2023 IEEE Statistical Signal Processing Workshop (SSP 2023)

Hanoi, Vietnam 2 – 5 July 2023



IEEE Catalog Number: CFP23SAP-POD ISBN: 978-1-6654-5246-5

Copyright © 2023 by the Institute of Electrical and Electronics Engineers, Inc. All Rights Reserved

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

*** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.

 IEEE Catalog Number:
 CFP23SAP-POD

 ISBN (Print-On-Demand):
 978-1-6654-5246-5

 ISBN (Online):
 978-1-6654-5245-8

ISSN: 2373-0803

Additional Copies of This Publication Are Available From:

Curran Associates, Inc 57 Morehouse Lane Red Hook, NY 12571 USA

Phone: (845) 758-0400 Fax: (845) 758-2633

E-mail: curran@proceedings.com Web: www.proceedings.com



Table of Contents

Theory and Methods of Detection and Estimation

Estimating Weak DOA Signals Using Adaptive Grid Selection Yanan Wu (Harbin Engineering University, China), Andreas Jakobsson
(Lund University, Sweden), Lutao Liu (Harbin Engineering University,
China)1
On the Eigenstructure of the AR(1) Covariance
Peter Sherman (Iowa State University, USA)
Derivation of n-th order cumulant spectra
Arvid Trapp (Munich University of Applied Sciences, Germany), Peter
Wolfsteiner (Munich University of Applied Sciences, Germany)1
Unified asymptotic distribution of subspace projectors in complex elliptically
symmetric models
Jean Pierre Delmas (Samovar, Telecom Sudparis, Institut Polyechnique
de Paris & Institut Polytechnique de Paris, France), Habti Abeida (Taif
University, Saudi Arabia)
Semantic Labeling for Point Cloud Detection and Registration Using the
Universal Manifold Embedding: Statistical Analysis
Joseph M. Francos (Ben Gurion University, Israel)
A Simple and Tight Bayesian Lower Bound for Direction-of-Arrival Estimation
Ori Aharon (Ben-Gurion University of the Negev, Israel), Joseph
Tabrikian (Ben-Gurion University of the Negev, Israel)
Comparing Iterative and Least-Squares Based Phase Noise Tracking in
Receivers with 1-bit Quantization and Oversampling
Florian Gast (Technische Universität Dresden, Germany), Stephan Zeitz
(TU Dresden, Germany), Meik Dörpinghaus (TU Dresden, Germany),
Gerhard P. Fettweis (Technische Universität Dresden, Germany)
Detection in human-sensor systems under quantum prospect theory using
Bayesian persuasion frameworks
Yinan Hu (New York University, USA), Quanyan Zhu (New York
University, USA)
Prediction of Shock Formation from Boundary Measurements
Helmuth J Naumer (University of Illinois at Urbana-Champaign, USA),
Farzad Kamalabadi (University of Illinois at Urbana-Champaign, USA)4
Efficient Sparse Reduced-Rank Regression With Covariance Estimation
Fengpei Li (ShanghaiTech University, China), Ziping Zhao (ShanghaiTech University, China)46
1311a11411a11 EU1 U1114E1314. U1111a)4(

Machine Learning I

Modified Gauss-Newton Algorithms under Noise	
Krishna Pillutla (Google Research, USA), Vincent Roulet (Google, USA),	
Sham Kakade (Harvard University, USA), Zaid Harchaoui (University of	
· · · · · · · · · · · · · · · · · · ·	51
Markov Decision Process Design for Imitation of Optimal Task Schedulers	•
Paul G Rademacher (Naval Research Laboratory, USA), Kevin Wagner	
(Naval Research Laboratory, USA), Leslie Smith (Naval Research	
	56
7 , - ,	50
A strictly bounded deep network for unpaired cyclic translation of medical	
images	
Swati Rai (Indian Institute of Information Technology Vadodara, India),	
Jignesh S. Bhatt (Indian Institute of Information Technology Vadodara,	
India), Sarat Kumar Patra (Indian Institute of Information Technology	
,,	61
Federated Graph Learning for Low Probability of Detection in Wireless Ad-Hoc	
Networks	
Sivaram Krishnan (Deakin University, Australia), Jihong Park (Deakin	
University, Australia), Subhash Sagar (Macquarie University, Australia),	
Gregory D Sherman (DST Edinburgh, Australia), Benjamin Campbell	
(Defence Science and Technology Group, Australia), Jinho Choi (Deakin	
	66
PDIWS: Thermal Imaging Dataset for Person Detection in Intrusion Warning	
Systems	
Nguyen Duc Thuan (Hanoi University of Science and Technology,	
Vietnam), Anh Hai Le (HaNoi University of Science and Technology,	
Vietnam), Hong Hoang Si (Hanoi University of Science and Technology,	
	71
Design an Internet of Things and Machine Learning Based System for Insect	•
Monitoring in Bio-Pesticides Crops	
Thuan Duy Vo (HCMVNU-International University, Vietnam), Minh-Thanh	
Vo (International University, Vietnam), Minh N. T. Nguyen (International	76
University & Vietnam National University Ho Chi Minh City, Vietnam)	70
Rectified Attention Gate Unit in Recurrent Neural Networks for Effective	
Attention Computation	
Manh-Hung Ha (Vietnam National University, Vietnam), Oscal TC. Chen	
(National Chung Cheng University, Taiwan)	81

	former: Leveraging Rank Correlation for Transformer-based Time Series easting	
1 0160	Zuokun Ouyang (University of Orléans, France), Meryem Jabloun	
	(Université d'Orléans, France), Philippe Ravier (Université d'Orléans,	
	France)	01
	1 Talloe)	O
ignal P	rocessing Challenges for 6G	
Integr	rated Sensing and Communication in Coordinated Cellular Networks	
	Dongfang Xu (The Hong Kong University of Science and Technology,	
	Hong Kong), Chang Liu (The Hong Kong Polytechnic University, Hong	
	Kong), Shenghui Song (The Hong Kong University of Science and	
	Technology, Hong Kong), Derrick Wing Kwan Ng (University of New	
	South Wales, Australia)	90
Fast F	Port Selection using Temporal and Spatial Correlation for Fluid Antenna	
Syste	ms	
	Shunhang Zhang (Beijing University of Posts and Telecommunications,	
	China), Jinghan Mao (University of Posts and Telecommunications,	
	China), Yanzhao Hou (Beijing University of Posts and	
	Telecommunications, China), Yu Chen (Beijing University of Posts and	
	Telecommunications, China), Kai Kit Wong (University College London,	
	United Kingdom (Great Britain)), Qimei Cui (Beijing University of Posts	
	and Telecommunications, China), Xiaofeng Tao (Beijing University of	
	Posts and Telecommunications, China)	95
Real-	Time Large-Scale 6G Satellite-UAV Networks	
	Minh-Hien T. Nguyen (Queen's University Belfast, United Kingdom (Great	
	Britain)), Tinh T. Bui (Queen's University Belfast, Vietnam), Long D.	
	Nguyen (Dong Nai University, Vietnam), Emiliano Garcia-Palacios	
	(Queens University Belfast, United Kingdom (Great Britain)), Hans-	
	Juergen Zepernick (Blekinge Institute of Technology, Sweden), Trung Q.	
	Duong (Queen's University Belfast, United Kingdom (Great Britain))1	00
Energ	y Efficiency Maximization Under Delay-Outage Probability Constraints	
Using	Fluid Antenna Systems	
	Yicong Xu (Beijing University of Posts and Telecommunications, China),	
	Yu Chen (Beijing University of Posts and Telecommunications, China),	
	Yanzhao Hou (Beijing University of Posts and Telecommunications,	
	China), Kai Kit Wong (University College London, United Kingdom (Great	
	Britain)), Qimei Cui (Beijing University of Posts and Telecommunications,	
	China), Xiaofeng Tao (Beijing University of Posts and	
	Telecommunications, China)1	05

