ABSTRACT

3D face reconstruction technology cannot be separated from the development of face alignment. One of the methods applied in making face alignment technology is the Position Map Regression Network (PRNet). In testing with the AFLW2000-3D test dataset, the PRNet method is the best method for 3D face reconstruction technology, but the performance of face alignment in this method is not comparable to some of the new methods.

In this final project, modifications to the architecture configuration and parameters of PRNet are made. PRNet works by relying on a 2D image representation in the UV coordinate space called a UV position map which records the 3D shape of a face, so that geometric information of a face is obtained from only one image. The output of the system is the alignment of facial points on 68 facial landmarks and 45k thousand facial points.

The scheme used in the testing process is the padding scheme, modification, grouping based on poses, and grouping based on yaw angle. The best configuration in NME 2D is obtained in the Modified configuration with the best value at 68 landmarks and 45 thousand points - 3.63% and 3.4%, respectively. On the other hand, the best performance on NME 3D is obtained in the original PRNet configuration with the best scores at 68 landmarks and 45 thousand points of 5.08% and 4.65%, respectively.

Keywords: PRNet, 3D face reconstruction, face alignment, UV position map.