

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

Tingwen Huang Zhigang Zeng
Chuandong Li Chi Sing Leung (Eds.)

Neural Information Processing

19th International Conference, ICONIP 2012
Doha, Qatar, November 12-15, 2012
Proceedings, Part III

Volume Editors

Tingwen Huang

Texas A&M University at Qatar, Education City

P.O. Box 23874, Doha, Qatar

E-mail: tingwen.huang@qatar.tamu.edu

Zhigang Zeng

Huazhong University of Science and Technology

Department of Control Science and Engineering

1037 Luoyu Road, Wuhan, Hubei 430074, China

E-mail: zgzen@gmail.com

Chuandong Li

Chongqing University, College of Computer Science

174 Shazhengjie Street, Chongqing 400044, China

E-mail: licd@cqu.edu.cn

Chi Sing Leung

City University of Hong Kong, Department of Electronic Engineering

83 Tat Chee Avenue, Kowloon, Hong Kong, China

E-mail: eeleungc@cityu.edu.hk

ISSN 0302-9743

e-ISSN 1611-3349

ISBN 978-3-642-34486-2

e-ISBN 978-3-642-34487-9

DOI 10.1007/978-3-642-34487-9

Springer Heidelberg Dordrecht London New York

Library of Congress Control Number: 2012949896

CR Subject Classification (1998): F.1, I.2, I.4-5, H.3-4, G.3, J.3, C.1.3, C.3

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

© Springer-Verlag Berlin Heidelberg 2012

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

This volume is part of the five-volume proceedings of the 19th International Conference on Neural Information Processing (ICONIP 2012), which was held in Doha, Qatar, during November 12–15, 2012. ICONIP is the annual conference of the Asia Pacific Neural Network Assembly (APNNA). This series of conferences has been held annually since 1994 and has become one of the premier international conferences in the areas of neural networks.

Over the past few decades, the neural information processing community has witnessed tremendous efforts and developments from all aspects of neural information processing research. These include theoretical foundations, architectures and network organizations, modeling and simulation, empirical study, as well as a wide range of applications across different domains. Recent developments in science and technology, including neuroscience, computer science, cognitive science, nano-technologies, and engineering design, among others, have provided significant new understandings and technological solutions to move neural information processing research toward the development of complex, large-scale, and networked brain-like intelligent systems. This long-term goal can only be achieved with continuous efforts from the community to seriously investigate different issues of the neural information processing and related fields. To this end, ICONIP 2012 provided a powerful platform for the community to share their latest research results, to discuss critical future research directions, to stimulate innovative research ideas, as well as to facilitate multidisciplinary collaborations worldwide.

ICONIP 2012 received tremendous submissions authored by scholars coming from 60 countries and regions across six continents. Based on a rigorous peer-review process, where each submission was evaluated by at least two reviewers, about 400 high-quality papers were selected for publication in the prestigious series of *Lecture Notes in Computer Science*. These papers cover all major topics of theoretical research, empirical study, and applications of neural information processing research. In addition to the contributed papers, the ICONIP 2012 technical program included 14 keynote and plenary speeches by Majid Ahmadi (University of Windsor, Canada), Shun-ichi Amari (RIKEN Brain Science Institute, Japan), Guanrong Chen (City University of Hong Kong, Hong Kong), Leon Chua (University of California at Berkeley, USA), Robert Desimone (Massachusetts Institute of Technology, USA), Stephen Grossberg (Boston University, USA), Michael I. Jordan (University of California at Berkeley, USA), Nikola Kasabov (Auckland University of Technology, New Zealand), Juergen Kurths (University of Potsdam, Germany), Erkki Oja (Aalto University, Finland), Marios M. Polycarpou (University of Cyprus, Cyprus), Leszek Rutkowski (Technical University of Czesochowa, Poland), Ron Sun (Rensselaer Polytechnic Institute, USA), and Jun Wang (Chinese University of Hong Kong, Hong Kong). The

ICONIP technical program included two panels. One was on “Challenges and Promises in Computational Intelligence” with panelists: Shun-ichi Amari, Leon Chua, Robert Desimone, Stephen Grossberg and Michael I. Jordan; the other one was on “How to Write Better Technical Papers for International Journals in Computational Intelligence” with panelists: Derong Liu (University of Illinois of Chicago, USA), Michel Verleysen (Université catholique de Louvain, Belgium), Deliang Wang (Ohio State University, USA), and Xin Yao (University of Birmingham, UK). The ICONIP 2012 technical program was enriched by 16 special sessions and “The 5th International Workshop on Data Mining and Cybersecurity.” We highly appreciate all the organizers of special sessions and workshop for their tremendous efforts and strong support.