Dynamic Resource Allocation Thang X. Vu (University of Luxembourg, Luxembourg), Sovit Bhandari (University of Luxembourg, Luxembourg), Mario Minardi (University of Luxembourg, Germany), Hieu V. Nguyen (Danang University of Science	
and Technology, Vietnam), Symeon Chatzinotas (University of Luxembourg, Luxembourg)	.115
Graph Neural Network Based Beamforming and RIS Reflection Design in A Multi-RIS Assisted Wireless Network Byungiy Lim (Pukyong National University Koroa (South)) Mai Vy (Tufts	
Byungju Lim (Pukyong National University, Korea (South)), Mai Vu (Tufts University, USA)	
Interference Perturbation Mohammadjavad Mirzazadeh Moallem (Babol Noshirvani University of Technology, Iran), Mehdi Korki (Swinburne University of Technology, Australia)	.125
An Efficient Deep Network for Modulation Classification in Impaired MIMO-OFDM Systems Thien Huynh-The (Ho Chi Minh City University of Technology and Education, Vietnam), Viet Quoc Pham (Trinity College Dublin, Ireland), Toan-Van Nguyen (International University-VNU-HCM, Vietnam), Daniel Benevides da Costa (Technology Innovation Institute, United Arab Emirates), Van-Phuc Hoang (Le Quy Don Technical University, Vietnam)	.130
Outage Performance of THz-aided NOMA Systems with Spherical Stochastic Model Thai-Hoc Vu (University of Ulsan, Korea (South)), Khac-Tuan Nguyen (University of Ulsan, Korea (South), Korea (South)), Quoc-Viet Pham (University of Dublin, Ireland), Thien Huynh-The (Ho Chi Minh City University of Technology and Education, Vietnam), Daniel Benevides da Costa (Technology Innovation Institute, United Arab Emirates), Vo Nguyen Quoc Bao (Posts and Telecommunications Institute of Technology, Vietnam), Sunghwan Kim (University of Ulsan, Korea (South))	

Intelligent Spectrum Sensing with ConvNet for 5G and LTE Signals Identification Thien Huynh-The (Ho Chi Minh City University of Technology and Education, Vietnam), Viet Quoc Pham (Trinity College Dublin, Ireland), Thai-Hoc Vu (University of Ulsan, Korea (South)), Daniel Benevides da Costa (Technology Innovation Institute, United Arab Emirates), Van-Phuc Hoang (Le Quy Don Technical University, Vietnam)
ributes to Prof. Huynh Huu Tue: Modern Signal and Information Processing in /ietnam I
A Feature Subset Selection Approach for Predicting Smoking Behaviour Long TonThat (International University HCMC, Vietnam), Vu Truong Son Dao (International University, Vietnam), Huynh Tran Minh Tri (HCMIU, Vietnam), Minh Tuan Le (VNU-International University, Vietnam)
constrained microcontroller To-Hieu Dao (Phenikaa University, Vietnam), Duc-Nghia Tran (Vietnamese Academy of Science and Technology, Vietnam), Quang- Trung Hoang (Phenikaa University, Vietnam), Hoang-Dieu Vu (Phenikaa University, Vietnam), Dinh Tien Huy (Phenikaa University, Vietnam)
Duc-Tan (Phenikaa University, Vietnam)150 Sparse Bayesian Learning with Atom Refinement for mmWave MIMO Channel Estimation
Ngoc-Son Duong (VNU University of Engineering and Technology, Vietnam), Quoc Tuan Nguyen (Vietnam National University, Hanoi, Vietnam), Khac-Hoang Ngo (Chalmers University of Technology, Sweden), Thai-Mai Dinh (VNU University of Engineering and Technology, Vietnam)
Vehicle Counting on Vietnamese Street Khoa Minh Truong (Vietnamese German University, Vietnam), Vinh Quang Dinh (Vietnamese German University, Vietnam), Tuan-Duc Nguyen (University of Van Lang, Vietnam), Thanh Nhut Nguyen
(Vietnamese German University, Vietnam)
Cameras Hieu Tran Minh (International University, Vietnam), Trung Kien Pham (International University, VNUHCM & IETR, Vietnam), Minh-Thanh Vo (International University, Vietnam), Long TonThat (International University HCMC, Vietnam), Huynh Tran Minh Tri (HCMIU, Vietnam), Son Vu Truong Dao (RMIT University Vietnam, Vietnam)
Tradity Dad (table directory victialli, victialli)

Models and Methods

Analysis of Orthogonal Matching Pursuit for Compressed Sensing in Practical
Settings
Hamed Masoumi (TU Delft, The Netherlands), Michel Verhaegen (Delft University of Technology, Belgium), Nitin Jonathan Myers (Delft University of Technology, The Netherlands)
Source Localization for Constant Modulus Signals Using a Structured Matrix
Recovery Technique (SMART)
Xunmeng Wu (Xi'an Jiaotong University, China), Zai Yang (Xi'an Jiaotong
University, China), Zhiqiang Wei (Xi'an Jiaotong University, China),
Zongben Xu (Xi'an Jiaotong University, China)175
Graph Sparsification by Approximate Matrix Multiplication
Neophytos Charalambides (University of Michigan, USA), Alfred Hero III
(University of Michigan, USA)180
Weight sharing for single-channel LMS
Shamahil Ibunu (Royal Holloway University of London, United Kingdom
(Great Britain)), Karl Moore (Royal Holloway University of London, United
Kingdom (Great Britain)), Clive Cheong Took (Royal Holloway University
of London, United Kingdom (Great Britain)), Danilo Mandic (Imperial
College, London, United Kingdom (Great Britain))
Improving of the interpretation of linear filtering preprocessing-based multiscale
permutation entropy
Meryem Jabloun (Université d'Orléans, France), Philippe Ravier
(Université d'Orléans, France), Olivier Buttelli (Université d'Orléans,
France)
Cross Density Kernel for Nonstationary Signal Processing
Bo Hu (University of Florida, USA), Jose Príncipe (University of Florida,
USA)
Differentiable Bootstrap Particle Filters for Regime-Switching Models Wenhan Li (University of Surrey United Kingdom (Creet Pritain)), Viengije
Wenhan Li (University of Surrey, United Kingdom (Great Britain)), Xiongjie
Chen (University of Surrey, United Kingdom (Great Britain)), Wenwu
Wang (University of Surrey, United Kingdom (Great Britain)), Víctor Elvira (University of Edinburgh, United Kingdom (Great Britain)), Yunpeng Li
(University of Surrey, United Kingdom (Great Britain)), Turipeng Li
FFT-Based Approximations for Black-Box Optimization
Madison Lee (University of California, San Diego, USA), Osama S.
Haddadin (L3Harris Technologies & Communication Systems Segment,
USA), Tara Javidi (UCSD, USA)205
20, 1, idia bariai (2005, 20, 1, iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii

A Novel Algorithm for GARCH Model Estimation
Chenyu Gao (ShanghaiTech University, China), Ziping Zhao
(ShanghaiTech University, China), Daniel P Palomar (Hong Kong
University of Science and Technology, Hong Kong)210
C-ISTA: Iterative Shrinkage-Thresholding Algorithm for Sparse Covariance
Matrix Estimation
Wenfu Xia (Shanghaitech University, China), Ziping Zhao (ShanghaiTech
University, China), Ying Sun (The Pennsylvania State University, USA)215
Hard Thresholding based Robust Algorithm for Multiple Measurement Vectors
Ketan Atul Bapat (IIT Kharagpur, India), Mrityunjoy Chakraborty (Indian
Institute of Technology., Kharagpur, India)220
Proximal Subgradient Descent Method for Cancelling Cross-Interference in
FMCW Radars
Manmohan Singhal (Indian Institute of Technology Roorkee, India),
Saurabh Khanna (IIT Roorkee, India)225
Differentiable short-time Fourier transform with respect to the hop length
Maxime Leiber (INRIA & SAFRAN, France), Yosra Marnissi (SAFRAN
TECH, Groupe Safran, France), Axel Barrau (Offroad, France),
Mohammed El Badaoui (University of Saint Etienne, France)230
Statistical reconstruction of pulse shapes from pulse streams
Marek W Rupniewski (Warsaw University of Technology, Poland)235
Signal and Information Processing over Graphs and Networks
Estimation of Differential Graphs via Log-Sum Penalized D-trace Loss
Jitendra Tugnait (Auburn University, USA)240
Arithmetic mean may offer fixed points when expected mean fails in probabilistic
asynchronous affine inference
Georgios Apostolakis (Technical University of Crete, Greece), Aggelos
Bletsas (Technical University of Crete, Greece)245
Distributed Quantile Regression with Non-Convex Sparse Penalties
Reza Mirzaeifard (Norwegian University of Science and Technology,
Norway), Vinay Chakravarthi Gogineni (Norwegian University of Science
and Technology, Norway), Naveen K. D. Venkategowda (Linköping
University, Sweden), Stefan Werner (NTNU, Norway)250
Disturbance Rejection for Robust Distributed Learning via Time-Vertex Filtering
Xiaoyu Sui (Xiamen University, China), Zhenlong Xiao (Xiamen
University, China), Stefano Tomasin (University of Padova, Italy)255
Learning Directed Graphs From Data Under Structural Constraints
Renwei Huang (Xiamen University, China), Haiyan Wei (Xiamen
University, China), Zhenlong Xiao (Xiamen University, China)260
omiversity, omina), zhemong zhao (zhamen omiversity, omina)

Reso	urce-Efficient Federated Learning Robust to Communication Errors Ehsan Lari (Norwegian University of Science and Technology, Norway),
	Vinay Chakravarthi Gogineni (Norwegian University of Science and
	Technology, Norway), Reza Arablouei (CSIRO, Australia), Stefan Werner
	(NTNU, Norway)
On th	e Fusion Strategies for Federated Decision Making
On un	
	Mert Kayaalp (EPFL, Switzerland), Yunus Inan (EPFL, Switzerland), Visa
	Koivunen (Aalto University, Finland), Emre Telatar (EPFL, Switzerland),
	Ali Sayed (Ecole Polytechnique Federale de Lausanne EPFL, School of
	Engineering, Switzerland)270
Contactl	ess Physiological Signals Measurement and Processing for Smart Health
=	nizing Transmission Power for Uplink Data in Cell-Free Wireless Body Area
Netwo	
	Anh Tien Bui (Le Quy Don Technical University, Vietnam), Do Thanh
	Quan (Le Quy Don Technical University, Vietnam), Duong Quoc Dung (Le
	Quy Don Technical University, Vietnam), Pham Thanh Hiep (Le Quy Don
	Technical University, Vietnam)275
Rese	arch on Emotion Recognition Based on Multisource Signals
	Lu Huang (Institute of Microelectronics of Chinese Academy of Sciences
	& University of Chinese Academy of Sciences, China), Kang Yu (Institute
	of Microelectronics of Chinese Academy of Sciences, China), Tingting
	Song (Institute of Microelectronics of Chinese Academy of Sciences,
	China), Huaqiang Wang (Institute of Microelectronics of Chinese
	Academy of Sciences, China), Fengen Yuan (Institute of Microelectronics
	of Chinese Academy of Sciences, China), Yitao Zhang (Institute of
	Microelectronics of Chinese Academy of Sciences, China), Hao Yang
	(Institute of Microelectronics of Chinese Academy of Sciences, China)280
Impro	oving Classification of Curved Chromosomes in Karyotyping using CNN-
-	d Deformation
	Quan Anh Nguyen (VNU-University of Enigneering and Technology,
	Vietnam), Nguyen Thi Cuc Nhung (Hematology and Blood Transfusion
	Center, Bach Mai Hospital, Hanoi, Vietnam), Nguyen Huu Hoang Son
	(AVITECH, University of Engineering and Technology, VNU, Hanoi,
	Vietnam), Doan Thi Kim Phuong (Center of Clinical Genetics and
	Genomic, Hanoi Medical University Hospital, Vietnam), Hong Thinh
	, , ,
	Nguyen (University of Engineering and Technology, VNU Hanoi & Signal
	and System Laboratory, Vietnam), Hoang Tung Tran (University of
	Science and Technology of Hanoi, Vietnam), Luong Thi Lan Anh (Center
	of Clinical Genetics and Genomic, Hanoi Medical University Hospital,

Vietnam), Ha Vu Le (VNU University of Engineering and Technology,	
Vietnam), Ha Manh Luu (AVITECH & FET, University of Technology and	
Engineering, VNU, Hanoi, Vietnam & Erasmus MC, Rotterdam, The	
Netherlands)285	,
Multivariate Signal Decomposition for Vital Signal Extraction using UWB Impulse	
Radar	
Minhhuy Le (Phenikaa University, Vietnam), Van Su Luong (Phenikaa	
University, Vietnam), Dang-Khanh Le (Vietnam Maritime University,	
Vietnam), Khoa Nguyen Dang (Vietnam National University, Vietnam),	
Tien Dat Le (Phenikaa University, Vietnam)290	ļ
Sleep Apnea Patient Monitoring Using Continuous-wave Radar	
Hoang Thi Yen (The University of Electro-Communications, Japan), Van-	
Phuc Hoang (Le Quy Don Technical University, Vietnam), Quang-Kien	
Trinh (Le Quy Don Technical University, Vietnam), Sang Van Doan	
(Vietnam Naval Academy, Vietnam), Guanghao Sun (The University of	
Electro-Communications, Japan)295	,
Physiological Parameters-Based Mobile and Non-Contact COVID-19 Screening	
System Using RGB-Depth-Thermal Cameras	
Batbayar Unursaikhan (National University of Mongolia & Tokyo	
Metropolitan University, Japan), Guanghao Sun (The University of	
Electro-Communications, Japan), Takemi Matsui (Tokyo Metropolitan	
University, Japan), Gereltuya Amarsanaa (The First Central Hospital of	
Mongolia, Mongolia)299	,
egea,egea,	
Tributes to Prof. Huynh Huu Tue: Modern Signal and Information Processing in	
Vietnam II	
Convey Ontinination Board Cidalaha Control for Blancy Arraya	
Convex Optimization-Based Sidelobe Control for Planar Arrays	
Van Luyen Tong (Hanoi University of Industry, Vietnam), Van Cuong	
Nguyen (Hanoi University of Industry, Vietnam), Truong Vu Bang Giang	
(VNU University of Engineering and Technology, Vietnam)304	
Performance Analysis and Deep Learning Evaluation of URLLC Full-Duplex	
Energy Harvesting IoT Networks over Nakagami-m Fading Channels	
Toan-Van Nguyen (International University-VNU-HCM, Vietnam), Thien	
Huynh-The (Ho Chi Minh City University of Technology and Education,	
Vietnam), Vo Nguyen Quoc Bao (Posts and Telecommunications Institute	
of Technology, Vietnam)309	ĺ

