

Commenced Publication in 1973

Founding and Former Series Editors:

Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

Editorial Board

David Hutchison

Lancaster University, UK

Takeo Kanade

Carnegie Mellon University, Pittsburgh, PA, USA

Josef Kittler

University of Surrey, Guildford, UK

Jon M. Kleinberg

Cornell University, Ithaca, NY, USA

Alfred Kobsa

University of California, Irvine, CA, USA

Friedemann Mattern

ETH Zurich, Switzerland

John C. Mitchell

Stanford University, CA, USA

Moni Naor

Weizmann Institute of Science, Rehovot, Israel

Oscar Nierstrasz

University of Bern, Switzerland

C. Pandu Rangan

Indian Institute of Technology, Madras, India

Bernhard Steffen

TU Dortmund University, Germany

Madhu Sudan

Microsoft Research, Cambridge, MA, USA

Demetri Terzopoulos

University of California, Los Angeles, CA, USA

Doug Tygar

University of California, Berkeley, CA, USA

Gerhard Weikum

Max Planck Institute for Informatics, Saarbruecken, Germany

Derong Liu Huaguang Zhang
Marios Polycarpou Cesare Alippi
Haibo He (Eds.)

Advances in Neural Networks – ISNN 2011

8th International Symposium
on Neural Networks, ISNN 2011
Guilin, China, May 29 – June 1, 2011
Proceedings, Part I

Volume Editors

Derong Liu

Chinese Academy of Sciences, Institute of Automation
Key Laboratory of Complex Systems and Intelligence Science
Beijing 100190, China
E-mail: derong.liu@ia.ac.cn

Huaguang Zhang

Northeastern University, College of Information Science and Engineering
Shenyang, Liaoning 110004, China
E-mail: zhanghuaguang@ise.neu.edu.cn

Marios Polycarpou

University of Cyprus, Dept. of Electrical and Computer Engineering
75 Kallipoleos Avenue, 1678 Nicosia, Cyprus
E-mail: mpolycar@ucy.ac.cy

Cesare Alippi

Politecnico di Milano, Dip. di Elettronica e Informazione
Piazza L. da Vinci 32, 20133 Milano, Italy
E-mail: alippi@elet.polimi.it

Haibo He

University of Rhode Island
Dept. of Electrical, Computer and Biomedical Engineering
Kingston, RI 02881, USA
E-mail: he@ele.uri.edu

ISSN 0302-9743

e-ISSN 1611-3349

ISBN 978-3-642-21104-1

e-ISBN 978-3-642-21105-8

DOI 10.1007/978-3-642-21105-8

Springer Heidelberg Dordrecht London New York

Library of Congress Control Number: 2011926887

CR Subject Classification (1998): F.1, F.2, D.1, G.2, I.2, C.2, I.4-5, J.1-4

LNCS Sublibrary: SL 1 – Theoretical Computer Science and General Issues

© Springer-Verlag Berlin Heidelberg 2011

This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, re-use of illustrations, recitation, broadcasting, reproduction on microfilms or in any other way, and storage in data banks. Duplication of this publication or parts thereof is permitted only under the provisions of the German Copyright Law of September 9, 1965, in its current version, and permission for use must always be obtained from Springer. Violations are liable to prosecution under the German Copyright Law.

The use of general descriptive names, registered names, trademarks, 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.

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India

Printed on acid-free paper

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

Preface

ISNN 2011 – the 8th International Symposium on Neural Networks – was held in Guilin, China, as a sequel of ISNN 2004 (Dalian), ISNN 2005 (Chongqing), ISNN 2006 (Chengdu), ISNN 2007 (Nanjing), ISNN 2008 (Beijing), ISNN 2009 (Wuhan), and ISNN 2010 (Shanghai). ISNN has now become a well-established conference series on neural networks in the region and around the world, with growing popularity and increasing quality. Guilin is regarded as the most picturesque city in China. All participants of ISNN 2011 had a technically rewarding experience as well as memorable experiences in this great city.

ISNN 2011 aimed to provide a high-level international forum for scientists, engineers, and educators to present the state of the art of neural network research and applications in diverse fields. The symposium featured plenary lectures given by worldwide renowned scholars, regular sessions with broad coverage, and some special sessions focusing on popular topics.

The symposium received a total of 651 submissions from 1,181 authors in 30 countries and regions across all six continents. Based on rigorous reviews by the Program Committee members and reviewers, 215 high-quality papers were selected for publication in the symposium proceedings. We would like to express our sincere gratitude to all reviewers of ISNN 2011 for the time and effort they generously gave to the symposium. We are very grateful to the National Natural Science Foundation of China, the Institute of Automation of the Chinese Academy of Sciences, the Chinese University of Hong Kong, and the University of Illinois at Chicago for their financial support. We would also like to thank the publisher, Springer, for cooperation in publishing the proceedings in the prestigious series of *Lecture Notes in Computer Science*.

Guilin, May 2011

Derong Liu
Huaguang Zhang
Marios Polycarpou
Cesare Alippi
Haibo He

ISNN 2011 Organization

General Chairs

Marios M. Polycarpou
Paul J. Werbos

University of Cyprus, Cyprus
National Science Foundation, USA

Advisory Committee Chairs

Ruwei Dai
Bo Zhang

Chinese Academy of Sciences, China
Tsinghua University, China

Advisory Committee Members

Hojjat Adeli	Ohio State University, USA
Shun-ichi Amari	RIKEN Brain Science Institute, Japan
Dimitri P. Bertsekas	Massachusetts Institute of Technology, USA
Amit Bhaya	Federal University of Rio de Janeiro, Brazil
Tianyou Chai	Northeastern University, China
Guanrong Chen	City University of Hong Kong, Hong Kong
Andrzej Cichocki	RIKEN Brain Science Institute, Japan
Jay Farrell	University of California, Riverside, USA
Russell Eberhart	Indiana University-Purdue University, USA
David B. Fogel	Natural Selection, Inc., USA
Walter J. Freeman	University of California-Berkeley, USA
Kunihiko Fukushima	Kansai University, Japan
Marco Gilli	Politecnico di Torino, Italy
Aike Guo	Chinese Academy of Sciences, China
Zhenya He	Southeast University, China
Tom Heskes	Radboud University Nijmegen, The Netherlands
Janusz Kacprzyk	Polish Academy of Sciences, Poland
Nikola Kasabov	Auckland University of Technology, New Zealand
Okay Kaynak	Bogazici University, Turkey
Anthony Kuh	University of Hawaii, USA
Deyi Li	National Natural Science Foundation of China, China
Yanda Li	Tsinghua University, China
Chin-Teng Lin	National Chiao Tung University, Taiwan
Robert J. Marks II	Baylor University, USA
Erkki Oja	Helsinki University of Technology, Finland
Nikhil R. Pal	Indian Statistical Institute, India
Jose C. Principe	University of Florida, USA

Leszek Rutkowski	Czestochowa University of Technology, Poland
Jennie Si	Arizona State University, USA
Youxian Sun	Zhejiang University, China
DeLiang Wang	Ohio State University, USA
Fei-Yue Wang	Chinese Academy of Sciences, China
Shoujue Wang	Chinese Academy of Sciences, China
Zidong Wang	Brunel University, UK
Cheng Wu	Tsinghua University, Beijing, China
Donald Wunsch II	Missouri University of Science and Technology, USA
Lei Xu	The Chinese University of Hong Kong, Hong Kong
Shuzi Yang	Huazhong University of Science and Technology, China
Xin Yao	University of Birmingham, UK
Gary G. Yen	Oklahoma State University, USA
Nanning Zheng	Xi'An Jiaotong University, China
Jacek M. Zurada	University of Louisville, USA

