

Communications in Computer and Information Science

874

Commenced Publication in 2007

Founding and Former Series Editors:

Phoebe Chen, Alfredo Cuzzocrea, Xiaoyong Du, Orhun Kara, Ting Liu,
Dominik Ślęzak, and Xiaokang Yang

Editorial Board

Simone Diniz Junqueira Barbosa

*Pontifical Catholic University of Rio de Janeiro (PUC-Rio),
Rio de Janeiro, Brazil*

Joaquim Filipe

Polytechnic Institute of Setúbal, Setúbal, Portugal

Igor Kotenko

*St. Petersburg Institute for Informatics and Automation of the Russian
Academy of Sciences, St. Petersburg, Russia*

Krishna M. Sivalingam

Indian Institute of Technology Madras, Chennai, India

Takashi Washio

Osaka University, Osaka, Japan

Junsong Yuan

University at Buffalo, The State University of New York, Buffalo, USA

Lizhu Zhou

Tsinghua University, Beijing, China

More information about this series at <http://www.springer.com/series/7899>

Kangshun Li · Wei Li
Zhangxing Chen · Yong Liu (Eds.)

Computational Intelligence and Intelligent Systems

9th International Symposium, ISICA 2017
Guangzhou, China, November 18–19, 2017
Revised Selected Papers, Part II

Editors

Kangshun Li
College of Mathematics and Informatics
South China Agricultural University
Guangzhou
China

Wei Li
Jiangxi University of Science
and Technology
Ganzhou, Jiangxi
China

Zhangxing Chen
Chemical and Petroleum Engineering
University of Calgary
Calgary, AB
Canada

Yong Liu
School of Computer Science
and Engineering
The University of Aizu
Aizu-Wakamatsu, Fukushima
Japan

ISSN 1865-0929 ISSN 1865-0937 (electronic)
Communications in Computer and Information Science
ISBN 978-981-13-1650-0 ISBN 978-981-13-1651-7 (eBook)
<https://doi.org/10.1007/978-981-13-1651-7>

Library of Congress Control Number: 2018948807

© Springer Nature Singapore Pte Ltd. 2018

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 Singapore Pte Ltd.
The registered company address is: 152 Beach Road, #21-01/04 Gateway East, Singapore 189721, Singapore

Preface

Volumes CCIS 873 and CCIS 874 comprise proceedings of the 9th International Symposium on Intelligence Computation and Applications (ISICA 2017) held in Guangzhou, China, during November 18–19, 2017. ISICA 2017 successfully attracted over 180 submissions. After rigorous reviews and plagiarism checking, 51 high-quality papers are included in CCIS 873, while another 50 papers are collected in CCIS 874. ISICA conferences are one of the first series of international conferences on computational intelligence that combines elements of learning, adaptation, evolution, and fuzzy logic to create programs as alternative solutions to artificial intelligence.

ISICA 2017 featured the most up-to-date research in analysis and theory of evolutionary computation, neural network architectures and learning, neuro-dynamics and neuro-engineering, fuzzy logic and control, collective intelligence and hybrid systems, deep learning, knowledge discovery, learning, and reasoning. ISICA 2017 provided a venue to foster technical exchanges, renew everlasting friendships, and establish new connections. Prof. Yuanxiang Li, one of the pioneers in parallel and evolution computing at Wuhan University, wrote a beautiful poem in Chinese for the ISICA 2017 event. It is our pleasure to translate his poem with the title of “Computational Intelligence Debate on the Pearl River”:

Wear a smile on a bright face;
Under the night light on the Pearl River;
You are like star and moon shining on the Tower Small Slim Waist;
Ride waves on the cruise ship;
Leave bridges behind in a boundless moment.

You are from far away;
A journey of thousand miles;
Meet in the Guangzhou City;
Brighten up the field of intelligent evolution;
Explore the endless road to intelligence.

Prof. Li's poem points out one of ISICA's missions of pursuing the truth that a complex system inherits the simple mechanism of evolution, while simple models may lead to the evolution of complex morphologies. Following the success of the past eight ISICA events, ISICA 2017 continued to explore the new problems emerging in the fields of computational intelligence.

