

Lecture Notes in Electrical Engineering

Volume 206

For further volumes:
<http://www.springer.com/series/7818>

Wenjiang Du
Editor

Informatics and Management Science III

 Springer

Editor

Wenjiang Du
College of Elementary Education
Chongqing Normal University
Chongqing
People's Republic of China

ISSN 1876-1100 ISSN 1876-1119 (electronic)
ISBN 978-1-4471-4789-3 ISBN 978-1-4471-4790-9 (eBook)
DOI 10.1007/978-1-4471-4790-9
Springer London Heidelberg New York Dordrecht

Library of Congress Control Number: 2012952024

© Springer-Verlag London 2013

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. Exempted from this legal reservation are brief excerpts in connection with reviews or scholarly analysis or material supplied specifically for the purpose of being entered and executed on a computer system, for exclusive use by the purchaser of the work. Duplication of this publication or parts thereof is permitted only under the provisions of the Copyright Law of the Publisher's location, in its current version, and permission for use must always be obtained from Springer. Permissions for use may be obtained through RightsLink at the Copyright Clearance Center. Violations are liable to prosecution under the respective Copyright Law.

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.

While the advice and information in this book are believed to be true and accurate at the date of publication, neither the authors nor the editors nor the publisher can accept any legal responsibility for any errors or omissions that may be made. The publisher makes no warranty, express or implied, with respect to the material contained herein.

Printed on acid-free paper

Springer is part of Springer Science+Business Media (www.springer.com)

Preface

Welcome to the proceedings of the International Conference on Informatics and Management Science (IMS) 2012, which will be held in December 21–23, 2012, in Kunming, China.

IMS 2012 will be a venue for leading academic and industrial researchers to exchange their views, ideas and research results on innovative technologies, and sustainable solutions leading to Informatics and Management Science. The conference will feature keynote speakers, a panel discussion, and paper presentations.

The objective of IMS 2012 is to facilitate an exchange of information on best practices for the latest research advances in the area of Informatics and Management Science. IMS 2012 will provide a forum for engineers and scientists in academia, industry, and government to address the most innovative research and development including technical challenges, social and economic issues, and to present and discuss their ideas, results, work in progress, and experience on all aspects of Informatics and Management Science.

There was a very large number of paper submissions (2351). All submissions were reviewed by at least three Program or Technical Committee members or external reviewers. It was extremely difficult to select the presentations for the conference because there were so many excellent and interesting submissions. In order to allocate as many papers as possible and keep the high quality of the conference, we finally decided to accept 614 papers for presentations, reflecting a 26.1 % acceptance rate. We believe that all of these papers and topics not only provided novel ideas, new results, work in progress, and state-of-the-art techniques in this field, but also stimulated the future research activities in the area of Informatics and Management Science.

The exciting program for this conference was the result of the hard and excellent work of many others, such as Program and Technical Committee members, external reviewers, and Publication Chairs under a very tight schedule. We are also grateful to the members of the Local Organizing Committee for supporting us in handling so many organizational tasks, and to the keynote speakers for accepting to come to the conference with enthusiasm. Last but not

least, we hope you enjoy the conference program, and the beautiful attractions of Kunming, China.

With our warmest regards.

December 2012

Wenjiang Du
Guomeng Dong
General and Program Chairs
IMS 2012

Organization

IMS 2012 was organized by Electric Power Research Institute, YNPG, Yunnan Normal University, Wuhan Institute of Technology, Guizhou University, Chongqing Normal University, Chongqing University, Yanshan University, Xiangtan University, Hunan Institute of Engineering, Shanghai Jiao Tong University, Nanyang Technological University, and sponsored by National Natural Science Foundation of China (NSFC). It was held in cooperation with *Lecture Notes in Electrical Engineering* (LNEE) of Springer.