Steering Committee Chair

Jun Wang	Chinese University of Hong Kong, Hong Kong
----------	--

Steering Committee Members

Jinde Cao	Southeast University, China
Shumin Fei	Southeast University, China
Min Han	Dalian University of Technology, China
Xiaofeng Liao	Chongqing University, China
Bao-Liang Lu	Shanghai Jiao Tong University, China
Yi Shen	Huazhong University of Science and Technology, China
Fuchun Sun	Tsinghua University, China
Hongwei Wang	Huazhong University of Science and Technology, China
Zongben Xu	Xi'An Jiaotong University, China
Zhang Yi	Sichuan University, China
Wen Yu	National Polytechnic Institute, Mexico

Organizing Committee Chairs

Derong Liu	Chinese Academy of Sciences, China
Huaguang Zhang	Northeastern University, China

Program Chairs

Cesare Alippi

Bhaskhar DasGupta

Sanqing Hu

Politecnico di Milano, Italy

University of Illinois at Chicago, USA

Hangzhou Dianzi University, China

Plenary Sessions Chairs

Frank L. Lewis

Changyin Sun

University of Texas at Arlington, USA

Southeast University, China

Special Sessions Chairs

Amir Hussain

Jinhu Lu

Stefano Squartini

Liang Zhao

University of Stirling, UK

Chinese Academy of Sciences, China

Università Politecnica delle Marche, Italy

University of Sao Paulo, Brazil

Finance Chairs

Hairong Dong

Cong Wang

Zhigang Zeng

Dongbin Zhao

Beijing Jiaotong University, China

South China University of Technology, China

Huazhong University of Science and Technology,
China

Chinese Academy of Sciences, China

Publicity Chairs

Zeng-Guang Hou

Manuel Roveri

Songyun Xie

Nian Zhang

Chinese Academy of Sciences, China

Politecnico di Milano, Italy

Northwestern Polytechnical University, China

University of the District of Columbia, USA

European Liaisons

Danilo P. Mandic

Alessandro Sperduti

Imperial College London, UK

University of Padova, Italy

Publications Chairs

Haibo He

Wenlian Lu

Yunong Zhang

Stevens Institute of Technology, USA

Fudan University, China

Sun Yat-sen University, China

Registration Chairs

Xiaolin Hu	Tsinghua University, China
Zhigang Liu	Southwest Jiaotong University, China
Qinglai Wei	Chinese Academy of Sciences, China

Local Arrangements Chairs

Xuanju Dang	Guilin University of Electronic Technology, China
Xiaofeng Lin	Guangxi University, China
Yong Xu	Guilin University of Electronic Technology, China

Electronic Review Chair

Tao Xiang	Chongqing University, China
-----------	-----------------------------

Symposium Secretariat

Ding Wang	Chinese Academy of Sciences, China
-----------	------------------------------------

ISSN 2011 International Program Committee

Jose Aguilar	Universidad de los Andes, Venezuela
Haydar Akca	United Arab Emirates University, UAE
Angelo Alessandri	University of Genoa, Italy
Luís Alexandre	Universidade da Beira Interior, Portugal
Bruno Apolloni	University of Milan, Italy
Marco Antonio Moreno	
Armendáriz	Instituto Politecnico Nacional, Mexico
K. Vijayan Asari	Old Dominion University, USA
Amir Atiya	Cairo University, Egypt
Monica Bianchini	Università degli Studi di Siena, Italy
Salim Bouzerdoun	University of Wollongong, Australia
Ivo Bukovsky	Czech Technical University, Czech Republic
Xindi Cai	APC St. Louis, USA
Jianting Cao	Saitama Institute of Technology, Japan
M. Emre Celebi	Louisiana State University, USA
Jonathan Hoyin Chan	King Mongkut's University of Technology, Thailand
Ke Chen	University of Manchester, UK
Songcan Chen	Nanjing University of Aeronautics and Astronautics, China
YangQuan Chen	Utah State University, USA
Yen-Wei Chen	Ritsumeikan University, Japan
Zengqiang Chen	Nankai University, China

Jianlin Cheng	University of Missouri Columbia, USA
Li Cheng	NICTA Australian National University, Australia
Long Cheng	Chinese Academy of Sciences, China
Xiaochun Cheng	University of Reading, UK
Sung-Bae Cho	Yonsei University, Korea
Pau-Choo Chung	National Cheng Kung University, Taiwan
Jose Alfredo Ferreira Costa	Federal University, UFRN, Brazil
Sergio Cruces-Alvarez	University of Seville, Spain
Lili Cui	Northeastern University, China
Chuangyin Dang	City University of Hong Kong, Hong Kong
Xuanju Dang	Guilin University of Electronic Technology, China
Mingcong Deng	Okayama University, Japan
Ming Dong	Wayne State University, USA
Gerard Dreyfus	ESPCI-ParisTech, France
Haibin Duan	Beihang University, China
Wlodzislaw Duch	Nicolaus Copernicus University, Poland
El-Sayed El-Alfy	King Fahd University of Petroleum and Minerals, Saudi Arabia
Pablo Estevez	Universidad de Chile, Chile
Jay Farrell	University of California Riverside, USA
Wai-Keung Fung	University of Manitoba, Canada
John Gan	University of Essex, UK
Junbin Gao	Charles Sturt University, Australia
Xiao-Zhi Gao	Helsinki University of Technology, Finland
Anya Getman	University of Nevada Reno, USA
Xinping Guan	Shanghai Jiao Tong University, China
Chengan Guo	Dalian University of Technology, China
Lejiang Guo	Huazhong University of Science and Technology, China
Ping Guo	Beijing Normal University, China
Qing-Long Han	Central Queensland University, Australia
Haibo He	Stevens Institute of Technology, USA
Zhaoshui He	RIKEN Brain Science Institute, Japan
Tom Heskes	Radboud University Nijmegen, The Netherlands
Zeng-Guang Hou	Chinese Academy of Sciences, China
Zhongsheng Hou	Beijing Jiaotong University, China
Chun-Fei Hsu	Chung Hua University, Taiwan
Huosheng Hu	University of Essex, UK
Jinglu Hu	Waseda University, Japan
Guang-Bin Huang	Nanyang Technological University, Singapore
Ting Huang	University of Illinois at Chicago, USA
Tingwen Huang	Texas A&M University at Qatar
Marc Van Hulle	Katholieke Universiteit Leuven, Belgium
Amir Hussain	University of Stirling, UK
Giacomo Indiveri	ETH Zurich, Switzerland