Our conference would not have been successful without the generous patronage of our sponsors. We are most grateful to our platinum sponsor: *United Development Company PSC (UDC)*; gold sponsors: *Qatar Petrochemical Company*, *ExxonMobil* and *Qatar Petroleum*; organizers/sponsors: *Texas A&M University at Qatar* and *Asia Pacific Neural Network Assembly*. We would also like to express our sincere thanks to the IEEE Computational Intelligence Society, International Neural Network Society, European Neural Network Society, and Japanese Neural Network Society for technical sponsorship.

We would also like to sincerely thank Honorary Conference Chair Mark Weichold, Honorary Chair of the Advisory Committee Shun-ichi Amari, the members of the Advisory Committee, the APNNA Governing Board and past presidents for their guidance, the Organizing Chairs Rudolph Lorentz and Khalid Qaraqe, the members of the Organizing Committee, Special Sessions Chairs, Publication Committee and Publicity Chairs, for all their great efforts and time in organizing such an event. We would also like to take this opportunity to express our deepest gratitude to the members of the Program Committee and all reviewers for their professional review of the papers. Their expertise guaranteed the high quality of the technical program of the ICONIP 2012!

We would like to express our special thanks to Web manager Wenwen Shen for her tremendous efforts in maintaining the conference website, the publication team including Gang Bao, Huanqiong Chen, Ling Chen, Dai Yu, Xing He, Junjian Huang, Chaobei Li, Cheng Lian, Jiangtao Qi, Wenwen Shen, Shiping Wen, Ailong Wu, Jian Xiao, Wei Yao, and Wei Zhang for spending much time to check the accepted papers, and the logistics team including Hala El-Dakak, Rob Hinton, Geeta Megchiani, Carol Nader, and Susan Rozario for their strong support in many aspects of the local logistics.

Furthermore, we would also like to thank Springer for publishing the proceedings in the prestigious series of *Lecture Notes in Computer Science*. We would, moreover, like to express our heartfelt appreciation to the keynote, plenary, panel, and invited speakers for their vision and discussions on the latest

research developments in the field as well as critical future research directions, opportunities, and challenges. Finally, we would like to thank all the speakers, authors, and participants for their great contribution and support that made ICONIP 2012 a huge success.

November 2012

Tingwen Huang
Zhigang Zeng
Chuandong Li
Chi Sing Leung

Organization

Honorary Conference Chair

Mark Weichold Texas A&M University at Qatar, Qatar

General Chair

Tingwen Huang Texas A&M University at Qatar, Qatar

Program Chairs

Andrew Leung	City University of Hong Kong, Hong Kong
Chuandong Li	Chongqing University, China
Zhigang Zeng	Huazhong University of Science and Technology, China

Advisory Committee

Honorary Chair

Shun-ichi Amari RIKEN Brain Science Institute, Japan

Members

Majid Ahmadi	University of Windsor, Canada
Sabri Arik	Istanbul University, Turkey
Salim Bouzerdoun	University of Wollongong, Australia
Jinde Cao	Southeast University, China
Jonathan H. Chan	King Mongkut's University of Technology, Thailand
Guanrong Chen	City University of Hong Kong, Hong Kong
Tianping Chen	Fudan University, China
Kenji Doya	Okinawa Institute of Science and Technology, Japan
Wlodzislaw Duch	Nicolaus Copernicus University, Poland
Ford Lumban Gaol	Bina Nusantara University, Indonesia
Tom Gedeon	Australian National University, Australia
Stephen Grossberg	Boston University, USA
Haibo He	University of Rhode Island, USA
Akira Hirose	University of Tokyo, Japan
Nikola Kasabov	Auckland University of Technology, New Zealand

