Multi-Attribute Regression Network for Face Reconstruction
Xiangzheng Li, Suping Wu*
School of Information Engineering, Ningxia University, Yinchuan, 750021, China

The traditional 3DMM parametric regression method is absent from the learning of identity, expression, and attitude attributes, resulting in lacking geometric details in the reconstructed face.

The face reconstruction of a single unconstrained image is still challenging, especially in those cases when faces undergo large variations including severe poses, extreme expressions and partial occlusions in unconstrained environments.

We propose to learn a face multi-attribute features during 3D face reconstruction from single 2D images. Our MARN enables the network to better extract the feature information of face identity, expression, and pose attributes.

The multi-attribute regression method to fully capture feature information of pose, expression, and identity attribute to improve the networks ability to learn each attribute.

We design a geometric contour constraint loss function, which uses the constraints of sparse face landmarks to improve the reconstructed geometric contour accuracy.

The NME(%) of Face Alignment Results on AFLW and AFLW2000-3D

The NME(%) of Face Reconstruction Results on AFLW2000-3D

Comparison on Face Alignment

Comparison on 3D face Reconstruction

Visualizing the results of our method on AFLW2000-3D. Our MARN method is significantly superior to 3DDFA, and DAMDNet in the 3D face alignment, especially in the case of large poses, occlusions, and extreme expressions.