Danchi Jiang	University of Tasmania, Australia
Haijun Jiang	Xinjiang University, China
Ning Jin	University of Illinois at Chicago, USA
Yaochu Jin	Honda Research Institute Europe, Germany
Joarder Kamruzzaman	Monash University, Australia
Qi Kang	Tongji University, China
Nikola Kasabov	Auckland University, New Zealand
Yunquan Ke	Shaoxing University, China
Rhee Man Kil	Korea Advanced Institute of Science and Technology, Korea
Kwang-Baek Kim	Silla University, Korea
Sungshin Kim	Pusan National University, Korea
Arto Klami	Helsinki University of Technology, Finland
Leo Li-Wei Ko	National Chiao Tung University, Taiwan
Mario Koeppen	Kyushu Institute of Technology, Japan
Stefanos Kollias	National Technical University of Athens, Greece
Sibel Senan Kucur	Istanbul University, Turkey
H.K. Kwan	University of Windsor, Canada
James Kwok	Hong Kong University of Science and Technology, Hong Kong
Edmund M.K. Lai	Massey University, New Zealand
Chuandong Li	Chongqing University, China
Kang Li	Queen's University Belfast, UK
Li Li	Tsinghua University, China
Michael Li	Central Queensland University, Australia
Shaoyuan Li	Shanghai Jiao Tong University, China
Shutao Li	Hunan University, China
Xiaoou Li	CINVESTAV-IPN, Mexico
Yangmin Li	University of Macao, Macao
Yuanqing Li	South China University of Technology, China
Hualou Liang	University of Texas at Houston, USA
Jinling Liang	Southeast University, China
Yanchun Liang	Jilin University, China
Lizhi Liao	Hong Kong Baptist University
Alan Wee-Chung Liew	Griffith University, Australia
Aristidis Likas	University of Ioannina, Greece
Chih-Jen Lin	National Taiwan University, Taiwan
Ju Liu	Shandong University, China
Meiqin Liu	Zhejiang University, China
Yan Liu	Motorola Labs, Motorola, Inc., USA
Zhenwei Liu	Northeastern University, China
Bao-Liang Lu	Shanghai Jiao Tong University, China
Hongtao Lu	Shanghai Jiao Tong University, China
Jinhu Lu	Chinese Academy of Sciences, China
Wenlian Lu	Fudan University, China

Yanhong Luo	Northeastern University, China
Jinwen Ma	Peking University, China
Malik Magdon-Ismael	Rensselaer Polytechnic Institute, USA
Danilo Mandic	Imperial College London, UK
Francesco Marcelloni	University of Pisa, Italy
Francesco Marulli	Università di Genova, Italy
Matteo Matteucci	Politecnico di Milano, Italy
Patricia Melin	Tijuana Institute of Technology, Mexico
Dan Meng	Southwest University of Finance and Economics, China
Yan Meng	Stevens Institute of Technology, USA
Valeri Mladenov	Technical University of Sofia, Bulgaria
Roman Neruda	Academy of Sciences of the Czech Republic, Czech Republic
Ikuko Nishikawa	Ritsumei University, Japan
Erkki Oja	Aalto University, Finland
Seiichi Ozawa	Kobe University, Japan
Guenther Palm	Universität Ulm, Germany
Christos Panayiotou	University of Cyprus, Cyprus
Shaoning Pang	Auckland University of Technology, New Zealand
Thomas Parisini	University of Trieste, Italy
Constantinos Pattichis	University of Cyprus, Cyprus
Jaakko Peltonen	Helsinki University of Technology, Finland
Vincenzo Piuri	University of Milan, Italy
Junfei Qiao	Beijing University of Technology, China
Manuel Roveri	Politecnico di Milano, Italy
George Rovithakis	Aristotle University of Thessaloniki, Greece
Leszek Rutkowski	Technical University of Czestochowa, Poland
Tomasz Rutkowski	RIKEN Brain Science Institute, Japan
Sattar B. Sadkhan	University of Babylon, Iraq
Toshimichi Saito	Hosei University, Japan
Karl Sammut	Flinders University, Australia
Edgar Sanchez	CINVESTAV, Mexico
Marcello Sanguineti	University of Genoa, Italy
Gerald Schaefer	Aston University, UK
Furao Shen	Nanjing University, China
Daming Shi	Nanyang Technological University, Singapore
Hideaki Shimazaki	RIKEN Brain Science Institute, Japan
Qiankun Song	Chongqing Jiaotong University, China
Ruizhuo Song	Northeastern University, China
Alessandro Sperduti	University of Padua, Italy
Stefano Squartini	Università Politecnica delle Marche, Italy
Dipti Srinivasan	National University of Singapore, Singapore
John Sum	National Chung Hsing University, Taiwan
Changyin Sun	Southeast University, China

Johan Suykens	Katholieke Universiteit Leuven, Belgium
Roberto Tagliaferri	University of Salerno, Italy
Norikazu Takahashi	Kyushu University, Japan
Ah-Hwee Tan	Nanyang Technological University, Singapore
Ying Tan	Peking University, China
Toshihisa Tanaka	Tokyo University of Agriculture and Technology, Japan
Hao Tang	Hefei University of Technology, China
Qing Tao	Chinese Academy of Sciences, China
Ruck Thawonmas	Ritsumeikan University, Japan
Sergios Theodoridis	University of Athens, Greece
Peter Tino	Birmingham University, UK
Christos Tjortjis	University of Manchester, UK
Ivor Tsang	Nanyang Technological University, Singapore
Masao Utiyama	National Institute of Information and Communications Technology, Japan
Marley Vellasco	PUC-Rio, Brazil
Alessandro E.P. Villa	Université de Lausanne, Switzerland
Draguna Vrabie	University of Texas at Arlington, USA
Bing Wang	University of Hull, UK
Dan Wang	Dalian Maritime University, China
Dianhui Wang	La Trobe University, Australia
Ding Wang	Chinese Academy of Sciences, China
Lei Wang	Australian National University, Australia
Lei Wang	Tongji University, China
Wenjia Wang	University of East Anglia, UK
Wenwu Wang	University of Surrey, USA
Yingchun Wang	Northeastern University, China
Yiwen Wang	Hong Kong University of Science and Technology, Hong Kong
Zhanshan Wang	Northeastern University, China
Zhuo Wang	University of Illinois at Chicago, USA
Zidong Wang	Brunel University, UK
Qinglai Wei	Chinese Academy of Sciences, China
Yimin Wen	Hunan Institute of Technology, China
Wei Wu	Dalian University of Technology, China
Cheng Xiang	National University of Singapore, Singapore
Degui Xiao	Hunan University, China
Songyun Xie	Northwestern Polytechnical University, China
Rui Xu	Missouri University of Science and Technology, USA
Xin Xu	National University of Defense Technology, China
Yong Xu	Guilin University of Electronic Technology, China
Jianqiang Yi	Chinese Academy of Sciences, China
Zhang Yi	Sichuan University, China

Dingli Yu	Liverpool John Moores University, UK
Xiao-Hua Yu	California Polytechnic State University, USA
Xiaoqin Zeng	Hohai University, China
Zhigang Zeng	Huazhong University of Science and Technology, China
Changshui Zhang	Tsinghua University, China
Huaguang Zhang	Northeastern University, China
Jianghai Zhang	Hangzhou Dianzi University, China
Jie Zhang	University of New Castle, UK
Kai Zhang	Lawrence Berkeley National Lab, USA
Lei Zhang	Sichuan University, China
Nian Zhang	University of the District of Columbia, USA
Xiaodong Zhang	Wright State University, USA
Xin Zhang	Northeastern University, China
Yunong Zhang	Sun Yat-sen University, China
Dongbin Zhao	Chinese Academy of Sciences, China
Hai Zhao	Shanghai Jiao Tong University, China
Liang Zhao	University of São Paulo, Brazil
Mingjun Zhong	University of Glasgow, UK
Weihang Zhu	Lamar University, USA
Rodolfo Zunino	University of Genoa, Italy

