

# **2023 Asia Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC 2023)**

**Taipei, Taiwan  
31 October - 3 November 2023**

**Pages 1-598**



**IEEE Catalog Number: CFP2314U-POD  
ISBN: 979-8-3503-0068-0**

**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:	CFP2314U-POD
ISBN (Print-On-Demand):	979-8-3503-0068-0
ISBN (Online):	979-8-3503-0067-3
ISSN:	2640-009X

**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](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

# 2023 Asia Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC)

## Biomedical Signal Processing and Systems

<i>Mixed Emotion Recognition Based on EEG Signals</i> Guanxiong Pei (Zhejiang Lab, China), Bingjie Li (National University of Singapore, China), Taihao Li (Zhejiang Lab, China), Cunhang Fan (Anhui University, China), Chao Zhang (Anhui University, China), Zhao Lv (Anhui University, China) .....	1
<i>Attention-Based CNN and Relative Phase Feature Modeling for Improved Imagined Speech Recognition</i> Yoshiki Niimura (Shizuoka University, Japan), Jun Takemoto (Shizuoka University, Japan), Atsuhiko Kai (Shizuoka University, Japan), Seiichi Nakagawa (Chubu University, Japan) .....	8
<i>Manipulation of Neuronal Network Firing Patterns Using Temporal Deep Unfolding-Based MPC</i> Jumpei Aizawa (Osaka University, Japan), Masaki Ogura (Osaka University, Japan), Masanori Shimono (Kyoto University, Japan), Naoki Wakamiya (Osaka University, Japan) .....	15
<i>Goodness of Fit to the Convolution Model of fMRI Data and Determination of the Regularization Parameter</i> Wakako Nakamura (Shimane University, Japan) .....	22
<i>Detection Model of Sister Chromatid Cohesion Defects Based on Vision Transformer</i> Shinya Matsumoto (Tokyo Metropolitan University, Japan), Kan Okubo (Tokyo Metropolitan University, Japan), Kiyoshi Nishikawa (Tokyo Metropolitan University, Japan), Takuya Abe (Tokyo Metropolitan University, Japan) .....	27

## Data Analytics and Machine Learning

<i>GRALA: Modeling Social Information for Microblog Sentiment Analysis from the View of Balancing Sparsity and Smoothness of Social Contexts</i> Xiaomei Zou (Zhejiang Lab, China), Shiyong Hu (Hangzhou Applied Acoustics Research Institute, China), Taihao Li (Zhejiang Lab, China) .....	32
<i>Adopting Neural Translation Model in Data Generation for Inverse Text Normalization</i> Yufei Jiang (Nanyang Technological University, Singapore), Thi-Nga Ho (Nanyang Technological University, Singapore), Eng-Siong Chng (Nanyang Technological University, Singapore) .....	38
<i>Mismatched Semi-Supervised Learning with Feature Similarity Consistency</i> Zechen Liang (Guangzhou University, China), Yuan-Gen Wang (Guangzhou University, China) .....	46
<i>Collaborative Pseudo Labeling for Prompt-Based Learning</i> Jen-Tzung Chien (National Yang Ming Chiao Tung University, Taiwan), Chien-Ching Chen (National Yang Ming Chiao Tung University, Taiwan) .....	51
<i>Learning Meta Soft Prompt for Few-Shot Language Models</i> Jen-Tzung Chien (National Yang Ming Chiao Tung University, Taiwan), Ming-Yen Chen (National Yang Ming Chiao Tung University, Taiwan), Jing-Hao Xue (University College London, United Kingdom (Great Britain)) .....	57

## Deep Learning: Algorithm, Implementations, and Applications

<i>MSDF-Net: A Multi-Scale Deep Fusion Network with Dilated Convolutions for Cloud Removal from Sentinel-2 Imagery</i> Jayakrishnan A (National Institute of Technology Puducherry, India), Venkatesan M (National Institute of Technology Puducherry, India), Prabhavathy Panneer (VIT University, India), Alkha Mohan (Indian Institute of Information Technology Tiruchirappalli, India) .....	63
<i>Instance Implant-Aided Non-Uniformly Cropping for Person Detection in Aerial Images</i> Xiangqing Zhang (Northwestern Polytechnical University & Yan'an University, China), Yan Feng (Northwestern Polytechnical University, China) .....	71
<i>A Futuristic Proposed Solution to a Global Challenge: The Promise of AI for Social Distancing Compliance</i> Yi Pei Ng (Tunku Abdul Rahman University of Management and Technology, Malaysia), Chi Wee Tan, Ts. (Tunku Abdul Rahman University of Management and Technology, Malaysia), Yiqi Tew (Tunku Abdul Rahman University of Management and Technology, Malaysia) .....	79
<i>Unbiased Decision-Making Framework in Long-Video Macro &amp; Micro-Expression Spotting</i> Pei Sze Tan (Monash University, Malaysia), Sailaja Rajanala (Monash University, Malaysia), Arghya Pal (Monash University, Malaysia), Raphael C.-W. Phan (Monash University, Malaysia), Huey Fang Ong (Monash University Malaysia, Malaysia) .....	84

# Recent Advances on Speech Preprocessing in Multi-Speaker Scenarios

<i>Adaptive Beamforming Based on Interference-Plus-Noise Covariance Matrix Reconstruction for Speech Separation</i> Yongxiong Xiao (Zhejiang Lab, China), Shiqiang Zhu (Zhejiang Lab, China), Te Li (Zhejiang Lab, China), Minhong Wan (Zhejiang Lab, China), Wei Song (Zhejiang Lab, China), Jason Gu (Dalhousie University, Canada), Qiang Fu (Zhejiang Lab, China) .....	90
<i>Correlated Multi-Level Speech Enhancement for Robust Real-World ASR Applications Using Mask-Waveform-Feature Optimization</i> Hang Chen (University of Science and Technology of China, China), Jun Du (University of Science and Technology of China, China), Zhe Wang (University of Science and Technology of China, China), Chenxi Wang (University of Science and Technology of China, China), Yuling Ren (China Mobile Online Services Company Limited, China), Qinglong Li (China Mobile Online Services Company Limited, China), Ruibo Liu (China Mobile Online Services Company Limited, China), Chin-Hui Lee (Georgia Institute of Technology, USA) .....	96
<i>CASA-Net: Cross-Attention and Self-Attention for End-To-End Audio-Visual Speaker Diarization</i> Haodong Zhou (Xiamen University, China), Tao Li (Xiamen University, China), Jie Wang (Xiamen, China), Li Lin (Xiamen University, China), Qingyang Hong (Xiamen University, China) .....	102
<i>Enhanced Neural Beamformer with Spatial Information for Target Speech Extraction</i> Aoqi Guo (Ocean University of China, China), Junnan Wu (Xiaomi Corporation, China), Peng Gao (Xiaomi Corporation, China), Wenbo Zhu (Xiaomi Corporation, China), Qinwen Guo (Ocean University of China, China), Gao Da Zhi (Ocean University of China, China), Yujun Wang (Xiaomi Corporation, China) .....	107
<i>Low-Complexity Multi-Channel Speaker Extraction with Pure Speech Cues</i> Bang Zeng (Wuhan University & Duke Kunshan University, China), Hongbin Suo (OPPO, China), Yulong Wan (OPPO, China), Ming Li (Duke Kunshan University, China) .....	114

# SLA-I: Speaker Recognition and Spoken Language Identification

<i>Modeling Suprasegmental Information Using Finite Difference Network for End-To-End Speaker Verification</i> Jin Li (The Hong Kong Polytechnic University, Hong Kong), Man Wai Mak (Hong Kong Polytechnic University, Hong Kong), Nan Yan (Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China), Lan Wang (Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China) .....	119
<i>Relevance of Quadrature Phase for Replay Detection in Voice Assistants (VAs)</i> Priyanka Gupta (Dhirubhai Ambani Institute of Information and Communication Technology, India), Piyushkumar K. Chodingala (Dhirubhai Ambani Institute of Information and Communication Technology, India), Hemant A. Patil (Dhirubhai Ambani Institute of Information and Communication Technology, India) .....	125
<i>Exploring Residual Cepstral Features for Spoken Language Identification</i> Baveet Singh Hora (Dhirubhai Ambani Institute of Information and Communication Technology, India), Krishna Parmar (Dhirubhai Ambani Institute of Information and Communication Technology, India), Shrey Machhar (Dhirubhai Ambani Institute of Information and Communication Technology, India), Hemant A. Patil (Dhirubhai Ambani Institute of Information and Communication Technology, India), Kiran Praveen (Samsung Research Institute, Bangalore, India), Balaji Radhakrishnan (Samsung Research Institute, Bangalore, India) .....	131
<i>Consideration of Varying Training Lengths for Short-Duration Speaker Verification</i> WooSeok Ko (Yonsei University, Korea (South)), Seyun Um (Yonsei University, Korea (South)), Zhenyu Piao (Yonsei University, Korea (South)), Hong-Goo Kang (Yonsei University, Korea (South)) .....	139
<i>Adversarial Robustness of Mel Based Speaker Recognition Systems</i> Ritu Srivastava (IIT Hyderabad, India), Saiteja Kosgi (IIT Hyderabad, India), Sarath Sivaprasad (IIT Hyderabad, India), Neha Sahipjohn (IIT Hyderabad, India), Vineet Gandhi (IIT-Hyderabad, India) .....	145

# SLA-II: Music Information Processing

<i>Joint Drum Transcription and Metrical Analysis Based on Periodicity-Aware Multi-Task Learning</i> Daichi Kamakura (Kyoto University, Japan), Eita Nakamura (Kyoto University, Japan), Kazuyoshi Yoshii (Kyoto University & RIKEN, Japan), Takehisa Oyama (Kyoto University, Japan) .....	151
<i>CTC2: End-To-End Drum Transcription Based on Connectionist Temporal Classification with Constant Tempo Constraint</i> Daichi Kamakura (Kyoto University, Japan), Eita Nakamura (Kyoto University, Japan), Kazuyoshi Yoshii (Kyoto University & RIKEN, Japan) .....	158
<i>Learning Multifaceted Self-Similarity for Musical Structure Analysis</i> .Tsung-Ping Chen (Kyoto University, Japan), Li Su (Academia Sinica, Taiwan), Kazuyoshi Yoshii (Kyoto University & RIKEN, Japan) .....	165
<i>Simultaneous Measurement of Multiple Acoustic Attributes Using Structured Periodic Test Signals Including Music and Other Sound Materials</i> Hideki Kawahara (Wakayama University, Japan), Kohei Yatabe (Tokyo University of Agriculture and Technology, Japan), Ken-Ichi Sakakibara (Health Sciences University of Hokkaido, Japan), Mitsunori Mizumachi (Kyushu Institute of Technology, Japan), Tatsuya Kitamura (Konan University, Japan) .....	173

# Advanced Biomedical Signal Processing (I): Human Well-Being

<i>Cognitive Assessment of Autism Spectrum Disorder Using an EEG-Based Social Interaction Platform</i> Yi-Li Tseng (National Sun Yat-sen University, Taiwan) .....	181
<i>Gait Analysis in Powered Exoskeleton-Assisted Walking in Patients with Stroke: A Case Series Cohort</i> Jian-Jia Huang (Chang Gung Memorial Hospital, Taiwan), Shih-Chieh Chang (Chang Gung Memorial Hospital, Taiwan), Cheng-Hsu Cheng (Chang Gung University, Taiwan), Timothy Wan (The University of Texas at Austin, Taiwan), Yu-Cheng Pei (Chang Gung Memorial Hospital, Taiwan) .....	187
<i>Prediction Model of Postoperative Pain Exacerbation Using a Wearable Electrocardiogram Sensor</i> Toshiyuki Nakanishi (Nagoya City University & Nagoya University, Japan), Koichi Fujiwara (Nagoya University, Japan), Kazuya Sobue (Nagoya City University, Japan) .....	195
<i>Directional Neural Connectivity During Robot Mirror Therapy in Patients with Stroke</i> Yuma Kanaizuka (Meiji University, Japan), Takahiro Manabe (Meiji University, Japan), Jian-Jia Huang (Chang Gung Memorial Hospital, Taiwan), Jen-Wen Hung (Chang Gung Memorial Hospital-Kaohsiung Medical Center/Chang Gung University, Taiwan, Taiwan), Yumie Ono (Meiji University, Japan) .....	199
<i>Evaluation of Neural Response Recorded Using Scalp EEG in Virtual Reality Environment</i> Noriaki Kanayama (AIST, Japan), Makoto Miyakoshi (Swartz Center for Neural Computation, Institute for Neural Computation, University of California San Diego, Japan), Maro G Machizawa (Hiroshima University & XiberInc Inc., Japan) .....	206

