

Author's Accepted Manuscript

Discriminative Multi-Scale Sparse Coding for Single-Sample Face Recognition with Occlusion

Yu-Feng Yu, Dao-Qing Dai, Chuan-Xian Ren, Ke-Kun Huang



PII: S0031-3203(17)30022-5
DOI: <http://dx.doi.org/10.1016/j.patcog.2017.01.021>
Reference: PR6023

To appear in: *Pattern Recognition*

Received date: 21 October 2016
Revised date: 13 January 2017
Accepted date: 13 January 2017

Cite this article as: Yu-Feng Yu, Dao-Qing Dai, Chuan-Xian Ren and Ke-Kun Huang, Discriminative Multi-Scale Sparse Coding for Single-Sample Face Recognition with Occlusion, *Pattern Recognition*, <http://dx.doi.org/10.1016/j.patcog.2017.01.021>

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 galley proof before it is published in its final citable 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.

Discriminative Multi-Scale Sparse Coding for Single-Sample Face Recognition with Occlusion[☆]

Yu-Feng Yu^a, Dao-Qing Dai^{a,*}, Chuan-Xian Ren^a, Ke-Kun Huang^{b,a}

^a*Intelligent Data Center and Department of Mathematics, Sun Yat-Sen University, Guangzhou 510275, China.*

^b*School of Mathematics, JiaYing University, Meizhou, Guangdong, 514015, China.*

Abstract

The single sample per person (SSPP) face recognition is a major problem and it is also an important challenge for practical face recognition systems due to the lack of sample data information. To solve SSPP problem, some existing methods have been proposed to overcome the effect of variances to test samples in illumination, expression and pose. However, they are not robust when the test samples are with different kinds of occlusions. In this paper, we propose a discriminative multi-scale sparse coding (DMSC) model to address this problem. We model the possible occlusion variations via the learned dictionary from the subjects not of interest. Together with the single training sample per person, most of types of occlusion variations can be effectively tackled. In order to detect and disregard outlier pixels due to occlusion, we develop a multi-scale error measurements strategy, which produces sparse, robust and highly discriminative coding. Extensive

[☆]This work is supported in part by the National Natural Science Foundation of China under Grants 11631015, U1611265, 61403164 and 61572536, and in part by the Fundamental Research Funds for the Central Universities under Grant 161gzd16.

*Corresponding author

Email addresses: yuyufeng220@163.com (Yu-Feng Yu),
stsdq@mail.sysu.edu.cn (Dao-Qing Dai), rchuanx@mail.sysu.edu.cn
(Chuan-Xian Ren), kkcocoon@163.com (Ke-Kun Huang)

Download English Version:

<https://daneshyari.com/en/article/4969724>

Download Persian Version:

<https://daneshyari.com/article/4969724>

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