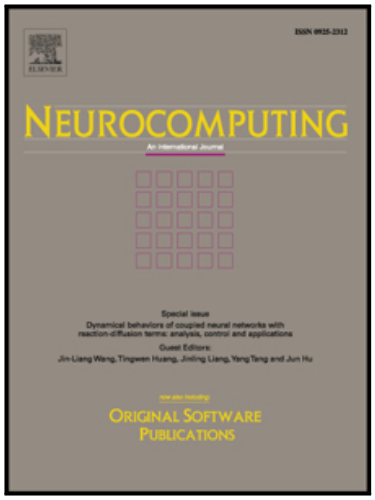
Communicated by Prof. Liu Guangcan

Accepted Manuscript



Face Recognition based on Recurrent Regression Neural Network

Yang Li, Wenming Zheng, Zhen Cui, Tong Zhang

PII: S0925-2312(18)30172-3
DOI: 10.1016/j.neucom.2018.02.037
Reference: NEUCOM 19327

To appear in: *Neurocomputing*

Received date: 6 July 2017
Revised date: 14 October 2017
Accepted date: 6 February 2018

Please cite this article as: Yang Li, Wenming Zheng, Zhen Cui, Tong Zhang, Face Recognition based on Recurrent Regression Neural Network, *Neurocomputing* (2018), doi: 10.1016/j.neucom.2018.02.037

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.

ACCEPTED MANUSCRIPT

Face Recognition based on Recurrent Regression Neural Network

Yang Li[a,b], Wenming Zheng[a,*], Zhen Cui[c,*], Tong Zhang[a,b]

[a] *Key Laboratory of Child Development and Learning Science of Ministry of Education, Research Center for Learning Science, Southeast University, Nanjing, Jiangsu 210096, China*

[b] *Department of Information Science and Engineering, Southeast University, Nanjing, Jiangsu 210096, China*

[c] *School of Computer Science and Engineering, Nanjing University of Science and Technology, Nanjing, Jiangsu, 210096, China*

Abstract

To address the sequential changes of images including poses, in this paper we propose a recurrent regression neural network (RRNN) framework to unify two classic tasks of cross-pose face recognition on still images and videos. To imitate the changes of images, we explicitly construct the potential dependencies of sequential images so as to regularizing the final learning model. By performing progressive transforms for sequentially adjacent images, RRNN can adaptively memorize and forget the information that benefits for the final classification. For face recognition of still images, given any one image with any one pose, we recurrently predict the images with its sequential poses to expect to capture some useful information of other poses. For video-based face recognition, the recurrent regression takes one entire sequence rather than one image as its input. We verify RRNN in still face image dataset MultiPIE and face video dataset YouTube Celebrities (YTC). The comprehensive experimental results demonstrate the effectiveness of the proposed RRNN method.

Keywords: Recurrent regression neural network (RRNN), face recognition, deep learning

*Corresponding author

Email addresses: wenming_zheng@seu.edu.cn (Wenming Zheng), zhen.cui@njust.edu.cn (Zhen Cui)

ACCEPTED MANUSCRIPT

Download English Version:

https://daneshyari.com/en/article/6863941

Download Persian Version:

https://daneshyari.com/article/6863941

Daneshyari.com