# Advanced Information Processing Technologies for Human and World

<i>Machine Learning Based Action Recognition with Modular CNN</i> Shi-Zong Huang (National Tsing Hua University, Taiwan), Ching-Te Chiu (National Tsing Hua University, Taiwan), Yu-Jen Chang (National Tsing Hua University, Taiwan) .....	211
<i>Real-Time Processing for Weighted Pulse Decomposition of Photoplethysmography Signals Based on Interior Point Method in Wearable Devices for Hemodynamic State</i> Ting-Jui Wong (National Central University, Taiwan), Pei-Yun Tsai (National Central University, Taiwan) .....	217
<i>QoS-Aware Downlink Beamforming for Joint Transmission in Multi-Cell Networks</i> Chen-Yen Lin (MediaTek Inc., Taiwan), Kuang-Hao (Stanley) Liu (National Tsing Hua University, Taiwan) .....	222
<i>Deep-Learning-Based Lattice Reduction Preprocessing for Time-Correlated MIMO Systems</i> Yi-Mei Li (National Tsing-Hua University, Taiwan), Jung-Chun Chi (National Tsing Hua University, Taiwan), Yuan-Hao Huang (National Tsing-Hua University, Taiwan) .....	230
<i>Utilizing Unlabeled Data and Synthetic Data for Bird Sound Detection: Consistency Training, Mean Teacher, and Domain Adaptation Techniques</i> Fang-Ching Chen (National Tsing Hua University, Taiwan), Yi-Wen Liu (National Tsing Hua University, Taiwan) .....	238

# Selected Papers from APSIPA Workshop in Bandung, Indonesia (I)

<i>A Comparative Evaluation of Video Codecs for rPPG-Based Heart Rate Estimation</i> Muhammad Heronan Hyanda (Institut Teknologi Bandung, Indonesia), Nur Ahmadi (Bandung Institute of Technology, Indonesia), Peter H Charlton (University of Cambridge & Guy's and St Thomas' NHS Foundation Trust, United Kingdom (Great Britain)), Timothy Constandinou (Imperial College London & Mint Neurotechnologies Ltd, United Kingdom (Great Britain)), Ayu Purwarianti (Bandung Institute of Technology, Indonesia), Trio Adiono (STEI ITB, Indonesia) .....	243
<i>Human Activity Recognition Based on FMCW Radar Using CNN and Transfer Learning</i> Listi R Triani (Bandung Institute of Technology, Indonesia), Nur Ahmadi (Bandung Institute of Technology, Indonesia), Trio Adiono (STEI ITB, Indonesia) .....	248
<i>DQN Algorithm Design for Fast Efficient Shortest Path System</i> A Sumarudin (Institut Teknologi Bandung & Politeknik Negeri Indramayu, Indonesia), Nana Sutisna (Institut Teknologi Bandung, Indonesia), Infall Syafalni (Bandung Institute of Technology, Indonesia), Trio Adiono (Institut Teknologi Bandung, Indonesia) .....	254
<i>Comparison of MPPT Based on Deep Reinforcement Learning by DQN, DDPG and TD3</i> Jayandi S Panggabean (Institut Teknologi Bandung & Calvin Institute of Technology, Indonesia), Trio Adiono (Institut Teknologi Bandung, Indonesia), Nana Sutisna (Institut Teknologi Bandung, Indonesia), Infall Syafalni (Bandung Institute of Technology, Indonesia) .....	261
<i>Signal Quality Assessment for Wearable Multichannel Photoplethysmography Signals</i> Muhammad Dzaky Prihatmoko (Bandung Institute of Technology, Indonesia), Nur Ahmadi (Bandung Institute of Technology, Indonesia), Peter H Charlton (University of Cambridge & Guy's and St Thomas' NHS Foundation Trust, United Kingdom (Great Britain)), Trio Adiono (STEI ITB, Indonesia) .....	267

# Selected Papers from APSIPA Workshop in Hanoi, Vietnam (I)

<i>After-Fatigue Condition: A Novel Analysis Based on Surface EMG Signals</i>	
Hieu Van Nguyen (Phenikaa University, Vietnam), Thien Gia Luu (HUTECH University, Vietnam), Thien Van Luong (Phenikaa University, Vietnam), Trang Xuan Mai (Phenikaa University, Vietnam), Philippe Ravier (Université d'Orléans, France), Olivier Buttelli (Université d'Orléans, France)	272
<i>On the Semi-Blind Mutually Referenced Equalizers for MIMO Systems</i>	
Do Hai Son (VNU University of Engineering and Technology, Vietnam), Karim Abed-Meraim (University of Orleans & PRISME Lab., France), Duy Trong Tran (VNU University of Engineering and Technology, Vietnam), Nguyen Linh Trung (Vietnam National University, Hanoi, Vietnam), Tran Thi Thuy Quynh (VNU University of Engineering and Technology, Vietnam)	278
<i>Accurate Continuous Action and Gesture Recognition Method Based on Skeleton and Sliding Windows Techniques</i>	
Viet-Duc Le (Hanoi University of Science and Technology, Vietnam), Thi-Lich Nghiem (Thuongmai University, Vietnam), Thi-Lan Le (School of Electrical and Electronic Engineering (SEEE), HUST, Vietnam)	284
<i>Transformer-Based Deep Learning Detector for Dual-Mode Index Modulation 3D-OFDM</i>	
Toan Gian (Hanoi University of Science and Technology, Vietnam), Nguyen Tien Hoa (Hanoi University of Science and Technology, Vietnam), Thien Van Luong (Phenikaa University, Vietnam), Trungtan Nguyen (Le Quy Don Technical University, Vietnam), Van-Cuong Pham (Phenikaa University, Vietnam)	291
<i>GAFormer: Wearable IMU-Based Human Activity Recognition with Gramian Angular Field and Transformer</i>	
Nguyen Thai Khanh (Hanoi University of Science and Technology, Viet Nam, Vietnam), Trung-Hieu Le (Dai Nam University, Vietnam), Trung-Kien Tran (Institute of Information Technology, AMST, Vietnam), Thanh-Hai Tran (Hanoi University of Science and Technology, Vietnam), Cuong Pham (Posts & Telecommunications Institute of Technology, Vietnam)	297

## Poster Session I

<i>Fatigue Classification and Onset Estimation Using Surface EMG Signals During Strength Training</i>	
Eswar Adapa (Indian Institute of Information Technology Sri City, India), Anish Turlapaty (Indian Institute of Information Technology, India), Surya Naidu (IIT Sri City, India)	304
<i>P300 Event-Related Potential in Perception of Multiple Traffic Objects During Vehicle Driving</i>	
Yuki Yamamoto (Chubu University, Japan), Sou Nobukawa (Chiba Institute of Technology, Japan), Nobuhiko Wagatsuma (Toho University, Japan), Keiichiro Inagaki (Chubu University, Japan)	311
<i>Kernel Random Projection Depth for Outlier Detection</i>	
Akira Tamamori (Aichi Institute of Technology, Japan)	317
<i>Soft-Sensor Construction Method Based on Adaptive Modeling and Transfer Learning for Manufacturing Process Including Maintenance Periods</i>	
Kaito Katayama (Nagoya University, Japan), Koichi Fujiwara (Nagoya University, Japan), Kazuki Yamamoto (AGC Inc., Japan)	325
<i>Detecting Wire Bonding Defects in Point Clouds on Self-Generated Dataset</i>	
Shang Li Yuen (MIMOS Berhad, Malaysia), Phooi Yee Lau (MIMOS Berhad, Malaysia), Chin Wee Wong (Advanced Intelligence Lab, Malaysia), Muhammad Hafiz Samsuri (MIMOS Berhad, Malaysia), Zarina Hussin (MIMOS Berhad & MIMOS Semiconductor (M) Sdn Bhd, Malaysia), Nur Afiqah Kamarudin (MIMOS Berhad, Malaysia), Muhammad Syukri Mohd Talib (MIMOS Berhad, Malaysia), Hock Woon Hon (MIMOS Bhd, Malaysia)	329
<i>Predicting Outcomes of Cognitive Behavioral Therapy for Depression Using Data Driven Approaches</i>	
Lily Tyszczyk (The University of Sheffield & ASTAR, Singapore), Liat Levita (University of Sussex, United Kingdom (Great Britain)), Jaime Delgado (The University of Sheffield, United Kingdom (Great Britain)), Haihong Zhang (Institute for Inforcomm Research, A*STAR, Singapore), Mahnaz Arvaneh (The University of Sheffield, United Kingdom (Great Britain))	336
<i>Learning Adapters for Code-Switching Speech Recognition</i>	
Chun-Yi He (National Yang Ming Chiao Tung University, Taiwan), Jen-Tzung Chien (National Yang Ming Chiao Tung University, Taiwan)	344
<i>FID-RPRGAN-VC: Fréchet Inception Distance Loss Based Region-Wise Position Normalized Relativistic GAN for Non-Parallel Voice Conversion</i>	
Sandipan Dhar (NIT Durgapur, India), MD Tousin Akhter (NIT Durgapur, India), Padmanabha Banerjee (JGEC, India), Nanda Jana (National Institute of Technology Durgapur, India), Swagatam Das (Indian Statistical Institute, India)	350
<i>Deformable Aligned Fusion for Video Super Resolution</i>	
Sin-Hong Lee (National Cheng Kung University, Taiwan), Chih-Hung Kuo (National Cheng Kung University, Taiwan), Tsai Chun Yu (National Cheng Kung University, Taiwan)	357
<i>Learning Single Image Rain Streak Removal Based on Deep Attention Mechanism</i>	
Kuan-Hua Huang (National Taiwan Normal University, Taiwan), Li-Wei Kang (National Taiwan Normal University, Taiwan)	365
<i>A Transformer-Based Framework for Tiny Object Detection</i>	
Yi-Kai Liao (National Taiwan Normal University, Taiwan), Gong-Si Lin (National Taiwan Normal University, Taiwan), Mei-Chen Yeh (National Taiwan Normal University, Taiwan)	373
<i>Lightweight Models Distillation with Learnable Teaching Material: An Application for Smart Table Tennis System</i>	
Duan-Yu Chen (Department of Electrical Engineering, Yuan Ze University, Taiwan), Yu-Hsuan Chen (Yuan Ze University, Taiwan)	378
<i>Selecting Suitable Data Input for Deep-Learning Sign-Language Recognition with a Small Dataset</i>	
Yu-Jen Chen (National Central University, Taiwan), Po-Chyi Su (National Central University, Taiwan)	384
<i>Analysis of the Interaction Effect on Pruning and Transfer Learning in Model Training</i>	
Yu-Jen Wei (National Taipei University of Technology, Taiwan), Jia-Hong Chen (National Taipei University of Technology, Taiwan), Tien-Ying Kuo (National Taipei University of Technology, Taiwan)	392

