

Commenced Publication in 1973

Founding and Former Series Editors:

Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

Editorial Board

David Hutchison

Lancaster University, Lancaster, UK

Takeo Kanade

Carnegie Mellon University, Pittsburgh, PA, USA

Josef Kittler

University of Surrey, Guildford, UK

Jon M. Kleinberg

Cornell University, Ithaca, NY, USA

Friedemann Mattern

ETH Zurich, Zurich, Switzerland

John C. Mitchell

Stanford University, Stanford, CA, USA

Moni Naor

Weizmann Institute of Science, Rehovot, Israel

C. Pandu Rangan

Indian Institute of Technology Madras, Chennai, India

Bernhard Steffen

TU Dortmund University, Dortmund, Germany

Demetri Terzopoulos

University of California, Los Angeles, CA, USA

Doug Tygar

University of California, Berkeley, CA, USA

Gerhard Weikum

Max Planck Institute for Informatics, Saarbrücken, Germany

More information about this series at <http://www.springer.com/series/7407>

Long Cheng · Andrew Chi Sing Leung
Seiichi Ozawa (Eds.)

Neural Information Processing

25th International Conference, ICONIP 2018
Siem Reap, Cambodia, December 13–16, 2018
Proceedings, Part II

Editors

Long Cheng 
The Chinese Academy of Sciences
Beijing, China

Seiichi Ozawa
Kobe University
Kobe, Japan

Andrew Chi Sing Leung
City University of Hong Kong
Kowloon, Hong Kong SAR, China

ISSN 0302-9743 ISSN 1611-3349 (electronic)
Lecture Notes in Computer Science
ISBN 978-3-030-04178-6 ISBN 978-3-030-04179-3 (eBook)
<https://doi.org/10.1007/978-3-030-04179-3>

Library of Congress Control Number: 2018960916

LNCS Sublibrary: SL1 – Theoretical Computer Science and General Issues

© Springer Nature Switzerland AG 2018

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

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

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

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

Preface

The 25th International Conference on Neural Information Processing (ICONIP 2018), the annual conference of the Asia Pacific Neural Network Society (APNNS), was held in Siem Reap, Cambodia, during December 13–16, 2018. The ICONIP conference series started in 1994 in Seoul, which has now become a well-established and high-quality conference on neural networks around the world. Siem Reap is a gateway to Angkor Wat, which is one of the most important archaeological sites in Southeast Asia, the largest religious monument in the world. All participants of ICONIP 2018 had a technically rewarding experience as well as a memorable stay in this great city.

In recent years, the neural network has been significantly advanced with the great developments in neuroscience, computer science, cognitive science, and engineering. Many novel neural information processing techniques have been proposed as the solutions to complex, networked, and information-rich intelligent systems. To disseminate new findings, ICONIP 2018 provided a high-level international forum for scientists, engineers, and educators to present the state of the art of research and applications in all fields regarding neural networks.

With the growing popularity of neural networks in recent years, we have witnessed an increase in the number of submissions and in the quality of submissions. ICONIP 2018 received 575 submissions from 51 countries and regions across six continents. Based on a rigorous peer-review process, where each submission was reviewed by at least three experts, a total of 401 high-quality papers were selected for publication in the prestigious Springer series of *Lecture Notes in Computer Science*. The selected papers cover a wide range of subjects that address the emerging topics of theoretical research, empirical studies, and applications of neural information processing techniques across different domains.

In addition to the contributed papers, the ICONIP 2018 technical program also featured three plenary talks and two invited talks delivered by world-renowned scholars: Prof. Masashi Sugiyama (University of Tokyo and RIKEN Center for Advanced Intelligence Project), Prof. Marios M. Polycarpou (University of Cyprus), Prof. Qing-Long Han (Swinburne University of Technology), Prof. Cesare Alippi (Polytechnic of Milan), and Nikola K. Kasabov (Auckland University of Technology).

We would like to extend our sincere gratitude to all members of the ICONIP 2018 Advisory Committee for their support, the APNNS Governing Board for their guidance, the International Neural Network Society and Japanese Neural Network Society for their technical co-sponsorship, and all members of the Organizing Committee for all their great effort and time in organizing such an event. We would also like to take this opportunity to thank all the Technical Program Committee members and reviewers for their professional reviews that guaranteed the high quality of the conference proceedings. Furthermore, we would like to thank the publisher, Springer, for their sponsorship and cooperation in publishing the conference proceedings in seven volumes of *Lecture Notes in Computer Science*. Finally, we would like to thank all the

speakers, authors, reviewers, volunteers, and participants for their contribution and support in making ICONIP 2018 a successful event.

