

Accepted Manuscript

Robust Cross-Pose Face Recognition using Landmark Oriented Depth Warping

Gee-Sern (Jison) Hsu, ArulMurugan Ambikapathi, Sheng-Luen Chung, Hung-Cheng Shie

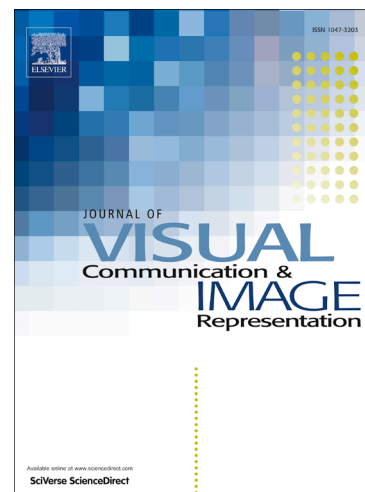
PII: S1047-3203(18)30069-5
DOI: <https://doi.org/10.1016/j.jvcir.2018.03.013>
Reference: YJVCI 2160

To appear in: *J. Vis. Commun. Image R.*

Received Date: 14 December 2016
Revised Date: 17 January 2018
Accepted Date: 17 March 2018

Please cite this article as: G-S. (Jison) Hsu, A. Ambikapathi, S-L. Chung, H-C. Shie, Robust Cross-Pose Face Recognition using Landmark Oriented Depth Warping, *J. Vis. Commun. Image R.* (2018), doi: <https://doi.org/10.1016/j.jvcir.2018.03.013>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Robust Cross-Pose Face Recognition using Landmark Oriented Depth Warping

Gee-Sern(Jison) Hsu

Corresponding Author: Artificial Vision Laboratory, Dept. of Mechanical Engineering, National Taiwan University of Science and Technology, Taipei City, Taiwan 106. E-mail: jison@mail.ntust.edu.tw, Tel: +886-2-2730-3234.

ArulMurugan Ambikapathi

Utechzone Co. Ltd., New Taipei City, Taiwan 23552. E-mail: aareul@ieee.org, Tel: +886-2-8226-2088X262, Fax: +886-2-82269822.

Sheng-Luen Chung

Dept. of Electrical Engineering, National Taiwan University of Science and Technology, Taipei City, Taiwan 106. E-mail: slchung@mail.ntust.edu.tw.

Hung-Cheng Shie

Dept. of Mechanical Engineering, National Taiwan University of Science and Technology, Taipei City, Taiwan 106. E-mail: m10403417@mail.ntust.edu.tw.

Abstract

A novel approach exploiting facial landmarks and depth warping is proposed for robust cross-pose face recognition. Unlike the existing 3-D reconstruction based cross-pose recognition algorithms, the proposed algorithm utilizes the automatically identified extensive facial landmarks to replace the computationally expensive 3-D reconstruction procedure, by depth warping. The given face is thereby registered to the most similar 3-D reference model. When matching to a probe face image, the registered depth-warped faces in the gallery are rotated to align to the orientation of the probe image, and sparse regression is then used to identify the correct person. Further, to handle the more challenging cases with eyeglasses, we devise and employ an enhanced Regressive Tree Structured Model (RTSM) combined with inpainting procedure, prior to depth warping. The proposed robust cross-pose recognition (RCPR) algorithm is rigorously validated on PIE and Multi-PIE databases, and compared with

Download English Version:

<https://daneshyari.com/en/article/6938251>

Download Persian Version:

<https://daneshyari.com/article/6938251>

[Daneshyari.com](https://daneshyari.com)