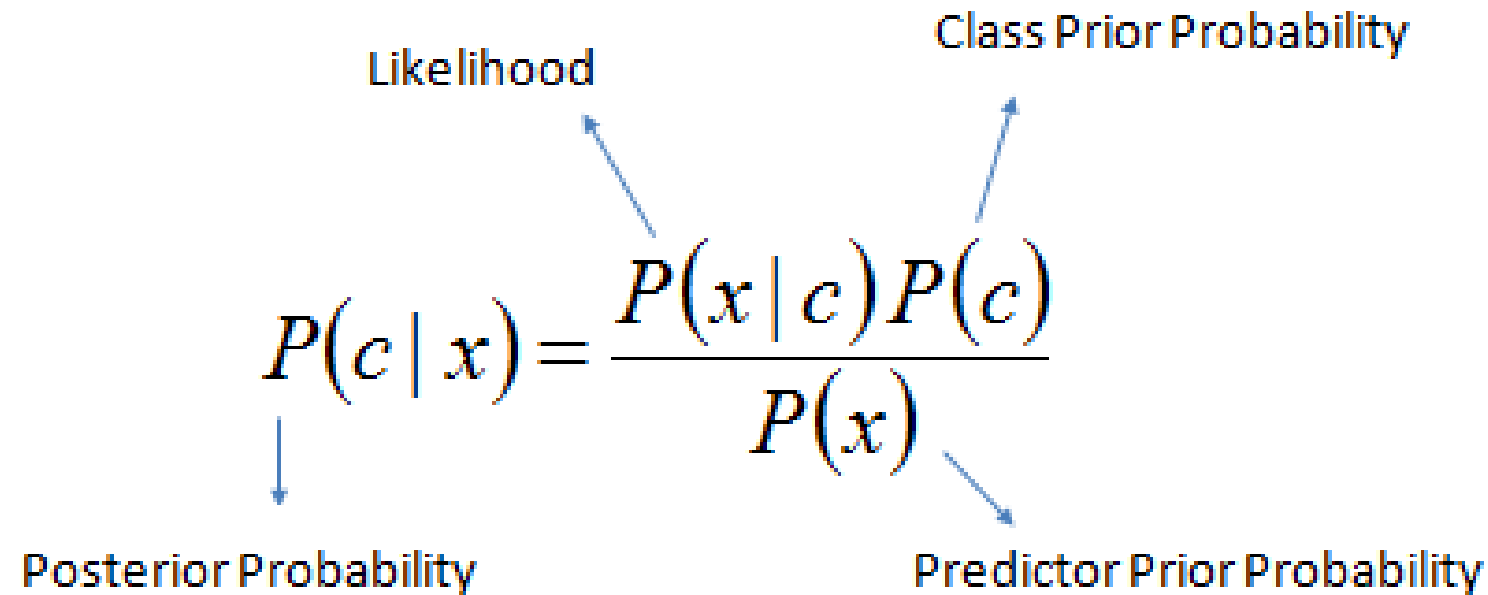
Paper url: https://www.cv-foundation.org/openaccess/content_cvpr_2015/app/1A_089.pdf



