



TECHNOLOGY

Discriminative Facial Verification Software

OVERVIEW

In recent years, the performance of face verification systems has significantly improved using deep convolutional neural networks (DCNNs). A typical pipeline for face verification includes training a deep network for subject classification with softmax loss, using the penultimate layer output as the feature descriptor, and generating a cosine similarity score given a pair of face images. The softmax loss function does not optimize the features to have higher similarity score for positive pairs and lower similarity score for negative pairs, which leads to a performance gap.

Researchers at the University of Maryland have created a softmax loss facial recognition method that adds L2-constraint to feature descriptors. This restricts the descriptors to lay on a hypersphere of a fixed radius, which significantly boosts the performance of face verification. Additionally, the method provides similar attention to both good and bad quality faces since all features would now have the same L2-norm.

APPLICATIONS

- Facial verification
- Inward-facing cameras in cars

ADVANTAGES

- Enables a significant boost in performance
- Can be implemented using existing deep learning frameworks

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Additional Information

INSTITUTION

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PATENT STATUS

Pending

CATEGORIES

- Software + Algorithm

EXTERNAL RESOURCES

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