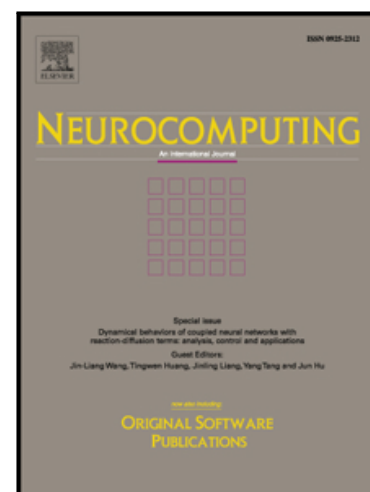


Accepted Manuscript

Pedestrian Recognition in Multi-Camera Networks Based on Deep Transfer Learning and Feature Visualization

Jing-Tao Wang, Guo-Li Yan, Hui-Yan Wang, Jing Hua

PII: S0925-2312(18)30898-1
DOI: <https://doi.org/10.1016/j.neucom.2018.07.063>
Reference: NEUCOM 19816



To appear in: *Neurocomputing*

Received date: 31 December 2017
Revised date: 25 June 2018
Accepted date: 16 July 2018

Please cite this article as: Jing-Tao Wang, Guo-Li Yan, Hui-Yan Wang, Jing Hua, Pedestrian Recognition in Multi-Camera Networks Based on Deep Transfer Learning and Feature Visualization, *Neurocomputing* (2018), doi: <https://doi.org/10.1016/j.neucom.2018.07.063>

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.

Pedestrian Recognition in Multi-Camera Networks Based on Deep Transfer Learning and Feature Visualization

Jing-Tao WANG^a, Guo-Li YAN^b, Hui-Yan WANG^b, Jing HUA^b

^a*School of Computer Science and Technology, Harbin Institute Of Technology*

^b*School of Computer and Information Engineering, Zhejiang Gongshang University,
Hangzhou, China*

Abstract

The extensive deployment of surveillance cameras in public places, such as subway stations and shopping malls, necessitates automated visual-data processing approaches to match pedestrians across non-overlapping multiple cameras. However, due to the insufficient number of labeled training samples in real surveillance scene, it is difficult to train an effective deep neural network for cross-camera pedestrian recognition. Moreover, the cross-camera variation in viewpoint, illumination, and background makes the task even more challenging. To address these issues, in this paper we propose to transfer the parameters of a pre-trained network to our target network and then update the parameters adaptively using training samples from the target domain. More importantly, we develop new network structures that are specially tailored for cross-camera pedestrian recognition task, and implement a simple yet effective multi-level feature fusion method that yield more discriminative and robust features for pedestrian recognition. Specifically, rather than conventionally perform classification on the single-level feature of the last feature layer, we instead utilize multi-level feature by associating feature visualization with multi-level feature fusion. As another contribution, we have published our codes and extracted features to facilitate further research. Extensive experiments are conducted on

*Jing HUA

Email address: xwang@zjgsu.edu.cn (Jing HUA)

Download English Version:

<https://daneshyari.com/en/article/8965172>

Download Persian Version:

<https://daneshyari.com/article/8965172>

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