Irwin King	The Chinese University of Hong Kong, Hong Kong
James Kwow	Hong Kong University of Science and Technology, Hong Kong
Soo-Young Lee	Advanced Institute of Science and Technology, Korea
Xiaofeng Liao	Chongqing University, China
Chee Peng Lim	Universiti Sains Malaysia, Malaysia
Derong Liu	University of Illinois at Chicago, USA
Bao-Liang Lu	Shanghai Jiao Tong University, China
John MacIntyre	University of Sunderland, UK
Erkki Oja	Helsinki University of Technology, Finland
Nikhil R. Pal	Indian Statistical Institute, India
Marios M. Polycarpou	University of Cyprus, Cyprus
Leszek Rutkowski	Czestochowa University of Technology, Poland
Noboru Ohnishi	Nagoya University, Japan
Ron Sun	Rensselaer Polytechnic Institute, USA
Ko Sakai	University of Tsukuba, Japan
Shiro Usui	RIKEN, Japan
Xin Yao	University of Birmingham, UK
DeLiang Wang	Ohio State University, USA
Jun Wang	Chinese University of Hong Kong, Hong Kong
Li-Po Wang	Nanyang Technological University, Singapore
Rubin Wang	East China University of Science and Technology, China
Zidong Wang	Brunel University, UK
Huaguang Zhang	Northeastern University, China

Organizing Committee

Chairs

Rudolph Lorentz	Texas A&M University at Qatar, Qatar
Khalid Qaraqe	Texas A&M University at Qatar, Qatar

Members

Hassan Bazzi	Texas A&M University at Qatar, Qatar
Hala El-Dakak	Texas A&M University at Qatar, Qatar
Mohamed Elgindi	Texas A&M University at Qatar, Qatar
Jihad Mohamad Jaam	Qatar University, Qatar
Samia Jones	Texas A&M University at Qatar, Qatar
Uvais Ahmed Qidwai	Qatar University, Qatar
Paul Schumacher	Texas A&M University at Qatar, Qatar

Special Sessions Chairs

Zijian Diao	Ohio University, USA
Hassab Elgawi Osman	The University of Tokyo, Japan
Paul Pang	Unitec Institute of Technology, New Zealand

Publicity Chairs

Mehdi Roopaei	Shiraz University, Iran
Enchin Serpedin	Texas A&M University, USA
Maolin Tang	Queensland University of Technology, Australia

Program Committee Members

Sabri Arik	Chi Sing Leung
Emili Balaguer Ballester	Tieshan Li
Gang Bao	Bin Li
Matthew Casey	Yangmin Li
Li Chai	Bo Li
Jonathan Chan	Ruihai Li
Mou Chen	Hai Li
Yangquan Chen	Xiaodi Li
Mingcong Deng	Lizhi Liao
Ji-Xiang Du	Chee-Peng Lim
El-Sayed El-Alfy	Ju Liu
Osman Elgawi	Honghai Liu
Peter Erdi	Jing Liu
Wai-Keung Fung	C.K. Loo
Yang Gao	Luis Martínez López
Erol Gelenbe	Wenlian Lu
Nistor Grozavu	Yanhong Luo
Ping Guo	Jinwen Ma
Fei Han	Mufti Mahmud
Hanlin He	Jacek Mańdziuk
Shan He	Muhammad Naufal Bin Mansor
Bin He	Yan Meng
Jinglu Hu	Xiaobing Nie
He Huang	Sid-Ali Ouadfeul
Kaizhu Hunag	Seiichi Ozawa
Jihad Mohamad Jaam	Shaoning Paul Pang
Minghui Jiang	Anhhuy Phan
Hu Junhao	Uvais Qidwai
John Keane	Ruiyang Qiu
Sungshin Kim	Hendrik Richter
Irwin King	Mehdi Roopaei
Sid Kulkarni	Thomas A. Runkler
H.K. Kwan	Miguel Angel Fernández Sanjuán
James Kwok	Ruhul Sarker
Wk Lai	Naoyuki Sato
James Lam	Qiankun Song
Soo-Young Lee	Jochen Steil