<i>Old Damaged Photo Recovery with Style Transfer-Based Data Augmentation</i>	
Chih-Hao Wang (National Taipei University of Technology, Taiwan), Yu-Jen Wei (National Taipei University of Technology, Taiwan), Ching Hsiang Chang (National Taipei University of Technology, Taiwan), Tien-Ying Kuo (National Taipei University of Technology, Taiwan)	396
<i>A Deep Learning Based Sustainable Energy Scheduling System</i>	
Kun-Lin Tsai (TungHai University, Taiwan), Yan-Hao Chen (Tunghai University, Taiwan), Choa-Ting Huang (Tunghai University, Taiwan), Guo-Wei Huang (Tunghai University, Taiwan), Shih-Ting Tseng (Tunghai University, Taiwan)	401
<i>A Computational Efficient Direct Position Determination Approach of Narrow-Band Emitter</i>	
Yuan Zhao (Shenzhen Institute of Artificial Intelligence and Robotics for Society, China), Hanmin Sheng (University of Electronic Science and Technology of China, China), Jinliang Shao (University of Electronic Science and Technology of China, China)	408
<i>Modeling and Analysis of the Epidemic-Behavior Co-Evolution Dynamics with User Irrationality</i>	
Wenxiang Dong (Tsinghua University, China), H. Vicky Zhao (Tsinghua University, China)	414
<i>Noise-Robust Pitch Detection Based on Super-Resolution Harmonics</i>	
Dongjie Zhu (Institute of Information Science, Beijing Jiaotong University, China), Tianrui Wang (Institute of Information Science, Beijing Jiaotong University, China), Weibin Zhu (Institute of Information Science, Beijing Jiaotong University, China), Yingying Gao (China Mobile Research Institute, China), Junlan Feng (China Mobile Research Institute, China), ShiLei Zhang (China Mobile Research Institute, China)	422
<i>A Subband Approach to Personal Sound Zone with Joint Optimization of Sound Pressure and Particle Velocity</i>	
Yingke Zhao (Shaanxi University of Science and Technology, China), Wen Zhang (Northwestern Polytechnical University, China), Jingdong Chen (Center of Intelligent Acoustics and Immersive Communications, China)	427
<i>An Multi-Evidence Fusion Based on C-Distance with Uncertain Reasoning for Classification</i>	
Cuiping Cheng (ZHEJIANG LAB, China), Pengcheng Yue (Zhejiang Lab, China), Taihao Li (Zhejiang Lab, China)	432
<i>On Uncertainty Principles for Lowband Graph Signals</i>	
Na Li (Nanjing University of Information Science and Technology, China, China), Linbo Shang (Nanjing University of Information Science and Technology, China), Zhichao Zhang (Nanjing University of Information Science and Technology, China)	438
<i>CoA-DLinkNet: Connectivity-Enhanced Dual-Branch Road Extraction Network Based on D-LinkNet</i>	
Linghan Li (Northwestern Polytechnical University, China), Heliu Chen (Northwestern Polytechnical University, China), Renjie He (Northwestern Polytechnical University, China), Yuchao Dai (Northwestern Polytechnical University, China), Mingyi He (Northwestern Polytechnical University, China)	443
<i>Black-Box Lossless Fragile Watermarking Based on Hidden Space Search for DNN Integrity Authentication</i>	
Gejian Zhao (University of Shanghai for Science and Technology, China), Chuan Qin (University of Shanghai for Science and Technology, China)	450
<i>Hiding Patient Information in Medical Images: A High-Capacity and Reversible Hiding Algorithm for E-Healthcare</i>	
Xiaoyi Zhou (Hainan University, China), Shuai Lee (Hainan University, China)	456
<i>A Visually Meaningful Image Encryption Algorithm with Attention Mechanism and Artificial Bee Colony Optimization</i>	
Jiarong Mao (Hainan University, China), Yuting An (Hainan University, China), Xiaoyi Zhou (Hainan University, China)	462
<i>High-Quality Triggers Based Fragile Watermarking for Optical Character Recognition Model</i>	
Yujie Yin (Anhui University, China), Heng Yin (Anhui University, China), Zhaoxia Yin (East China Normal University, China), Wanli Lyu (Anhui University, China), Sha Wei (China Academy of Information and Communication Technology, China)	468
<i>Coupled Transformed Induced Tensor Nuclear Norm for Robust Tensor Completion</i>	
Mengjie Qin (Zhejiang Lab & Research Center for Intelligent Robotics, Research Institute of Interdisciplinary Innovation, China), Zheyuan Lin (Zhejiang Lab, China), Minhong Wan (Zhejiang Lab, China), Chunlong Zhang (Zhejiang Lab, China), Jason Gu (Dalhousie University, Canada), Te Li (Zhejiang Lab, China)	476
<i>Multi-Frequency Feature Enhancement for Multi-Granularity Visual Classification</i>	
Meijiang Fu (Beijing University of Posts and Telecommunications, China), Yixiao Zheng (Beijing University of Posts and Telecommunications, China), Dongliang Chang (Beijing University of Posts and Telecommunications, China), Wenpan Li (Beijing University of Posts and Telecommunications, China), Zhanyu Ma (BUPT-Beijing University of Posts and Telecommunications, China)	484
<i>Improving Aspect Sentiment Classification via Retrieving from Training Data</i>	
Tongtao Ling (Guangdong University of Technology, China), Lei Chen (Guangdong University of Technology, China), Chen Liao (Shenzhen Raisound Technologies, China), Shilei Huang (Shenzhen Raisound Technologies, China), Zhipeng Yu (Guangdong University of Technology, China), Liu Yi (Shenzhen Key Laboratory of Intelligent Media and Speech, PKU-HKUST Institution, China)	490

## IVM-1: Multimedia Content Analysis and Assessment

<i>CH-MEAD: A Chinese Multimodal Conversational Emotion Analysis Dataset with Fine-Grained Emotion Taxonomy</i>	
Yu-Ping Ruan (Zhejiang Lab, China), Taihao Li (Zhejiang Lab, China)	498
<i>Evolutionary Analysis and Cultural Transmission Models of Color Style Distributions in Painting Arts</i>	
Eita Nakamura (Kyoto University, Japan), Yasuyuki Saito (National Institute of Technology, Kisarazu College, Japan)	506
<i>Ultimatelink Between Characters Having a Certain Meaning in Physical Space to URL in Cyberspace with Robust Print and Scan</i>	
Keiji Yamadera (Kyushu Institute of Technology, Japan), Michiharu Niimi (Kyushu Institute of Technology, Japan)	514
<i>Human Flow Measurement System Using Floor Estimation of Depth Images for Low-End IoT Devices</i>	
Takuya Nagatoshi (Kyushu Institute of Technology, Japan), Michiharu Niimi (Kyushu Institute of Technology, Japan)	519
<i>Holo-QoL: A Human Factor-Based Dataset and Prediction Framework for Assessing Quality of Interaction in Augmented Reality</i>	
Seongjean Kim (Yonsei University, Korea (South)), Seonghwa Choi (Yonsei University, Korea (South)), Sanghoon Lee (Yonsei University, Korea (South))	523

# Advanced Biomedical Signal Processing (II): Brain Signal Processing and Analysis

<i>Supervised Single-Channel EEG Decomposition Using Detector-Kernel Networks for Noise Reduction</i> Hiroshi Higashi (Osaka University, Japan) .....	529
<i>Cross-Subject Classification of Spoken Mandarin Vowels and Tones with EEG Signals: A Study of End-To-End CNN with Fine-Tuning</i> Xinyu Wang (Southern University of Science and Technology, China), Mingtao Li (Southern University of Science and Technology, China), Hao Li (Southern University of Science and Technology, China), Sio Hang Pun (University of Macao, Macao), Fei Chen (Southern University of Science and Technology, China) .....	535
<i>Decoding Time-Course of Saliency Network of fMRI Signals by EEG Signals Using Optimized Forward Variable Selection: A Concurrent EEG-fMRI Study</i> Tung Dang (Hiroshima University, Japan), Kentaro Ono (Hiroshima University, Japan), Takafumi Sasaoka (Hiroshima University, Japan), Shigeto Yamawaki (Hiroshima University, Japan), Maro G Machizawa (Hiroshima University & Xiberlinc Inc., Japan) .....	540
<i>Multimodal Recognition of Speech and Electrooculogram</i> Mitali Ahuja (Tokyo Institute of Technology, Japan), Shuji Komeiji (Tokyo University of Agriculture and Technology, Japan), Takumi Mitsuhashi (Juntendo University School of Medicine, Japan), Yasushi Iimura (Juntendo University, Japan), Hiroharu Suzuki (Juntendo University School of Medicine, Japan), Hidenori Sugano (Juntendo University, Japan), Koichi Shinoda (Tokyo Institute of Technology, Japan), Toshihisa Tanaka (Tokyo University of Agriculture and Technology, Japan) .....	546

## Best Paper Competiton

<i>Enhancing Real-Time Semantic Segmentation with Textual Knowledge of Pre-Trained Vision-Language Model: A Lightweight Approach</i> Chia-Yi Lin (National Taiwan University, Taiwan), Jun-Cheng Chen (Academia Sinica, Taiwan, Taiwan), Ja-Ling Wu (National Taiwan University, Taiwan) .....	551
<i>EEG Study on Anticipation of Difficulty for Upcoming Auditory Task</i> Zichen Song (Kyoto University, Japan), Hiroshi Higashi (Osaka University, Japan), Ishii Shin (Kyoto University, Japan) .....	559
<i>Event-Related Potential in Rapid Serial Visual Presentation-Based Partial Face Cognition Depends on Visible Face Components</i> Ingon Chanpornpakdi (Tokyo University of Agriculture and Technology, Japan), Toshihisa Tanaka (Tokyo University of Agriculture and Technology, Japan) .....	567
<i>Residual, Mixer, and Attention: The Three-Way Combination for Streaming Wake Word Detection Framework</i> Sattaya Singkul (Kasikorn Business Technology Group, Thailand), Theerat Sakdejayont (Kasikorn Labs, Thailand), Tawunrat Chalothorn (Kasikorn Labs Kasikorn Business-Technology Group, Thailand) .....	575
<i>Audio-To-Score Singing Transcription Based on Joint Estimation of Pitches, Onsets, and Metrical Positions with Tatum-Level CTC Loss</i> Tengyu Deng (Kyoto University, Japan), Eita Nakamura (Kyoto University, Japan), Kazuyoshi Yoshii (Kyoto University & RIKEN, Japan) .....	583
<i>Mask2Hand: Learning to Predict the 3D Hand Pose and Shape from Shadow</i> Li-Jen Chang (National Tsing Hua University, Taiwan), Yu-Cheng Liao (National Tsing Hua University, Taiwan), Chia Hui Lin (National Tsing Hua University, Taiwan), Shih-Fang Yang-Mao (Industrial Technology Research Institute, Taiwan), Hwann-Tzong Chen (National Tsing Hua University, Taiwan) .....	591

## Multimedia Security and Privacy in the Age of Deep Learning

<i>A Reversible Image Processing Method for Color Tone Control Using Data Hiding</i> Daichi Nakaya (University of Chiba, Japan), Shoko Imaizumi (Chiba University, Japan) .....	599
<i>Image-Text Out-Of-Context Detection Using Synthetic Multimodal Misinformation</i> Fatma Feak Mohamed Mohamed Shalabi (The Graduate University for Advanced Studies, SOKENDAI & National Institute of Informatics, Japan), Huy H. Nguyen (National Institute of Informatics, Japan), Hichem Felouat (The Graduate University for Advanced Studies, SOKENDAI, Japan), Ching-Chun Chang (National Institute of Informatics, Japan), Isao Echizen (National Institute of Informatics (NII), Japan) .....	605
<i>Gait Recognition Scheme Focusing on Operating Characteristics at Feature Points Detected by OpenPose</i> Chinatsu Tanaka (Okayama University, Japan), Minoru Kuribayashi (Tohoku University, Japan), Nobuo Funabiki (Okayama University, Japan) .....	613
<i>A Study on Eliminating Biased Node in Federated Learning</i> Reon Akai (Okayama University, Japan), Minoru Kuribayashi (Tohoku University, Japan), Nobuo Funabiki (Okayama University, Japan) .....	620
<i>Can StArtGAN Withstand Image Processing Attacks?</i> Ng Koi Yee (University of Malaya, Malaysia), Simying Ong (University of Malaya, Malaysia), Yuen Peng Loh (Multimedia University, Malaysia) .....	628
<i>Enhancing Privacy Preservation with Quantum Computing for Word-Level Audio-Visual Speech Recognition</i> Chang Wang (University of Science and Technology of China, China), Jun Du (University of Science and Technology of China, China), Hang Chen (University of Science and Technology of China, China), Ruoyu Wang (University of Science and Technology of China, China), Chao-Han Huck Yang (Georgia Institute of Technology, USA), Jiangjiang Zhao (China Mobile Online Services Company Limited, China), Yuling Ren (China Mobile Online Services Company Limited, China), Qinglong Li (China Mobile Online Services Company Limited, China), Chin-Hui Lee (Georgia Institute of Technology, USA) .....	635