Table of Contents – Part I

Computational Neuroscience and Cognitive Science

Evaluating Humans' Implicit Attitudes towards an Embodied Conversational Agent	1
<i>Andrey Kiselev, Niyaz Abdikeyev, and Toyooki Nishida</i>	
Robustness of Gamma-Oscillation in Networks of Excitatory and Inhibitory Neurons with Conductance-Based Synapse	10
<i>Haibo Shi, Zhijie Wang, Jinli Xie, and Chongbin Guo</i>	
Probe the Potts States in the Minicolumn Dynamics	17
<i>Sanming Song and Hongrun Yao</i>	
Dependence of Correlated Firing on Strength of Inhibitory Feedback ...	27
<i>Jinli Xie, Zhijie Wang, and Haibo Shi</i>	
A New Model to Simulate the Formation of Orientation Columns Map in Visual Cortex	35
<i>Hui Wei and Yun Wang</i>	
Study on the Synchrony Intensity Threshold of Two Uncoupled Neurons under Different Currents' Stimulation	42
<i>Yueping Peng</i>	
Research on Design Method of Small World Property ESN	52
<i>Yingchun Bo, Junfei Qiao, and Shuwei Wang</i>	
The ART2 Network Based on Memorizing-Forgetting Mechanism	60
<i>Xiaoming Ye, Xiaozhu Lin, and Xiaojuan Dai</i>	
Application of BP Neural Networks in Prediction of the Material Dynamic Properties	68
<i>Xiao-ling Liu, Shun-cheng Song, and Ting Lei</i>	
Spaces Enhance Word Segmentation and Comprehension in Tacit Reading	76
<i>Mayumi Toshima, Tetsuo Ishikawa, and Ken Mogi</i>	
Intelligent Semantic-Based System for Corpus Analysis through Hybrid Probabilistic Neural Networks	83
<i>Keith Douglas Stuart, Maciej Majewski, and Ana Botella Trelis</i>	
Decision-Making in Drosophila with Two Conflicting Cues	93
<i>Kuijie Cai, Jihong Shen, and Si Wu</i>	

Neurodynamics and Complex Systems

Time-Varying Quadratic Programming by Zhang Neural Network Equipped with a Time-Varying Design Parameter $\gamma(t)$	101
<i>Zhan Li and Yunong Zhang</i>	
Local and Global Burst Synchronization in a Noisy Small-World Neuronal Network	109
<i>Fang Han, Ying Du, and Qishao Lu</i>	
H_∞ Synchronization Control in Nonlinear Time-Delay Complex Dynamical Network	117
<i>Ting Xiang and Minghui Jiang</i>	
Anti-synchronization and Control of New Chen's Hyperchaotic Systems	125
<i>Zunshui Cheng</i>	
Hopf Bifurcation Control for a Single Neuron Model with Delay-Dependent Parameters via State Feedback	132
<i>Min Xiao</i>	
Changes in Electroencephalographic Power Spectra Associated with Reproductive Status in Frog	139
<i>Guangzhan Fang, Jianguo Cui, Qin Chen, Ping Yang, Jing Song, and Yezhong Tang</i>	
Universal Analysis Method for Stability of Recurrent Neural Networks with Different Multiple Delays	148
<i>Zhanshan Wang, Enlin Zhang, Kuo Yun, and Huaguang Zhang</i>	
A Class of New Generalized AOR Method for Augmented Systems	158
<i>Yu-xin Zhang, Heng-fei Ding, Wan-sheng He, and San-fu Wang</i>	
Detecting the Topology of a Neural Network from Partially Obtained Data Using Piecewise Granger Causality	166
<i>Xiaoqun Wu, Changsong Zhou, Jun Wang, and Jun-an Lu</i>	
A Survey of Signal Propagation in Feedforward Neuronal Networks	176
<i>Daqing Guo</i>	

Stability and Convergence Analysis

Stability of Stochastic Cohen-Grossberg Neural Networks with Mixed Time Delay and Markovian Parameters	185
<i>Junxiang Lu, ShanShan Wang, and Chengyi Zhang</i>	
Exponential Stability of Stochastic Neural Networks with Mixed Time-Delays	194
<i>Xuejing Meng, Maosheng Tian, Peng Hu, and Shigeng Hu</i>	

Stability of Neural Networks with Both Impulses and Time-Varying Delays on Time Scale	203
<i>Yupei Lv, Bo Zhou, and Qiankun Song</i>	
Synchronization of Nonidentical Chaotic Neural Networks with Time-Varying Delays	213
<i>Qiankun Song</i>	
Blow-Up for a Class of Parabolic Equations with Nonlinear Boundary Conditions	222
<i>Leina Zhao</i>	
Cluster Synchronization for Discrete-Time Complex Networks	231
<i>Huiwei Wang and Qiankun Song</i>	
Stability Analysis of Fourth-Order Chua's Circuit	241
<i>Chunfang Miao and Yunquan Ke</i>	
A Phase Reduction Method for Weakly Coupled Stochastic Oscillator Systems	251
<i>Akihisa Ichiki and Yasuomi D. Sato</i>	
Anti-periodic Solutions for High-Order Neural Networks with Mixed Time Delays	260
<i>Xiaofeng Chen and Qiankun Song</i>	
Comparisons of Single- and Multiple-Hidden-Layer Neural Networks	270
<i>Takehiko Nakama</i>	
Stability of Cohen-Grossberg Neural Networks with Unbounded Time-Varying Delays	280
<i>Bo Liu and Wenlian Lu</i>	
Thermal Effects on Phase Response Curves and Synchronization Transition	287
<i>Yasuomi D. Sato, Keiji Okumura, Akihisa Ichiki, and Masatoshi Shiino</i>	
Robust H_∞ Filter Design of Delayed Neural Networks	297
<i>He Huang and Xiaoping Chen</i>	
On Metastability of Cellular Neural Networks with Random Perturbations	305
<i>Liqiong Zhou and Wenlian Lu</i>	
Fractional-Order Boundary Controller of the Anti-stable Vibration Systems	315
<i>Yanzhu Zhang, Xiaoyan Wang, and Yanmei Wang</i>	

Existence and Global Stability of Periodic Solutions of Generalized-Brain-State-in-a-Box (GBSB) Neural Models	321
<i>Zhengxin Wang and Jinde Cao</i>	
Neural Network-Based Dynamic Surface Control of Nonlinear Systems with Unknown Virtual Control Coefficient	329
<i>Yingchun Wang, Guotao Hui, Zhiliang Wang, and Huaguang Zhang</i>	
Stochastic Stability Analysis of Delayed Hopfield Neural Networks with Impulse Effects	339
<i>Wenfeng Hu, Chuandong Li, Sichao Wu, and Xiaofeng Liao</i>	
New LMI-Based Criteria for Global Robust Stability of Cohen-Grossberg Neural Networks with Time-Varying Delays	348
<i>Chaojin Fu, Dahu Li, and Huan Tong</i>	
Asymptotical Stability of an SEIS Epidemic Model with Latent Age Dependence and Generally Nonlinear Contact Rate	358
<i>Yeling Liu and Zhonghua Zhang</i>	
Stochastic Exponential Stability of Cohen-Grossberg Neural Networks with Markovian Jumping Parameters and Mixed Delays	368
<i>Xiaohui Xu, Jiye Zhang, and Weihua Zhang</i>	