October 2018

Jun Wang
Long Cheng
Andrew Chi Sing Leung
Seiichi Ozawa

ICONIP 2018 Organization

General Chair

Jun Wang

City University of Hong Kong,
Hong Kong SAR, China

Advisory Chairs

Akira Hirose

University of Tokyo, Tokyo, Japan

Soo-Young Lee

Korea Advanced Institute of Science and Technology,
South Korea

Derong Liu

Institute of Automation, Chinese Academy of Sciences,
China

Nikhil R. Pal

Indian Statistics Institute, India

Program Chairs

Long Cheng

Institute of Automation, Chinese Academy of Sciences,
China

Andrew C. S. Leung

City University of Hong Kong, Hong Kong SAR,
China

Seiichi Ozawa

Kobe University, Japan

Special Sessions Chairs

Shukai Duan

Southwest University, China

Kazushi Ikeda

Nara Institute of Science and Technology, Japan

Qinglai Wei

Institute of Automation, Chinese Academy of Sciences,
China

Hiroshi Yamakawa

Dwango Co. Ltd., Japan

Zhihui Zhan

South China University of Technology, China

Tutorial Chairs

Hiroaki Gomi

NTT Communication Science Laboratories, Japan

Takashi Morie

Kyushu Institute of Technology, Japan

Kay Chen Tan

City University of Hong Kong, Hong Kong SAR,
China

Dongbin Zhao

Institute of Automation, Chinese Academy of Sciences,
China

Publicity Chairs

Zeng-Guang Hou	Institute of Automation, Chinese Academy of Sciences, China
Tingwen Huang	Texas A&M University at Qatar, Qatar
Chia-Feng Juang	National Chung-Hsing University, Taiwan
Tomohiro Shibata	Kyushu Institute of Technology, Japan

Publication Chairs

Xinyi Le	Shanghai Jiao Tong University, China
Sitian Qin	Harbin Institute of Technology Weihai, China
Zheng Yan	University Technology Sydney, Australia
Shaofu Yang	Southeast University, China

Registration Chairs

Shenshen Gu	Shanghai University, China
Qingshan Liu	Southeast University, China
Ka Chun Wong	City University of Hong Kong, Hong Kong SAR, China

Conference Secretariat

Ying Qu	Dalian University of Technology, China
---------	--

Program Committee

Hussein Abbass	University of New South Wales at Canberra, Australia
Choon Ki Ahn	Korea University, South Korea
Igor Aizenberg	Texas A&M University at Texarkana, USA
Shotaro Akaho	National Institute of Advanced Industrial Science and Technology, Japan
Abdulrazak Alhababi	UNIMAS, Malaysia
Cecilio Angulo	Universitat Politècnica de Catalunya, Spain
Sabri Arik	Istanbul University, Turkey
Mubasher Baig	National University of Computer and Emerging Sciences Lahore, India
Sang-Woo Ban	Dongguk University, South Korea
Tao Ban	National Institute of Information and Communications Technology, Japan
Boris Bačić	Auckland University of Technology, New Zealand
Xu Bin	Northwestern Polytechnical University, China
David Bong	Universiti Malaysia Sarawak, Malaysia
Salim Bouzerdoun	University of Wollongong, Australia
Ivo Bukovsky	Czech Technical University, Czech Republic

Ke-Cai Cao	Nanjing University of Posts and Telecommunications, China
Elisa Capecci	Auckland University of Technology, New Zealand
Rapeeporn Chamchong	Maharakham University, Thailand
Jonathan Chan	King Mongkut's University of Technology Thonburi, Thailand
Rosa Chan	City University of Hong Kong, Hong Kong SAR, China
Guoqing Chao	East China Normal University, China
He Chen	Nankai University, China
Mou Chen	Nanjing University of Aeronautics and Astronautics, China
Qiong Chen	South China University of Technology, China
Wei-Neng Chen	Sun Yat-Sen University, China
Xiaofeng Chen	Chongqing Jiaotong University, China
Ziran Chen	Bohai University, China
Jian Cheng	Chinese Academy of Sciences, China
Long Cheng	Chinese Academy of Sciences, China
Wu Chengwei	Bohai University, China
Zheru Chi	The Hong Kong Polytechnic University, SAR China
Sung-Bae Cho	Yonsei University, South Korea
Heeyoul Choi	Handong Global University, South Korea
Hyunsoek Choi	Kyungpook National University, South Korea
Supannada Chotipant	King Mongkut's Institute of Technology Ladkrabang, Thailand
Fengyu Cong	Dalian University of Technology, China
Jose Alfredo Ferreira Costa	Federal University of Rio Grande do Norte, Brazil
Ruxandra Liana Costea	Polytechnic University of Bucharest, Romania
Jean-Francois Couchot	University of Franche-Comté, France
Raphaël Couturier	University of Bourgogne Franche-Comté, France
Jisheng Dai	Jiangsu University, China
Justin Dauwels	Massachusetts Institute of Technology, USA
Dehua Zhang	Chinese Academy of Sciences, China
Mingcong Deng	Tokyo University of Agriculture and Technology, Japan
Zhaohong Deng	Jiangnan University, China
Jing Dong	Chinese Academy of Sciences, China
Qiulei Dong	Chinese Academy of Sciences, China
Kenji Doya	Okinawa Institute of Science and Technology, Japan
El-Sayed El-Alfy	King Fahd University of Petroleum and Minerals, Saudi Arabia
Mark Elshaw	Nottingham Trent International College, UK
Peter Erdi	Kalamazoo College, USA
Josafath Israel Espinosa	Auckland University of Technology, New Zealand
Ramos	
Issam Falih	Paris 13 University, France