•	ed Channel Estimation for massive MIMO-OFDM systems	
	o Hai Son (VNU University of Engineering and Technology, Vietnam), ran Thi Thuy Quynh (VNU University of Engineering and Technology,	
	ietnam)31	4
Semanti	c Communication for Partial Observation Multi-agent Reinforcement	
Learning		
Q D N <i>One-Bit</i> L <u>y</u>	oang Khoi Do (Hanoi University of Science and Technology, Vietnam), tuynh Thi Dinh (Hanoi University of Science and Technology, Vietnam), uong Minh Nguyen (Pusan National University & VinGroup, Vietnam), guyen Tien Hoa (Hanoi University of Science and Technology, Vietnam) 31 Massive MIMO Precoding for Frequency-Selective Fading Channels y V. Nguyen (University of California Irvine, USA), Lu Liu (University of	9
	alifornia, Irvine, USA), Nguyen Linh Trung (Vietnam National University,	
	anoi, Vietnam), Lee Swindlehurst (University of California at Irvine,	
U	SA)32	.4
Machine Le	earning II	
Strong L Ta S S E	ing Audio-Tagging Assisted Sound Event Detection using Weakified abels and Frequency Dynamic Convolutions anmay Khandelwal (Nanyang Technological University & ForteMedia ingapore, Singapore), Rohan Kumar Das (Fortemedia Singapore, ingapore), Andrew Koh (Nanyang Technological University, Singapore), ang-Siong Chng (Nanyang Technological University, Singapore)	:9
A S of	laharaj Faawwaz A Yusran (University of Malaya, Malaysia), Tengku hmad Naim Tengku Mohd Azzman (University of Malaya, Malaysia), hier Nee Saw (Universiti Malaya, Malaysia), Zati Azizul Hasan (Faculty f Computer Science and Information Technology & University of Malaya, lalaysia)	84
	uous representation of switching linear dynamic systems for accurate	
tracking	<u>-</u>	
P	arisa Karimi (University of Illinois at Urbana-Champaign, USA), Helmuth	
J	Naumer (University of Illinois at Urbana-Champaign, USA), Farzad	
K	amalabadi (University of Illinois at Urbana-Champaign, USA)33	9
Sparse I	High-Dimensional Matrix-Valued Graphical Model Learning From	
•	ent Data	
Ji	tendra Tugnait (Auburn University, USA)34	4

CNN-based Channel Estimation using NOMA for mmWave Massive MIMO
System
Anu T. s. (College of Engineering Trivandrum, India), Tara Raveendran
(College of Engineering Trivandrum, India)349
A novel technique for optimizing the filter size of CNNs without backpropagation
Manzar Maqbool (Royal Holloway University of London, United Kingdom),
Clive Cheong Took (Royal Holloway University of London, United
Kingdom), Saeid Sanei (Nottingham Trent University & Imperial College
London, United Kingdom)354
Exploring the Potential of VAE Decoders for Enhanced Speech Re-Synthesis
Omead Pooladzandi (University of California Los Angeles & Meta, USA),
XiLin Li (Meta, USA), Yang Gao (Meta, USA), Lalin Theverapperuma
(Meta, USA)359
A Data Efficient Vision Transformer for Robust Human Activity Recognition from
the Spectrograms of Wearable Sensor Data
Jamie A McQuire (Newcastle University, United Kingdom (Great Britain)),
Paul Watson (University of Newcastle, United Kingdom (Great Britain)),
Hugo Hiden (Newcastle University, United Kingdom (Great Britain)), Nick
Wright (Newcastle University, United Kingdom (Great Britain)), Michael
Catt (Newcastle University, United Kingdom (Great Britain))364
Data-centric AI to Improve Early Detection of Mental Illness
Alex X. Wang (Victoria University of Wellington, New Zealand), Stefanka
Chukova (Victoria University of Wellington, New Zealand), Colin R.
Simpson (Victoria University of Wellington, New Zealand), Binh P. Nguyen
(Victoria University of Wellington, New Zealand)369
iR6mA-RNN: Identifying N6-Methyladenosine Sites in Eukaryotic
Transcriptomes using Recurrent Neural Networks and Sequence-embedded
Features
Binh P. Nguyen (Victoria University of Wellington, New Zealand), Thanh-
Hoang Nguyen-Vo (Wellington Institute of Technology, New Zealand), Loc
Nguyen (Victoria University of Wellington, New Zealand), Quang H. Trinh
(Hanoi University of Science and Technology, Vietnam), Chalinor Baliuag
(Wellington Institute of Technology, New Zealand), Trang Thi Thu Do
(Wellington Institute of Technology, New Zealand), Susanto Rahardja
(Northwestern Polytechnical University & Singapore Institute of
Technology, Singapore)374

Biomedical Signal Processing

Dual-Input Type Convolutional Neural Networks Employing Color Normalized and Nuclei Segmented Data for Histopathology Image Classification Osman Demirel (Nazarbayev University, Kazakhstan), Muhammad Tahir Akhtar (Nazarbayev University, Kazakhstan)
In-context Cross-Density Adaptation on Noisy Mammogram Abnormalities
Detection
Huy Thanh Nguyen (Ho Chi Minh City University of Education & Vinbrain, Vietnam), Ba-Thinh Lam (HCMUS-VNUHCM & Vinbigdata, Vietnam), Trần Đình Đại Quân (Ho Chi Minh City University of Education & GMO-Z.com RUNSYSTEM JSC, Vietnam), Minh Thanh Nguyen (University of Medicine and Pharmacy at Ho Chi Minh City, Vietnam), Dat Tien Chung (Ho Chi Minh City University of Technology and Education & VinBigData, Vietnam), Vinh Quang Dinh (Vietnamese German University, Vietnam)383 Intrinsic Properties of Human Accelerometer Data for Machine Learning Tracey Lee (Singapore Polytechnic, Singapore), Saeid Sanei (Nottingham
Trent University & Imperial College London, United Kingdom (Great Britain))
A Diffusion Adaptation Approach to model Brain Responses in an EEG-based
Hyperscanning Study
Alicia Falcon-Caro (Nottingham Trent University, United Kingdom (Great Britain)), Marc Frincu (Nottingham Trent University, United Kingdom (Great Britain)), Saeid Sanei (Nottingham Trent University & Imperial
College London, United Kingdom (Great Britain))
Statistical penalized-likelihood CT image reconstruction with Plug-and-play priors
Van-Giang Nguyen (Le Quy Don Technical University, Vietnam), Duong Ha (LQDTU, Vietnam)398
Accelerated Magnetic Resonance Parameter Mapping with Low-Rank Modeling and Deep Generative Priors
Hengfa Lu (University of Texas at Austin, USA), Bo Zhao (University of Texas at Austin, USA)403