# The Intersection of AI and Computer Vision: Advancements and Opportunities

<i>Interpretable Image Recognition in Hyperbolic Space</i> Irina Lebedeva (Zhejiang Lab, China), Mohamed Jaward Bah (Zhejiang Lab, China), Taihao Li (Zhejiang Lab, China) .....	643
<i>Low-Light is More than Darkness: An Empirical Study on Illumination Types and Enhancement Methods</i> Hui Sze Liew (Universiti Malaya, Malaysia), Yuen Peng Loh (Multimedia University, Malaysia), Simying Ong (University of Malaya, Malaysia) .....	651
<i>MoMo Strategy: Learn More from More Mistakes</i> Sophia Chulif (Swinburne University of Technology Sarawak Campus, Malaysia), Sue Han Lee (Swinburne University of Technology, Malaysia), Yang Loong Chang (Neuron AI Sdn. Bhd., Malaysia), Mark Tee Kit Tsun (Swinburne University of Technology, Malaysia), Kok Chin Chai (UNIMAS, Malaysia), Yi Lung Then (Universiti Malaysia Sarawak, Malaysia) .....	659
<i>Unveiling Robust Feature Spaces: Image vs. Embedding-Oriented Approaches for Plant Disease Identification</i> Sue Han Lee (Swinburne University of Technology, Malaysia), Hamza Ahmed Ishrat (Swinburne University of Technology, Malaysia), Abel Yu Hao Chai (Swinburne University of Technology, Malaysia), Patrick Then (Swinburne University of Technology Sarawak Campus, Malaysia) .....	666
<i>Facial Expression Recognition as Markers of Depression</i> Jia Xuan Gue (Monash University, Malaysia), Chun Yong Chong (School of Information Technology, Monash University, Malaysia), Mei Kuan Lim (Monash University Malaysia & Monash University, Malaysia) .....	674
<i>How Transferable are Herbarium-Field Features in Few-Shot Plant Identification with Triplet Loss?</i> Sophia Chulif (Swinburne University of Technology Sarawak Campus, Malaysia), Sue Han Lee (Swinburne University of Technology, Malaysia), Yang Loong Chang (Neuron AI Sdn. Bhd., Malaysia), Mark Tee Kit Tsun (Swinburne University of Technology, Malaysia), Kok Chin Chai (UNIMAS, Malaysia), Yi Lung Then (Universiti Malaysia Sarawak, Malaysia) .....	681

## Advanced Image and Video Processing Using Deep Learning

<i>Resolution-Adaptive Lossless Image Compression Using Frequency Decomposition Network</i> Hochang Rhee (Seoul National University, Korea (South)), Nam Ik Cho (Seoul National University, Korea (South)) .....	688
<i>Implementation and Analysis on Backpropagating Refinement Scheme for Interactive Image Segmentation</i> Chaewon Lee (Korea University, Korea (South)), Won-Dong Jang (Korea University & Media Communications Lab, Korea (South)), Chang-Su Kim (Korea University, Korea (South)) .....	696
<i>Implicit Neural Representation for Video Coding Through Progressive Feature Extraction</i> Jihoo Lee (Ewha Womans University, Korea (South)), Jewon Kang (Ewha Womans University, Korea (South)) .....	703
<i>Deep Unfolded Underwater Image Enhancement Based on Extreme Channels Prior</i> Thuy T. Pham (Dongguk University, Korea (South)), Truong T. N Mai (Dongguk University, Korea (South)), Chul Lee (Dongguk University, Korea (South)) .....	709
<i>Low-Light Image Enhancement via Distillation of NIR-To-RGB Conversion Knowledge</i> Young-Min Jeong (Korea University, Korea (South)), Tae-Sung Park (Korea University, Korea (South)), Jeong-Hyeok Park (Korea University, Korea (South)), Jong-Ok Kim (Korea University, Korea (South)) .....	714
<i>3D Human Skeleton Estimation from Single RGB Image Based on Fusion of Predicted Depths from Multiple Virtual-Viewpoints</i> Wen-Nung Lie (National Chung Cheng University, Taiwan), Veasna Vann (National Chung Cheng University, Taiwan) .....	719

## Advanced Learning-based Computer Vision Technologies

<i>GNN-Based Small-Data Learning with Area-Control Mechanism for Hyperspectral Satellite Change Detection</i> Tzu-Hsuan Lin (National Cheng Kung University, Taiwan), Chia-Hsiang Lin (National Cheng Kung University, Taiwan), Si-Sheng Young (National Cheng Kung University, Taiwan) .....	726
<i>Efficient Constraint-Aware Neural Architecture Search for Object Detection</i> Wei-Jie Hung (National Yang Ming Chiao Tung University, Taiwan), Egor Poliakov (National Yang Ming Chiao Tung University, Taiwan), Ching-Chun Huang (National Yang Ming Chiao Tung University, Taiwan) .....	733
<i>A Reliable Feature-Based Framework for Vehicle Tracking in Advanced Driver Assistance Systems</i> Ngoc-Quan Ha-Phan (Ho Chi Minh City University of Technology and Education, Vietnam), Thanh-Nguyen Truong (Ho Chi Minh City University of Technology and Education, Vietnam), Vu-Hoang Tran (Ho Chi Minh City University of Technology and Education, Vietnam), Ching-Chun Huang (National Yang Ming Chiao Tung University, Taiwan) .....	741
<i>Light-Weight Zero-Reference-Based Image Enhancement for Low-Light Images</i> Jie-Fan Chang (National Taiwan University, Taiwan), KuanTing Lai (National Chin-Yi University of Technology, Taiwan), Cheng-Xuan Zhuang (National Chin-Yi University of Technology, Taiwan), Guo-Shiang Lin (National Chin-Yi University of Technology, Taiwan), Ku-Yaw Chang (National Chin-Yi University of Technology, Taiwan) .....	748
<i>Classwise Self-Paced Self-Training for Semi-Supervised Image Classification</i> Cheng-Yu Lu (National Chung Cheng University, Taiwan), Heng-Cheng Hsu (National Chung Cheng University, Taiwan), Chen-Kuo Chiang (National Chung Cheng University, Taiwan) .....	753

Mahamat Moussa (MONASH University Malaysia, Malaysia), Chern Hong Lim (Monash University, Malaysia), KokSheik Wong (Monash University Malaysia, Malaysia) ..... 759

## Physics-Inspired Image Restoration and Enhancement

*Local Contrast Enhancement with Multi-Scale Filtering*

Kohei Hayashi (Nagoya Institute of Technology, Japan), Yoshihiro Maeda (Tokyo University of Science, Japan), Norishige Fukushima (Nagoya Institute of Technology, Japan) ..... 765

*Marine Snow Removal Benchmarking Dataset*

Reina Kaneko (Osaka University, Japan), Yuya Sato (Tokyo University of Agriculture and Technology, Japan), Takumi Ueda (Tokyo University of Agriculture and Technology, Japan), Hiroshi Higashi (Osaka University, Japan), Yuichi Tanaka (Osaka University, Japan) ..... 771

*Cross-Frame Foreground Structural Similarity Modeling by Convolutional Sparse Representation*

Kazuki Naganuma (Tokyo Institute of Technology, Japan), Shunsuke Ono (Tokyo Institute of Technology, Japan) ..... 779

*JPEG Artifact Removal for Hyperspectral Images Based on Spatial-Spectral Regularization*

Ryunosuke Eguchi (The University of Kitakyushu, Japan), Iori Kobayashi (Japan), Shunsuke Ono (Tokyo Institute of Technology, Japan), Ryo Matsuoka (The University of Kitakyushu, Japan) ..... 784

*Data Driven Multiband Image Fusion That Preserves Wavelength-Specific Image Features*

Hsuan Lin (University of Dayton, Taiwan), Hirakawa Keigo (University of Dayton, USA) ..... 788

*Shot-Noise-Aware Image Signal Restoration for Photoelectronic Charge-Based Sensors*

Seishi Takamura (Hosei University & NTT Corporation, Japan) ..... 795

## IVM-2: Multimedia Generation and Synthesis

*Generative Adversarial Network-Based Frame Interpolation with Multi-Perspective Discrimination*

Quang Nhat Tran (Family Technology Company Limited, Vietnam), Shih-Hsuan Yang (National Taipei University of Technology, Taiwan) ..... 800

*ArthDR-Net: Perceptually Realistic and Accurate HDR Content Creation*

Hrishav Bakul Barua (TCS Research Labs & TCS, India), Ganesh Krishnasamy (Monash University Malaysia, Malaysia), KokSheik Wong (Monash University Malaysia, Malaysia), Kalin Stefanov (Monash University, Australia), Abhinav Dhall (IIT Ropar, India) ..... 806

*LSR++: An Efficient and Tiny Model for Image Super-Resolution*

Wei Wang (University of Southern California, USA), Xuejing Lei (University of Southern California, USA), Yueru Chen (Peng Cheng Laboratory, China), Ming-Sui Lee (National Taiwan University, Taiwan), C.-C. Jay Kuo (University of Southern California, USA) ..... 813

*High-Quality Font Generation Based on StyleGAN2 and FSFont Font Generation Model*

Yuki Shimamura (Kyushu Institute of Technology, Japan), Michiharu Niimi (Kyushu Institute of Technology, Japan) ..... 820

*Enhanced Residual Fourier Transformation Network for Lightweight Image Super-Resolution*

Yunming Yang (Keio University, Japan), Masaaki Ikehara (Keio University, Japan) ..... 826

*ELEGANT: End-To-End Language Grounded Speech Denoiser for Efficient Generation of Talking Face*

Arghya Pal (Monash University, Malaysia), Sailaja Rajanala (Monash University, Malaysia), AiFang Chai (Monash University, Malaysia), Raphael C.-W. Phan (Monash University, Malaysia), Chee-Ming Ting (Monash University, Malaysia) ..... 833

## Poster Session II

*Segmentation Enhancement for Iris Recognition Using Unit Gradient Vectors*

Limhourlaurent Meam (Sirindhorn International Institute of Technology, Thammasat University, Thailand), Suradej Duangpummet (National Science and Technology Development Agency, Thailand), Waree Kongprawechnon (SIIT, Thailand) ..... 839

*FactLLaMA: Optimizing Instruction-Following Language Models with External Knowledge for Automated Fact-Checking*

Tsun-Hin Cheung (The Hong Kong Polytechnic University, Hong Kong), Kin-Man Lam (Hong Kong Polytechnic University, Hong Kong) ..... 846

*Auditory Representation Effective for Estimating Vocal Tract Information*

Toshio Irino (Wakayama University, Japan), Shintaro Doan (Wakayama University, Japan) ..... 854

*Accurate and Practical Query-By-Example Using Multiple Deep Learning Models and Frame Compression Methods*

Hikaru Yamaga (Iwate Prefectural University, Japan), Kazuki Hatakeyama (Panasonic ITS Co. Ltd., Japan), Kazunori Kojima (Iwate Prefectural University, Japan), Shi-wook Lee (National Institute of Advanced Industrial Science and Technology, Japan), Yoshiaki Itoh (Iwate Prefectural University, Japan) ..... 862

*Fundamental Frequency Estimation Based on Finite-Order Harmonic Constraint Differential Equation*

Kenta Yamada (Tokyo Metropolitan University, Japan), Yoshiki Masuyama (Tokyo Metropolitan University, Japan), Kouei Yamaoka (Tokyo Metropolitan University, Japan), Nobutaka Ono (Tokyo Metropolitan University, Japan) ..... 868