Neural Network Models

Periodic Solutions for High-Order Cohen-Grossberg-Type BAM Neural Networks with Time-Delays	375
<i>Yunquan Ke and Chunfang Miao</i>	
Simulation and Verification of Zhang Neural Networks and Gradient Neural Networks for Time-Varying Stein Equation Solving	385
<i>Chenfu Yi, Yuhuan Chen, and Huajin Wang</i>	
Comparison on Continuous-Time Zhang Dynamics and Newton-Raphson Iteration for Online Solution of Nonlinear Equations	393
<i>Yunong Zhang, Zhende Ke, Zhan Li, and Dongsheng Guo</i>	
ELM-Based Time-Variant Neural Networks with Incremental Number of Output Basis Functions	403
<i>Yibin Ye, Stefano Squartini, and Francesco Piazza</i>	
Invariant Set and Attractor of Discrete-Time Impulsive Recurrent Neural Networks	411
<i>Bing Li and Qiankun Song</i>	

Optimal Control for Boiler Combustion System Based on Iterative Heuristic Dynamic Programming	420
<i>Bilian Liao, Kui Peng, Shaojian Song, and Xiaofeng Lin</i>	
Power System Load Forecasting Based on EEMD and ANN	429
<i>Wanlu Sun, Zhigang Liu, and Wenfan Li</i>	
Analog Circuit Fault Diagnosis with Echo State Networks Based on Corresponding Clusters	437
<i>Xiyuan Peng, Jia Guo, Miao Lei, and Yu Peng</i>	
Anti Boundary Effect Wavelet Decomposition Echo State Networks	445
<i>Jianmin Wang, Yu Peng, and Xiyuan Peng</i>	
Research on Water Level Optimal Control of Boiler Drum Based on Dual Heuristic Dynamic Programming	455
<i>Qingbao Huang, Shaojian Song, Xiaofeng Lin, and Kui Peng</i>	
Fuzzy Clustering-Based Polynomial Radial Basis Function Neural Networks (p-RBF NNs) Classifier Designed with Particle Swarm Optimization	464
<i>Wook-Dong Kim, Sung-Kwun Oh, and Hyun-Ki Kim</i>	
Application of RBF Neural Network and Nonlinear Particle Filter in the Synthetic Ammonia Decarbonylation	474
<i>Yongwei Li, Jia Zhong, Tao Yuan, and Ying Zhang</i>	
Elman-Style Process Neural Network with Application to Aircraft Engine Health Condition Monitoring	484
<i>Gang Ding and Lin Lin</i>	
A Novel Spatial Architecture Artificial Neural Network Based on Multilayer Feedforward Network with Mutual Inhibition among Hidden Units	495
<i>Gang Yang, Junfei Qiao, and Mingzhe Yuan</i>	
sEMG Signal Classification for the Motion Pattern of Intelligent Bionic Artificial Limb	505
<i>Yang Li, Yantao Tian, and Wanzhong Chen</i>	
Dynamic Construction of Multilayer Neural Networks for Classification	514
<i>Jiqian Liu and Yunde Jia</i>	
Existence of Periodic Solutions for Cohen-Grossberg Neural Networks with Time-Varying Delays and Impulses	521
<i>Chunxue Wu</i>	

Telecommunications Data Forecasting Based on a Dynamic Neuro-Fuzzy Network	529
<i>Paris A. Mastorocostas and Constantinos S. Hilar</i>	
Evolutionary Learning of Regularization Networks with Multi-kernel Units	538
<i>Petra Vidnerová and Roman Neruda</i>	
Solving the Assignment Problem with the Improved Dual Neural Network	547
<i>Xiaolin Hu and Jun Wang</i>	
Evaluating Model on Effectiveness of Network Defense Missile Based on LMBP Neural Network	557
<i>Cenrui Ma, Guangzheng Long, and Yun Yang</i>	
A New Neural Network for Solving Nonlinear Programming Problems	565
<i>Yun Gao, Xianyun Xu, and Yongqing Yang</i>	
The AIC Based on the Neural Network Filter	572
<i>Yunfeng He, Gaoshun Song, Changming Wang, and Junsheng Jiao</i>	
Ranked Neuro Fuzzy Inference System (RNFIS) for Information Retrieval	578
<i>Asif Nawaz and Aasia Khanum</i>	
The Study on Models Adjustment and Generation Capability of Artificial Neural Network	587
<i>Shenglai Xia, Jingwu He, and Hongyu Chu</i>	
Supervised Learning	
View Construction for Multi-view Semi-supervised Learning	595
<i>Shiliang Sun, Feng Jin, and Wenting Tu</i>	
Fast Learning Fully Complex-Valued Classifiers for Real-Valued Classification Problems	602
<i>R. Savitha, S. Suresh, N. Sundararajan, and H.J. Kim</i>	
Urban Stormwater Runoff Prediction Using Recurrent Neural Networks	610
<i>Nian Zhang</i>	
Maximal-Margin Approach for Cost-Sensitive Learning Based on Scaled Convex Hull	620
<i>Zhenbing Liu</i>	
Erratum	
Decision-Making in Drosophila with Two Conflicting Cues	E1
<i>Kuijie Cai, Jihong Shen, and Si Wu</i>	
Author Index	629

Table of Contents – Part II

Supervised Learning and Unsupervised Learning

Maximum Variance Sparse Mapping	1
<i>Bo Li, Jin Liu, and Wenyong Dong</i>	
Contourlet-Based Texture Classification with Product Bernoulli Distributions	9
<i>Yongsheng Dong and Jinwen Ma</i>	
Resampling Methods versus Cost Functions for Training an MLP in the Class Imbalance Context	19
<i>R. Alejo, P. Toribio, J.M. Sotoca, R.M. Valdovinos, and E. Gasca</i>	
Prediction of Urban Stormwater Runoff in Chesapeake Bay Using Neural Networks	27
<i>Nian Zhang</i>	
One-Shot Learning of Poisson Distributions in Serial Analysis of Gene Expression	37
<i>Peter Tiño</i>	
Simultaneous Model Selection and Feature Selection via BYY Harmony Learning	47
<i>Hongyan Wang and Jinwen Ma</i>	

Kernel Methods and Support Vector Machines

The Characteristics Study on LBP Operator in Near Infrared Facial Image	57
<i>Qiang Chen and Weiqing Tong</i>	
Fault Diagnosis for Smart Grid with Uncertainty Information Based on Data	66
<i>Qiuye Sun, Zhongxu Li, Jianguo Zhou, and Xue Liang</i>	
Sparse Kernel Regression for Traffic Flow Forecasting	76
<i>Rongqing Huang, Shiliang Sun, and Yan Liu</i>	
Rate-Dependent Hysteresis Modeling and Compensation Using Least Squares Support Vector Machines	85
<i>Qingsong Xu, Pak-Kin Wong, and Yangmin Li</i>	
Nomogram Visualization for Ranking Support Vector Machine	94
<i>Nguyen Thi Thanh Thuy, Nguyen Thi Ngoc Vinh, and Ngo Anh Vien</i>	

New Multi-class Classification Method Based on the SVDD Model	103
<i>Lei Yang, Wei-Min Ma, and Bo Tian</i>	
Intelligence Statistical Process Control in Cellular Manufacturing Based on SVM	113
<i>Shaoriong Wu</i>	
Morlet-RBF SVM Model for Medical Images Classification	121
<i>Huiyan Jiang, Xiangying Liu, Lingbo Zhou, Hiroshi Fujita, and Xiangrong Zhou</i>	
COD Prediction for SBR Batch Processes Based on MKPCA and LSSVM Method	130
<i>XiaoPing Guo and LiPing Fan</i>	

