Abstract: Face Super-Resolution via Shape Classification and Subspace Learning

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Abstract

In learning-based super-resolution algorithm, it is very important to select the train dataset for getting more accurate priori. A novel Face shape classification algorithm based on Hausdorff Distance is proposed in this paper. The most similar faces are selected to build up the train dataset due to the face shape similarity. Firstly, Active Shape Model is used to get the face shape vectors which contain some information about face contour. Then Iterative Self organizing Data Analysis Techniques Algorithm (ISODATA) classifies all faces from Chinese face dataset into certain categories based on Hausdorff Distance. And subspace learning-based eigenface are used to achieve satisfied image quality with the selected train dataset. Experiments show that the face super-resolution algorithm based on shape classification can improve the subjective and objective quality of the input low-resolution face images and can outperform many state-of-the- art global-based face super-resolution methods.

Acknowledgements

This paper was supported by the major national science and technology special projects （2010ZX03004-003-03, the National Natural Science Foundation of China (61172173, 60832002,61070080,60970160, 61003184), the Natural Science Foundation of Hubei Province of China (2009CDA134, 2010CDB05103), the Fundamental Research Funds for the Central Universities (201121102020009，3101011), the Hubei Province Key Laboratory of Intelligent Robot（HBRI 200907）, the youths science foundation of Wuhan institute of technology.