FACE DETECTOR

By: Kirill Demochkin
HAAR CASCADE CLASSIFIER VS. MTCNN
Open CV (HAAR FEATURES)

- Hand engineered
- Work best for frontal face detection
- Unable to work with edge or contour features
Test results for OpenCV

haarcascade_frontalface_alt2

- Fails to find profiles
- Troubles with partially occluded faces
- Many False Positives
MTCNN (Kaipeng Zhang et al.)

MULTI TASK CASCADING NEURAL NETWORK

Pros:
- Features are learned
- Very adaptive
- Does well with partial occlusion
- Does well with both profile and frontal face detection

Cons:
- Training Process is tedious
- More computationally expensive
- Need lots of data for effective training
FaceNet

https://github.com/davidsandberg/facenet

- Provides an implementation of MTCNN in python and TF
- Has an MTCNN model pretrained presumably on the WIDER FACE dataset
- Internally uses MTCNN to align faces for face recognition
Putting it all together

Test results

Profile faces  Partial occlusions  Angles
What’s next?


- Real time object detection
- Written in darknet
- Prioritizes speed over accuracy
- One shot learning
Thank you for your time!

BY: Kirill Demochkin