Executive Committee

General Chairs:	Maode Ma, Nanyang Technological University, Singapore Yuhang Yang, Shanghai Jiao Tong University, China
Program Chairs:	Yanchun Zhang, University of Victoria, Australia Rafa Kapelko, Wroclaw University of Technology, Poland Rongbo Zhu, Virginia Tech, USA Ming Fan, University of Washington, USA
Local Arrangement Chairs:	Qing Xiao, Chongqing University, China Wenjiang Du, Chongqing Normal University, China
Steering Committee:	Maode Ma, Nanyang Technological University, Singapore Nadia Nedjah, State University of Rio de Janeiro, Brazil Lorna Uden, Staffordshire University, UK Dechang Chen, Uniformed Services University of the Health Sciences, USA Mei-Ching Chen, Tatung University, Taiwan Rong-Chang Chen, National Taichung Institute of Technology, Taiwan Chi-Cheng Cheng, National Sun Yat-Sen University, Taiwan Naohiko Hanajima, Muroran Institute of Technology, Japan Shumin Fei, Southeast University, China Yingmin Jia, BeiHang University, China Weiguo Liu, Northwestern Polytechnic University, China

Yongji Wang, Huazhong University of Science and
Technology, China
Xiaoping Ma, China University of Mining and
Technology, China
Jie Wang, Zhengzhou University, China
Seong G. Kong, The University of Tennessee, USA
Pan Li, Mississippi State University, USA
Xuejun Li, Hunan University of Science and
Technology, China
Pengjun Mao, Henan University of Science and
Technology, China
Guang-Bin Huang, Nanyang Technological
University, Singapore
Wenjiang Du, Chongqing Normal University,
China
Qixing Xu, Henan Institute of Engineering, China
Xiaohong Fan, Henan University of Urban
Construction, China
Ragip Kurceren, Nokia Research, USA
Nils Aschenbruck, University of Bonn, Germany
Song Ci, University of Nebraska-Lincoln, USA
Rong-Chang Chen, National Taichung Institute of
Technology, Taiwan
Mei-Ching Chen, Tatung University, Taiwan
Juergen Bruess, AutoTXT, Germany
Bahram Honary, Lancaster University, UK
Michael Darnell, Warwick University, UK
Plamen Angelov, Lancaster University, UK
Farideh Honary, Lancaster University, UK
T. R. Melia, Cisco Systems, Switzerland

Program/Technical Committee

Ragip Kur	Nokia Research, USA
Mina Gui	Texas State University, USA
Yanbin Sun	Beijing University of Posts and Telecommunications, China
Ven Prasad	Delft University of Technology, The Netherlands
Yajun Li	Shanghai Jiao Tong University, China
Mengze Liao	Cisco China R&D Center, China
Xiwen Hu	Wuhan University of Technology, China
Yajun Guo	Huazhong Normal University, China
Suresh Subra	George Washington University, USA
Mingyi Gao	National Institute of AIST, Japan
Yanliang Jin	Shanghai University, China
Haibing Yin	Peking University, China
Jianxin Chen	University of Vigo, Spain
Yuan Lin	Norwegian University of Science and Technology, Norwegian
Miche Rossi	University of Padova, Italy
Nils Asc	University of Bonn, Germany
Chunxiao Yu	Yanshan University, China
On Altintas	Toyota InfoTechnology Center, Japan
Guofu Gui	CMC Corporation, China
Dianxuan Gong	Hebei Polytechnic University, China
Haiyong Bao	NTT Co., Ltd, Japan
Shuang Cong	University of Science and Technology of China, China
Yangwen Zou	Apple China Co., Ltd, China
Tai-hon Kim	Defense Security Command, Korea
Sean McLoo	National University of Ireland, Ireland
Jian-Xin Peng	Queens University of Belfast, UK
Lui Piroddi	Technical University of Milan, Italy
Wi Richert	University of Paderborn, Germany

