



Cognitive Internet of Things: Frameworks, Tools and Applications

Lu, Huimin (Ed.)

ISSN 1860-949X

ISSN 1860-9503 (electronic)

Studies in Computational Intelligence

ISBN 978-3-030-04945-4

ISBN 978-3-030-04946-1 (eBook)

<https://doi.org/10.1007/978-3-030-04946-1>

Library of Congress Control Number: 2018962755

© Springer Nature Switzerland AG 2020

This work is subject to copyright. All rights are reserved by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, express or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Springer imprint is published by the registered company Springer Nature Switzerland AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Contents

A Deep Architecture for Chinese Semantic Matching with Pairwise Comparisons and Attention-Pooling	225
Huiyuan Lai, Yizheng Tao, Chunliu Wang, Lunfan Xu, Dingyong Tang and Gongliang Li	
Robust Multi-user Detection Based on Hybrid Grey Wolf Optimization	237
Yuanfa Ji, Zhuo Fan, Xiyan Sun, Shouhua Wang, Suqing Yan, Sunyong Wu, Qiang Fu and Kamarul Hawari Ghazali	
Correlation Filter Tracking Algorithm Based on Multiple Features and Average Peak Correlation Energy	251
Xiyan Sun, Kaidi Zhang, Yuanfa Ji, Shouhua Wang, Suqing Yan and Sunyong Wu	
Analysis of Urban Bicycles' Trip Behavior and Efficiency Optimization	261
Haoyu Wen, Sheng Zhou, Zie Wang, Feier Qiu and Han Yu	
Pedestrian Detection in Unmanned Aerial Vehicle Scene	273
Qianqian Guo, Yihao Li and Dong Wang	
Two-Sided Sparse Learning with Augmented Lagrangian Method	279
Xiaohua Xu, Baichuan Fan, Ping He, Yali Liang, Yuan Lou, Zhijun Zhang and Xincheng Chang	
Medical Diagnosis Based on Nonlinear Manifold Discriminative Projection	285
Ping He, Xincheng Chang, Xiaohua Xu, Zhijun Zhang, Tianyu Jing, Yuan Lou and Lei Zhang	
Improved Image Enhancement Method Based on Retinex Algorithm	291
Tingting Zhang, Weiduo Zhu, Yujie Li, Yun Li and Bin Li	
Fast Dynamic Routing Based on Weighted Kernel Density Estimation	301
Suofei Zhang, Quan Zhou and Xiaofu Wu	

Robust Multi-user Detection Based on Hybrid Grey Wolf Optimization

Yuanfa Ji ¹, Zhuo Fan ¹, Xiyan Sun ¹, Shouhua Wang ¹, Suqing Yan ¹, Sunyong Wu ¹,
Qiang Fu ¹ and Kamarul Hawari Ghazali ²

1. Guangxi Key Laboratory of Precision Navigation Technology and Application, Guilin University of Electronic Technology, Guilin 541004, China
e-mail: sunxiyan1@163.com
2. University Malaysia Pahang, Gambang, Malaysia

Abstract:

The search for an effective nature-inspired optimization technique has certainly continued for decades. In this paper, a novel hybrid Grey wolf optimization and differential evolution algorithm robust multi-user detection algorithm is proposed to overcome the problem of high bit error rate (BER) in multi-user detection under impulse noise environment. The simulation results show that the iteration times of the multi-user detector based on the proposed algorithm is less than that of genetic algorithm, differential evolution algorithm and Grey wolf optimization algorithm, and has the lower BER.

Keyword: Grey wolf optimization algorithm; Differential evolution algorithm
Hybrid optimization; Multi-user detection; Impulse noise