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UNIVERSITY OF APPLIED SCIENCES
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FACHBEREICH INFORMATIK

ATHENE
National Research Center
for Applied Cybersecurity

– Master-/Bachelor Thesis –

Survey face parsing algorithms for Biometric Explainability

da/sec

da/sec is the biometrics and Internet security research group and is affiliated with University of Applied Sciences Darmstadt and the National Research Center for Applied Cybersecurity (ATHENE). The group is led by Prof. Dr. Christoph Busch. The focus of the group is on highly innovative and applied IT security research in the special fields of biometrics. Read more on www.dasec.h-da.de.

Motivation & Goal

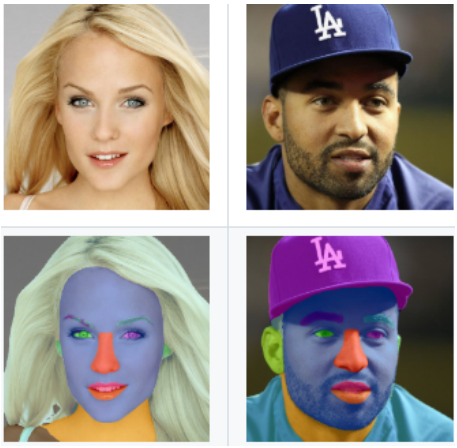
As the use of biometrics broaden from criminal justice to border control, the decision made by biometric algorithms affect our daily lives more and more. As it is stated by law, users have the right of reply against algorithms in cases where a decision is perceived as unfair or misaligned with the values of the institutions involved. For this reason, explaining the algorithms' decisions to users is required. However, as many algorithms behave as **"black boxes"** these explanations are not easy to obtain. Hence, we need to develop good quality visualizations of biometric pictures. Face parsing is the process of segmenting the face in it's semantic parts (nose, eyes, mouth, eyebrows, etc.) useful for pre- and post- processing of facial biometric images.

Tasks

- Get familiarized with state-of-the-art parsing algorithms (ResNet101, BiSeNet, Interpretable-parts).
- Evaluate the quality of these algorithms against OFIQ in different datasets.
- Report and analyze the results.

Requirements

- High motivation and creativity.
- Programming experience.
- Good communication skills.
- Interest in computer vision.



By Date

By now / by appointment

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