John Sum	Xin Wang
Bing-Yu Sun	Dianhui Wang
Norikazu Takahashi	Ailong Wu
Kay Chen Tan	Bryant Wysocki
Ying Tan	Bjingji Xu
Maolin Tang	Yingjie Yang
Jinshan Tang	Shengxiang Yang
Huajin Tang	Wenwu Yu
H. Tang	Wen Yu
Ke Tang	Xiao-Jun Zeng
Peter Tino	Xiaoqin Zeng
Haifeng Tou	Junping Zhang
Dat Tran	Zhong Zhang
Michel Verleysen	Wei Zhang
Dan Wang	Jie Zhang
Yong Wang	Dongbin Zhao
Ning Wang	Hongyong Zhao
Zhanshan Wang	Huaqing Zhen

Publications Committee Members

Gang Bao	Xiaohong Wang
Guici Chen	Zhikun Wang
Huangqiong Chen	Shiping Wen
Ling Chen	Ailong Wu
Shengle Fang	Yongbo Xia
Lizhu Feng	Jian Xiao
Xing He	Li Xiao
Junhao Hu	Weina Yang
Junjian Huang	Zhanying Yang
Feng Jiang	Wei Yao
Bin Li	Tianfeng Ye
Chaobei Li	Hongyan Yin
Yanling Li	Dai Yu
Mingzhao Li	Lingfa Zeng
Lei Liu	Wei Zhang
Xiaoyang Liu	Yongchang Zhang
Jiangtao Qi	Yongqing Zhao
Wenwen Shen	Song Zhu
Cheng Wang	

Platinum Sponsor



Gold Sponsors



Table of Contents – Part III

Session 3: Algorithms

Centroid Neural Network with Simulated Annealing and Its Application to Color Image Segmentation	1
<i>Do-Thanh Sang, Dong-Min Woo, and Dong-Chul Park</i>	
Efficient Non-linear Filter for Impulse Noise Removal in Document Images	9
<i>Ali Awad</i>	
Evolving Flexible Beta Operator Neural Trees (FBONT) for Time Series Forecasting	17
<i>Souhir Bouaziz, Habib Dhahri, and Adel M. Alimi</i>	
Nonparametric Localized Feature Selection via a Dirichlet Process Mixture of Generalized Dirichlet Distributions	25
<i>Wentao Fan and Nizar Bouguila</i>	
Generalized Agglomerative Fuzzy Clustering	34
<i>Kiatichai Treerattanapitak and Chuleerat Jaruskulchai</i>	
A Novel Self-Adaptive Clustering Algorithm for Dynamic Data	42
<i>Ming Liu, Lei Lin, Lili Shan, and Chengjie Sun</i>	
Impulsive Synchronization of State Delayed Discrete Complex Networks with Switching Topology	50
<i>Chaojie Li, David Yang Gao, and Chao Liu</i>	
Salient Instance Selection for Multiple-Instance Learning	58
<i>Liming Yuan, Songbo Liu, Qingcheng Huang, Jiafeng Liu, and Xianglong Tang</i>	
Motivating Retail Marketing Efforts under Fairness Concerns in Small-World Networks: A Multi-agent Simulation	68
<i>Meng Qingfeng, Du Jianguo, and Li Zhen</i>	
Application of Variational Granularity Language Sets in Interactive Genetic Algorithms	76
<i>Dunwei Gong, Jian Chen, Xiaoyan Sun, and Yong Zhang</i>	
Linked PARAFAC/CP Tensor Decomposition and Its Fast Implementation for Multi-block Tensor Analysis	84
<i>Tatsuya Yokota, Andrzej Cichocki, and Yukihiko Yamashita</i>	