<i>Tone Labeling by Deep Learning-Based Tone Recognizer for Mandarin Speech</i>	
WuHao Li (National Taipei University, Taiwan), Chen Yu Chiang (National Taipei University, Taiwan), TehSin Liu (National Taiwan University, Taiwan)	873
<i>Learning to Enhance the Position Embedding and Coherence</i>	
Ting-Jia Shu (National Yang Ming Chiao Tung University, Taiwan), Jen-Tzung Chien (National Yang Ming Chiao Tung University, Taiwan)	881
<i>VLSI Design of Lossless Image Compression Using Improved LZW</i>	
Yao-Zhong Zhang (Ming Chi University of Technology, Taiwan), Chiung-An Chen (Ming Chi University of Technology, Taiwan), Jia Wen Wang (Ming Chi University of Technology, Taiwan)	887
<i>The Color Demosaicing and Image Scaling Based on Improve Hamilton-Adams</i>	
Yu-Wen Peng (Chung Yuan Christian University, Taiwan), Chia-Yu Hu (Chung Yuan Christian University, Taiwan), Yen-Ju Chin (Chung Yuan Christian University, Taiwan), He-Sheng Chou (Chung Yuan Christian University, Taiwan), Yuan-Jin Lin (National Cheng Kung University, Taiwan), Yu-Lin Liu (Chung Yuan Christian University, Taiwan), Shih-Lun Chen (Chung Yuan Christian University, Taiwan)	892
<i>Improving Regularization of Deep Learning Models in Fundus Analysis</i>	
Wei-Wen Hsu (National Taitung University, Taiwan), Yao-Chung Chang (National Taitung University, Taiwan), Wei-Min Lee (National Taitung University, Taiwan), Yu-Chuan Huang (National Defense Medical Center, Taiwan), Da-Wen Lu (Tri-Service General Hospital and National Defense Medical Center, Taiwan)	898
<i>Design of Interactive System for Acupoint Analysis Based on Augmented Reality</i>	
Chung-Yen Wei (National Quemoy University, Taiwan), Yu-Xaing Zhao (National Quemoy University, Taiwan), Bo-yuan Xu (National Quemoy University, Taiwan)	902
<i>Dental Positioning Medical Assistance System for BiteWing Radiograph Based on YOLOV4 and Image Enhancement</i>	
Li Yi-Qian (Chung Yuan Christian University, Taiwan), Mu-Feng Lin (Chung Yuan Christian University, Taiwan), Tsung-Yi Chen (Chung Yuan Christian University, Taiwan), Yu-Lin Liu (Chung Yuan Christian University, Taiwan), Yuan-Jin Lin (National Cheng Kung University, Taiwan), Mei-Ling Chan (Jiaying University, China), Chiung-An Chen (Ming Chi University of Technology, Taiwan), Li Kuo-Chen (Chung Yuan Christian University, Taiwan), Li Chun-Wei (Chang Gung Memorial Hospital, Taiwan), Shih-Lun Chen (Chung Yuan Christian University, Taiwan)	910
<i>The Development of an AI-Assisted Diagnosis System for Adult Glioma Subtyping Prediction</i>	
Wei-Wen Hsu (National Taitung University, Taiwan), Jia-Yi Lin (National Defense Medical Center, Taiwan), Hsin-Hung Lai (National Defense Medical Center, Taiwan), Wan-Lin Hsu (National Taitung University, Taiwan), Jeng-Ting Jiang (National Taitung University, Taiwan), Yao-Chung Chang (National Taitung University, Taiwan), YaoFeng Li (Tri-Service General Hospital and National Defense Medical Center, Taiwan)	918
<i>Poisoning Attacks Against Gait-Based Identity Recognition</i>	
Jianmin Dong (Zhejiang lab, China), Da-tian Peng (Northwestern Polytechnical University, China), Guanxiong Pei (Zhejiang Lab, China), Taihao Li (Zhejiang Lab, China)	922
<i>STrack: Velocity Estimation Using Single Antenna WiFi Devices</i>	
Jian Xu (University of Science and Technology of China, China), Dongheng Zhang (University of Science and Technology of China, China), Jiamu Li (University of Science and Technology of China, China), Qibin Sun (University of Science and Technology of China, China), Yan Chen (University of Science and Technology of China, China)	927
<i>SEformer: Dual-Path Conformer Neural Network is a Good Speech Denoiser</i>	
Kai Wang (University of Toronto, Canada), Dimitrios Hatzinakos (University of Toronto, Canada)	934
<i>Complex Feature Information Enhanced Speech Emotion Recognition</i>	
Pengcheng Yue (Zhejiang Lab, China), Shukai Zheng (Zhejiang Lab, China), Taihao Li (Zhejiang Lab, China)	941
<i>Incorporating Pinyin into Pipeline Named Entity Recognition from Chinese Speech</i>	
Min Zhang (Huawei co. LTD, China), Xiaosong Qiao (Huawei co. LTD, China), Yanqing Zhao (Huawei co. LTD, China), Shimin Tao (Huawei, China), Hao Yang (Huawei, China)	947
<i>Learning Semantic Information from Machine Translation to Improve Speech-To-Text Translation</i>	
Pan Deng (University of Science and Technology of China, China), Jie Zhang (University of Science and Technology of China, China), Xinyuan Zhou (iFlytek Research, China), Zhongyi Ye (iFlytek Research, China), Weitai Zhang (University of Science and Technology of China, China), Jianwei Cui (University of Science and Technology of China, China), Li-Rong Dai (University of Science and Technology of China, China)	954
<i>Effective Fine-Tuning Method for Tibetan Low-Resource Dialect Speech Recognition</i>	
Yang Jiahao (Tianjin University, China), Jianguo Wei (Tianjin University, China), Kuntharrgyal Khysru (Qinghai Minzu University, Xining, China), Xu Junhai (Tianjin University, China), Lu Wenhuan (Tianjin University, China), Wenjun Ke (Tianjin University, China), Xiaokang Yang (Tianjin University, China)	960
<i>Multi-Task Piano Transcription with Local Relative Time Attention</i>	
Qi Wang (Beijing University of Technology, China), Mingkuan Liu (Beijing University of Technology, China), Xianhong Chen (Beijing University of Technology, China), Wenmeng Xiong (Beijing University of Technology, China)	966
<i>Real and Imaginary Part Interaction Network for Monaural Speech Enhancement and De-Reverberation</i>	
Zehua Zhang (Harbin Institute of Technology Harbin Institute of Technology, Shenzhen, China), Changjun He (Harbin Institute of Technology, Shenzhen, China), Shiyun Xu (Harbin Institute of Technology, Shenzhen, China), Wang Ming-Jiang (Harbin Institute of Technology, China)	972
<i>Progressive Multi-Scale Self-Supervised Learning for Speech Recognition</i>	
Hang Chen (University of Science and Technology of China, China), Genshun Wan (University of Science and Technology of China, China), Tan Liu (iFLYTEK Research, iFLYTEK Co. Ltd., China), Chenxi Wang (University of Science and Technology of China, China), Pan Jia (iFlytek, China), Zhongfu Ye (University of Science & Technology of China, China)	978
<i>Improved Data2vec with Soft Supervised Hidden Unit for Mandarin Speech Recognition</i>	
Genshun Wan (University of Science and Technology of China, China), Hang Chen (University of Science and Technology of China, China), Pengcheng Li (iFLYTEK Research, iFLYTEK Co. Ltd., China), Pan Jia (iFlytek, China), Zhongfu Ye (University of Science & Technology of China, China)	983
<i>Investigation of Ensemble of Self-Supervised Models for Speech Emotion Recognition</i>	
Yanfeng Wu (Zhejiang Lab, China), Pengcheng Yue (Zhejiang Lab, China), Cuiping Cheng (ZHEJIANG LAB, China), Taihao Li (Zhejiang Lab, China)	988

<i>Single Source Zone Detection in the Spherical Harmonic Domain for Multisource Localization</i> Liang Tao (Beijing University of Technology, China), Maoshen Jia (Beijing University of Technology, China), Bing Bu (Beijing University of Technology, China), Dingding Yao (Chinese Academy of Sciences, China) .....	996
<i>Robust Representation Learning for Speech Emotion Recognition with Moment Exchange</i> Yunrui Cai (Tsinghua University, China), Changhe Song (Tsinghua University, China), Boshi Tang (Tsinghua University & Shenzhen International Graduate School, China), Dongyang Dai (THU, China), Zhiyong Wu (Graduate School at Shenzhen, Tsinghua University, China), Helen Meng (Chinese University of Hong Kong, Hong Kong) .....	1002
<i>Few Shot Learning Guided by Emotion Distance for Cross-Corpus Speech Emotion Recognition</i> Pengcheng Yue (Zhejiang Lab, China), Yanfeng Wu (Zhejiang Lab, China), Leyuan Qu (Zhejiang Lab, China), Shukai Zheng (Zhejiang Lab, China), Shuyuan Zhao (Zhejiang Lab, China), Taihao Li (Zhejiang Lab, China) .....	1008

## SLA-III: Speech Emotion Recognition

<i>Speech Emotion Recognition by Late Fusion of Linguistic and Acoustic Features Using Deep Learning Models</i> Kiyohide Sato (Yamagata University, Japan), Keita Kishi (Yamagata University, Japan), Tetsuo Kosaka (Yamagata University, Japan) .....	1013
<i>Multilingual, Cross-Lingual, and Monolingual Speech Emotion Recognition on EmoFilm Dataset</i> Bagus Tris Atmaja (National Institute of Advanced Industrial Science and Technology & Institut Teknologi Sepuluh Nopember, Japan), Akira Sasou (National Institute of Advanced Industrial Science and Technology, AIST, Japan) .....	1019
<i>Ensembling Multilingual Pre-Trained Models for Predicting Multi-Label Regression Emotion Share from Speech</i> Bagus Tris Atmaja (National Institute of Advanced Industrial Science and Technology & Institut Teknologi Sepuluh Nopember, Japan), Akira Sasou (National Institute of Advanced Industrial Science and Technology, AIST, Japan) .....	1026
<i>An Automatic Pipeline for Building Emotional Speech Dataset</i> Anh Thi Ngoc Anh (Viettel Cyberspace Center, Viettel Group, Vietnam), Hai Van Do (Viettel Cyberspace Center, Viettel Group, Vietnam), Nhat Minh Le (Viettel Cyberspace Center, Viettel Group, Vietnam), Thang Bao Ta (Viettel Cyberspace Center, Viettel Group, Vietnam) .....	1030
<i>Analysis of Emotions in Speech Using AESDD</i> Uthiraa S (DA-ICT, India), Hemant A. Patil (Dhirubhai Ambani Institute of Information and Communication Technology, India) .....	1036

## Acoustic Scene Analysis and Signal Enhancement Based on Advanced Signal Processing and Machine Learning

<i>Modified Parametric Multichannel Wiener Filter for Low-Latency Enhancement of Speech Mixtures with Unknown Number of Speakers</i> Ning Guo (International Audio Laboratories Erlangen, Germany), Tomohiro Nakatani (NTT Corporation, Japan), Shoko Araki (NTT Communication Science Laboratories, Japan), Takehiro Moriya (NTT, Japan) .....	1042
<i>Blind Source Separation Using Independent Low-Rank Matrix Analysis with Spectrogram-Consistency Regularization</i> Sota Misawa (The University of Tokyo & AKARI Inc., Japan), Norihiro Takamune (The University of Tokyo, Japan), Kohei Yatabe (Tokyo University of Agriculture and Technology, Japan), Daichi Kitamura (National Institute of Technology, Kagawa College, Japan), Hiroshi Saruwatari (The University of Tokyo, Japan) .....	1050
<i>Moving Interference Speaker Removal Using Geometrically Constrained Independent Vector Analysis</i> Shinya Furunaga (Waseda University, Japan), Tetsuya Ueda (Waseda University, Japan), Shoji Makino (Waseda University, Japan) .....	1058
<i>A Dual-Channel Three-Stage Model for DoA and Speech Enhancement</i> Meng-Hsuan Wu (National Yang Ming Chiao Tung University, Taiwan), Yih Liang Shen (National Yang Ming Chiao Tung University, Taiwan), Hsuan-Cheng Chou (National Yang Ming Chiao Tung University, Taiwan), Bo-Wun Shih (Realtek Semiconductor Corporation, Taiwan), Tai-Shih Chi (National Chiao Tung University, Taiwan) .....	1064
<i>A Weighted Binary Cross-Entropy for Sound Event Representation Learning and Few-Shot Classification</i> Zhongxin Bai (Northwestern Polytechnical University, China), Chao Pan (Northwestern Polytechnical University, China), Gong Chen (Northwestern Polytechnical University, China), Jingdong Chen (Northwestern Polytechnical University, USA), Jacob Benesty (INRS-EMT, University of Quebec, Canada) .....	1069

## Intelligent Recognition Applications

<i>A Reconfigurable Hardware Architecture for Graph Convolution Network in Action Recognition</i> Tsung-Han Tsai (National Central University, Taiwan), Tzu-Chieh Chen (National Central University, Taiwan) .....	1075
<i>Automated Carina Detection in Chest X-Ray Images Using Non-Overlapping and Cross-Squeeze Convolutional Neural Networks</i> Chung-Chian Hsu (National Yunlin University of Science and Technology, Taiwan), Chi-Yuan Chen (National Yunlin University of Science and Technology, Taiwan), S M Salahuddin Morsalin (National Yunlin University of Science & Technology, Taiwan), Arthur Chang (National Yunlin University of Science and Technology, Taiwan), Wen-Lin Fan (Dalin Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Taiwan) .....	1079