On behalf of the Organizing Committee, we would like to thank warmly the sponsors, South China Agricultural University, who helped in one way or another to achieve our goals for the conference. We wish to express our appreciation to Springer for publishing the proceedings of ISICA 2017. We also wish to acknowledge the

dedication and commitment of both the staff at the Springer Beijing Office and the CCIS editorial staff. We would like to thank the authors for submitting their work, as well as the Program Committee members and reviewers for their enthusiasm, time, and expertise. The invaluable help of active members from the Organizing Committee, including Wei Li, Hui Wang, Lei Yang, Yan Chen, Lixia Zhang, Weiguang Chen, Zhuozhi Liang, Junlin Jin, Ying Feng, and Yunru Lu, in setting up and maintaining the online submission systems by EasyChair, assigning the papers to the reviewers, and preparing the camera-ready version of the proceedings is highly appreciated. We would like to thank them personally for helping to make ISICA 2017 a success.

March 2018

Kangshun Li
Yong Liu
Wei Li
Zhangxing Chen

Organization

Honorary Chairs

Hisao Ishibuchi
Qingfu Zhang
Yang Xiang

Osaka Prefecture University, Japan
City University of Hong Kong, SAR China
Deakin University, Australia

General Chairs

Kangshun Li
Zhangxing Chen
Yong Liu

South China Agricultural University, China
University of Calgary, Canada
University of Aizu, Japan

Program Chairs

Aniello Castiglione
Jing Liu
Han Huang
Hailin Liu

University of Salerno, Italy
Xidian University, China
South China University of Technology, China
Guangdong University of Technology, China

Local Arrangements Chairs

Wei Li
Yan Chen

South China Agricultural University, China
South China Agricultural University, China

Publicity Chairs

Lei Yang
Lixia Zhang

South China Agricultural University, China
South China Agricultural University, China

Program Committee

Aimin Zhou
Allan Rocha
Dazhi Jiang
Dongbo Zhang

East China Normal University, China
University of Calgary, Canada
Shantou University, China
Guangdong University of Science and Technology,
China

Ehsan Aliabadian
Ehsan Amirian
Feng Wang
Guangming Lin
Guoliang He

University of Calgary, Canada
University of Calgary, Canada
Wuhan University, China
Southern University of Science and Technology, China
Wuhan University, China

Hailin Liu	Guangdong University of Technology, China
Hu Peng	Jiujiang University, China
Hui Wang	Nanchang Institute of Technology, China
Iyogun Christopher	University of Calgary, Canada
Jiahai Wang	Sun Yet-Sen University, China
Jing Wang	Jiangxi University of Finance and Economics, China
Jun He	Aberystwyth University, UK
Jun Zou	The Chinese University of Hong Kong, SAR China
Kangshun Li	South China Agricultural University, China
Ke Tang	Southern University of Science and Technology, China
Kejun Zhang	Zhejiang University, China
Lingling Wang	Wuhan University, China
Lixin Ding	Wuhan University, China
Lu Xiong	South China Agricultural University, China
Maoguo Gong	Xidian University, China
Mohammad Zeidani	University of Calgary, Canada
Rafael Almeida	University of Calgary, Canada
Sanyou Zeng	China University of Geosciences, China
Shenwen Wang	Shijiazhuang University of Economics, China
Wayne Li	University of Calgary, Canada
Wei Li	South China Agricultural University, China
Wensheng Zhang	Chinese Academy of Sciences, China
Xiangjing Lai	University of Angers, France
Xin Du	Fujian Normal University, China
Xinyu Zhou	Jiangxi Normal University, China
Xuesong Yan	China University of Geosciences, China
Xuewen Xia	East China Jiaotong University, China
Ying Huang	Gannan Normal University, China
Yong Liu	The University of Aizu, Japan
Zahra Sahaf	University of Calgary, Canada
Zhangxing Chen	University of Calgary, Canada
Zhun Fan	Shantou University, China

Contents – Part II

Swarm Intelligence – Cooperative Search

Differential Opposition-Based Particle Swarm	3
<i>Lanlan Kang, Wenyong Dong, Shanni Li, and Jianxin Li</i>	
Research on Hierarchical Cooperative Algorithm Based on Genetic Algorithm and Particle Swarm Optimization	16
<i>Linrun Qiu</i>	
An Adaptive Particle Swarm Optimization Using Hybrid Strategy	26
<i>Peng Shao, Zhijian Wu, Hu Peng, Yinglong Wang, and Guangquan Li</i>	
ITÖ Algorithm with Cooperative Coevolution for Large Scale Global Optimization	40
<i>Yufeng Wang, Wenyong Dong, and Xueshi Dong</i>	
A Conical Area Differential Evolution with Dual Populations for Constrained Optimization	52
<i>Bin Wu, Weiqin Ying, Yu Wu, Yuehong Xie, and Zhenyu Wang</i>	