Meh Shafiei	Dalhousie University, Canada
Girij Prasad	University of Ulster, UK
Jams Li	University of Birmingham, UK
Liang Li	University of Sheffield, UK
Hai Qi	University of Tennessee, USA
Yuezhi Zhou	Tsinghua University, China
Duolin Liu	ShenYang Ligong University, China
Zengqiang Chen	Nankai University, China
Dumisa Wellington Ngwenya	Illinois State University, USA
Hu Changhua	Xi'an Research Institute of Hi-Tech, China
Juntao Fei	Hohai University, China
Zhao-Hui Jiang	Hiroshima Institute of Technology, Japan
Michael Watts	Lincoln University, New Zealand
Chun Lee	Howon University, Korea
Cent Leung	Victoria University of Technology, Australia
Haining Wang	College of William and Marry, USA
Worap Kreesuradej	King Mongkuts Institute of Technology Ladkranbang, Thailand
Muhammad Khan	Southwest Jiaotong University, China
Stefa Lindstaedt	Division Manager Knowledge Management, Austria
Yiming Chen	Yanshan University, China
Tashi Kuremoto	Yamaguchi University, Japan
Zheng Liu	Nagasaki Institute of Applied Science, Japan
Seong Kong	The University of Tennessee, USA
R. McMenemy	Queens University Belfast, UK
Sunil Maharaj Sentech	University of Pretoria, South Africa
Paolo Li	Polytechnic of Bari, Italy
Cheol Moon	Gwangju University, Korea
Zhanguo Wei	Beijing Forestry University, China
Hao Chen	Hunan University, China
Xiaozhu Liu	Wuhan University, China
Xilong Qu	Hunan Institute of Engineering, China
Lilei Wang	Beijing University of Posts and Telecommunications, China
Liang Zhou	ENSTA-ParisTech, France
Yanbing Sun	Beijing University of Posts and Telecommunications, China
Xiyin Wang	Hebei Polytechnic University, China
Hui Wang	University of Evry in France, France
Uwe Kuger	Queen's University of Belfast, UK
Nin Pang	Auckland University of Technology, New Zealand
Yan Zhang	Simula Research Laboratory and University of Oslo, Norway

Sa Sharma	University of Plymouth, UK
Wang Bin	Chinese Academy of Sciences, China
Yongsheng Ding	Donghua University, China
Xiang Mei	The University of Leeds, UK
Yongning Tang	Illinois State University, USA
Wenbin Jiang	Huazhong University of Science and Technology, China
Jun Cai	University of Manitoba, Canada
Xingang Zhang	Nanyang Normal University, China
Veli Mumcu	Technical University of Yildiz, Turkey
Xiao Li	CINVESTAV-IPN, Mexico
Ruichun Tang	Ocean University of China, China
Michiharu Kurume	National College of Technology, Japan
Dong Yue	Huazhong University of Science and Technology, China
Qishi Wu	University of Memphis, USA
Zhichun Li	Northwestern University, China
Lisong Xu	University of Nebraska-Lincoln, USA
Mei Yu	Simula Research Laboratory, Norway
Gui-Rong Xue	Shanghai Jiao Tong University, China
Jalel Ben-Othman	University of Versailles, France

Contents

Part I Electrical Engineering and Applications

1	Circuit Design of Panel Points Based on Zigbee	3
	JianMing Shen and HongLi Wei	
2	Metaphor-Based Interaction Design in Lighting Area	11
	Xing Gao and Liangzhi Li	
3	Research on Scattering of Weekly Lossy Homogeneous Gyrotropic Elliptic Cylinder	19
	Shi-Chun Mao, Fan Wang and Zhen-Sen Wu	
4	Research of Novel Circular Grating	25
	Peng Guo, Hua Zou, Funing Chen, Chunmei Tang and Kaixiao Zhang	
5	Research on Doctrine of Linear Polarized Photon Pairs	31
	Xiaopeng Zhang and Duanyin Shi	
6	Influential Factors Analysis of Frequency Domain Inverse Q Filtering Based on Effective Quality Factor	41
	Xueying Li, Huijian Wen and Guangjuan Fan	
7	Hilbert–Huang Transform Based Partial Discharge Signal Analysis	49
	Hung-Cheng Chen	
8	Design of Image Acquisition System Based on FPGA	57
	Guili Han, Zhongxian Li and Xiaoyu Liu	

9 Research on Channel Estimation of MIMO-OFDM System 67
Wei Li, Xiaoping Wang, Pei Gu and Dongqing Wang

10 Abdomen CT Image Segmentation Based on MRF and Ribs Fitting Approach 75
Huiyan Jiang, Zhiyuan Ma, Mao Zong, Hiroshi Fujita and Xiangrong Zhou