Mixture Models and Clustering

A Fixed-Point EM Algorithm for Straight Line Detection	136
<i>Chonglun Fang and Jinwen Ma</i>	
A Novel Classifier Ensemble Method Based on Class Weightening in Huge Dataset	144
<i>Hamid Parvin, Behrouz Minaei, Hosein Alizadeh, and Akram Beigi</i>	
Network-Scale Traffic Modeling and Forecasting with Graphical Lasso	151
<i>Ya Gao, Shiliang Sun, and Dongyu Shi</i>	
Learning Curve Model for Torpedo Based on Neural Network	159
<i>Min-guan Zhao, Qing-wei Liang, Shanshan Jiang, and Ping Chen</i>	
An Efficient EM Approach to Parameter Learning of the Mixture of Gaussian Processes	165
<i>Yan Yang and Jinwen Ma</i>	
Boundary Controller of the Anti-stable Fractional-Order Vibration Systems	175
<i>Yanzhu Zhang, Xiaoyan Wang, and Yanmei Wang</i>	
Stochastic p -Hub Center Problem with Discrete Time Distributions	182
<i>Kai Yang, Yankui Liu, and Xin Zhang</i>	
Orthogonal Feature Learning for Time Series Clustering	192
<i>Xiaozhe Wang and Leo Lopes</i>	
A Text Document Clustering Method Based on Ontology	199
<i>Yi Ding and Xian Fu</i>	

Visual Perception and Pattern Recognition

Visual Tracking Using Iterative Sparse Approximation	207
<i>Huaping Liu, Fuchun Sun, and Meng Gao</i>	
Orientation Representation and Efficiency Trade-off of a Biological Inspired Computational Vision Model	215
<i>Yuxiang Jiang and Hui Wei</i>	
The Application of Genetic Algorithm Based Support Vector Machine for Image Quality Evaluation	225
<i>Li Cui and SongYun Xie</i>	
A Gabor Wavelet Pyramid-Based Object Detection Algorithm	232
<i>Yasuomi D. Sato, Jenia Jitsev, Joerg Bornschein, Daniela Pamplona, Christian Keck, and Christoph von der Malsburg</i>	
Quality Evaluation of Digital Image Watermarking	241
<i>Xinhong Zhang, Fan Zhang, and Yuli Xu</i>	
Ensemble of Global and Local Features for Face Age Estimation	251
<i>Wankou Yang, Cuixian Chen, Karl Ricanek, and Changyin Sun</i>	
A Filter Based Feature Selection Approach Using Lempel Ziv Complexity	260
<i>Sultan Uddin Ahmed, Md. Fazle Elahi Khan, and Md. Shahjahan</i>	
Finger-Knuckle-Print Recognition Using LGBP	270
<i>Ming Xiong, Wankou Yang, and Changyin Sun</i>	
Applying ICA and SVM to Mixture Control Chart Patterns Recognition in a Process	278
<i>Chi-Jie Lu, Yuehjen E. Shao, and Chao-Liang Chang</i>	
Gender Classification Using the Profile	288
<i>Wankou Yang, Amrutha Sethuram, Eric Patternson, Karl Ricanek, and Changyin Sun</i>	
Face Recognition Based on Gabor Enhanced Marginal Fisher Model and Error Correction SVM	296
<i>Yun Xing, Qingshan Yang, and Chengan Guo</i>	
Facial Expression Recognition by Independent Log-Gabor Component Analysis	305
<i>Siyao Fu, Xinkai Kuai, and Guosheng Yang</i>	
Learning Hierarchical Dictionary for Shape Patterns	313
<i>Xiaobing Liu and Bo Zhang</i>	

Motion, Tracking and Object Recognition

Sparse Based Image Classification with Different Keypoints Descriptors	323
<i>Yuanyuan Zuo and Bo Zhang</i>	
Where-What Network with CUDA: General Object Recognition and Location in Complex Backgrounds	331
<i>Yuekai Wang, Xiaofeng Wu, Xiaoying Song, Wengqiang Zhang, and Juyang Weng</i>	
Fast Human Detection Based on Enhanced Variable Size HOG Features	342
<i>Jifeng Shen, Changyin Sun, Wankou Yang, and Zhongxi Sun</i>	
A Novel Local Illumination Normalization Approach for Face Recognition	350
<i>Zhichao Lian, Meng Joo Er, and Juekun Li</i>	
Rapid Face Detection Algorithm of Color Images under Complex Background	356
<i>Chuan Wan, Yantao Tian, Hongwei Chen, and Xinzhu Wang</i>	
An Improvement Method for Daugmans Iris Localization Algorithm	364
<i>Zhi-yong Peng, Hong-zhou Li, and Jian-ming Liu</i>	
Fire Detection with Video Using Fuzzy C-Means and Back-Propagation Neural Network	373
<i>Tung Xuan Truong and Jong-Myon Kim</i>	
Multiple Kernel Active Learning for Facial Expression Analysis	381
<i>Siyao Fu, Xinkai Kuai, and Guosheng Yang</i>	
Fast Moving Target Detection Based on Gray Correlation Analysis and Background Subtraction	388
<i>Zheng Dang, Songyun Xie, Ge Wang, and Fahad Raza</i>	
Shadow Removal Based on Gray Correlation Analysis and Sobel Edge Detection Algorithm	395
<i>Feng Ji, Xinbo Gao, Zheng Dang, and Songyun Xie</i>	
Moving Object Detecting System with Phase Discrepancy	402
<i>Qiang Wang, Wenjun Zhu, and Liqing Zhang</i>	
Automation of Virtual Interview System Using the Gesture Recognition of Particle Filter	412
<i>Yang Weon Lee</i>	

Natural Scene Analysis and Speech Recognition

Performance Analysis of Improved Affinity Propagation Algorithm for Image Semantic Annotation	420
<i>Dong Yang and Ping Guo</i>	
Learning Variance Statistics of Natural Images	429
<i>Libo Ma, Malte J. Rasch, and Si Wu</i>	
Real-Time Joint Blind Speech Separation and Dereverberation in Presence of Overlapping Speakers	437
<i>Rudy Rotili, Emanuele Principi, Stefano Squartini, and Francesco Piazza</i>	
Audio Segmentation and Classification Using a Temporally Weighted Fuzzy C-Means Algorithm	447
<i>Ngoc Thi Thu Nguyen, Mohammad A. Haque, Cheol-Hong Kim, and Jong-Myon Kim</i>	
Extracting Specific Signal from Post-nonlinear Mixture Based on Maximum Negentropy	457
<i>Dongxiao Ren, Mao Ye, and Yuanxiang Zhu</i>	
A Method to Detect JPEG-Based Double Compression	466
<i>Qingzhong Liu, Andrew H. Sung, and Mengyu Qiao</i>	
Semi Supervised Learning for Prediction of Prosodic Phrase Boundaries in Chinese TTS Using Conditional Random Fields	477
<i>Ziping Zhao, Xirong Ma, and Weidong Pei</i>	
Singer Identification Using Time-Frequency Audio Feature	486
<i>Pafan Doungpaisan</i>	
Robust Multi-stream Keyword and Non-linguistic Vocalization Detection for Computationally Intelligent Virtual Agents.....	496
<i>Martin Wöllmer, Erik Marchi, Stefano Squartini, and Björn Schuller</i>	