### *Identifying the Style of Chatting*

Manman Zhang (Fudan University, China), Yuchen Ma (Fudan University, China), Ge Luo (Fudan University, China), Sheng Li (Fudan University, China), Zhenxing Qian (Fudan University, China), Xinpeng Zhang (Fudan University, China) ..... 1085

### *Pose-Based Visual Servoing with Lightweight Deep-Learning Binarization for Autonomous Mobile Robot Application*

Chian C. Ho (National Yunlin University of Science and Technology, Taiwan) ..... 1093

## Signal and Information Processing Theory and Methods

### *Real-Time Noise Suppression Using Harmonic/Percussive Separation with Morphological Operations for Hammering Test*

Ryugo Uchiyama (Suwa University of Science, Japan), Nari Tanabe (Suwa University of Science, Japan) ..... 1100

### *$(\Delta)\Sigma$ Modulators for Discrete-Time Closed Loop Control Systems with Quantization and Saturation*

Shuichi Ohno (Osaka Metropolitan University, Japan), Shenjian Wang (Osaka Metropolitan University, Japan), Kiyotsugu Takaba (Ritsumeikan University, Japan) ..... 1107

### *Asymptotic Estimation Performance of Linear Regression Model with Sparse Bayesian Learning as Both Samples and Signals Approach Infinity*

Kazuaki Murayama (The University of Electro-Communications, Japan) ..... 1112

### *Convolutional Multidimensional Amplitude Spectrum Nuclear Norm for Frequency-Domain Robust Principal Component Analysis*

Ryoya Harashima (Kogakuin University, Japan), Ryunosuke Eguchi (The University of Kitakyushu, Japan), Seisuke Kyochi (Kogakuin University, Japan) ..... 1119

### *Moreau Envelope ADMM for Decentralized Weakly Convex Optimization*

Reza Mirzaeifard (Norwegian University of Science and Technology, Norway), Naveen K. D. Venkateswara (Linköping University, Sweden), Alexander Jung (Aalto University, Finland), Stefan Werner (NTNU, Norway) ..... 1126

## SLA-IV: Speech Enhancement

### *An Audio-Visual Speech Enhancement System Based on 3D Image Features: An Application in Hearing Aids*

Yu-Ching Chung (National Yang-Ming University, Taiwan), Ji-Yan Han (National Yang Ming Chiao Tung University, Taiwan), Bo-Sin Wang (National Yang-Ming University, Taiwan), Wei-Zhong Zheng (National Yang-Ming University, Taiwan), Kung-Yao Shen (National Yang-Ming University, Taiwan), Ying-Hui Lai (National Yang Ming Chiao Tung University, Taiwan) ..... 1131

### *On Joint Dereverberation and Source Separation with Geometrical Constraints and Iterative Source Steering*

Kaiei Mo (Waseda University, Japan), Xianrui Wang (Center of Intelligent Acoustics and Immersive Communications, China), Yichen Yang (Northwestern Polytechnical University, China), Tetsuya Ueda (Waseda University, Japan), Shoji Makino (Waseda University, Japan), Jingdong Chen (Northwestern Polytechnical University, USA) ..... 1138

### *Study of Generative Adversarial Networks for Noisy Speech Simulation from Clean Speech*

Leander Melroy Maben (Manipal Academy of Higher Education, India), Guo Zixun (Nanyang Technological University, Singapore, India), Chen Chen (Nanyang Technological University, Singapore), Utkarsh Chudhwal (Indian Institute of Technology, India), Eng-Siong Chng (Nanyang Technological University, Singapore) ..... 1143

### *Step Size Control of Shared-Error Normalized Least Mean Square Algorithm for Acoustic Echo and Noise Canceller*

Kenta Iwai (Ritsumeikan University, Japan), Takanobu Nishiura (Ritsumeikan University, Japan) ..... 1150

### *Enhancing Spectrogram for Audio Classification Using Time-Frequency Enhancer*

Haoran Xing (Waseda University, Japan), Shiqi Zhang (Waseda University, Japan), Daiki Takeuchi (NTT Corporation, Japan), Daisuke Niizumi (NTT Corporation, Japan), Noboru Harada (NTT, Japan), Shoji Makino (Waseda University, Japan) ..... 1155

## SLA-V: Text-to-Speech and Voice Conversion

### *Evaluating Methods for Ground-Truth-Free Foreign Accent Conversion*

Wen-Chin Huang (Nagoya University, Japan), Tomoki Toda (Nagoya University, Japan) ..... 1161

### *DisC-VC: Disentangled and F0-Controllable Neural Voice Conversion*

Chihiro Watanabe (NTT Communication Science Laboratories, Japan), Hirokazu Kameoka (Nippon Telegraph and Telephone Corporation, Japan) ..... 1167

### *Speech Synthesis Using Ambiguous Inputs from Wearable Keyboards*

Matsuri Iwasaki (Okayama University, Japan), Sunao Hara (Okayama University, Japan), Masanobu Abe (Okayama University, Japan) ..... 1172

### *Accent-Preserving Voice Conversion Between Native-Nonnative Speakers for Second Language Learning*

Iago Lourenco Correa (Nagoya Institute of Technology, Japan), Sei Ueno (Nagoya Institute of Technology, Japan), Akinobu Lee (Nagoya Institute of Technology, Japan) ..... 1179

### *Increasing Speech Intelligibility by Mimicking Professional Announcers' Voices and Its Physical Correlates*

Dung Kim Tran (Japan Advanced Institute of Science and Technology, Japan), Akagi Masato (JAIST, Japan), Masashi Unoki (Japan Advanced Institute of Science and Technology, Japan) ..... 1187

# Distributed and Multi-task Learning Algorithms and Applications

<i>Robust Networked Federated Learning for Localization</i> Reza Mirzaeifard (Norwegian University of Science and Technology, Norway), Naveen K. D. Venkategowda (Linköping University, Sweden), Stefan Werner (NTNU, Norway) .....	1193
<i>Continual Local Updates for Federated Learning with Enhanced Robustness to Link Noise</i> Ehsan Lari (Norwegian University of Science and Technology, Norway), Vinay Chakravarthi Gogineni (University of Southern Denmark, Norway), Reza Arablouei (CSIRO, Australia), Stefan Werner (NTNU, Norway) .....	1199
<i>Gaussian Process Learning for Location-Based Service Data</i> Ekin Ugurel (University of Washington, USA), Shuai Huang (University of Washington, USA), Cynthia Chen (University of Washington, USA) .....	1204
<i>Distributed On-Line Anomaly Detection Using Kernel Methods</i> Anthony Kuh (University of Hawaii, Manoa, USA), Tyler Baguio (University of Hawaii, Manoa, USA) .....	1208
<i>Communication-Efficient Design of Learning System for Energy Demand Forecasting of Electrical Vehicles</i> Jiacong Xu (Johns Hopkins University, USA), Riley Kilfoyle (Texas A&M University, USA), Zixiang Xiong (Texas A&M University, USA), Ligang Lu (Shell Intl. E&P, USA) .....	1214

# Recent Advances on Signal and Information Processing for Active Control of Sound

<i>Radiated Sound Field Reproduction for Surrounding Loudspeaker Array Based on Higher-Order Ambisonics</i> Shota Naiki (Ritsumeikan University, Japan), Shumpei Miura (Ritsumeikan University, Japan), Kenta Iwai (Ritsumeikan University, Japan), Takanobu Nishiura (Ritsumeikan University, Japan), Yoshiharu Soeta (National Institute of Advanced Industrial Science and Technology (AIST), Japan) .....	1221
<i>Multichannel Learning-Based Spatially Extended Active Noise Control via Model Matching and Sensor Transfer Function Interpolation</i> Pei-Lin Zhong (National Tsing Hua University, Taiwan), You-Siang Chen (National Tsing Hua University, Taiwan), Mingsian Bai (National Tsing Hua University, Taiwan) .....	1226
<i>A Study of the Microphone Protection of Active Noise Control for Axial Fan</i> Yi-Tsung Shen (Chung Yuan Christian University, Taiwan), Cheng-Yuan Chang (Chung Yuan Christian University, Taiwan) .....	1234
<i>SFANC with Compensation Filter Based on MEFxDCTLMS Algorithm</i> Kenya Doi (Kansai University, Japan), Yoshinobu Kajikawa (Kansai University, Japan) .....	1240
<i>Practical Active Noise Control: Restriction of Maximum Output Power</i> Woon Seng Gan (Nanyang Technological University, Singapore), Dong-Yuan Shi (Nanyang Technological University, Singapore, Taiwan), XiaoYi Shen (NTU, Singapore) .....	1245

# Selected Papers from APSIPA Workshop in Bandung, Indonesia (II)

<i>A QoS Throughput Performance Measurement Comparison Between UGS and BE Services of a Real-Time FPGA Based OFDM Multi-User System Design Implementation</i> Trio Adiono (Institut Teknologi Bandung, Indonesia), Michael Jonathan (Institut Teknologi Bandung, Indonesia), Erwin Setiawan (Institut Teknologi Bandung, Indonesia), Nana Sutisna (Institut Teknologi Bandung, Indonesia), Rahmat Mulyawan (Institut Teknologi Bandung (ITB), Indonesia), Infall Syafalni (Bandung Institute of Technology, Indonesia) .....	1250
<i>Algorithm Development for Step-Wise Valve Deflation Method in Blood Pressure Measurement</i> Trio Adiono (STEI ITB, Indonesia), Reina Puteri Ramadhani (Bandung Institute of Technology, Indonesia), Clarence Amadeus (Bandung Institute of Technology, Indonesia), Sindy Novaria Cicilya Sinaga (PT. Xirka Dama Persada, Indonesia) .....	1257
<i>SUMO Based Hardware/Software Co-Simulation for Two-Intersection Adaptive and Collaborative Traffic Signal Controller</i> Kendrik Emkel Ginting (Institut Teknologi Bandung, Indonesia), Nana Sutisna (Institut Teknologi Bandung, Indonesia), Infall Syafalni (Bandung Institute of Technology, Indonesia), Trio Adiono (Institut Teknologi Bandung, Indonesia) .....	1263
<i>Sparsity Exploration for Structured and Unstructured Weight Formations in CNN Architecture</i> Devi Noor Endrawati (Bandung Institute of Technology, Indonesia), Infall Syafalni (Bandung Institute of Technology, Indonesia), Nana Sutisna (Institut Teknologi Bandung, Indonesia), Trio Adiono (STEI ITB, Indonesia) .....	1271

# Selected Papers from APSIPA Workshop in Hanoi, Vietnam (II)

<i>1M Parameters are Enough? A Lightweight CNN-Based Model for Medical Image Segmentation</i> Binh-Duong Dinh (Hanoi University of Science and Technology, Vietnam), Thanh-Thu Nguyen (Hanoi University of Science and Technology, Vietnam), Thi-Thao Tran (Hanoi University of Science and Technology, Vietnam), Van-Truong Pham (Hanoi University of Science and Technology, Vietnam) .....	1279
<i>Imaging Ultrasound Scattering Targets Using Density-Enhanced Chaotic Compressive Sampling</i> Tran Thi Thuy Quynh (VNU University of Engineering and Technology, Vietnam), Theu Luong Thi (Hoa Binh University, Vietnam), Tran Quang-Huy (Ha Noi Pedagogical University No2, Vietnam), Tran Duc-Tan (Phenikaa University, Vietnam) .....	1285
<i>Segmentation and Observation of Hand Rehabilitation Exercises by Supporting of Acceleration Signals</i> Vu Hai (Ha Noi University of Science and Technology, Vietnam), Nguyen Sinh Huy (Military Institute of Science and Technology, Vietnam), Le Thi Thu Hong (Military Institute of Science and Technology & MIST, Vietnam), Nguyen Hoang Bach (Military Institute of Science and Technology, Vietnam), Bach Ngoc Duong (HUST, Vietnam), Thanh Nguyen Chi (Institute of Information Technology, AMST, Vietnam), Nguyen Van Loi (Hanoi University of Science and Technology, Vietnam) .....	1291
<i>Investigating the Role of Human Action Detector in Visual-Guide Audio Source Separation System</i> Thanh Thi-Hien Duong (Hanoi University of Mining and Geology & Hanoi University of Science and Technology, Vietnam), Trung-Hieu Nguyen (Hanoi University of Science and Technology, Vietnam), Thanh-Dat The Le (Hanoi University of Science and Technology, Vietnam), Thi-Lich Nghiem (Thuongmai University, Vietnam), Duc-Huy Pham (Hanoi University of Science and Technology, Vietnam), Thi-Lan Le (School of Electrical and Electronic Engineering (SEEE), HUST, Vietnam) .....	1296
<i>A Combination of Time and Frequency Synchronization with Doppler Compensation in Coded OFDM-Based UWA Systems</i> Nguyen Thi Hoai Linh (Ha Noi University of Science and Technology, Vietnam), Quoc Khuong Nguyen (HUST, Vietnam), Nguyen Van Duc (HUST, Vietnam) .....	1304