Swarm Intelligence – Swarm Optimization

A Particle Swarm Clustering Algorithm Based on Tree Structure and Neighborhood.	67
<i>Lei Yang, Wensheng Zhang, Zhicheng Lai, and Ziyu Cheng</i>	
Optimization of UWB Antenna Based on Particle Swarm Optimization Algorithm	86
<i>Mingyuan Yu, Jing Liang, Boyang Qu, and Caitong Yue</i>	
A Divisive Multi-level Differential Evolution	98
<i>Huifang Zhang, Wei Huang, and Jinsong Wang</i>	

Complex Systems Modeling – System Dynamic

A Comparative Summary of the Latest Version of MapReduce Parallel and Old Version from the Perspective of Framework.	113
<i>Xinze Li and Qi Liu</i>	
A Third-Order Meminductor Chaos Circuit with Complicated Dynamics	125
<i>Zhiping Tan and Shanni Li</i>	

Mathematical Model of Cellular Automata in Urban Taxi
Network – Take GanZhou as an Example 133
Zhaosheng Wang and Shiyu Li

Hybrid Colliding Bodies Optimization for Solving Emergency Materials
Transshipment Model with Time Window 142
Xiaopeng Wu, Yongquan Zhou, and Qifang Luo

A Dual Internal Point Filter Algorithm Based on Orthogonal Design 152
Yijin Yang, Tianyu Huo, Bin Lan, and Sanyou Zeng

Complex Systems Modeling – Multimedia Simulation

A Beam Search Approach Based on Action Space for the 2D Rectangular
Packing Problem. 165
Aihua Yin, Lei Wang, Dongping Hu, Hao Rao, and Song Deng

On the Innovation of Multimedia Technology to the Management Model
of College Students 175
Yuanbing Wang

Convenient Top-k Location-Text Publish/Subscribe Scheme 183
Hong Zhu, Hongbo Li, Zongmin Cui, Zhongsheng Cao, and Meiyi Xie

Effects of Foliar Selenium Fertilizer on Agronomical Traits and Selenium,
Cadmium Contents of Different Rape Varieties. 192
Bin Du, HuoYun Chen, and DanYing Xing

Fresh-Water Fish Quality Traceability System Based on NFC Technology . . . 204
*Longqing Zhang, Lei Yang, Liping Bai, Yanghong Zhang,
and Kaiming You*

Intelligent Information Systems – Information Retrieval

An Information Filtering Model Based on Neural Network. 217
Rongrong Li

The Theory of Basic and Applied Research in Information Retrieval
Sorting Algorithm 228
Xinze Li, Jiying Yang, and Qi Liu

Summary of Research on Distribution Centers 238
Zeping Li and Huwei Liu

Factorization of Odd Integers as Lattice Search Procedure 251
Xingbo Wang

Research on Key Technology of Distributed Indexing and Retrieval System Based on Lucene	259
<i>Rongrong Li</i>	

Intelligent Information Systems – E-commerce Platforms

Research on the Integrated Development Model of e-Commerce Channel and Physical Retail Channel.	273
<i>Sisi Li</i>	
Study on Potency of Controlling on <i>Crematogaster Rogenhoferi</i> to <i>Parasaissetia Nigra</i> Nietner	280
<i>Lihe Zhang, Bin Du, Baoli Qiu, and Hui Wang</i>	
Research on the Management and Optimization of Warehouse Location in e-Commerce Enterprises	290
<i>Huwei Liu and Zeping Li</i>	
A New SOC Estimation Algorithm	303
<i>Weihua Zhong, Fahui Gu, and Wenxiang Wang</i>	
Analysis on Current Situation of E-Commerce Platform for the Development from C2M Model to C2B Model.	312
<i>Bo Yang</i>	
On the Artistic Characteristics of Computer Aided Design in Fashion Design	322
<i>Ping Wang</i>	