11 Sunglasses Styling Optimization System Based on User Interactions 83
Haiying Li, Xiaodong He, Jianfeng Wu and Xiaojian Liu

12 Design of Maintenance System for UPS 91
Feng Zhao, Qin Wang and Jian He

13 Characteristics and Methods of Southern Henan Power Grid Planning 99
Menglan Huang and Yaoxian Li

14 Analysis of Different Connection Modes in MV Distribution Systems 107
Xiao Qin

15 Fault Diagnosis of Power Electronic Circuits Based on BP Neural Network 115
Danjun Wu, Li Ping and Youping Fan

16 Study on Leaves of Three-Dimensional Modeling Technology Based on CAXA 121
Xinjian Xu

17 Variational Half Bridge Series Resonance Intermediate Frequency Induction Heating Power Supply 129
Wei-gong Kong, Li-rong Li and Hui-shan Han

18 Translators Power Release Under Suppression of Power 135
Weike He

Part II Web Science, Engineering and Applications I

19 Adaptive Recommendation Algorithm Based on the Bayesian-Network 145
Jianqiong Xiao, Jiangjin Gao and Guoqin Song

20	On Hexagon Number Part Residue of a Positive Integer Mingjun Wang	153
21	Beam-Wave Interaction Simulation of Rectangular Helix Traveling Wave Tube Chengfang Fu	159
22	On Edge Szeged Index of Bridge Graphs. Fuqin Zhan and Youfu Qiao	167
23	Speech Enhancement Algorithm Based on Hilbert-Huang and Wavelet Jin Li, Fu Liu, Huiyan Xu and Feile Wang	173
24	Huang Diffuse Scattering from Small Planar Dislocation Loops Zhongfu Zhou, Yaru Zhang, Adrian P. Sutton, Sergei L. Dudarev, Michael L. Jenkins, Mark A. Kirk, George N. Greaves and Lixin Xiao	179
25	Vector Mathematical Morphology for Color Image Processing Bo Tao and Lin Zhang	187
26	Study of Cost Reduce Scheme of Enterprise Logistics Purchasing Meili Tian	195
27	Research on Zombie Network Hongling Gou	205
28	Study of Initiation Network Monitoring System Based on LabVIEW Platform Jie Liu, Yujie Wang, Genzhao Chang, Xiaohu Li, Shaofeng Ren and Zhigang Liu	213
29	Zero Digital Images Watermarking Method Based on Cellular Neural Network and Contourlet Transform. Jie Zhao and Yawen Li	219
30	Research on Teaching Reform on Tourism Specialty Under the Network Environment Jing Chen	227

31 Unity Retrieval Technology of Universities Heterogeneous Data 235
 Xiaoxiao Liang, Shiwen Li, Chong Gang Wei,
 Jiang Ma and Yi Luo

32 Web Services Discovery Based on Service Description 243
 Wang Min, Rong Chen and Rongrong Shi

33 Tactical Internet Reliability Evaluation with Variable Radio Transmission Range 253
 Xuewang Wang, Ning Huang, Rui Kang and Zhitao Wu

34 Design of Wireless Auto Monitor System on Transfusion 261
 Jiang Ma, Shunling Chen, Yuqiao Wen, Xiaoxiao Liang,
 Chonggang Wei and Jing Lan

35 A Correlation Analysis Method for Network Security Events . . . 269
 He Wei

36 Research on Mode of English Teaching and Learning Based on Multimedia Network 279
 Shan Chang

37 Research of Ideological and Political Education in Independent Colleges Under Network Environment 287
 Jianming Lu, Jinping Wang and Yingzhong Li

38 Implementation of Teaching Management System Based on the Web 297
 Qiang Liu

39 Research on Ideological and Political Education Based Mobile Internet 305
 Yu Zhang

40 Campus Safety Culture Construction Under the Network Environment 313
 Xue Li

41 Analysis and Practice of Integrated Curriculum System Model of English Teaching 321
 Ning Zhang and Zehua Wu

42 Research on Education Model of and Diversity Based on Mathematical Statistic Law 329
 Junling Wei and Chenling Li

43 Robustness of Complex Heterogeneous Networks Under Node Weighting Strategies Against Cascading Failures 337
 Lin Ding and Si-Ying Zhang