ML based face recognition



Naïve Bayes



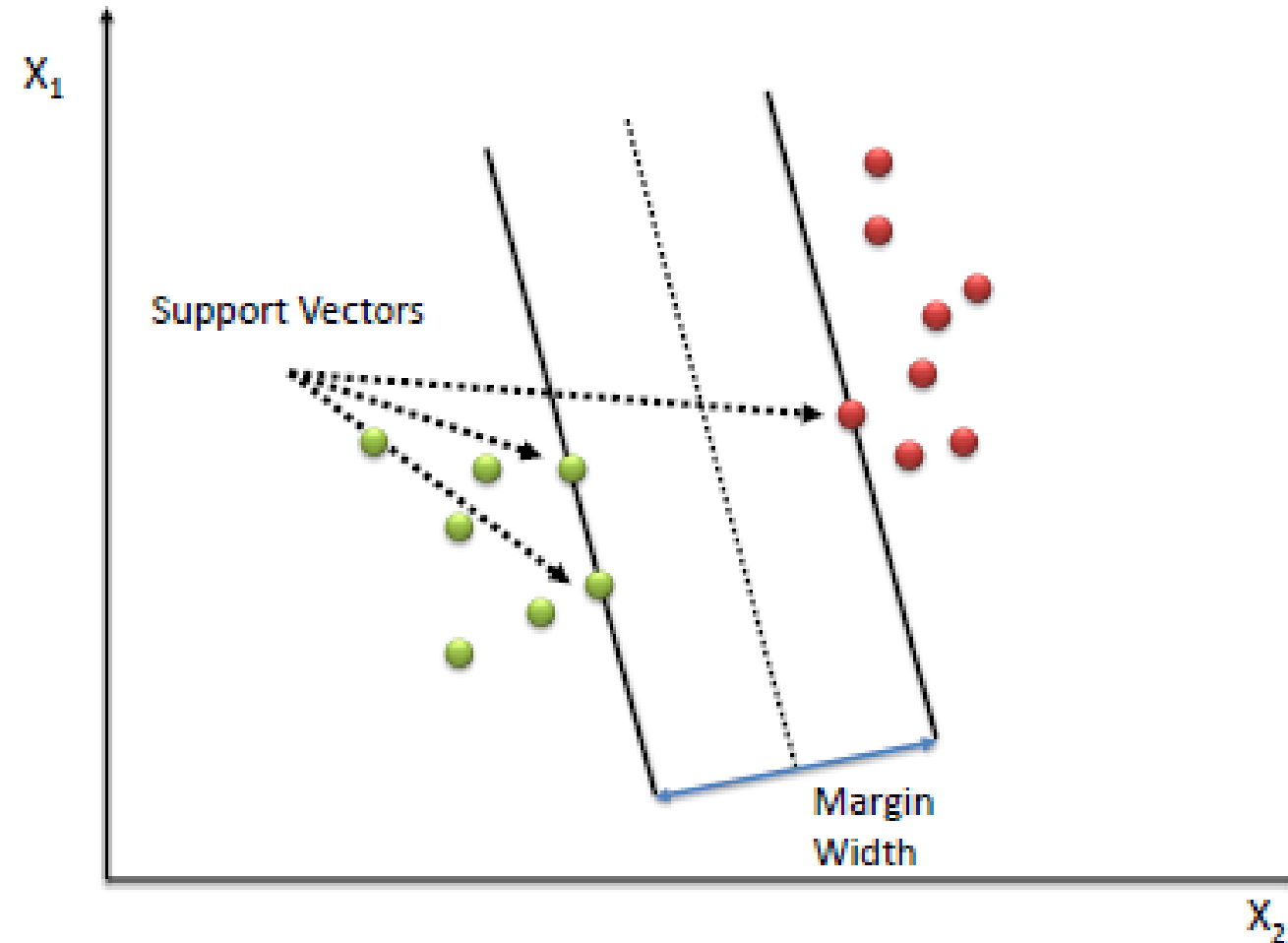
The diagram shows the Naïve Bayes formula with four labels and arrows pointing to its components:

- Likelihood**: Points to $P(x | c)$ in the numerator.
- Class Prior Probability**: Points to $P(c)$ in the numerator.
- Posterior Probability**: Points to $P(c | x)$ on the left side of the equation.
- Predictor Prior Probability**: Points to $P(x)$ in the denominator.

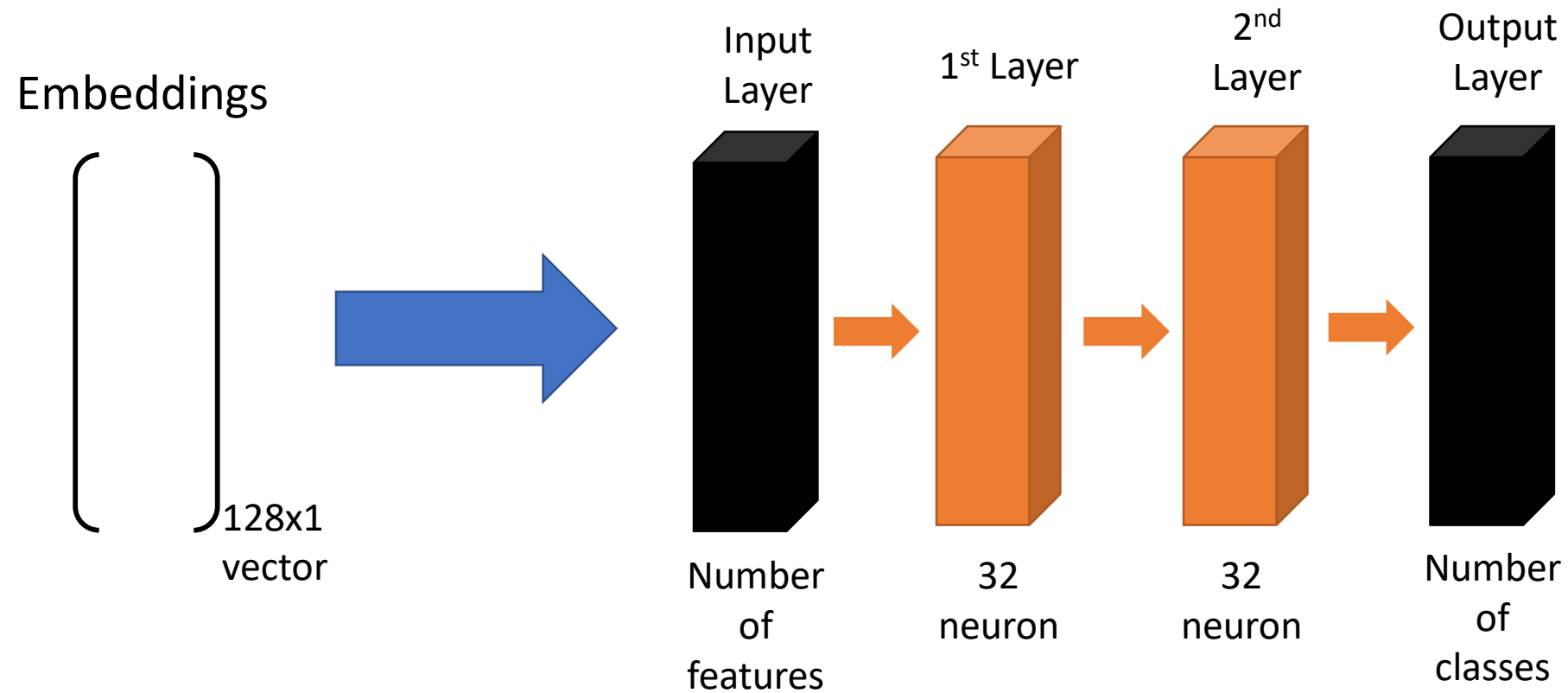
$$P(c | x) = \frac{P(x | c) P(c)}{P(x)}$$

