

Face Recognition in Historical Documents

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Problem

- Do images A and B represent the same person?
- Current solutions - suboptimal on historical images:
 - old photography, drawings, paintings, ...

Motivation

Goal

- Create dataset containing historical images
- Adapt an existing facial feature extraction model:
 - Get better results!

CASIA

- Contains multiple images of multiple identities
- Used for generation of historical images:
 - 1000 identities, 15 images per identity
- Generated images - Training Set



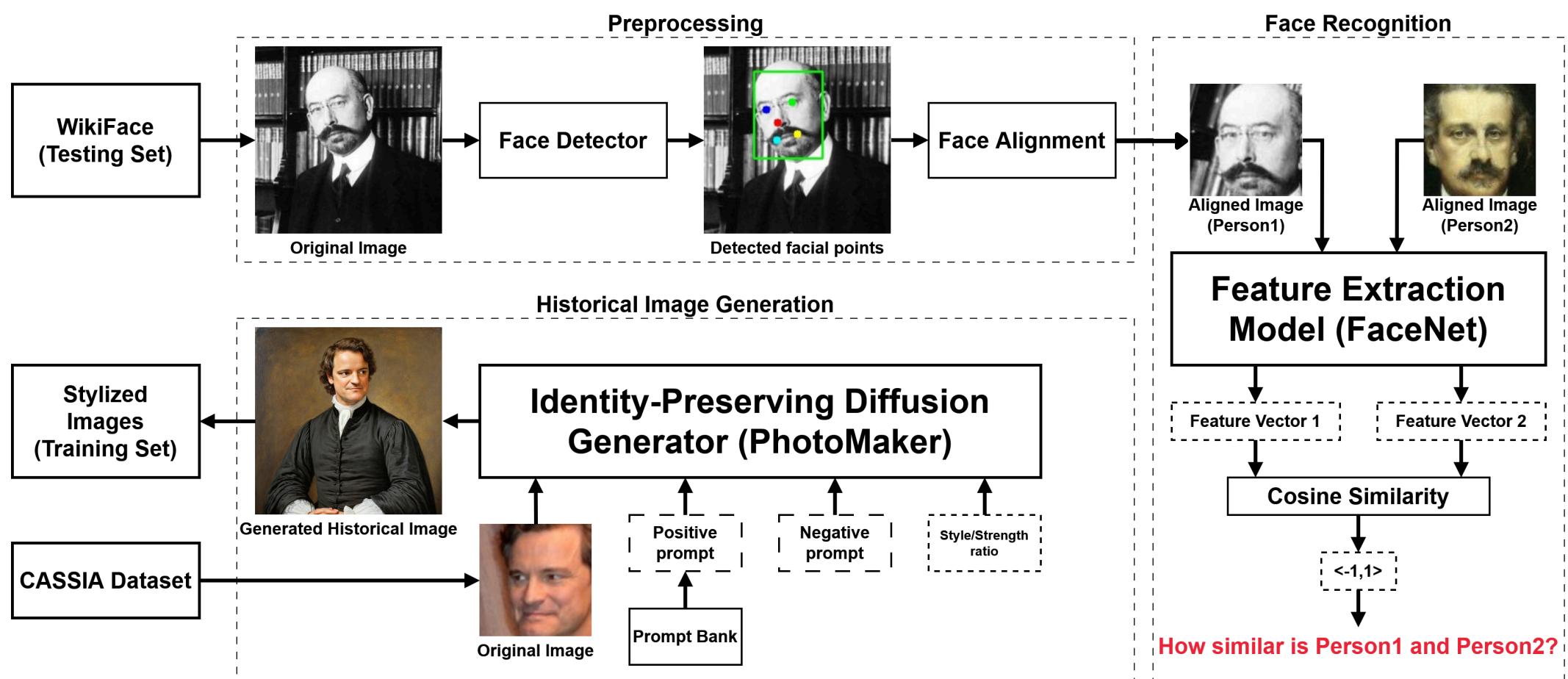
Datasets

WikiFace

- Contains real historical images
- Dataset possesses several challenges
- Historical images - Testing Set



Solution



Results

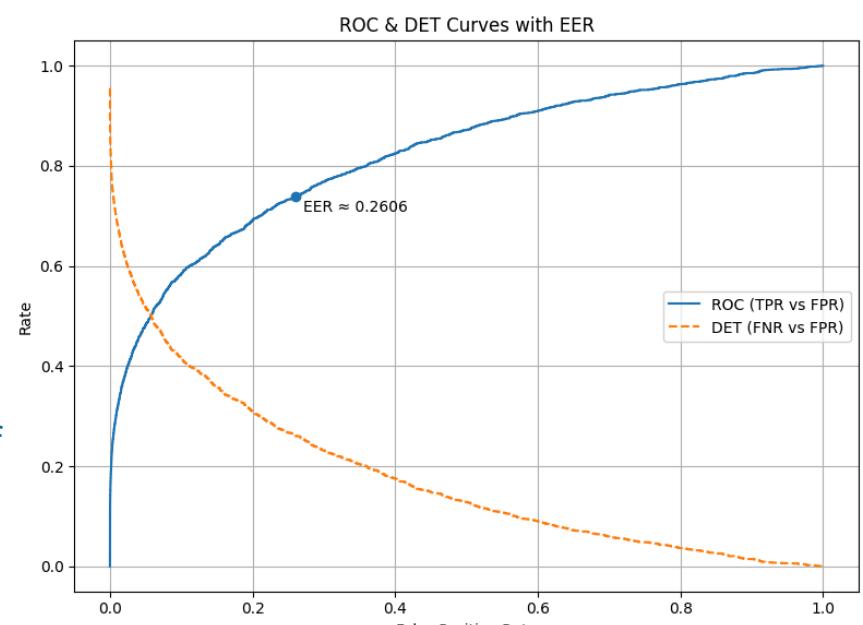
Image Generation

- Different prompts used to generate authentic results:



Face Recognition

- Fine-tuning:
 - Triplet Loss + ADAM
 - Didn't achieve better results than the baseline solution
- Possible factors:
 - Suboptimal hyperparameters
 - Insufficient number/quality of training samples
 - Training not sophisticated enough (mining strategy)



Model	AUC	EER	TAR@FMR=0.1	TAR@FMR=0.01	TAR@FMR=0.001	TAR@FMR=0.0001
Baseline FaceNet	0.8717	0.2110	0.6808	0.4055	0.2266	0.1350
Finetuned model	0.8216	0.2606	0.5845	0.3140	0.1753	0.1120