Neuromorphic Hardware, Fuzzy Neural Networks and Robotics

On Control of Hopf Bifurcation in a Class of TCP/AQM Networks	506
<i>Jianzhi Cao and Haijun Jiang</i>	
State Feedback Control Based on Twin Support Vector Regression Compensating for a Class of Nonlinear Systems	515
<i>Chaoxu Mu, Changyin Sun, and Xinghuo Yu</i>	

Genetic Dynamic Fuzzy Neural Network (GDFNN) for Nonlinear System Identification	525
<i>Mahardhika Pratama, Meng Joo Er, Xiang Li, Lin San, J.O. Richard, L.-Y. Zhai, Amin Torabi, and Imam Arifin</i>	
Adaptive Robust NN Control of Nonlinear Systems	535
<i>Guo-Xing Wen, Yan-Jun Liu, and C.L. Philip Chen</i>	
A Generalized Online Self-constructing Fuzzy Neural Network	542
<i>Ning Wang, Yue Tan, Dan Wang, and Shaoman Liu</i>	
Adaptive Fuzzy Control of an Active Vibration Isolator	552
<i>Naibiao Zhou, Kefu Liu, Xiaoping Liu, and Bing Chen</i>	
Fuzzy-Adaptive Fault-Tolerant Control of High Speed Train Considering Traction/Braking Faults and Nonlinear Resistive Forces....	563
<i>M.R. Wang, Y.D. Song, Q. Song, and Peng Han</i>	
Robust Cascaded Control of Propeller Thrust for AUVs	574
<i>Wei-lin Luo and Zao-jian Zou</i>	
A Developmental Learning Based on Learning Automata.....	583
<i>Xiaogang Ruan, Lizhen Dai, Gang Yang, and Jing Chen</i>	

Multi-agent Systems and Adaptive Dynamic Programming

Meddler, Agents in the Bounded Confidence Model on Flocking Movement World	591
<i>Shusong Li, Shiyong Zhang, and Binglin Dou</i>	
Statistical Optimal Control Using Neural Networks.....	601
<i>Bei Kang and Chang-Hee Won</i>	
Adaptive Kernel-Width Selection for Kernel-Based Least-Squares Policy Iteration Algorithm	611
<i>Jun Wu, Xin Xu, Lei Zuo, Zhaobin Li, and Jian Wang</i>	
Finite Horizon Optimal Tracking Control for a Class of Discrete-Time Nonlinear Systems	620
<i>Qinglai Wei, Ding Wang, and Derong Liu</i>	
Optimal Control for a Class of Unknown Nonlinear Systems via the Iterative GDHP Algorithm	630
<i>Ding Wang and Derong Liu</i>	
Author Index	641

Table of Contents – Part III

Reinforcement Learning and Decision Making

An Adaptive Dynamic Programming Approach for Closely-Coupled MIMO System Control	1
<i>Jian Fu, Haibo He, Qing Liu, and Zhen Ni</i>	
Adaptive Dual Heuristic Programming Based on Delta-Bar-Delta Learning Rule	11
<i>Jun Wu, Xin Xu, Chuanqiang Lian, and Yan Huang</i>	
A Design Decision-Making Support Model for Prioritizing Affective Qualities of Product	21
<i>Chun-Chih Chen and Ming-Chuen Chuan</i>	
Local Search Heuristics for Robotic Routing Planner	31
<i>Stanislav Slušný and Roman Neruda</i>	

Action and Motor Control

Fuzzy Disturbance-Observer Based Control of Electrically Driven Free-Floating Space Manipulator	41
<i>Zhongyi Chu and Jing Cui</i>	
Dynamic Neural Network Control for Voice Coil Motor with Hysteresis Behavior	50
<i>Xuanju Dang, Fengjin Cao, and Zhanjun Wang</i>	
A New Model Reference Adaptive Control of PMSM Using Neural Network Generalized Inverse	58
<i>Guohai Liu, Beibei Dong, Lingling Chen, and Wenxiang Zhao</i>	
RBF Neural Network Application in Internal Model Control of Permanent Magnet Synchronous Motor	68
<i>Guohai Liu, Lingling Chen, Beibei Dong, and Wenxiang Zhao</i>	
Transport Control of Underactuated Cranes	77
<i>Dianwei Qian, Boya Zhang, and Xiangjie Liu</i>	
Sliding Mode Prediction Based Tracking Control for Discrete-time Nonlinear Systems	84
<i>Lingfei Xiao and Yue Zhu</i>	

Adaptive and Hybrid Intelligent Systems

A Single Shot Associated Memory Based Classification Scheme for WSN	94
<i>Nomica Imran and Asad Khan</i>	
Dynamic Structure Neural Network for Stable Adaptive Control of Nonlinear Systems	104
<i>Jingye Lei</i>	
A Position-Velocity Cooperative Intelligent Controller Based on the Biological Neuroendocrine System	112
<i>Chongbin Guo, Kuangrong Hao, Yongsheng Ding, Xiao Liang, and Yiwen Dou</i>	
A Stable Online Self-Constructing Recurrent Neural Network	122
<i>Qili Chen, Wei Chai, and Junfei Qiao</i>	
Evaluation of SVM Classification of Avatar Facial Recognition	132
<i>Sonia Ajina, Roman V. Yampolskiy, and Najoua Essoukri Ben Amara</i>	
Optimization Control of Rectifier in HVDC System with ADHDP	143
<i>Chunning Song, Xiaohua Zhou, Xiaofeng Lin, and Shaojian Song</i>	
Network Traffic Prediction Based on Wavelet Transform and Season ARIMA Model	152
<i>Yongtao Wei, Jinkuan Wang, and Cuirong Wang</i>	
Dynamic Bandwidth Allocation for Preventing Congestion in Data Center Networks	160
<i>Cong Wang, Cui-rong Wang, and Ying Yuan</i>	
Software Comparison Dealing with Bayesian Networks	168
<i>Mohamed Ali Mahjoub and Karim Kalti</i>	
Adaptive Synchronization on Edges of Complex Networks	178
<i>Wenwu Yu</i>	
Application of Dual Heuristic Programming in Excitation System of Synchronous Generators	188
<i>Yuzhang Lin and Chao Lu</i>	
A Neural Network Method for Image Resolution Enhancement from a Multiple of Image Frames	200
<i>Shuangteng Zhang and Ezzatollah Salari</i>	
Multiparty Simultaneous Quantum Secure Direct Communication Based on GHZ States and Mutual Authentication	209
<i>Wenjie Liu, Jingfa Liu, Hao Xiao, Tinghuai Ma, and Yu Zheng</i>	

A PSO-Based Bacterial Chemotaxis Algorithm and Its Application	219
<i>Rui Zhang, Jianzhong Zhou, Youlin Lu, Hui Qin, and Huifeng Zhang</i>	
Predicting Stock Index Using an Integrated Model of NLICA, SVR and PSO	228
<i>Chi-Jie Lu, Jui-Yu Wu, Chih-Chou Chiu, and Yi-Jun Tsai</i>	
Affective Classification in Video Based on Semi-supervised Learning	238
<i>Shangfei Wang, Huan Lin, and Yongjie Hu</i>	
Incorporating Feature Selection Method into Neural Network Techniques in Sales Forecasting of Computer Products	246
<i>Chi-Jie Lu, Jui-Yu Wu, Tian-Shyug Lee, and Chia-Mei Lian</i>	
Design of Information Granulation-Based Fuzzy Models with the Aid of Multi-objective Optimization and Successive Tuning Method	256
<i>Wei Huang, Sung-Kwun Oh, and Jeong-Tae Kim</i>	
Design of Fuzzy Radial Basis Function Neural Networks with the Aid of Multi-objective Optimization Based on Simultaneous Tuning	264
<i>Wei Huang, Lixin Ding, and Sung-Kwun Oh</i>	
The Research of Power Battery with Ultra-capacitor for Hybrid Vehicle	274
<i>Jia Wang, Yingchun Wang, and Guotao Hui</i>	

