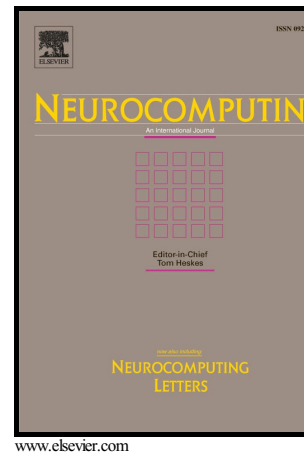


Author's Accepted Manuscript

Automatic Feature Extraction Based Structure Decomposition Method for Multi-classification

Liping Xie, Haikun Wei, Junsheng Zhao, Kanjian Zhang



PII: S0925-2312(15)01178-9
DOI: <http://dx.doi.org/10.1016/j.neucom.2015.08.025>
Reference: NEUCOM15954

To appear in: *Neurocomputing*

Received date: 5 August 2014
Revised date: 18 July 2015
Accepted date: 10 August 2015

Cite this article as: Liping Xie, Haikun Wei, Junsheng Zhao and Kanjian Zhang Automatic Feature Extraction Based Structure Decomposition Method for Multi-classification, *Neurocomputing*, <http://dx.doi.org/10.1016/j.neucom.2015.08.025>

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.

Automatic Feature Extraction Based Structure Decomposition Method for Multi-classification

Liping Xie^{1,2}, Haikun Wei^{1,2}, Junsheng Zhao³, Kanjian Zhang^{1,2}

¹School of Automation, Southeast University, Nanjing 210096, China.

²Key Laboratory of Measurement and Control of CSE, Ministry of Education, School of Automation , Southeast University, Nanjing 210096, China.

³School of Mathematical Science, Liaocheng University, Liaocheng 252059, China.

Abstract

For years, researchers in neural network (NN) area have been carried out much productive research in improving the generalization ability of NNs. In this paper, a novel neural network design algorithm is presented for solving multi-class problems, structure decomposition based on Skeletonization (SDBSkele-tonization), which is to simplify NNs further. The proposed method decomposes a complex multi-class problem into a set of two-class problems, each of which can be regarded as an individual problem. After learning all these individual problems in parallel with Skeletonization algorithm, we then integrate these results to final decision. In addition, Skeletonization solves the classification problem based on automatic feature extraction. This perspective gives a broader range of application of our method. Our experimental results on Waveform and Handwritten Digits database demonstrate that SDBSkele-tonization improves the overall classification performance.

Download English Version:

<https://daneshyari.com/en/article/10326414>

Download Persian Version:

<https://daneshyari.com/article/10326414>

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