

Master/ Bachelor Thesis

Automatic pair selection images for face morphing using Mutual Information

da/sec

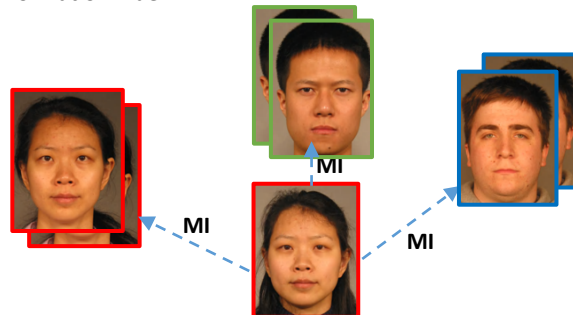


da/sec is the biometrics and internet security research group and is affiliated with University of Applied Sciences Darmstadt and the National Research Center for Applied Cybersecurity (ATHENE). The group is led by Prof. Dr. Harald Baier and Prof. Dr. Christoph Busch. The focus of the group is on highly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

Motivation & Goals

Image morphing techniques can be used to combine two or more images into one new image. This approach can also create a morphed facial image from the biometric face photo (passport) of two individuals that look alike. However, the creation of Morph images is not trivial. It requires search manually two images of similar individuals for instances of the same sex or ethnicity to create high-quality morph images. Based on information theory and mutual information, we can measure the relevance and the redundancy of the images to create automatics matches among many images to get high-quality morph images.

MI = Mutual Information Index



Tasks

- Design and develop a model to assess the mutual information score (index) in an image pair-based assessment of facial images.
- Design and implementation of automatically list of candidates of morph images
- Evaluation and benchmark of the implemented systems.

Requirements

- High motivation, Interest in security technologies and biometrics
- Strong interest in research
- Good programming skills (Python) are of advantage.

Start / Period

Immediately / by appointment

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