## Poster Session III

<i>Classification of Normal vs. Pathological Infant Cries Using Morse Wavelets</i> Priyanka Gupta (Dhirubhai Ambani Institute of Information and Communication Technology, India), Aastha Kachhi (Dhirubhai Ambani Institute of Information and Communication Technology, India), Hemant A. Patil (Dhirubhai Ambani Institute of Information and Communication Technology, India) .....	1310
<i>Compressive Sensing Based Algorithms for Limited-View PAT Image Reconstruction</i> Mary Anjaley Josy John (UAE University, United Arab Emirates), Imad Barhumi (United Arab Emirates University, United Arab Emirates) .....	1317
<i>Towards AST-LLDs for the Analysis of Depression in Speech Signals</i> Sidharth Nagappan (Monash University, Malaysia), Chern Hong Lim (Monash University, Malaysia), Anuja T Dharmaratne (Monash University Australia, Australia) .....	1323
<i>ecVoice: Audio Text Extraction Optimization of Video Based on Idioms Similarity Replacement</i> Jinwei Lin (Monash University, Malaysia) .....	1329
<i>Heart Rate Acquisition and Processing Techniques for a Miniature Wearable Microphone Sensor</i> Yi Yang Ang (Aevice Health Pte Ltd & Nanyang Technological University, Singapore), Kirish Boodhoo (Aevice Health Ptd Ltd, Singapore), Wee Ser (Aevice Health Pte Ltd, Singapore), Rex Xiao Tan (Aevice Health Pte Ltd, Singapore) .....	1337
<i>Detection and Correction of Defective Relative Humidity Data Collected from the Greenhouse Environment Using Nested Kalman Filters with Standard Deviation Analysis</i> Kraithep Sirisanwannakul (Thammasat University, Thailand), Nuchanon Siripool (Thammasat University, Thailand), Kenji Suzuki (Tokyo Institute of Technology, Japan), Waree Kongprawechnon (SIIT, Thailand), Jessada Karnjana (National Science and Technology Development Agency, Thailand) .....	1343
<i>Pedestrian Crossing Intention Prediction with Multi-Modal Transformer-Based Model</i> Ting Wei Wang (National Tsing Hua University, Taiwan), Shang-Hong Lai (National Tsing Hua University, Taiwan) .....	1349
<i>Revolutionizing Formative Assessment in STEM Fields: Leveraging AI and NLP Techniques</i> Chi Wee Tan, Ts. (Faculty of Computing and Information Technology, Tunku Abdul Rahman University of Management and Technology, 53300 Setap, Malaysia), Khai Yin Lim (Department of Computing and Information Technology, Tunku Abdul Rahman University of Management and Technology, Penang,, Malaysia) .....	1357
<i>A Biased Mixed-Precision Convolution Engine for Hardware-Efficient Computational Imaging CNN</i> Hao-Jiun Tu (National Tsing Hua University, Taiwan), Yu-Feng Ou (National Tsing Hua University, Taiwan), Yong-Tai Chen (NTHU, Taiwan), Huang Chao-Tsung (National Tsing Hua University, Taiwan) .....	1365
<i>A Lightweight Speaker Verification Model for Edge Device</i> Ting-Wei Chen (National Sun Yat-sen University, Taiwan), Chia-Ping Chen (National Sun Yat-Sen University, Taiwan), Chung-Li Lu (Chunghwa Telecom Laboratories, Taiwan), Bo-Cheng Chan (Chunghwa Telecom Laboratories, Taiwan), Yu-Han Cheng (Chunghwa Telecom Laboratories, Taiwan), Hsiang-Feng Chuang (Chunghwa Telecom Laboratories, Taiwan), Wei-Yu Chen (Chunghwa Telecom Laboratories, Taiwan) .....	1372
<i>Efficient Dictionary and Grid-Based Framework for Answering Durable k-Nearest Neighbor Queries on Time Series Data</i> Bagus Jati Santoso (Institut Teknologi Sepuluh Nopember, Indonesia), Dwi Prasetya Armunanta (Institut Teknologi Sepuluh Nopember, Indonesia), Baskoro Adi Pratomo (Institut Teknologi Sepuluh Nopember, Indonesia), Hudan Studiawan (Institut Teknologi Sepuluh Nopember, Indonesia) .....	1378
<i>Dual-Path Residual Attention Convolution Networks for Color-Embedded-Grayscale Image</i> Heri Prasetyo (Universitas Sebelas Maret, Indonesia), Abid Ammar Mahdy (Universitas Sebelas Maret, Indonesia), Abrar Dwi Fairuz Nadhif (Universitas Sebelas Maret, Indonesia), Taufiqurrakman Nur Hidayat (Universitas Sebelas Maret, Indonesia), Rudi Hartono (Universitas Sebelas Maret, Indonesia) .....	1386
<i>DOC: A Novel DOuble-Contour-Based Macro Placement Framework for Mixed-Size Designs</i> Yin-Rong Zhuo (National Central University, Taiwan), Hui-Lin Chen (National Central University, Taiwan), Yu-Guang Chen (National Central University, Taiwan) .....	1392

<i>Hindering Adversarial Attacks with Multiple Encrypted Patch Embeddings</i>	
AprilPyone MaungMaung (National Institute of Informatics (NII), Japan), Isao Echizen (National Institute of Informatics (NII), Japan), Hitoshi Kiya (Tokyo Metropolitan University, Japan) .....	1398
<i>Implementation of PLIM on 429MHz LoRa/FSK with Improved Conversion Table</i>	
Keita Takeda (Shinshu University, Japan), Ryuji Miyamoto (Shinshu University, Japan), Osamu Takyu (Shinshu University, Japan) .....	1405
<i>Numerical Performance Evaluation of <math>\ell_1</math>-<math>\ell_2</math> Sparse Reconstruction Using Optical Analog Circuit</i>	
Soma Furusawa (Kyoto University, Japan), Kazunori Hayashi (Kyoto University, Japan), Kaito Kameda (Osaka University, Japan), Ryo Hayakawa (Osaka University, Japan) .....	1410
<i>Assessing the Effects of Filtering Processing on Pulse Wave Transit Time Measured by Photoplethysmography from Earlobe</i>	
Shangdi Liao (Southern University of Science and Technology, China), Fei Chen (Southern University of Science and Technology, China) .....	1417
<i>Efficient Incremental Text-To-Speech on GPUs</i>	
Muyang Du (NVIDIA Corporation, China), Chuan Liu (NVIDIA Corporation, China), Jiaying Qi (NVIDIA Corporation, China), Junjie Lai (NVIDIA Corporation, China) .....	1422
<i>Retinex-Based Low-Light Image Enhancement</i>	
Rui Luo (Northwestern Polytechnical University, China), Yan Feng (Northwestern Polytechnical University, China) .....	1429
<i>Fine-Grained Face Anti-Spoofing Based on Recursive Self-Attention and Multi-Scale Fusion</i>	
Shichuang Xie (Hangzhou Dianzi University, China), Jiasheng Wu (Hangzhou Dianzi University, China), Yanli Chen (Hangzhou Dianzi University, China), Meng Han (Zhejiang University, China), Ting Wu (Beihang University, China), Tong Qiao (Hangzhou Dianzi University, China) .....	1435
<i>StyleStegan: Leak-Free Style Transfer Based on Feature Steganography</i>	
Xiujian Liang (Fudan University, China), Bingshan Liu (Nanjing University of Information Science & Technology, China), Qichao Ying (Fudan University, China), Zhenxing Qian (Fudan University, China), Xinpeng Zhang (Fudan University, China) .....	1443
<i>Robust Watermark Imaging via Graph-Signal Optimization</i>	
Ruiguo Yang (Peking University, China), Xinhui Han (Peking University, China), Wenfa Qi (Peking University, China), Wei Hu (Peking University, China) .....	1451
<i>A Print-Scan-Resilient Watermarking Scheme for Trademark Images</i>	
Wenfa Qi (Peking University, China), Jiameng Wang (Beijing Jiaotong University, China), Zichen Yuan (Beijing Jiaotong University, China), Xiaolong Li (Beijing Jiaotong University, China) .....	1458
<i>AI-Generated Image Detection Using a Cross-Attention Enhanced Dual-Stream Network</i>	
Ziyi Xi (Sun Yat-Sen University, China), Wenmin Huang (Sun Yat-Sen University, China), Kangkang Wei (Sun Yat-Sen University, China), Weiqi Luo (Sun Yat-Sen University, China), Peijia Zheng (Sun Yat-Sen University, China) .....	1463

## IVM-3: Multimedia Representation and Identification

<i>ResNet-Based Camera Model Identification with Adaptive Preprocessing Module and Weight Fusion of Global Information</i>	
Boru Chen (The University of Auckland, New Zealand, China), Waleed H. Abdulla (The University of Auckland, New Zealand) .....	1471
<i>Structural Quality Assured Global Optimization for CTU-Level Rate Control of Screen Content Coding</i>	
Tong Tang (Chongqing University of Posts and Telecommunications, China), Yuan Tan (Chongqing University of Posts and Telecommunications, China), Shihang Ding (Chongqing University of Posts and Telecommunications, China), Zhidu Li (Chongqing University of Posts and Telecommunications, China) .....	1479
<i>Multi-Modal Emotion Recognition Based on 2D Kernel Density Estimation for Multiple Labels Fusion</i>	
Zhaojie Luo (Osaka University, Japan), Kazunori Komatani (Osaka University, Japan) .....	1484
<i>RobustL2S: Speaker-Specific Lip-To-Speech Synthesis Exploiting Self-Supervised Representations</i>	
Neha Sahipjohn (IIT Hyderabad, India), Neil Shah (IIT Hyderabad, India), Vishal Tambrhalli (IIT Hyderabad, India), Vineet Gandhi (IIT-Hyderabad, India) .....	1492
<i>Realizing Nipple in Profile Recognition and Nipple Detection Using a Single Classification</i>	
Yi-Chong Zeng (Institute for Information Industry, Taiwan) .....	1500
<i>Exploring a CLIP-Enhanced Automated Approach for Video Description Generation</i>	
Siang-Ling Zhang (National Taiwan Normal University, Taiwan), Huai-Hsun Cheng (National Taiwan Normal University, Taiwan), Yen-Hsin Chen (National Taiwan Normal University, Taiwan), Mei-Chen Yeh (National Taiwan Normal University, Taiwan) .....	1506

## Innovative Technology on 3D Point Cloud and Image Processing

<i>3D Point Cloud Denoising Based on Color Attribute</i>	
Wei-Chi Lin (Chung Yuan Christian University, Taiwan), Ming Zhan Lee (National Cheng Kung University, Taiwan), He-Sheng Chou (Chung Yuan Christian University, Taiwan), Yuan-Jin Lin (Chung Yuan Christian University, Taiwan), Li Kuo-Chen (Chung Yuan Christian University, Taiwan), Ting-Lan Lin (National Taipei University of Technology, Taiwan), Shih-Lun Chen (Chung Yuan Christian University, Taiwan) .....	1512
<i>The DSP and DDR4 VLSI Design for Multi-Sensor in Biomedical System</i>	
Jia-Sheng Zhang (Ming Chi University, Taiwan), Chiung-An Chen (Ming Chi University of Technology, Taiwan), Shih-Lun Chen (Chung Yuan Christian University, Taiwan) .....	1517
<i>Identification of Victims Wearing Vibrant Clothing Using MATLAB</i>	
Hao-Cheng Lu (Ming Chi University of Technology, Taiwan), Chiung-An Chen (Ming Chi University of Technology, Taiwan) .....	1521



