

Cost-efficient 3D Face Reconstruction from a Single 2D Image

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Abstract— We propose a 3D face modelling method from a single 2D face image using a gallery of 2D face images and their corresponding 3D face models. Unlike existing methods that requires human's effort, we provide a simple way to reconstruct 3D face model without user interaction. Our main approach is based on the idea that a particular coefficient which linearly combines vectors of 2D face images and outputs a vector that approximates input image vector in terms of vector norm, can be reused in 3D Models. Therefore, in our algorithm, a pair of 2D image and its 3D model play an important role. Fortunately, by the virtue of software, FaceGen, it allows us to avoid the procedure that collects 3D model in a heavy and expensive way as done in previous works. As a result, we could easily establish our 2D and 3D database. In this paper, we present a way how to adopt those coefficients onto 3D model and demonstrate the results of our algorithm.

(Pt9)Keyword— facial modelling, 3D reconstruction, face image, least squares



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