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National Research Center
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– Master-/Bachelor Thesis –

Face Image Quality Assessment Training based on EDC Oracles

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

The performance of image-based face recognition systems depends on the quality of the face images, and FIQA (Face Image Quality Assessment) models can be used to automatically compute quality scores in this context. It is possible to train models to predict quality scores for training images with known "ground truth" quality scores. How well such models can be trained depends on how the ground truth was established in the first place.

To evaluate FIQA models, an often used method is the EDC (Error Discard Characteristic). This method examines how a face recognition error rate changes when images are progressively discarded based on their associated quality score. But it is also possible to approximate optimal EDC curves by means of an "oracle", which is an algorithm that is allowed to use all available data during the EDC computation to decide the image discard order.

The question is, conversely, how well could an oracle's image order be repurposed as ground truth quality score data for FIQA model training?

Tasks

- Derive ground truth quality scores from an EDC oracle.
- Train a model similar to FaceQnet directly with the ground truth.
- Modify the MagFace concept to train a model with the ground truth.
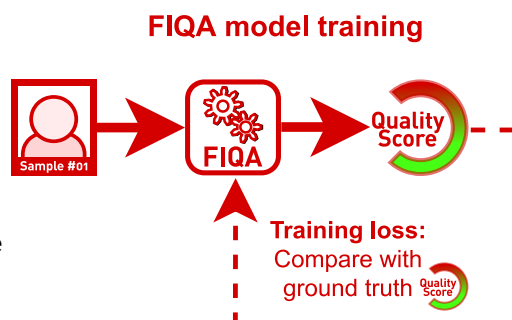- Evaluate the newly trained models against existing models.

By Date

By now / by appointment

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FIQA model training

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