$$P(c | X) = P(x_1 | c) \times P(x_2 | c) \times \cdots \times P(x_n | c) \times P(c)$$

Support Vector Machine



Multi Layer Perceptron



LOTR Dataset



Face detection/ Examples classes

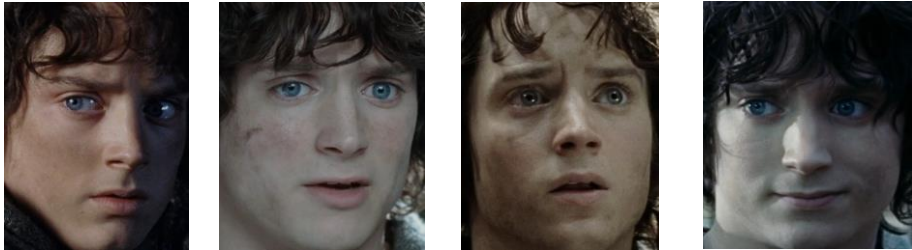
Aragorn



Gollum



Frodo



Legolas



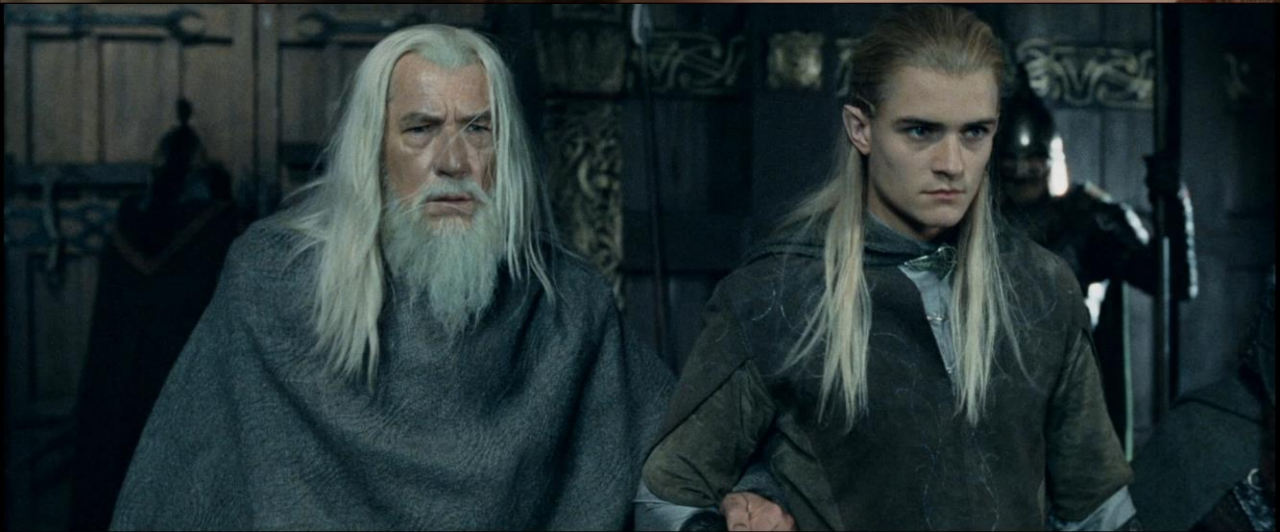
Gandalf



Saruman



Independent test set



Local project structure