Bo Fan	Zhejiang University, China
Yunsheng Fan	Dalian Maritime University, China
Hao Fang	Beijing Institute of Technology, China
Jinchao Feng	Beijing University of Technology, China
Francesco Ferracuti	Università Politecnica delle Marche, Italy
Chun Che Fung	Murdoch University, Australia
Wai-Keung Fung	Robert Gordon University, UK
Tetsuo Furukawa	Kyushu Institute of Technology, Japan
Hao Gao	Nanjing University of Posts and Telecommunications, China
Yabin Gao	Harbin Institute of Technology, China
Yongsheng Gao	Griffith University, Australia
Tom Gedeon	Australian National University, Australia
Ong Sing Goh	Universiti Teknikal Malaysia Melaka, Malaysia
Iqbal Gondal	Federation University Australia, Australia
Yue-Jiao Gong	Sun Yat-sen University, China
Shenshen Gu	Shanghai University, China
Chengan Guo	Dalian University of Technology, China
Ping Guo	Beijing Normal University, China
Shanqing Guo	Shandong University, China
Xiang-Gui Guo	University of Science and Technology Beijing, China
Zhishan Guo	University of Central Florida, USA
Christophe Guyeux	University of Franche-Comte, France
Masafumi Hagiwara	Keio University, Japan
Saman Halgamuge	The University of Melbourne, Australia
Tomoki Hamagami	Yokohama National University, Japan
Cheol Han	Korea University at Sejong, South Korea
Min Han	Dalian University of Technology, China
Takako Hashimoto	Chiba University of Commerce, Japan
Toshiharu Hatanaka	Osaka University, Japan
Wei He	University of Science and Technology Beijing, China
Xing He	Southwest University, China
Xiuyu He	University of Science and Technology Beijing, China
Akira Hirose	The University of Tokyo, Japan
Daniel Ho	City University of Hong Kong, Hong Kong SAR, China
Katsuhiko Honda	Osaka Prefecture University, Japan
Hongyi Li	Bohai University, China
Kazuhiro Hotta	Meijo University, Japan
Jin Hu	Chongqing Jiaotong University, China
Jinglu Hu	Waseda University, Japan
Xiaofang Hu	Southwest University, China
Xiaolin Hu	Tsinghua University, China
He Huang	Soochow University, China
Kaizhu Huang	Xi'an Jiaotong-Liverpool University, China
Long-Ting Huang	Wuhan University of Technology, China