A Human-Simulated Immune Evolutionary Computation Approach	92
<i>Gang Xie, Hong-Bo Guo, Yu-Chu Tian, and Maolin Tang</i>	
A STPHD-Based Multi-sensor Fusion Method	100
<i>Lu Zhenwei, Zhao Lingling, Su Xiaohong, and Ma Peijun</i>	
Group Sparse Inverse Covariance Selection with a Dual Augmented Lagrangian Method	108
<i>Satoshi Hara and Takashi Washio</i>	
Multiple Outlooks Learning with Support Vector Machines	116
<i>Yinglu Liu, Xu-Yao Zhang, Kaizhu Huang, Xinwen Hou, and Cheng-Lin Liu</i>	
Multi-Task Learning Using Shared and Task Specific Information	125
<i>P.K. Srijith and Shirish Shevade</i>	
Learning Attentive Fusion of Multiple Bayesian Network Classifiers	133
<i>Sepehr Eghbali, Majid Nili Ahmadabadi, Babak Nadjar Araabi, and Maryam Mirian</i>	
Multiclass Penalized Likelihood Pattern Classification Algorithm	141
<i>Amira Samy Talaat, Amir F. Atiya, Sahar A. Mokhtar, Ahmed Al-Ani, and Magda Fayek</i>	
Self-Organising Maps for Classification with Metropolis-Hastings Algorithm for Supervision	149
<i>Piotr Płoński and Krzysztof Zaremba</i>	
Decoupled 2-D DOA Estimation Algorithm Based on Cross-Correlation Matrix for Coherently Distributed Source	157
<i>Yinghua Han, Jinkuan Wang, Qiang Zhao, and Peng Han</i>	
Feature Extraction by Nonnegative Tucker Decomposition from EEG Data Including Testing and Training Observations	166
<i>Fengyu Cong, Anh Huy Phan, Qibin Zhao, Qiang Wu, Tapani Ristaniemi, and Andrzej Cichocki</i>	
A New Approach for a Priori Client Threshold Estimation in Biometric Signature Recognition Based on Multiple Linear Regression	174
<i>Arancha Simon-Hurtado, Esperanza Manso-Martínez, Carlos Vivaracho-Pascual, and Juan M. Pascual-Gaspar</i>	
Deterministic Annealing Multi-Sphere Support Vector Data Description	183
<i>Trung Le, Dat Tran, Wanli Ma, and Dharmendra Sharma</i>	
Maximal Margin Approach to Kernel Generalised Learning Vector Quantisation for Brain-Computer Interface	191
<i>Trung Le, Dat Tran, Tuan Hoang, and Dharmendra Sharma</i>	

A Basic Study on Particle Swarm Optimization Based on Chaotic Spike Oscillator Dynamics	199
<i>Yoshikazu Yamanaka and Tadashi Tsubone</i>	
On the Objective Function and Learning Algorithm for Concurrent Open Node Fault	208
<i>Chi Sing Leung, Pui Fai Sum, and Kai-Tat Ng</i>	
Evolutionary Extreme Learning Machine for Ordinal Regression	217
<i>David Becerra-Alonso, Mariano Carbonero-Ruz, Francisco José Martínez-Estudillo, and Alfonso Carlos Martínez-Estudillo</i>	
Biclustering and Subspace Learning with Regularization for Financial Risk Analysis	228
<i>Bernardete Ribeiro and Ning Chen</i>	
Emotion Understanding in Movie Clips Based on EEG Signal Analysis	236
<i>Mingu Kwon and Minhoo Lee</i>	
A Distributed Q-Learning Approach for Variable Attention to Multiple Critics	244
<i>Maryam Tavakol, Majid Nili Ahmadabadi, Maryam Mirian, and Masoud Asadpour</i>	
A Hybrid Approach for Adaptive Car Navigation	252
<i>Siamak Barzegar, Maryam Davoudpour, and Alireza Sadeghian</i>	
Low Complexity Classification System for Glove-Based Arabic Sign Language Recognition	262
<i>Khaled Assaleh, Tamer Shanableh, and Mohammed Zourob</i>	
Transductive Cartoon Retrieval by Multiple Hypergraph Learning	269
<i>Jun Yu, Jun Cheng, Jianmin Wang, and Dacheng Tao</i>	
Adaptive Multiplicative Updates for Projective Nonnegative Matrix Factorization	277
<i>He Zhang, Zhirong Yang, and Erkki Oja</i>	
Online Projective Nonnegative Matrix Factorization for Large Datasets	285
<i>Zhirong Yang, He Zhang, and Erkki Oja</i>	
Optimization of Fuzzy Systems Using Group-Based Evolutionary Algorithm	291
<i>Jyh-Yeong Chang, Ming-Feng Han, and Chin-Teng Lin</i>	