Non-Invasive Health Systems based on Advanced Biomedical Signal & Image Processing

Convolutional Neural Network-based Architecture for Detecting Face Mask in Crowded Areas

Jad Abou Chaaya (ENSTA Bretagne, France), Batoul Zaraket (American University of Culture and Education, Lebanon), Hassan Harb (American

University of the Middle East, Kuwait), Ali Mansour (ENSTA Bretagne, France)40
Wearable Electro-Phonocardiography Device for Cardiovascular Disease
Monitoring
Yue Rong (Curtin University, Australia), Matthew Fynn (Curtin University, Australia), Nordholm Sven (Curtin University of Technology, Australia), Serena Siaw (Curtin University, Australia), Girish Dwivedi (University of Western Australia, Australia)
Automatic Quantification of Lung Infection Severity in Chest X-ray Images
Bouthaina Slika (University of the Basque Country, Lebanon), Fadi
Dornaika (Ho Chi Minh City Open University, Vietnam), Karim Hammoudi
(University of Haute-Alsace, France), Vinh Truong Hoang (Ho Chi Minh
City Open University, Vietnam)418
Fusion of images and clinical features for the prediction of Pulmonary embolism
in Ultrasound imaging
Aurélien Olivier (ENSTA Bretagne, France), Clément Hoffmann (EA3878
CIC INSERM 1412 CHRU Cavale Blanche, France), Ali Mansour (ENSTA
Bretagne, France), Luc Bressollette (Inserm CIC 1412, France), Benoit
Clement (Flinders University, France)
EEG-Based Neurodegenerative Disease Classification using LSTM Neural
Networks Michala Alegandrini (Marcha Balytachnia University Italy) Ciergia
Michele Alessandrini (Marche Polytechnic University, Italy), Giorgio Biagetti (Università Politecnica delle Marche, Italy), Paolo Crippa (Marche Polytechnic University, Italy), Laura Falaschetti (Università Politecnica delle Marche, Italy), Simona Luzzi (Marche Polytechnic University, Italy), Claudio Turchetti (Marche Polytechnic University, Italy)
Risk Prediction of Cardioembolic Stroke using Clinical Data and Non-contrast
CT
Pasit Jakkrawankul (Chulalongkorn University, Thailand), Chaipat Chunharas (Chulalongkorn University, Thailand), Wasan Akarathanawat (Chulalongkorn University, Thailand), Pongpat Vorasayan (Chulalongkorn University, Thailand), Sedthapong Chunamchai (Chulalongkorn University, Thailand), Ploy N. Pratanwanich (Chulalongkorn University, Thailand), Proadpran Punyabukkana (Chulalongkorn University, Thailand), Ekapol Chuangsuwanich (Chulalongkorn University, Thailand)
Deep Hand Gesture Recognition: A Wavelet Scattering Alternative to
Convolutional Networks
Adel Al Jumaily (Charles Sturt University, Australia), Rami Khushaba (Transport for NSW, Australia)438

Sensor Array and Multichannel Processing

A Convolutional Neural Network Model for Privacy-Sensitive Ultra-Wideband
Radar-Based Human Static Posture Classification and Fall Detection
Khirakorn Thipprachak (King Mongkut's University of Technology
Thonburi, Thailand), Poj Tangamchit (KMUTT, Thailand), Sarawut
Lerspalungsanti (National Science and Technology Development Agency,
Thailand)443
System Performance for Coherent and Non-Coherent Processing for Distributed
Phased Array Radar
Kai-Bor Yu (Independent Consultant, USA), Manuel Fernández
(Independent Researcher, USA)448
Performance Analysis of DOA Estimation Algorithms Using Physical Parameters
in Specific Cases
Jianwei Zhou (Xi'an Jiaotong University, China), Wenjie Wang (Xi'an Jiaotong University, China)453
Enhancing Emitter Localization Accuracy Through Integration of Received
Signal Strength in Direct Position Determination
Fraser A Williams (Queensland University of Technology & Revolution
Aerospace, Australia), Dhammika Jayalath (Queensland University of
Technology, Australia), Anju Jose Tom (Queensland University of
Technology, Australia), Terrence L Martin (Revolution Aerospace &
Queensland University of Technology, Australia), Clinton Fookes
(Queensland University of Technology, Australia)
Nonasymptotic Analysis of Direct-Augmentation ESPRIT for Localization of More
Sources Than Sensors Using Sparse Arrays
Zai Yang (Xi'an Jiaotong University, China), Kaijie Wang (Xi'an Jiaotong
University, China)
DOA Estimation using Planar Sparse Fractal Array
Kretika Goel (Indian Institute of Technology Delhi, India), Monika Agrawal
(IIT, India), Subrat Kar (Indian Institute of Technology, Delhi, India)468
DQN-based Joint Adaptive Beamwidth Control and Beam Tracking for mmWave
Communications
Hyunwoo Park (Hanyang University, Korea (South)), Jong Hyun Jeon
(Hanyang University, Korea (South)), Hyeonjin Chung (Hanyang
University, Korea (South)), Sunwoo Kim (Hanyang University, Korea
(South))473
Independent Vector Analysis Based MIMO Deconvolution: Exploiting Spatial
Diversity Through Back Projection
Adel Belouchrani (Ecole Nationale Polythechnique, Algiers, Algeria),
Nacira Mendiel (Ecole Nationale Polytechnique, Algeria), Lynda Berrah