Artificial Intelligence and Robotics – Query Optimization

Rock-Paper-Scissors Game Based on Two-Domain DNA Strand Displacement	331
<i>Wendan Xie, Changjun Zhou, Xianwen Fang, Zhixiang Yin, and Qiang Zhang</i>	
A Business Resource Scheduled Algorithm of TD-LTE Trunking System Based on QoS	341
<i>Qiutong Li, Yuechen Yang, and Baocai Zhong</i>	
Assumption Queries Processing of Probabilistic Relational Databases	354
<i>Caicai Zhang, Zongmin Cui, and Hairong Yu</i>	
Design and Implementation of Self-balancing Robot Based on STM32	365
<i>Ling Peng and Chunhui Zhou</i>	

The Design and Implementation of a Route Skyline Query System Based on Weighted Voronoi Diagrams	376
<i>Jiping Zheng, Yiwei Ding, Shunqing Jiang, and Zhongling He</i>	

Improved RFID Anti-collision Algorithm Based on Quad-Tree	390
<i>Hui Guan, Zhaobin Liu, and Yan Zhang</i>	

Artificial Intelligence and Robotics – Intelligent Engineering

Discussion on the Important Role of Computer-Aided Intelligent Manufacturing in the Transition of Garment Industry to Softening Production	403
<i>Ping Wang</i>	

A Study of Miniaturized Wide-Band Antenna Design	413
<i>Rui Zhang, Jianqing Sun, Yongzhi Sun, Bin Lan, and Sanyou Zeng</i>	

Yagi-Uda Antenna Design Using Differential Evolution	427
<i>Hai Zhang, Hui Wang, and Cong Wang</i>	

Research on Coordination Fresh Product Supply Chain Under New Retailing Model	439
<i>Bo Yang and Dongbo Zhang</i>	

Virtualization – Motion-Based Tracking

Real-Time RGBD Object Tracking via Collaborative Appearance and Motion Models	449
<i>Danxian Chen, Zhanming Liu, Hefeng Wu, and Jin Zhan</i>	

Lip Password-Based Speaker Verification Without a Priori Knowledge of Speech Language	461
<i>Yiu-ming Cheung and Yichao Zhou</i>	

Human Motion Model Construction Based on Gene Expression Programming	473
<i>Wei He, Shaoyang Hu, Shanni Li, Junlin Jin, and Kangshun Li</i>	

Research of Crowded Abnormal Behavior Detection Technology Based on Trajectory Gradient	486
<i>Kangshun Li, Hongtao Huang, Zebiao Zheng, and Yusheng Lu</i>	

A Novel Monitor Image De-hazing for Heavy Haze on the Freeway	501
<i>Chunyu Xu, Yufeng Wang, and Wenyong Dong</i>	

Real-Time Tracking with Multi-center Kernel Correlation Filter	512
<i>Taoe Wu, Zhiqiang Zhao, Zongmin Cui, Anyuan Deng, and Xiao Yang</i>	

Virtualization – Image Recognition

The Reorganization of Handwritten Figures Based on Convolutional Neural Network	525
<i>Xingzhen Tao, Wenxiang Wang, and Lei Lu</i>	
Comparison of Machine Learning Algorithms for Handwritten Digit Recognition	532
<i>Shixiao Wu, Wanyun Wei, and Libing Zhang</i>	
A User Identification Algorithm for High-Speed Rail Network Based on Switching Link.	543
<i>Wenxiang Wang and Xingzhen Tao</i>	
A New Language Evolution Model for Chinese Spatial Preposition.	551
<i>Qi Rao and Youjie Zheng</i>	
Research on Location Technology Based on Mobile Reference Nodes.	561
<i>Xuefeng Yang, Lin Li, and Yue Liu</i>	
Author Index	571

Contents – Part I

Neural Networks and Statistical Learning – Neural Architecture Search

A New Recurrent Neural Network with Fewer Neurons for Quadratic Programming Problems	3
<i>Sanfeng Chen, Xin Han, Fei Tang, and Guangming Lin</i>	
Mutual-Information-SMOTE: A Cost-Free Learning Method for Imbalanced Data Classification	17
<i>Ying Chen, Yufei Chen, Xianhui Liu, and Weidong Zhao</i>	
Ontology Sparse Vector Learning Algorithm	31
<i>Xin Xin Huang and Shu Gong</i>	
Bacterial Foraging Algorithm Based on Reinforcement Learning for Continuous Optimizations	41
<i>Huiyan Jiang, Wanpeng Dong, Lianbo Ma, and Rui Wang</i>	
A Novel Attribute Reduction Approach Based on Improved Attribute Significance	53
<i>Jun Ye and Lei Wang</i>	