44 Algorithm of Webpage Update Detection Based on Body Text 345
 Guowei Chen and Pengzhou Zhang

45 Research on Enterprise Application System Integration Based on Web Services and Agent. 353
 Xin Jin and Xu Zhao

46 Study of Certainty Factor Model in Attribute Mining 361
 Yanfeng Jin, Yongping Wang, Keming Geng and Baozhu Zhao

47 Structured Dictionary Learning Based on Composite Absolute Penalties. 367
 Jiawen Wang and Hongbin Zhang

48 Research of College English Teaching Based on Computer Network Technology 375
 Qing-hua Yang

Part III Sports Management and Application I

49 Research on Arms Kinetics in Basketball Penalty of Chinese Wheelchair Athlete 385
 Bin Gao, Weimin Sun and Zhilong Zhao

50 Fosbury Flop Technology Based on Mechanical Analysis Method 391
 Sufei Yang, Peng Pu and Chao Fan

51 Experimental Study on Influence on University Male Students Psychological Health by Playing Basketball. 399
 Jianliang Wang

52	Research of Role and Practice in Pulse-Measuring in Sports Train.	407
	Yu Jiang	
53	Research on Biomechanics Technology Based on the Tennis Sports.	415
	Fengling Li, Kelei Li and Jingjing Lv	
54	Analysis of Tai Chi on Pulse Wave Velocity.	421
	Chuanguo Li	
55	Research of Jumping Ability and Explosive Power Based on Plyometric Training.	427
	Xiaocheng Zhang	
56	Research on Sun Sports and Relationship between Physical and Mental Health	435
	Changjun Tian	
57	Cultivating Pattern of Managerial and Administrative Personnel in Sport Industry	443
	Pan Li	
58	Research on Effects on Women’s Breast in Sports Bra.	451
	Kun Jiang and Yanxiang Ni	
59	Research of CAS in Physical Training.	457
	Fang-Yu Wang	
60	Research on Coupling Mechanism and Analysis on Effect Factors of Taichi Exercise	465
	Jingyi Wu, Yichen Wang and Yan Chen	
61	Humanistic Value of Sport and Spirit of Sports.	471
	Li-mei Zheng	
62	Study on Characteristics and Value of Ethnic Minorities Eco-Sports	477
	Hui-Jun Gao	
63	Research on Declining Credit of Chinese Professional Athletes.	485
	Dawei Li and Ying Qi	

64	Research of Sport Videography Technology on Formula One Grand Prix	493
	Mingming Cai and Jiang Li	
65	Research on Chinese Athletes Age Fraud Scandal	501
	Ying Qi	
66	Research of Teaching Environment of P.E.	509
	Lu Chen, Qiang Zhang, Shuai Chen and Quanzhong Zhao	
67	SWOT Analysis and Development Strategies on the Chinese Wushu	517
	Hongchang Li and Hongyu Li	
68	Research on Sports Pragmaticality in Higher Education Reform	525
	Mingchang Liu and Liuhe Wang	
69	Study on Interactive Division Teaching Method in Sports Dance Compulsory Class of Physical Education	533
	Hua Tan and Wanfeng Xia	
70	Multifunctional Swimming Strokes Assistantship Design	539
	Tie-xiong Zhang, Hong-mei Wen, Ting-ting Long and Zheng-ping Wan	
71	Practical Application of Creative Education in College Football Teaching	545
	Faqiang Qiu and Yi Zhou	
72	Psychological Coping with Impact Response of Sports Materials	553
	Jingwen Lu	
73	Research on Family Sports and Its Enlightenment	559
	Qing Lan	
74	Characteristics Analysis of Satisfaction Degree of Sports Public Service	565
	Dongyun Fan	
75	Efficient Education Scheme Based on Coupling and Confusion of Technology	573
	Liang Li and Yitian Li	