(Ecole Nationale Polytechnique, Algeria), Soufiane Tebache (Ecole Nationale Polytechnique, Algeria)478
Online Learning Network Methods for a Joint Transmit Waveform and Receive Beamforming Design for a DFRC System
Jiachao Liang (Guangdong University of Technology, China), Yongwei
Huang (Guangdong University of Technology, China)
A Two-Stage Sparsity-Based Method for Location and Doppler Estimation in Bistatic Automotive Radar
Ali Moussa (University of Sheffield, United Kingdom (Great Britain)), Wei Liu (University of Sheffield, United Kingdom (Great Britain))487
Improved Weighted Least Squares Algorithm for Hybrid AOA and TDOA
Localization Yanbin Zou (Shantou University, China), Jingna Fan (Shantou University,
China), Liehu Wu (Shantou University, China), Huaping Liu (Oregon State University, USA)492
Ultra low delay audio source separation using zeroth-order optimization
Gerald Schuller (Ilmenau University of Technology & Fraunhofer Institute
for Digital Media Technology, Germany) 497
PCA-aided calibration of systems comprising multiple unbiased sensors Marek W Rupniewski (Warsaw University of Technology, Poland)502
Marck W Raphicwski (Warsaw Offiversity of Teermology, Foland)
Other Applications of Statistical Signal Processing Techniques
Bayesian Compressed Sensing-Based Hybrid Models for Stock Price
Bayesian Compressed Sensing-Based Hybrid Models for Stock Price Forecasting
Bayesian Compressed Sensing-Based Hybrid Models for Stock Price Forecasting Somaya Sadik (ENSAM Rabat, Morocco), Mohamed Et-tolba (National
Bayesian Compressed Sensing-Based Hybrid Models for Stock Price Forecasting Somaya Sadik (ENSAM Rabat, Morocco), Mohamed Et-tolba (National Institute of Posts and Telecommunications, Rabat, Morocco), Benayad
Bayesian Compressed Sensing-Based Hybrid Models for Stock Price Forecasting Somaya Sadik (ENSAM Rabat, Morocco), Mohamed Et-tolba (National Institute of Posts and Telecommunications, Rabat, Morocco), Benayad Nsiri (ENSAM Rabat, Morocco)
Bayesian Compressed Sensing-Based Hybrid Models for Stock Price Forecasting Somaya Sadik (ENSAM Rabat, Morocco), Mohamed Et-tolba (National Institute of Posts and Telecommunications, Rabat, Morocco), Benayad
Bayesian Compressed Sensing-Based Hybrid Models for Stock Price Forecasting Somaya Sadik (ENSAM Rabat, Morocco), Mohamed Et-tolba (National Institute of Posts and Telecommunications, Rabat, Morocco), Benayad Nsiri (ENSAM Rabat, Morocco)
Bayesian Compressed Sensing-Based Hybrid Models for Stock Price Forecasting Somaya Sadik (ENSAM Rabat, Morocco), Mohamed Et-tolba (National Institute of Posts and Telecommunications, Rabat, Morocco), Benayad Nsiri (ENSAM Rabat, Morocco) POPGIS - An Application Service for Air Pollution Management and Analysis in Vietnam Tung Xuan Hoang (VNU University of Engineering and Technology, Vietnam), Truong Xuan Ngo (VNU University of Engineering and
Bayesian Compressed Sensing-Based Hybrid Models for Stock Price Forecasting Somaya Sadik (ENSAM Rabat, Morocco), Mohamed Et-tolba (National Institute of Posts and Telecommunications, Rabat, Morocco), Benayad Nsiri (ENSAM Rabat, Morocco)
Bayesian Compressed Sensing-Based Hybrid Models for Stock Price Forecasting Somaya Sadik (ENSAM Rabat, Morocco), Mohamed Et-tolba (National Institute of Posts and Telecommunications, Rabat, Morocco), Benayad Nsiri (ENSAM Rabat, Morocco)
Bayesian Compressed Sensing-Based Hybrid Models for Stock Price Forecasting Somaya Sadik (ENSAM Rabat, Morocco), Mohamed Et-tolba (National Institute of Posts and Telecommunications, Rabat, Morocco), Benayad Nsiri (ENSAM Rabat, Morocco)
Bayesian Compressed Sensing-Based Hybrid Models for Stock Price Forecasting Somaya Sadik (ENSAM Rabat, Morocco), Mohamed Et-tolba (National Institute of Posts and Telecommunications, Rabat, Morocco), Benayad Nsiri (ENSAM Rabat, Morocco)
Bayesian Compressed Sensing-Based Hybrid Models for Stock Price Forecasting Somaya Sadik (ENSAM Rabat, Morocco), Mohamed Et-tolba (National Institute of Posts and Telecommunications, Rabat, Morocco), Benayad Nsiri (ENSAM Rabat, Morocco)
Bayesian Compressed Sensing-Based Hybrid Models for Stock Price Forecasting Somaya Sadik (ENSAM Rabat, Morocco), Mohamed Et-tolba (National Institute of Posts and Telecommunications, Rabat, Morocco), Benayad Nsiri (ENSAM Rabat, Morocco)
Bayesian Compressed Sensing-Based Hybrid Models for Stock Price Forecasting Somaya Sadik (ENSAM Rabat, Morocco), Mohamed Et-tolba (National Institute of Posts and Telecommunications, Rabat, Morocco), Benayad Nsiri (ENSAM Rabat, Morocco)

	Acoustic Feedback Cancellation using the Variable Step Size Affine Projection	
	Tanh Algorithm Felix Albu (Valahia University of Targoviste, Romania), Linh T. T. Tran (Posts and Telecommunications Institute of Technology, Vietnam), S	
	Radhika (Sathyabama Institute of Science and Technology, India), A Chandrasekar (St. Joseph's College of Engineering, India)5	22
	A Speech Distortion Weighted Single-Channel Wiener Filter Based STFT-	
	Domain Noise Reduction	
	Jie Zhang (University of Science and Technology of China, China), Rui Tao (University of Science and Technology of China, China), Li-Rong Dai (University of Science and Technology of China, China)	27
	CSA-BERT: Video Question Answering	
	Kommineni Jenni (Universiti Teknologi Malaysia, Saudi Arabia), M Srinivas (NIT Warangal, India), Roshni Sannapu (NIT Warangal, India), Murukessan Perumal (NIT Warangal, India)53	32
	Utilizing DETR model on SPECT image to assess remaining thyroid tissues	
	post-thyroidectomy	
	Minh Lai Phu (Hanoi University of Science and Technology, Vietnam), Trung Thanh Nguyen (108 Military Central Hospital & Hanoi University of Science and Technology, Vietnam), Thanh Vinh Pham (University of Engineering and Technology, Vietnam), Thai Ha Nguyen (HUST,	
	Vietnam)	37
	Estimation of Statistical Manifold Properties of Natural Sequences using	
	Information Topology Andrew D. Book (The University of Queensland, Australia), Janet Wiles	
	Andrew D Back (The University of Queensland, Australia), Janet Wiles (The University of Queensland, Australia)54	42
Ма	atrix and Tensor Decomposition: New algorithms & Applications	
	Inexact higher-order proximal algorithms for tensor factorization	
	Valentin Leplat (Skolkovo Institute of Science and Technology, Russia),	
	Anh Huy Phan (SKOLKOVO Institute of Science and Technology,	
	Russia), Man Shun Ang (University of Southampton, United Kingdom	
	(Great Britain))54	47
	Fast Adaptive Cross Tubal Tensor Approximation	
	Salman Ahmadi-Asl (Skolkovo Institute of Science and Technology, Russia), Anh Huy Phan (SKOLKOVO Institute of Science and Technology,	
	Russia), Andrzej Cichocki (Skolkovo Institute of Science and Technology,	
	Russia), Ashish Jha (Skolkovo Institute of Science and Technology,	
	Russia), Anastasia Sozykina (Skolkovo Institute of Science and	
	Technology, Russia), Jun Wang (Skolkovo Institute of Science and	