Gabor-Based Novel Local, Shape and Color Features for Image Classification	299
<i>Atreyee Sinha, Sugata Banerji, and Chengjun Liu</i>	
A Hybrid KNN-Ant Colony Optimization Algorithm for Prototype Selection	307
<i>Amal Miloud-Aouidate and Ahmed Riadh Baba-Ali</i>	
Energy-Efficient Virtual Machine Placement in Data Centers by Genetic Algorithm	315
<i>Grant Wu, Maolin Tang, Yu-Chu Tian, and Wei Li</i>	
A Contextual-Bandit Algorithm for Mobile Context-Aware Recommender System	324
<i>Djallel Bouneffouf, Amel Bouzeghoub, and Alda Lopes Gançarski</i>	
Multi-source Transfer Learning with Multi-view Adaboost	332
<i>Zhijie Xu and Shiliang Sun</i>	
Semi-supervised Multitask Learning via Self-training and Maximum Entropy Discrimination	340
<i>Guoqing Chao and Shiliang Sun</i>	
Tracking Property of UMDA in Dynamic Environment by Landscape Framework	348
<i>Ran Long, Liangqi Gong, Bo Yuan, Ping Ao, and Qingsheng Ren</i>	
Computation of Joint Spectral Radius for Network Model Associated with Rank-One Matrix Set	356
<i>Jun Liu and Mingqing Xiao</i>	
Novelty Detection Using a New Group Outlier Factor	364
<i>Amine Chaibi, Mustapha Lebbah, and Hanane Azzag</i>	
Hierarchical K-Means Algorithm for Modeling Visual Area V2 Neurons	373
<i>Xiaolin Hu, Peng Qi, and Bo Zhang</i>	
Feature Selection for Unsupervised Learning	382
<i>Jyoti Ranjan Adhikary and M. Narasimha Murty</i>	
Recursive Similarity-Based Algorithm for Deep Learning	390
<i>Tomasz Maszczyk and Włodzisław Duch</i>	
A Fast Edge-Directed Interpolation Algorithm	398
<i>Qichong Tian, Hao Wen, Chenhui Zhou, and Wei Chen</i>	
Real-Valued Constraint Optimization with ICHEA	406
<i>Anurag Sharma and Dharmendra Sharma</i>	

Modeling Post-training Memory Transfer in Cerebellar Motor Learning	417
<i>Tadashi Yamazaki and Soichi Nagao</i>	
Surface-Based Construction of Curvature Selectivity from the Integration of Local Orientations	425
<i>Yasuhiro Hatori and Ko Sakai</i>	
Solving Dynamic Constraint Optimization Problems Using ICHEA	434
<i>Anurag Sharma and Dharmendra Sharma</i>	
An Incremental Approach to Solving Dynamic Constraint Satisfaction Problems	445
<i>Anurag Sharma and Dharmendra Sharma</i>	
Constrained Multi-objective Optimization Using a Quantum Behaved Particle Swarm	456
<i>Heyam Al-Baity, Souham Meshoul, and Ata Kaban</i>	
Learning from Positive and Unlabelled Examples Using Maximum Margin Clustering	465
<i>Sneha Chaudhari and Shirish Shevade</i>	
Novel Robust Stability Criteria for Stochastic Hopfield Neural Network with Time-Varying Delays	474
<i>Xiaolin Li and Minrui Wang</i>	
RST-DCA: A Dendritic Cell Algorithm Based on Rough Set Theory	480
<i>Zeineb Chelly and Zied Elouedi</i>	
A Meta-Learning Approach to Select Meta-Heuristics for the Traveling Salesman Problem Using MLP-Based Label Ranking	488
<i>Jorge Kanda, Carlos Soares, Eduardo Hruschka, and Andre de Carvalho</i>	
Modified Particle Swarm Optimization for Pattern Clustering	496
<i>Swetha K.P and V. Susheela Devi</i>	
A Weighted Learning Vector Quantization Approach for Interval Data	504
<i>Telmo M. Silva Filho and Renata Maria Cardoso R. de Souza</i>	
A Genetic Algorithm Solution for the Operation of Green LTE Networks with Energy and Environment Considerations	512
<i>Hakim Ghazzai, Elias Yaacoub, Mohamed Slim Alouini, and Adnan Abu-Dayya</i>	
Robust Hypersurface Fitting Based on Random Sampling Approximations	520
<i>Jun Fujiki, Shotaro Akaho, Hideitsu Hino, and Noboru Murata</i>	