76 Comparative Analysis Anaerobic Ability Basketball Player in Vertical Leap and Linear Sprint 581
Shihong Liu and Hai Chen

77 Simulation Analysis on Muscle Dynamics of Tennis Players 589
Hai Chen and Shihong Liu

78 Body Composition Analysis of Female Basketball Players in Chinese Universities 595
Hongwen Xue, Guoqing Yang and Yong Yu

79 Research on Awareness of After-School Physical Exercises. 603
Gang Dong

80 Experimental Research on the Cooperative Study in Physical Education 613
Xuemin Wang and Ruihong Wu

Part IV Information Computing and Applications

81 Automation and Singular Differential Equations Based on Drazin Inverse of Block Matrices 625
Li Guo, Mingji Liu and Yue Lv

82 Almost Periodic Type Solutions of First Order Delay Differential Equations with Piecewise Constant Argument 631
Qiujie Zhang

83 Research of Incremental Learning Algorithm Based on the Minimum Classification Error Criterion 637
Bo Wen, Ganlin Shan and Xiusheng Duan

84 Efficient Environmental Air Quality Evaluation Scheme Based on the Fuzzy Mathematics Method 645
An Li and Jiyan Liu

85 Computation of 2D Manifold Based on Generalized Foliation Condition 653
Meng Jia, Yi Ru and JunJie Xi

86 Compute 2D Stable and Unstable Manifolds of Nonlinear Maps 659
Zhong Wu, Meng Jia and QingHua Ji

87	New Lower Bounds of Solution of Generalized Lyapunov Equations	665
	Chien-Hua Lee and Ping-Sung Liao	
88	Existence of Solution for Singular Elliptic Systems Involving Critical Sobolev-Hardy Exponents	673
	Xiaoli Pan	
89	Analysis of Dynamic Time-Slot Control Random Multi-Access Protocol with Two-Dimensional Probability for Ad Hoc Network	681
	Chun-fen Li, Dong-feng Zhao and Yi-fan Zaho	
90	Analysis of Double Clocks Random Multi-Access Protocol with Multi-Channel and Two-Dimensional Probability	691
	Chun-fen Li, Dong-feng Zhao and Yi-fan Zhao	
91	K-Mean Clustering Analysis and Its Applications to Classification of Tumor Gene	699
	Lingbo Cong and Wanqing Ruan	
92	Analysis on Stress Concentration Factor for Elliptical Hole Based on FEM Theory	707
	Hong Lan, Huimin Wang, Liang Cao and Zhiliang Wang	
93	Exact Two-Soliton Solutions of DNLS Equation by IST	717
	Yaxian Liu and Jingxia Xu	
94	Research on Psychological Chinese-Style Hatred Based on Mathematical Statistic Law	723
	Mingxia Zhu and Chenling Li	
95	Synchronization of Uncertain Chaotic System by Nonlinear Sliding Mode Method	729
	Aijun Zhou, Guang Ren, ChengYong Shao and Yong Liang	
96	An Ideal Hilbert Algebras in Positive Implicative BCK-Algebras	737
	Qiuna Zhang, Lei Zhang, Dongmei Li and LiNan Shi	
97	Hilbert Algebras in Positive Implicative BCK-Algebras	743
	Qiuna Zhang, Lei Zhang, Dongmei Li and LiNan Shi	

98 Generalization of Lemma Gronwall–Bellman on Retarded Integral Inequality 749
Wu-Sheng Wang, Zhengfang Mo and Zongyi Hou

99 A New Calibrating Method for Micro Inertial Measurement Unit 757
Jie Li, Jun Liu and Qiao Jiang

100 Wavelet Frequency Domain Weighted Multi-modulus Blind Equalization Algorithm Based on Lower Order Statistics 765
Jun Guo, Ye-cai Guo, Fang Xu and Qu Chen

101 A Method of Changing Mathematical Model Structure of Duffing Equation 775
Jian-Qun Han and Hong Sun

102 Study on Probability and Statistics in Practice. 781
Baoquan Zhang

Erratum to: Metaphor-Based Interaction Design in Lighting Area E1
Xing Gao and Liangzhi Li