Neuroinformatics and Bioinformatics

Stability Analysis of Genetic Regulatory Networks with Mixed Time-Delays	280
<i>Zhanheng Chen and Haijun Jiang</i>	
Representing Boolean Functions Using Polynomials: More Can Offer Less	290
<i>Yi Ming Zou</i>	
The Evaluation of Land Utilization Intensity Based on Artificial Neural Network: A Case of Zhejiang Province	297
<i>Jianchun Xu, Huan Li, and Zhiyuan Xu</i>	
Dimension Reduction of RCE Signal by PCA and LPP for Estimation of the Sleeping	306
<i>Yohei Tomita, Yasue Mitsukura, Toshihisa Tanaka, and Jianting Cao</i>	
Prediction of Oxygen Decarburization Efficiency Based on Mutual Information Case-Based Reasoning	313
<i>Min Han and Liwen Jiang</i>	

Off-line Signature Verification Based on Multitask Learning	323
<i>You Ji, Shiliang Sun, and Jian Jin</i>	
Modeling and Classification of sEMG Based on Instrumental Variable Identification	331
<i>Xiaojing Shang, Yantao Tian, and Yang Li</i>	
Modeling and Classification of sEMG Based on Blind Identification Theory	340
<i>Yang Li, Yantao Tian, Xiaojing Shang, and Wanzhong Chen</i>	
Micro-Blood Vessel Detection Using K-Means Clustering and Morphological Thinning	348
<i>Zhongming Luo, Zhuofu Liu, and Junfu Li</i>	
PCA Based Regional Mutual Information for Robust Medical Image Registration	355
<i>Yen-Wei Chen and Chen-Lun Lin</i>	
Discrimination of Thermophilic and Mesophilic Proteins via Artificial Neural Networks	363
<i>Jingru Xu and Yuehui Chen</i>	

Information Retrieval

Using Grey Relation Analysis and TOPSIS to Measure PCB Manufacturing Firms Efficiency in Taiwan	370
<i>Rong-Tsu Wang</i>	
Application of Neural Network for the Prediction of Eco-efficiency	380
<i>Stawomir Golak, Dorota Burchart-Korol, Krystyna Czaplicka-Kolarz, and Tadeusz Wiecezorek</i>	
Using Associative Memories for Image Segmentation	388
<i>Enrique Guzmán, Ofelia M.C. Jiménez, Alejandro D. Pérez, and Oleksiy Pogrebnyak</i>	
Web Recommendation Based on Back Propagation Neural Networks	397
<i>Jiang Zhong, Shitao Deng, and Yifeng Cheng</i>	
A Multi-criteria Target Monitoring Strategy Using MinMax Operator in Formed Virtual Sensor Networks	407
<i>Xin Song, Cuirong Wang, and Juan Wang</i>	

Data Mining and Knowledge Discovery

Application of a Novel Data Mining Method Based on Wavelet Analysis and Neural Network Satellite Clock Bias Prediction	416
<i>Chengjun Guo and Yunlong Teng</i>	

Particle Competition and Cooperation for Uncovering Network Overlap Community Structure	426
<i>Fabricio Breve, Liang Zhao, Marcos Quiles, Witold Pedrycz, and Jiming Liu</i>	
Part-Based Transfer Learning	434
<i>Zhijie Xu and Shiliang Sun</i>	
A Parallel Wavelet Algorithm Based on Multi-core System and Its Application in the Massive Data Compression	442
<i>Xiaofan Lu, Zhigang Liu, Zhiwei Han, and Feng Wu</i>	
Predicting Carbon Emission in an Environment Management System ...	450
<i>Manas Pathak and Xiaozhe Wang</i>	
Classification of Pulmonary Nodules Using Neural Network Ensemble...	460
<i>Hui Chen, Wenfang Wu, Hong Xia, Jing Du, Miao Yang, and Binrong Ma</i>	
Combined Three Feature Selection Mechanisms with LVQ Neural Network for Colon Cancer Diagnosis	467
<i>Tianlei Zang, Dayun Zou, Fei Huang, and Ning Shen</i>	
Estimation of Groutability of Permeation Grouting with Microfine Cement Grouts Using RBFNN	475
<i>Kuo-Wei Liao and Chien-Lin Huang</i>	
Improving Text Classification with Concept Index Terms and Expansion Terms	485
<i>XiangHua Fu, LianDong Liu, TianXue Gong, and Lan Tao</i>	
Automated Personal Course Scheduling Adaptive Spreading Activation Model	493
<i>Yukio Hori, Takashi Nakayama, and Yoshiro Imai</i>	
Transfer Learning through Domain Adaptation	505
<i>Huaxiang Zhang</i>	
The Design of Evolutionary Multiple Classifier System for the Classification of Microarray Data	513
<i>Kun-Hong Liu, Qing-Qiang Wu, and Mei-Hong Wang</i>	
Semantic Oriented Clustering of Documents	523
<i>Alessio Leoncini, Fabio Sangiacomo, Sergio Decherchi, Paolo Gastaldo, and Rodolfo Zunino</i>	
Support Vector Machines versus Back Propagation Algorithm for Oil Price Prediction	530
<i>Adnan Khashman and Nnamdi I. Nwulu</i>	

Ultra-Short Term Prediction of Wind Power Based on Multiples Model Extreme Leaning Machine	539
<i>Ting Huang, Xin Wang, Lixue Li, Lidan Zhou, and Gang Yao</i>	
<i>BursT</i> : A Dynamic Term Weighting Scheme for Mining Microblogging Messages	548
<i>Chung-Hong Lee, Chih-Hong Wu, and Tzan-Feng Chien</i>	
Towards an RDF Encoding of ConceptNet	558
<i>Marco Grassi and Francesco Piazza</i>	
Modeling of Potential Customers Identification Based on Correlation Analysis and Decision Tree	566
<i>Kai Peng and Daoyun Xu</i>	
An Innovative Feature Selection Using Fuzzy Entropy	576
<i>Hamid Parvin, Behrouz Minaei-Bidgoli, and Hossein Ghaffarian</i>	
Study on the Law of Short Fatigue Crack Using Genetic Algorithm-BP Neural Networks	586
<i>Zheng Wang, Zihao Zhao, Lu Wang, and Kui Wang</i>	

Natural Language Processing

Large Vocabulary Continuous Speech Recognition of Uyghur: Basic Research of Decoder	594
<i>Muhetaer Shadike, Xiao Li, and Buheliqiguli Wasili</i>	
Sentic Medoids: Organizing Affective Common Sense Knowledge in a Multi-dimensional Vector Space	601
<i>Erik Cambria, Thomas Mazzocco, Amir Hussain, and Chris Eckl</i>	
Detecting Emotions in Social Affective Situations Using the EmotiNet Knowledge Base	611
<i>Alexandra Balahur, Jesús M. Hermida, and Andrés Montoyo</i>	
3-Layer Ontology Based Query Expansion for Searching	621
<i>Li Liu and Fangfang Li</i>	
Chinese Speech Recognition Based on a Hybrid SVM and HMM Architecture	629
<i>Xingxian Luo</i>	
Author Index	637