Neural Networks and Statistical Learning – Transfer of Knowledge

Traffic Condition Assessment Based on Support Vectors Machine Using Intelligent Transportation System Data	69
<i>Deng Lei and Weihua Zhong</i>	
Bidirectional Negative Correlation Learning	84
<i>Yong Liu</i>	
Reflectance Estimation Based on Locally Weighted Linear Regression Methods	93
<i>Dejun Lu, Weifeng Zhang, Kaixuan Cuan, and Pengfei Liu</i>	
A Multi-task Learning Approach for Mandarin-English Code-Switching Conversational Speech Recognition	102
<i>Xiao Song, Yi Liu, Daming Yang, and Yuexian Zou</i>	
Feature Selection of Network Flow Based on Machine Learning	112
<i>Taian Xu</i>	

Evolutionary Multi-objective and Dynamic Optimization

– Optimal Control and Design

Multi-objective Optimal Scheduling of Valves and Hydrants for Sudden Drinking Water Pollution Incident.	127
<i>Chengyu Hu, Lu Zou, Xuesong Yan, and Wenyin Gong</i>	
A Novel Mutation and Crossover Operator for Multi-objective Differential Evolution	138
<i>Qingxia Li and Wenhong Wei</i>	
Multi-objective Gene Expression Programming Based Automatic Clustering Method.	148
<i>Ruo Chen Liu, Jianxia Li, and Manman He</i>	
Multi-objective Firefly Algorithm Guided by Elite Particle	159
<i>Jiayuan Wang, Li Lv, Zhifeng Xie, Xi Zhang, Hui Wang, and Jia Zhao</i>	
Improving Energy Demand Estimation Using an Adaptive Firefly Algorithm	171
<i>Hui Wang, Zhangxin Chen, Wenjun Wang, Zhijian Wu, Kelu Wu, and Wei Li</i>	

Evolutionary Multi-objective and Dynamic Optimization

– Hybrid Methods

Firefly Algorithm with Elite Attraction	185
<i>Jing Wang</i>	
A Hybrid Fireworks Explosion Algorithm	195
<i>Liping Wang, Renwen Chen, and Chengwang Xie</i>	
An Improved Multi-objective Fireworks Algorithm	204
<i>Dongming Zhan and Chengwang Xie</i>	
Evolutionary Design of a Crooked-Wire Antenna	219
<i>Lumin Ye, Bin Lan, Yi Yuan, Jianqing Sun, Yongzhi Sun, and Sanyou Zeng</i>	
Typical Constrained Optimization Formulation in Evolutionary Computation Not Suitable for Expensive Optimization.	232
<i>Sanyou Zeng, Ruwang Jiao, Changhe Li, Bin Lan, Huanhuan Li, Jianqing Sun, and Yongzhi Sun</i>	

Data Mining – Association Rule Learning

Maize Gene Regulatory Relationship Mining Using Association Rule	249
<i>Jianxiao Liu, Chaoyang Wang, Haijun Liu, Yingjie Xiao, Songlin Hao, Xiaolong Zhang, Jianchao Sun, and Huan Yu</i>	
Database Reengineering Scheme from Object-Oriented Model to Flattened XML Data Model	259
<i>Yue Liu and Xukun Wu</i>	
A Modified Shuffled Frog Leaping Algorithm for Constructing DNA Codes	269
<i>Zhenghui Liu, Bin Wang, Changjun Zhou, Xiaopeng Wei, and Qiang Zhang</i>	
Clustering Based Prediction of Financial Data by ARMA Model	279
<i>Duobiao Ning, Siyu Zhang, Wenfei Chen, and Xinqiao Yu</i>	
Research on Data Mining Algorithm of Association Rules Based on Hadoop	288
<i>Linrun Qiu</i>	