Manifold Regularized Multi-Task Learning	528
<i>Peipei Yang, Xu-Yao Zhang, Kaizhu Huang, and Cheng-Lin Liu</i>	
Cooperative Behavior Acquisition in Multi-agent Reinforcement Learning System Using Attention Degree.....	537
<i>Kunikazu Kobayashi, Tadashi Kurano, Takashi Kuremoto, and Masanao Obayashi</i>	
Basic Study on Particle Swarm Optimization with Hierarchical Structure for Constrained Optimization Problems	545
<i>Kazuki Komori, Kazuhiro Homma, and Tadashi Tsubone</i>	
A New Probabilistic Approach to Independent Component Analysis Suitable for On-Line Learning in Artificial Neural Networks	552
<i>Marko V. Jankovic and Neil Rubens</i>	
Immune Algorithm for Bitmap Join Indexes	560
<i>Amina Gacem and Kamel Boukhalfa</i>	
Data Driven System Identification Using Evolutionary Algorithms	568
<i>Awhan Patnaik, Samrat Dutta, and Laxmidhar Behera</i>	
A Possibilistic Density Based Clustering for Discovering Clusters of Arbitrary Shapes and Densities in High Dimensional Data	577
<i>Noha A. Yousri, Mohamed S. Kamel, and Mohamed A. Ismail</i>	
A Knowledge-Driven Bi-clustering Method for Mining Noisy Datasets	585
<i>Karima Mouhoubi, Lucas Létocart, and Céline Rouveirol</i>	
Robust Active Learning for Linear Regression via Density Power Divergence	594
<i>Yasuhiro Sogawa, Tsuyoshi Ueno, Yoshinobu Kawahara, and Takashi Washio</i>	
Adaptive Probabilistic Policy Reuse	603
<i>Yann Chevaleyre and Aydano Machado Pamponet</i>	
Adaptive Classifier Selection in Large-Scale Hierarchical Classification	612
<i>Ioannis Partalas, Rohit Babbar, Eric Gaussier, and Cecile Amblard</i>	
An Efficient Algorithm for Anomaly Detection in a Flight System Using Dynamic Bayesian Networks	620
<i>Mohamad Saada and Qinggang Meng</i>	
A Novel Road Traffic Sign Detection and Recognition Approach by Introducing CCM and LESH	629
<i>Usman Zakir, Asima Usman, and Amir Hussain</i>	

On the Application of Bio-inspired Algorithms in Timetabling Problem	637
<i>Daniela Oliveira Francisco and Ivan Nunes da Silva</i>	
A Bio Inspired Estimation of Distribution Algorithm for Global Optimization	645
<i>Omar S. Soliman and Aliaa Rassem</i>	
Managing Qualitative Preferences with Constraints	653
<i>Eisa Alanazi and Malek Mouhoub</i>	
A Bio Inspired Fuzzy K-Modes Clustering Algorithm	663
<i>Omar S. Soliman, Doaa A. Saleh, and Samaa Rashwan</i>	
Evaluating SPAN Incremental Learning for Handwritten Digit Recognition	670
<i>Ammar Mohemmed, Guoyu Lu, and Nikola Kasabov</i>	
DPSO Based on Random Particle Priority Value and Decomposition Procedure as a Searching Strategy for the Evacuation Vehicle Routing Problem	678
<i>Marina Yusoff, Junaidah Ariffin, and Azlinah Mohamed</i>	
A Quantum-Inspired Evolutionary Algorithm for Optimization Numerical Problems	686
<i>Maurizio Fiasché</i>	
Are You a Social Conformer?	694
<i>Priyanka Garg, Irwin King, and Michael R. Lyu</i>	
Canonical Duality Theory and Algorithm for Solving Challenging Problems in Network Optimisation	702
<i>Ning Ruan and David Yang Gao</i>	
Author Index	711