Panfeng Huang	Northwestern Polytechnical University, China
Tingwen Huang	Texas A&M University, USA
Hitoshi Iima	Kyoto Institute of Technology, Japan
Kazushi Ikeda	Nara Institute of Science and Technology, Japan
Hayashi Isao	Kansai University, Japan
Teijiro Isokawa	University of Hyogo, Japan
Piyasak Jeatrakul	Mae Fah Luang University, Thailand
Jin-Tsong Jeng	National Formosa University, Taiwan
Sungmoon Jeong	Kyungpook National University Hospital, South Korea
Danchi Jiang	University of Tasmania, Australia
Min Jiang	Xiamen University, China
Yizhang Jiang	Jiangnan University, China
Xuguo Jiao	Zhejiang University, China
Keisuke Kameyama	University of Tsukuba, Japan
Shunshoku Kanae	Junshin Gakuen University, Japan
Hamid Reza Karimi	Politecnico di Milano, Italy
Nikola Kasabov	Auckland University of Technology, New Zealand
Abbas Khosravi	Deakin University, Australia
Rhee Man Kil	Sungkyunkwan University, South Korea
Daeun Kim	Yonsei University, South Korea
Sangwook Kim	Kobe University, Japan
Lai Kin	Tunku Abdul Rahman University, Malaysia
Irwin King	The Chinese University of Hong Kong, Hong Kong SAR, China
Yasuharu Koike	Tokyo Institute of Technology, Japan
Ven Jyn Kok	National University of Malaysia, Malaysia
Ghosh Kuntal	Indian Statistical Institute, India
Shuichi Kurogi	Kyushu Institute of Technology, Japan
Susumu Kuroyanagi	Nagoya Institute of Technology, Japan
James Kwok	The Hong Kong University of Science and Technology, SAR China
Edmund Lai	Auckland University of Technology, New Zealand
Kittichai Lavangnananda	King Mongkut's University of Technology Thonburi, Thailand
Xinyi Le	Shanghai Jiao Tong University, China
Minho Lee	Kyungpook National University, South Korea
Nung Kion Lee	University Malaysia Sarawak, Malaysia
Andrew C. S. Leung	City University of Hong Kong, Hong Kong SAR, China
Baoquan Li	Tianjin Polytechnic University, China
Chengdong Li	Shandong Jianzhu University, China
Chuandong Li	Southwest University, China
Dazi Li	Beijing University of Chemical Technology, China
Li Li	Tsinghua University, China
Shengquan Li	Yangzhou University, China

Ya Li	Institute of Automation, Chinese Academy of Sciences, China
Yanan Li	University of Sussex, UK
Yongming Li	Liaoning University of Technology, China
Yuankai Li	University of Science and Technology of China, China
Jie Lian	Dalian University of Technology, China
Hualou Liang	Drexel University, USA
Jinling Liang	Southeast University, China
Xiao Liang	Nankai University, China
Alan Wee-Chung Liew	Griffith University, Australia
Honghai Liu	University of Portsmouth, UK
Huaping Liu	Tsinghua University, China
Huawen Liu	University of Texas at San Antonio, USA
Jing Liu	Chinese Academy of Sciences, China
Ju Liu	Shandong University, China
Qingshan Liu	Huazhong University of Science and Technology, China
Weifeng Liu	China University of Petroleum, China
Weiqliang Liu	Nanjing University of Aeronautics and Astronautics, China
Dome Lohpetch	King Mongkut's University of Technology North Bangoko, Thailand
Hongtao Lu	Shanghai Jiao Tong University, China
Wenlian Lu	Fudan University, China
Yao Lu	Beijing Institute of Technology, China
Jinwen Ma	Peking University, China
Qianli Ma	South China University of Technology, China
Sanparith Marukatatt	Thailand's National Electronics and Computer Technology Center, Thailand
Tomasz Maszczyk	Nanyang Technological University, Singapore
Basarab Matei	LIPN Paris Nord University, France
Takashi Matsubara	Kobe University, Japan
Nobuyuki Matsui	University of Hyogo, Japan
P. Meesad	King Mongkut's University of Technology North Bangkok, Thailand
Gaofeng Meng	Chinese Academy of Sciences, China
Daisuke Miyamoto	University of Tokyo, Japan
Kazuteru Miyazaki	National Institution for Academic Degrees and Quality Enhancement of Higher Education, Japan
Seiji Miyoshi	Kansai University, Japan
J. Manuel Moreno	Universitat Politècnica de Catalunya, Spain
Naoki Mori	Osaka Prefecture University, Japan
Yoshitaka Morimura	Kyoto University, Japan
Chaoxu Mu	Tianjin University, China
Kazuyuki Murase	University of Fukui, Japan
Jun Nishii	Yamaguchi University, Japan