Data Mining – Data Management Platforms

Data-Driven Phone Selection for Language Identification via Bidirectional Long Short-Term Memory Modeling	301
<i>Xiao Song, Qiang Cheng, Jingping Xing, and Yuexian Zou</i>	
Multi-document Summarization via LDA and Density Peaks Based Sentence-Level Clustering	313
<i>Baoyan Wang, Yuexian Zou, Jian Zhang, Jun Jiang, and Yi Liu</i>	
The Dynamic Relationship Between Bank Credit and Real Estate Price in China.	324
<i>Xiaofan Wang and Li Zhou</i>	
Big-Data Cloud Services Platform for Growth Enterprises with Adaptive Exception Handling and Parallelized Data Mining	339
<i>Yazhi Wen, Hu Bo, and Bin Wen</i>	
Research on Automatic Generation of Test Cases Based on Genetic Algorithm	351
<i>Lu Xiong and Kangshun Li</i>	
A Routing Acceleration Strategy via Named Data Networking in Space-Terrestrial Integrated Networks	361
<i>Feng Yang and Di Liu</i>	

Cloud Computing and Multiagent Systems – Service Models

Exploring Migration Issue Based on Multi-agent Modeling	373
<i>Pengfei Liu, Xiaxu He, Weifeng Zhang, and Enkai Chen</i>	
Application of Plant-Derived Anti Repellents in Prevention and Cure of <i>Parasaissetia Nigra</i> Nietner	383
<i>Lihe Zhang, Bin Du, Baoli Qiu, and Hui Wang</i>	
Research on Resource Trust Access Control Based on Cloud Computing Environment	394
<i>Jun Nie and Dongbo Zhang</i>	
A Statistical Study of Technological Innovation Factors in Beijing's Low-Carbon Economic Growth.	405
<i>Xiaofan Wang and Li Zhou</i>	

Cloud Computing and Multiagent Systems – Cloud Engineering

Study on Critical Lines Identification in Complex Power Grids.	423
<i>Yi Wang, Zhiping Tan, and Yanli Zou</i>	
A Review of Multi-sensor Data Fusion for Traffic.	432
<i>Xue Zhao and Dongbo Zhang</i>	
Research on Evaluation Method of Service Quality	445
<i>Yan Zhao, Xiaxia Niu, and Li Zhou</i>	
Research on Traffic Data Fusion Based on Multi Detector	456
<i>Suping Liu</i>	
A Recommend Method of Hotspots Knowledge Based on Big Data from Evolving Network	468
<i>Yi Zhao, Zhao Li, and Jun Wu</i>	

Everywhere Connectivity – IoT Solutions

Improved Location Algorithm Based on DV-Hop for Indoor Internet of Things	483
<i>Qian Cai</i>	
A Design of the Shared Farmland System Based on the Internet of Things Technology and IMS	492
<i>Na Chang and Junhua Ku</i>	
Personalized Recommendation Algorithm Based on Commodity Label	499
<i>Yuehua Dong and Xuelei Liang</i>	

Mobile Node Localization Based on Angle Self-adjustment with Mine Wireless Sensor Networks	513
<i>Wangsheng Fang, Hui Wang, and Zhongdong Hu</i>	
Research on the Development Strategy of O2O e-Commerce in Traditional Retail Enterprises	521
<i>Sisi Li and Suping Liu</i>	
Implementation of Academic News Recommendation System Based on User Profile and Message Semantics	531
<i>Weiling Li, Yong Tang, Guohua Chen, Danyang Xiao, and Chengzhe Yuan</i>	
Everywhere Connectivity – Wireless Sensor Networks	
An Optimal Sink Placement for High Coverage and Low Deployment Cost in Mobile Wireless Sensor Networks	543
<i>Qingzhong Liang and Yuanyuan Fan</i>	
Wireless Sensor Network Time Synchronization Algorithm Overview	552
<i>Chunqiang Liu, Haijie Pang, Ning Cao, Xinze Li, and Dongchen Xu</i>	
Collaborative Filtering Recommendation Considering Seed Life Cycle for BT Download Websites	562
<i>Yue Liu, Fei Cai, Qi Sun, and Yiming Zhu</i>	
Centralized Access Control Scheme Based on OAuth for Social Networks . . .	576
<i>Yue Liu, Wei Gao, and Jingyun Liao</i>	
Research on Localization Scheme of Wireless Sensor Networks Based on TDOA	588
<i>Xuefeng Yang, Junqi Ma, and Yuting Lu</i>	
Author Index	601