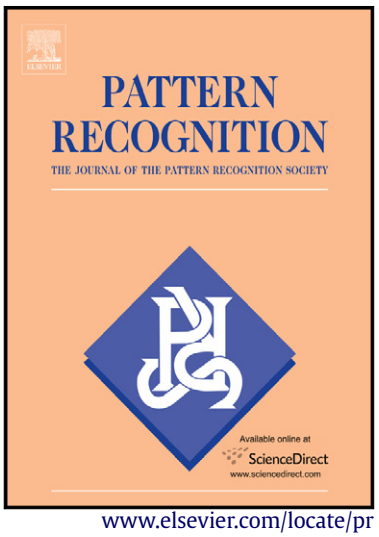
Author's Accepted Manuscript



www.elsevier.com/locate/pr

Multi-view Low-rank Dictionary Learning for Image Classification

Fei Wu, Xiao-Yuan Jing, Xin-Ge You, Dong Yue, Rui-Min Hu, Jing-Yu Yang

PII: S0031-3203(15)00300-3
DOI: http://dx.doi.org/10.1016/j.patcog.2015.08.012
Reference: PR5489

To appear in: *Pattern Recognition*

Received date: 17 October 2014
Revised date: 25 May 2015
Accepted date: 13 August 2015

Cite this article as: Fei Wu, Xiao-Yuan Jing, Xin-Ge You, Dong Yue, Rui-Min Hu, Jing-Yu Yang, Multi-view Low-rank Dictionary Learning for Image Classification, *Pattern Recognition,* http://dx.doi.org/10.1016/j.patcog.2015.08.012

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.

ACCEPTED MANUSCRIPT

Multi-view Low-rank Dictionary Learning for Image Classification

Fei Wu[a,b], Xiao-Yuan Jing[a,b,*], Xin-Ge You[c], Dong Yue[b], Rui-Min Hu[a], Jing-Yu Yang[d]

[a]*School of Computer, Wuhan University, Wuhan, China*
[b]*Institute of Advanced Technology, Nanjing University of Posts and Telecommunications, China*
[c]*School of Electronic Information and Communications, Huazhong University of Science and Technology, China*
[d]*College of Computer Science, Nanjing University of Science and Technology, China*
** The Corresponding Author, jingxy_2000@126.com*

Abstract

Recently, multi-view dictionary learning (DL) technique has received much attention. Although some multi-view DL methods have been presented, they suffer from the problem of performance degeneration when large noise exists in multiple views. In this paper, we propose a novel multi-view DL approach named multi-view low-rank DL (MLDL) for image classification. Specifically, inspired by the low-rank matrix recovery theory, we provide a multi-view dictionary low-rank regularization term to solve the noise problem. We further design a structural incoherence constraint for multi-view DL, such that redundancy among dictionaries of different views can be reduced. In addition, to enhance efficiency of the classification procedure, we design a classification scheme for MLDL, which is based on the idea of collaborative representation based classification. We apply MLDL for face recognition, object classification and digit classification tasks. Experimental results demonstrate the effectiveness and efficiency of the proposed approach.

Keywords: Multi-view dictionary learning, multi-view dictionary low-rank regularization, structural incoherence constraint, collaborative representation based classification.

Accepted manuscript

Download English Version:

https://daneshyari.com/en/article/6940074

Download Persian Version:

https://daneshyari.com/article/6940074

Daneshyari.com