Haruhiko Nishimura	University of Hyogo, Japan
Grozavu Nistor	Paris 13 University, France
Yamaguchi Nobuhiko	Saga University, Japan
Stavros Ntalampiras	University of Milan, Italy
Takashi Omori	Tamagawa University, Japan
Toshiaki Omori	Kobe University, Japan
Seiichi Ozawa	Kobe University, Japan
Yingnan Pan	Northeastern University, China
Yunpeng Pan	JD Research Labs, China
Lie Meng Pang	Universiti Malaysia Sarawak, Malaysia
Shaoning Pang	Unitec Institute of Technology, New Zealand
Hyeyoung Park	Kyungpook National University, South Korea
Hyung-Min Park	Sogang University, South Korea
Seong-Bae Park	Kyungpook National University, South Korea
Kitsuchart Pasupa	King Mongkut's Institute of Technology Ladkrabang, Thailand
Yong Peng	Hangzhou Dianzi University, China
Somnuk Phon-Amnuaisuk	Universiti Teknologi Brunei, Brunei
Lukas Pichl	International Christian University, Japan
Geong Sen Poh	National University of Singapore, Singapore
Mahardhika Pratama	Nanyang Technological University, Singapore
Emanuele Principi	Università Politecnica delle Marche, Italy
Dianwei Qian	North China Electric Power University, China
Jiahu Qin	University of Science and Technology of China, China
Sitian Qin	Harbin Institute of Technology at Weihai, China
Mallipeddi Rammohan	Nanyang Technological University, Singapore
Yazhou Ren	University of Science and Technology of China, China
Ko Sakai	University of Tsukuba, Japan
Shunji Satoh	The University of Electro-Communications, Japan
Gerald Schaefer	Loughborough University, UK
Sachin Sen	Unitec Institute of Technology, New Zealand
Hamid Sharifzadeh	Unitec Institute of Technology, New Zealand
Nabin Sharma	University of Technology Sydney, Australia
Yin Sheng	Huazhong University of Science and Technology, China
Jin Shi	Nanjing University, China
Yuhui Shi	Southern University of Science and Technology, China
Hayaru Shouno	The University of Electro-Communications, Japan
Ferdous Sohel	Murdoch University, Australia
Jungsuk Song	Korea Institute of Science and Technology Information, South Korea
Andreas Stafylopatis	National Technical University of Athens, Greece
Jérémie Sublime	ISEP, France
Ponnuthurai Suganthan	Nanyang Technological University, Singapore
Fuchun Sun	Tsinghua University, China
Ning Sun	Nankai University, China

Norikazu Takahashi	Okayama University, Japan
Ken Takiyama	Tokyo University of Agriculture and Technology, Japan
Tomoya Tamei	Kobe University, Japan
Hakaru Tamukoh	Kyushu Institute of Technology, Japan
Choo Jun Tan	Wawasan Open University, Malaysia
Shing Chiang Tan	Multimedia University, Malaysia
Ying Tan	Peking University, China
Gouhei Tanaka	The University of Tokyo, Japan
Ke Tang	Southern University of Science and Technology, China
Xiao-Yu Tang	Zhejiang University, China
Yang Tang	East China University of Science and Technology, China
Qing Tao	Chinese Academy of Sciences, China
Katsumi Tateno	Kyushu Institute of Technology, Japan
Keiji Tatsumi	Osaka University, Japan
Kai Meng Tay	Universiti Malaysia Sarawak, Malaysia
Chee Siong Teh	Universiti Malaysia Sarawak, Malaysia
Andrew Teoh	Yonsei University, South Korea
Arit Thammano	King Mongkut's Institute of Technology Ladkrabang, Thailand
Christos Tjortjis	International Hellenic University, Greece
Shibata Tomohiro	Kyushu Institute of Technology, Japan
Seiki Ubukata	Osaka Prefecture University, Japan
Eiji Uchino	Yamaguchi University, Japan
Wataru Uemura	Ryukoku University, Japan
Michel Verleysen	Universite catholique de Louvain, Belgium
Brijesh Verma	Central Queensland University, Australia
Hiroaki Wagatsuma	Kyushu Institute of Technology, Japan
Nobuhiko Wagatsuma	Tokyo Denki University, Japan
Feng Wan	University of Macau, SAR China
Bin Wang	University of Jinan, China
Dianhui Wang	La Trobe University, Australia
Jing Wang	Beijing University of Chemical Technology, China
Jun-Wei Wang	University of Science and Technology Beijing, China
Junmin Wang	Beijing Institute of Technology, China
Lei Wang	Beihang University, China
Lidan Wang	Southwest University, China
Lipo Wang	Nanyang Technological University, Singapore
Qiu-Feng Wang	Xi'an Jiaotong-Liverpool University, China
Sheng Wang	Henan University, China
Bunthit Watanapa	King Mongkut's University of Technology, Thailand
Saowaluk Watanapa	Thammasat University, Thailand
Qinglai Wei	Chinese Academy of Sciences, China
Wei Wei	Beijing Technology and Business University, China
Yantao Wei	Central China Normal University, China