Technology, Russia), Ivan Oseledets (Skolkovo Institute of Science Technology & Institute of Numerical Mathematics of Russian Acad	
Sciences, Russia)	
Tensor Chain Decomposition and Function Interpolation	
Petr Tichavsky (Academy of Sciences of the Czech Republic, Cze	ech
Republic), Anh-Huy Phan (Skolkovo Institute of Science and Tech	nology,
Russia)	557
Linear Computation Coding for Convolutional Neural Networks	
Ralf R. Müller (Friedrich-Alexander Universität Erlangen-Nürnberg Germany), Hans Rosenberger (Friedrich-Alexander-Universität Er Nürnberg (FAU), Germany), Marc Reichenbach (Brandenburgisch	langen-
Technische Universität Cottbus-Senftenberg, Germany)	562
Multilinear singular value decomposition of a tensor with fibers observed	along
one mode	
Stijn Hendrikx (KU Leuven, Belgium), Mikael Sorensen (University Virginia, USA), Lieven De Lathauwer (KU Leuven Kulak, Belgium)	566
A novel tensor tracking algorithm for block-term decomposition of stream	ııng
tensors	
Le Trung Thanh (University of Orleans, France), Karim Abed-Mera	aim
(University of Orleans & PRISME Lab., France), Philippe Ravier	
(Université d'Orléans, France), Olivier Buttelli (Université d'Orléan France)	
rialice)	
Signal Processing for Communications and Networks	
Full-Duplex Cooperative NOMA Short-Packet Communications with K-M Clustering	eans
Thi My Chinh Chu (Blekinge Institute of Technology, Sweden), Ha Juergen Zepernick (Blekinge Institute of Technology, Sweden), True Duong (Queen's University Belfast, United Kingdom (Great Britain	ung Q. n))576
Joint Channel Estimation and Symbol Detection in Overloaded MIMO Us	sing
ADMM	1.6
Swati Bhattacharya (Indian Institute of Science, Bangalore, India)	•
Hari (Indian Institute of Science, India), Yonina C. Eldar (Weizmar	
Institute of Science, Israel)	
OTFS-IM channel estimation and data detection algorithm with a superin	nposea
pilot pattern Pahah Quahikh (Ecolo Militaira Polytachnique, Algaria), Abdaldiali	il Aïcco
Rabah Ouchikh (Ecole Militaire Polytechnique, Algeria), Abdeldjali El-Bey (IMT Atlantique, France), Thierry Chonavel (IMT Atlantic &	
Université Européenne de Bretagne, France), Mustapha Djeddou	
Polytechnic School, Algeria)	
1 digitalinia dender, Algeria)	500

Performance analysis of Ethereum smart contracts: A Study on Gas cost and
block size impact
Tien Quyet Do (Le Quy Don Technical University, Viet Nam, Vietnam), Minh Thanh Ta (Le Quy Don Technical University, Viet Nam, Vietnam)59
A New Method for Malware Classification Using Hyperspheres
Thu Trang Nguyen Thi (VNU University of Engineering and Technology, Vietnam), Dai Tho Nguyen (VNU University of Engineering and
Technology, Vietnam), Kien Hoang Dang (VNU University of Engineering and Technology, Vietnam)59
Sparse Estimation in mmWave MIMO-OFDM Joint Radar and Communication
(JRC) Systems
Meesam Jafri (IIT KANPUR, India), Sana Anwer (IIT Kanpur, India), Suraj Srivastava (Indian Institute of Technology Kanpur, India), Aditya K
Jagannatham (Indian Institute of Technology Kanpur, India)60
Dictionary Learning (DL)-based Sparse Cascaded Channel Estimation in IRS- assisted Terahertz MU-SIMO Systems With Hardware Impairments
Priyanka Maity (IIT KANPUR, India), Sunaina Khatri (Indian Institute of
Technology Kanpur, India), Suraj Srivastava (Indian Institute of
Technology Kanpur, India), Aditya K Jagannatham (Indian Institute of Technology Kanpur, India)60
Improved Deterministic Usage of the Elliptic Curve Digital Signature Algorithm
with Scrypt
Dang Ninh Tran (The People's Police University of Technology and
Logistics, Vietnam), Ba Linh Vu (The People Police University of
Technology and Logistics, Vietnam), Xuan Nguyen Tien (The Peoples
Police University of Technology and Logistics, Vietnam)61
Communication Quality Optimization for UAV Trajectory in Irregular Topography Jad Abou Chaaya (ENSTA Bretagne, France), Arnaud Coatanhay (ENSTA
Bretagne, France), Ali Mansour (ENSTA Bretagne, France), Thierry Marsault (DGA-MI, France)61
Channel-Optimized Strategic Quantizer Design via Dynamic Programming
Anju Anand (Binghamton University-SUNY, USA), Emrah Akyol
(Binghamton University - SUNY, USA)62
inSTEP: An In Situ Stochastic Approximation based Scalar Quantizer for
Narrowband IoT
Vijay Anavangot (Indian Institute of Technology Bombay, India)62
Differential privacy using Gamma distribution
Yongbin Park (Korea University, Korea (South)), Minchul Kim (Korea
University, Korea (South)), Ji Won Yoon (Korea University, Korea
(South))63

Smart Device Localization under Generic α-κ-μ Shadowed Fading Io I	
Environment using Signed Gradient Method	
Rohit Bhavesh (Indian Institute of Technology Patna, India), Ankur	
Pandey (Rajiv Gandhi Institute of Petroleum Technology, Jais, Amethi,	
India), Sudhir Kumar (Indian Institute of Technology Patna, India)636	6
Channel Estimation and Physical Layer Security in Optical MIMO-OFDM based	
LED Index Modulation	
Furkan Batuhan Okumus (Kadir Has University, Turkey), Erdal Panayirci	
(Kadir Has University, Turkey), Mohammad-Ali Khalighi (Ecole Centrale	
Marseille, France)64	1
Relaying Communications in Cognitive Radio Networks with Energy Scavenging	
and Artificial Noise: Reliability-Security Trade-off Analysis	
Van Khuong Ho (Ho Chi Minh City University of Technology, Vietnam)646	3
Signal Processing and Data Science for Smart Health	
AI-assisted monitoring of COVID-19 community isolation in Thailand	
Natthanan Ruengchaijatuporn (Chulalongkorn University, Thailand), Parin	
Kittipongdaja (Chulalongkorn University, Thailand), Tagon Sompong	
(Chulalongkorn University, Thailand), Pasit Jakkrawankul (Chulalongkorn	
University, Thailand), Pattama Torvorapanit (King Chulalongkorn	
Memorial Hospital, Thailand), Napaporn Chantasrisawad (King	
Chulalongkorn Memorial Hospital, Thailand), Wariya Chintanapakdee	
(Chulalongkorn University, Thailand), Thanisa Tongbai (Chulalongkorn	
University, Thailand), Aisawan Petchlorlian (Chulalongkorn University,	
Thailand), Wiroon Sriborrirux (Burapha University, Thailand), Chaipat	
Chunharas (Chulalongkorn University, Thailand), Opass Putcharoen (King	
Chulalongkorn Memorial Hospital, Thailand), Ekapol Chuangsuwanich	
(Chulalongkorn University, Thailand), Sira Sriswasdi (Chulalongkorn	
University, Thailand)65	1
An Extended System for External Sensors Data Acquisition And Validation	
During Conducting Polysomnography	
Tanut Choksatchawathi (Vidyasirimedhi Institute of Science and	
Technology, Thailand), Thitikorn Kaewlee (Vidyasirimedhi Institute of	
Science and Technology, Thailand), Guntitat Sawadwuthikul (KAIST,	
Korea (South)), Busarakum Chaitusaney (Excellence Center for Sleep	
Disorders at King Chulalongkorn Memorial Hospital, Thailand), Nattapong	
Jaimchariyatam (Excellence Center for Sleep Disorders at King	
Chulalongkorn Memorial Hospital, Thailand), Theerawit Wilaiprasitporn	
(Vidyasirimedhi Institute of Science and Technology (VISTEC), Thailand),	