Guanghai Wen	Southeast University, China
Zhengqi Wen	Chinese Academy of Sciences, China
Hau San Wong	City University of Hong Kong, Hong Kong SAR, China
Kevin Wong	Murdoch University, Australia
P. K. Wong	University of Macau, SAR China
Kuntpong Woratpanya	King Mongkut's Institute of Technology Chaokuntaharn Ladkrabang, Thailand
Dongrui Wu	Huazhong University of Science and Technology, China
Si Wu	Beijing Normal University, China
Si Wu	South China University of Technology, China
Zhengguang Wu	Zhejiang University, China
Tao Xiang	Chongqing University, China
Chao Xu	Zhejiang University, China
Zenglin Xu	University of Science and Technology of China, China
Zhaowen Xu	Zhejiang University, China
Tetsuya Yagi	Osaka University, Japan
Toshiyuki Yamane	IBM, Japan
Koichiro Yamauchi	Chubu University, Japan
Xiaohui Yan	Nanjing University of Aeronautics and Astronautics, China
Zheng Yan	University of Technology Sydney, Australia
Jinfu Yang	Beijing University of Technology, China
Jun Yang	Southeast University, China
Minghao Yang	Chinese Academy of Sciences, China
Qinmin Yang	Zhejiang University, China
Shaofu Yang	Southeast University, China
Xiong Yang	Tianjin University, China
Yang Yang	Nanjing University of Posts and Telecommunications, China
Yin Yang	Hamad Bin Khalifa University, Qatar
Yiyu Yao	University of Regina, Canada
Jianqiang Yi	Chinese Academy of Sciences, China
Chengpu Yu	Beijing Institute of Technology, China
Wen Yu	CINVESTAV, Mexico
Wenwu Yu	Southeast University, China
Zhaoyuan Yu	Nanjing Normal University, China
Xiaodong Yue	Shanghai University, China
Dan Zhang	Zhejiang University, China
Jie Zhang	Newcastle University, UK
Liqing Zhang	Shanghai Jiao Tong University, China
Nian Zhang	University of the District of Columbia, USA
Tengfei Zhang	Nanjing University of Posts and Telecommunications, China
Tianzhu Zhang	Chinese Academy of Sciences, China

Ying Zhang	Shandong University, China
Zhao Zhang	Soochow University, China
Zhaoxiang Zhang	Chinese Academy of Sciences, China
Dongbin Zhao	Chinese Academy of Sciences, China
Qiangfu Zhao	University of Aizu, Japan
Zhijia Zhao	Guangzhou University, China
Jinghui Zhong	South China University of Technology, China
Qi Zhou	University of Portsmouth, UK
Xiaojun Zhou	Central South University, China
Yingjiang Zhou	Nanjing University of Posts and Telecommunications, China
Haijiang Zhu	Beijing University of Chemical Technology, China
Hu Zhu	Nanjing University of Posts and Telecommunications, China
Lei Zhu	Unitec Institute of Technology, New Zealand
Pengefei Zhu	Tianjin University, China
Yue Zhu	Nanjing University, China
Zongyu Zuo	Beihang University, China

Contents – Part II

Other Neural Network Models

Improved Kernel Density Estimation Self-organizing Incremental Neural Network to Perform Big Data Analysis	3
<i>Wonjik Kim and Osamu Hasegawa</i>	
HISBmodel: A Rumor Diffusion Model Based on Human Individual and Social Behaviors in Online Social Networks	14
<i>Adil Imad Eddine Hosni, Kan Li, and Sadique Ahmed</i>	
Multi-scale Feature Decode and Fuse Model with CRF Layer for Boundary Detection	28
<i>Zihao Dong, Ruixun Zhang, Xiuli Shao, Huichao Li, and Zihan Yang</i>	
Sentimental Analysis for AIML-Based E-Health Conversational Agents	41
<i>David Ireland, Hamed Hassanzadeh, and Son N. Tran</i>	
Hashtag Recommendation with Attention-Based Neural Image Hashtagging Network	52
<i>Gaosheng Wu, Yuhua Li, Wenjin Yan, Ruixuan Li, Xiwu Gu, and Qi Yang</i>	
CocoNet: A Deep Neural Network for Mapping Pixel Coordinates to Color Values	64
<i>Paul Andrei Bricman and Radu Tudor Ionescu</i>	
BCMLP: Binary-Connected Multilayer Perceptrons	77
<i>Ningqi Luo, Binheng Song, Yinxu Pan, and Bin Shen</i>	
Network of Recurrent Neural Networks: Design for Emergence	89
<i>Chaoming Wang and Yi Zeng</i>	
Computationally Efficient Radial Basis Function	103
<i>Adedamola Wuraola and Nitish Patel</i>	
A Model for Age and Gender Profiling of Social Media Accounts Based on Post Contents	113
<i>Jan Kristoffer Cheng, Avril Fernandez, Rissa Grace Marie Quindoza, Shayane Tan, and Charibeth Cheng</i>	
A Wiener Causality Defined by Relative Entropy	124
<i>Junya Chen, Jianfeng Feng, and Wenlian Lu</i>	

Scene Graph Generation Based on Node-Relation Context Module	134
<i>Xin Lin, Yonggang Li, Chunping Liu, Yi Ji, and Jianyu Yang</i>	
Cross-Layer Convolutional Siamese Network for Visual Tracking	146
<i>Yanyin Chen, Xing Chen, Huibin Tan, Xiang Zhang, Long Lan, Xuhui Huang, and Zhigang Luo</i>	
A Data Augmentation Model Based on Variational Approach	157
<i>Lei Xia, Jiancheng Lv, and Yong Xu</i>	
Asynchronous Value Iteration Network	169
<i>Zhiyuan Pan, Zongzhang Zhang, and Zixuan Chen</i>	
FVR-SGD: A New Flexible Variance-Reduction Method for SGD on Large-Scale Datasets	181
<i>Mingxing Tang, Zhen Huang, Linbo Qiao, Shuyang Du, Yuxing Peng, and Changjian Wang</i>	
A Neural Network Model for Gating Task-Relevant Information by Rhythmic Oscillations	194
<i>Ryo Tani and Yoshiki Kashimori</i>	
A Hybrid Model Based on the Rating Bias and Textual Bias for Recommender Systems	203
<i>Jiao Dai, Mingming Li, Songlin Hu, and Jizhong Han</i>	
Phase and Amplitude Modulation in a Neural Oscillatory Model of the Orientation Map	215
<i>Bhadra S. Kumar, Avinash Kori, Sundari Elango, and V. Srinivasa Chakravarthy</i>	
Neural Networks Models for Analyzing Magic: The Gathering Cards	227
<i>Felipe Zilio, Marcelo Prates, and Luis Lamb</i>	
MulAttenRec: A Multi-level Attention-Based Model for Recommendation . . .	240
<i>Zhipeng Lin, Wenjing Yang, Yongjun Zhang, Haotian Wang, and Yuhua Tang</i>	
SStGAN: Self-learning Steganography Based on Generative Adversarial Networks	253
<i>Zihan Wang, Neng Gao, Xin Wang, Xuexin Qu, and Linghui Li</i>	
A Multidimensional Interaction-Focused Model for Ad-Hoc Retrieval	265
<i>Qiang Sun, JiaLiang Wu, and Yue Wu</i>	
Accounting Results Modelling with Neural Networks: The Case of an International Oil and Gas Company	275
<i>Yang Duan, Chung-Hsing Yeh, and David L. Dowe</i>	

Attention Based Dialogue Context Selection Model.	286
<i>Weidi Xu, Yong Ren, and Ying Tan</i>	
Memory-Based Model with Multiple Attentions for Multi-turn Response Selection	296
<i>Xingwu Lu, Man Lan, and Yuanbin Wu</i>	
A Robust LPNN Technique for Target Localization Under Hybrid TOA/AOA Measurements	308
<i>Muideen Adegoke, Andrew Chi Sing Leung, and John Sum</i>	
Central Pattern Generator Based on Interstitial Cell Models Made from Bursting Neuron Models	321
<i>Takahiro Toizumi and Katsutoshi Saeki</i>	
Active Feedback Framework with Scan-Path Clustering for Deep Affective Models	330
<i>Li-Ming Zhao, Xin-Wei Li, Wei-Long Zheng, and Bao-Liang Lu</i>	
Stability Analysis	
A New Robust Stability Result for Delayed Neural Networks.	343
<i>Ozlem Faydasicok, Cemal Cicek, and Sabri Arik</i>	
A Novel Criterion for Global Asymptotic Stability of Neutral-Type Neural Networks with Discrete Time Delays.	353
<i>Ozlem Faydasicok and Sabri Arik</i>	
Anti-synchronization of Neural Networks with Mixed Delays.	361
<i>Dan Liu and Dan Ye</i>	
Incremental Stability of Neural Networks with Switched Parameters and Time Delays via Contraction Theory of Multiple Norms	371
<i>Hao Qiang and Wenlian Lu</i>	
Lag Synchronization of Complex-Valued Neural Networks with Time Delays	381
<i>Jiarong Li, Haijun Jiang, Cheng Hu, and Juan Yu</i>	
Continuous Attractors of Nonlinear Neural Networks with Asymmetric Connection Weights	393
<i>Jiali Yu, Zhang Yi, Chunxiao Wang, Yong Liao, and Zhixin Pang</i>	