Thapanun Sudhawiyangkul (Vidyasirimedhi Institute of Science and
Technology, Thailand)
Enhancing sleep postures classification by incorporating acceleration sensor
and LSTM model
Hoang-Dieu Vu (Phenikaa University, Vietnam), Duc-Nghia Tran
(Vietnamese Academy of Science and Technology, Vietnam), Ly Khanh
Can (Phenikaa University, Vietnam), To-Hieu Dao (Phenikaa University,
Vietnam), Dat Dinh Pham (Phenikaa University, Vietnam), Tran Duc-Tan
(Phenikaa University, Vietnam)66
False Discovery Rate Control for Fast Screening of Large-Scale Genomics
Biobanks
Jasin Machkour (Technische Universität Darmstadt, Germany), Michael
Muma (Darmstadt University of Technology, Germany), Daniel P Palomar
(Hong Kong University of Science and Technology, Hong Kong)666
Estimating Continuous Blood Pressure from Photoplethysmogram Signals for
Non-invasive Devices by Convolutional Neural Network
Hoang Minh Phan (ITRVN, Vietnam)67
Autoencoder-Based PPG Compression for Resource-Constrained Device
Suvichak Santiwongkarn (Sirindhorn International Institute of Technology,
Thammasat University, Thailand), Natakorn Kornworakarn (Sirindhorn
International Institute of Technology, Thammasat University, Thailand),
Prapun Suksompong (Sirindhorn International Institute of Technology,
Thammasat University, Thailand), Tanut Choksatchawathi (Vidyasirimedhi
Institute of Science and Technology, Thailand), Thitikorn Kaewlee
(Vidyasirimedhi Institute of Science and Technology, Thailand), Theerawit
Wilaiprasitporn (Vidyasirimedhi Institute of Science and Technology
(VISTEC), Thailand)676
A Novel Transparency Strategy-based Data Augmentation Approach for BI-
RADS Classification of Mammograms
Sam B. Tran (Vingroup Big Data Institute, Vietnam), Huyen T. X. Nguyen
(Vingroup Big Data Institute, USA), Chi Phan (VinUni-Illinois Smart Health
Center & VinUniversity, USA), Ha Q. Nguyen (Vingroup Big Data Institute,
USA), Huy Hieu Pham (VinUniversity, Vietnam)68
Slice-level Detection of Intracranial Hemorrhage on CT Using Deep Descriptors
of Adjacent Slices
Dat T. Ngo (VinBigData, Vietnam), Thao Nguyen (VinUniversity, Vietnam),
Hieu T. Nguyen (VinBigData, Vietnam), Dung B. Nguyen (VinBigData,
Vietnam), Ha Q. Nguyen (VinBigData, Vietnam), Huy Hieu Pham
(VinUniversity, Vietnam)686
, , ,

Brain Computer Interface and Brain Disorders

Estimation of Imagined Rhythms from EEG by Spatiotemporal Convolutional
Neural Networks
Naoki Yoshimura (Tokyo University of Agriculture and Technology, Japan),
Toshihisa Tanaka (Tokyo University of Agriculture and Technology,
Japan), Yuta Inaba (Tokyo University of Agriculture and Technology,
Japan)690
Optimized preprocessing and Tiny ML for Attention State Classification
Yinghao Wang (Institute Polytechnique de Paris & Télécom Paris,
France), Rémi Nahon (Institute Polytechnique de Paris, France), Enzo
Tartaglione (Institute Polytechnique de Paris, France), Pavlo
Mozharovskyi (Institute Polytechnique de Paris, France), Van-Tam
Nguyen (Télécom Paris & Institute Polytechnique de Paris, France)695
The Statistical Analysis of the Varying Brain
Oliver Y. Chén (University of Bristol, United Kingdom (Great Britain)), Vu
Duy Thanh (AVITECH, University of Engineering and Technology, VNU,
Hanoi, Vietnam), Gilbert Greub (Centre Hospitalier Universitaire Vaudois,
Switzerland), Hengyi Cao (Northwell Health, USA), Xingru He (Shenyang
He Eye Hospital, China), Haochang Shou (University of Pennsylvania,
USA), Yannick Muller (The University of Lausanne, Switzerland),
Constantinos Petrovas (Le Centre Hospitalier Universitaire Vaudois,
Switzerland), Viet-Dung Nguyen (ENSTA Bretagne, France), Bangdong
Zhi (University of Bristol, United Kingdom (Great Britain)), Laurent Perez
(Le Centre Hospitalier Universitaire Vaudois, Switzerland), Jean-Louis
Raisaro (Le Centre Hospitalier Universitaire Vaudois, Switzerland), Guy
Nagels (Vrije Universiteit Brussel, Belgium), Maarten De Vos (KU Leuven,
Belgium), Wei He (Shenyang He Eye Hospital, China), Raphael Gottardo
(Le Centre Hospitalier Universitaire Vaudois, Switzerland), Palie Smart
(University of Bristol, United Kingdom (Great Britain)), Marcus Munafo
(University of Bristol, United Kingdom (Great Britain)), Giuseppe Pantaleo
(Le Centre Hospitalier Universitaire Vaudois, Switzerland)700
AloT-based Neural Decoding and Neurofeedback for Accelerated Cognitive
Training: Vision, Directions and Preliminary Results
Van-Tam Nguyen (Télécom Paris & Institute Polytechnique de Paris,
France), Enzo Tartaglione (Institute Polytechnique de Paris, France),
Tuan Dinh (TechTree Ventures, USA)705
Mapping Scalp to Intracranial EEG using Generative Adversarial Networks for
Automatically Detecting Interictal Epileptiform Discharges
Bahman Abdi-Sargezeh (Nottingham Trent University & University of
Oxford, United Kingdom), Ashwini Oswal (University of Oxford, United

Kingdom), Saeid Sanei (Nottingham Trent University & Imperial College
London, United Kingdom)710
Extended Upscale and Downscale Representation with Cascade Arrangement
Quang Manh Doan (VNU University of Engineering and Technology,
Vietnam), Tran Hiep Dinh (VNU University of Engineering and Technology
& Joint Technology and Innovation Research Centre, Vietnam), Nguyen
Linh Trung (Vietnam National University, Hanoi, Vietnam), Diep N.
Nguyen (University of Technology Sydney, Australia), Avinash Singh
(University of Technology Sydney, Sydney, Australia, Germany), Chin-
Teng Lin (University of Technology Sydney, Australia)715
Autoencoder-based feature ranking for predicting Mild Cognitive Impairment
conversion using FDG-PET images
Tuan Minh Pham (Aix Marseille University, France), Nguyen Linh Trung
(Vietnam National University, Hanoi, Vietnam), Mouloud Adel (Universite
Aix-Marseille, France), Eric Guedj (Aix-Marseille University, France)720