Optimization

Two Matrix-Type Projection Neural Networks for Solving Matrix-Valued Optimization Problems.	405
<i>Lingmei Huang, Youshen Xia, and Songchuan Zhang</i>	
An Adaptive Ant Colony System for Public Bicycle Scheduling Problem. . . .	417
<i>Di Liang, Zhi-Hui Zhan, and Jun Zhang</i>	
An Artificial Neural Network for Distributed Constrained Optimization	430
<i>Na Liu, Wenwen Jia, Sitian Qin, and Guocheng Li</i>	
An Estimation of Distribution Algorithm for Large-Scale Optimization with Cooperative Co-evolution and Local Search	442
<i>Jia-Ying Lin, Wei-Neng Chen, and Jun Zhang</i>	
A Collaborative Neurodynamic Approach to Symmetric Nonnegative Matrix Factorization	453
<i>Hangjun Che and Jun Wang</i>	
Modularity Maximization for Community Detection Using Genetic Algorithm.	463
<i>Hu Lu and Qi Yao</i>	
Continuous Trade-off Optimization Between Fast and Accurate Deep Face Detectors	473
<i>Petru Soviany and Radu Tudor Ionescu</i>	
Multi-Dimensional Optical Flow Embedded Genetic Programming for Anomaly Detection in Crowded Scenes	486
<i>Zeyu Mi, Lin Shang, and Bing Xue</i>	
Robust Regression with Nonconvex Schatten p -Norm Minimization	498
<i>Deyu Zeng, Ming Yin, Shengli Xie, and Zongze Wu</i>	
Adaptive Crossover Memetic Differential Harmony Search for Optimizing Document Clustering.	509
<i>Ibraheem Al-Jadir, Kok Wai Wong, Chun Che Fung, and Hong Xie</i>	
Neurodynamics-Based Nonnegative Matrix Factorization for Classification. . .	519
<i>Nian Zhang and Keenan Leatham</i>	
A Multi-kernel Semi-supervised Metric Learning Using Multi-objective Optimization Approach	530
<i>Rakesh Kumar Sanodiya, Sriparna Saha, and Jimson Mathew</i>	
Software-as-a-Service Composition in Cloud Computing Using Genetic Algorithm.	542
<i>Samuel Yu Toh and Maolin Tang</i>	

Evolving Computationally Efficient Hashing for Similarity Search	552
<i>David Iclanzan, Sándor Miklós Szilágyi, and László Szilágyi</i>	
Combining Two-Phase Local Search with Multi-objective Ant Colony Optimization	564
<i>Chun-Wa Leung, Sin-Chun Ng, and Andrew K. Lui</i>	
A Neural Network Based Global Optimal Algorithm for Unconstrained Binary Quadratic Programming Problem	577
<i>Shenshen Gu and Xinyi Chen</i>	
Supervised Learning	
Stochasticity-Assisted Training in Artificial Neural Network.	591
<i>Adedamola Wuraola and Nitish Patel</i>	
An Independent Approach to Training Classifiers on Physiological Data: An Example Using Smiles	603
<i>Md Zakir Hossain and Tom D. Gedeon</i>	
Mixed Precision Weight Networks: Training Neural Networks with Varied Precision Weights	614
<i>Ninnart Fuengfusin and Hakaru Tamukoh</i>	
Policy Space Noise in Deep Deterministic Policy Gradient.	624
<i>Yan Yan and Quan Liu</i>	
Mixup of Feature Maps in a Hidden Layer for Training of Convolutional Neural Network	635
<i>Hideki Oki and Takio Kurita</i>	
Deep Deterministic Policy Gradient with Clustered Prioritized Sampling	645
<i>Wen Wu, Fei Zhu, YuChen Fu, and Quan Liu</i>	
Induced Exploration on Policy Gradients by Increasing Actor Entropy Using Advantage Target Regions	655
<i>Alfonso B. Labao, Carlo R. Raquel, and Prospero C. Naval Jr.</i>	
MCP Based Noise Resistant Algorithm for Training RBF Networks and Selecting Centers	668
<i>Hao Wang, Andrew Chi Sing Leung, and John Sum</i>	
Fault-Resistant Algorithms for Single Layer Neural Networks.	680
<i>Muideen Adegoke, Andrew Chi Sing Leung, and John Sum</i>	
Adversarial Minimax Training for Robustness Against Adversarial Examples	690
<i>Ryota Komiyama and Motonobu Hattori</i>	

SATB-Nets: Training Deep Neural Networks with Segmented Asymmetric Ternary and Binary Weights.	700
<i>Shuai Gao, JunMin Wu, Da Chen, and Jie Ding</i>	
Asynchronous Methods for Multi-agent Deep Deterministic Policy Gradient.	711
<i>Xuesong Jiang, Zhipeng Li, and Xiumei Wei</i>	
A Revisit of Reducing Hidden Nodes in a Radial Basis Function Neural Network with Histogram	722
<i>Pey Yun Goh, Shing Chiang Tan, and Wooi Ping Cheah</i>	
Author Index	733