<i>Point Cloud Inpainting Based on Delaunay Triangulation</i>	
Yu-Lin Liu (Chung Yuan Christian University, Taiwan), He-Sheng Chou (Chung Yuan Christian University, Taiwan), Ming Zhan Lee (National Cheng Kung University, Taiwan), Mei-Ling Chan (Jiaying University, China), Ting-Lan Lin (National Taipei University of Technology, Taiwan), Shih-Lun Chen (Chung Yuan Christian University, Taiwan) .....	1525
<i>Dense Three-Dimensional Color Reconstruction for Large-Scale Outdoor Scenes</i>	
Zixiao Liu (The Chinese University of Hong Kong, Shenzhen, China), Sheng Guo (Guangming Research Labs, Hong Kong), Man-On Pun (The Chinese University of Hong Kong, Shenzhen, China) .....	1530
<i>Safety Enhancement for Mobility Scooter with Rule-Based Danger Prevention</i>	
Yan-Ru Chen (Chang Gung University, Taiwan) .....	1536

## Machine Learning under Data-Constrained Conditions

<i>Dictionary-Driven Chinese ASR Entity Correction with Controllable Decoding</i>	
Rongjun Li (Huawei Technologies, China), Wei Peng (Huawei Technologies, Co., Ltd., China) .....	1542
<i>A Method of Efficient Synthesizing Post-Disaster Remote Sensing Image with Diffusion Model and LLM</i>	
Ruizhe Ou (Beijing University of Posts and Telecommunications, China), Ming Wu (Beijing University of Posts and Telecommunications, China), Chuang Zhang (Beijing University of Posts and Telecommunications, China), Haotian Yan (Beijing University of Posts and Telecommunications, China) .....	1549
<i>Privacy-Oriented Coded Caching in Mobile Information-Centric Network</i>	
Binchen Yang (Southwestern University of Finance and Economics, China), Yu Guo (Southwest University of Finance and Economics, China), Xingyan Chen (Southwestern University of Finance and Economics, China) .....	1556
<i>MKTformer: Fine-Grained Meter Classification Based on Multi-Modal Knowledge Transfer</i>	
Zhaoye Zheng (North China Electric Power University, China), Zhang Ke (North China Electric Power University, China), Chaojun Shi (North China Electric Power University, China) .....	1564
<i>Feature Augmentation Reconstruction Network for Few-Shot Image Classification</i>	
Zhen Li (Lanzhou University of Technology, China), Lang Wang (Lanzhou University of Technology, China), Wenjuan An (Lanzhou University of Technology, China), Qi Song (Lanzhou University of Technology, China), Xiaoxu Li (Lanzhou University of Technology, China), Xuezhi Fei (Machinery Industry Shanghai Lanya Petrochemical Equipment Testing Institute, China) .....	1571
<i>Dual Feature Reconstruction Network Based on Few-Shot Image Classification</i>	
Xiaowei Guo (Lanzhou University of Technology, China), Jijie Wu (Lanzhou University of Technology, China), Kai Ren (Lanzhou University of Technology, China), Qi Song (Lanzhou University of Technology, China), Xiaoxu Li (Lanzhou University of Technology, China) .....	1579

## Signal Processing and Artificial Intelligence in Biomedicine and Healthcare

<i>A Cloud-Based Data Platform for Efficient EEG Data Management, Collaboration, and Analysis</i>	
Qi Tian (Zhejiang Lab, China), Wen Wu (Zhejiang Lab, China), Qin Zhu (Zhejiang Lab, China), Tao Cai (Zhejiang Lab, China), Siyi Jiang (Zhejiang Lab, China), Yaqing Li (Zhejiang Lab, China), Jinrun Zhou (Zhejiang Lab, China), Nan Zhu (Zhejiang Lab, China), Yina Wei (Zhejiang Lab, China), Tao Tang (Zhejiang Lab, China), Kedi Xu (Qiyushi Academy for Advanced Studies, Zhejiang University, China), Feng Lin (Zhejiang Lab, China), Linqing Feng (Zhejiang Lab, China) .....	1585
<i>Incorporating the Digit Triplet Test in A Lightweight Speech Intelligibility Prediction for Hearing Aids</i>	
Xiajie Zhou (Japan Advanced Institute of Science and Technology, Japan), Candy Olivia Mawalim (Japan Advanced Institute of Science and Technology, Japan), Benita Angela Titalim (Japan Advanced Institute of Science and Technology, Japan), Masashi Unoki (Japan Advanced Institute of Science and Technology, Japan) .....	1593
<i>Deep Learning-Based MRI Super-Resolution Using Non-Uniform Segmented Phase-Scrambling Fourier Transform Signals</i>	
Kazuki Yamato (Utsunomiya University, Japan), Shuntaro Fujisawa (Utsunomiya University, Japan), Satoshi Ito (Utsunomiya University, Japan) .....	1601
<i>An Extreme Gradient Boosting-Based Prediction for Depression</i>	
Ahmed Dawod Mohammed Ibrahim (Chungbuk National University, Korea (South)) .....	1607
<i>An Improved Check Digit-Based Participant Identification System for Human Biorepositories</i>	
Minseok Chu (Chungbuk University & National Institute of Health, Korea (South)), Keunho Ryu (Ton Duc Thang University, Vietnam and Chungbuk National University, Korea, Korea (South)) .....	1614
<i>Enhancing Snoring Detection with Statistical Analysis of Audio Features</i>	
Suphachok Buaruk (Sirindhorn International Institute of Technology, Thammasat University, Thailand), Somrudee Deepaisarn (Sirindhorn International Institute of Technology, Thammasat University, Thailand) .....	1622

# Artificial Intelligence (AI) for Multimedia Processing and Applications

<i>Un-Rectifying in ReLU Networks and Applications</i>	
Shih-Shuo Tung (Institute of Information Science, Academia Sinica, Taiwan), Ming-Yu Chung (National Taiwan University, Taiwan), Jinn Ho (Institute of Information Science, Academia Sinica, Taiwan), Wen-Liang Hwang (Institute of Information Science, Academia Sinica, Taiwan) .....	1628
<i>OpenPose Based Yoga Poses Difficulty Estimation for Dynamic and Static Yoga Exercises</i>	
Wan-Chia Huang (National Chung Hsing University, Taiwan), Cheng-Liang Shih (National Chung Hsing University, Taiwan), Irin Tri Anggraini (Okayama University, Japan), Yanqi Xiao (Okayama University, Japan), Nobuo Funabiki (Okayama University, Japan), Chih-Peng Fan (National Chung Hsing University, Taiwan) .....	1636
<i>Multimodal Multifaceted Music Emotion Recognition Based on Self-Attentive Fusion of Psychology-Inspired Symbolic and Acoustic Features</i>	
Jiahao Zhao (Kyoto University, Japan), Eita Nakamura (Kyoto University, Japan), Kazuyoshi Yoshii (Kyoto University & RIKEN, Japan) .....	1641
<i>Learned String Quartet Music with Variational Auto Encoder</i>	
Young-Long Chen (National Taichung University of Science and Technology, Taiwan), Hsin-I Huang (National Taichung University of Science and Technology, Taiwan), Tzu-Te Yen (National Taichung University of Science and Technology, Taiwan) .....	1646
<i>SOAda-YOLOR: Small Object Adaptive YOLOR Algorithm for Road Object Detection</i>	
Yu-Fang Huang (National Chung Hsing University, Taiwan), Tsung-Jung Liu (National Chung Hsing University, Taiwan), Chun-An Lin (National Chung Hsing University, Taiwan), Kuan-Hsien Liu (National Taichung University of Science and Technology, Taiwan) .....	1652
<i>Badminton Self-Training System Based on Virtual Reality</i>	
Wei-Shen Tai (National Taichung University of Science and Technology, Taiwan), Kuan-Hsien Liu (National Taichung University of Science and Technology, Taiwan) .....	1659

# Emerging Trends in Privacy, Multimedia Security and Forensics: Deep Learning and AI Approaches

<i>Rotation Angle Detection Using a Pilot Signal from Rotated Stego-Image</i>	
Rinka Kawano (Yamaguchi University, Japan), Masaki Kawamura (Yamaguchi University, Japan) .....	1664
<i>Application for Generating Re-Accessible Screenshots of Web Pages Using Histogram Shrinkage</i>	
Ayaka Sakamoto (Yamaguchi University, Japan), Rinka Kawano (Yamaguchi University, Japan), Masaki Kawamura (Yamaguchi University, Japan) .....	1670
<i>Domain Adaptation for Efficiently Fine-Tuning Vision Transformer with Encrypted Images</i>	
Teru Nagamori (Tokyo Metropolitan University, Japan), Sayaka Shiota (Tokyo Metropolitan University, Japan), Hitoshi Kiya (Tokyo Metropolitan University, Japan) .....	1677
<i>Study on Face Landmark-Based Analysis for Synthetic Media Identification Generated by Adversarial Generative Networks</i>	
Akinobu Ura (Okayama University, Japan), Minoru Kuribayashi (Tohoku University, Japan), Nobuo Funabiki (Okayama University, Japan) .....	1684
<i>HDR Image Watermarking Based on Saliency Detection and Quantization Index Modulation</i>	
Ahmed Khan (Monash University, Malaysia), Minoru Kuribayashi (Tohoku University, Japan), KokSheik Wong (Monash University Malaysia, Malaysia), Vishnu Monn Baskaran (Monash University, Malaysia) .....	1691
<i>Quick Response (QR) Codes Embedding in VVC Using Quantisation Parameter Manipulation</i>	
Joan Hau (TARUMT, Malaysia), Li Peng Tan (Tunku Abdul Rahman University College, Malaysia), Yiqi Tew (Tunku Abdul Rahman University of Management and Technology, Malaysia) .....	1697

# Intelligent Visual Data Processing, Analytics, and Representation

<i>CPIPS: Learning to Preserve Perceptual Distances in End-To-End Image Compression</i>	
Chen-Hsiu Huang (National Taiwan University, Taiwan), Ja-Ling Wu (National Taiwan University, Taiwan) .....	1705
<i>Task-Specific Pruning: Efficient Parameter Reduction in Multi-Task Object Detection Models</i>	
Wei-Hsun Ke (National Yang Ming Chiao Tung University, Taiwan), Yu-Wen Tseng (National Yang Ming Chiao Tung University, Taiwan), Wen-Huang Cheng (National Taiwan University, Taiwan) .....	1712
<i>Transformer-Based Image Compression with Variable Image Quality Objectives</i>	
Chia-Hao Kao (National Yang Ming Chiao Tung University, Taiwan), Yi-Hsin Chen (National Yang Ming Chiao Tung University, Taiwan), Cheng Chien (National Yang Ming Chiao Tung University, Taiwan), Wei-Chen Chiu (National Chiao Tung University, Taiwan), Wen-Hsiao Peng (National Yang Ming Chiao Tung University, Taiwan) .....	1718
<i>From Synthetic to Real: Enhancing Deep Learning Models with Generative Adversarial Networks for Efficient Data Utilization in Automatic Retail Stores</i>	
Cong-Ty Dang (Ho Chi Minh City University of Technology and Education, Vietnam), Vu-Hoang Tran (Ho Chi Minh City University of Technology and Education, Vietnam), Ngoc-Hoang-Lam Le (Ho Chi Minh City University of Technology and Education, Vietnam), Ching-Chun Huang (National Yang Ming Chiao Tung University, Taiwan) .....	1726

<i>Virtual Garment Fitting Through Parsing and Context-Aware Generative Adversarial Networks with Discriminator Group</i> Wei-Hong Su (National Yang Ming Chiao Tung University, Taiwan), Sze-Ann Chen (National Yang Ming Chiao Tung University, Taiwan), Chen-I Chin (National Yang Ming Chiao Tung University, Taiwan), Hsu-Feng Hsiao (National Yang Ming Chiao Tung University, Taiwan) .....	1732
<i>Sparse Tensor-Based Point Cloud Attribute Compression Using Augmented Normalizing Flows</i> Tzu-Po Lin (National Chung Cheng University, Taiwan), Monyneath Yim (National Chung Cheng University, Taiwan), Jui -Chiu Chiang (National Chung Cheng University, Taiwan), Wen-Hsiao Peng (National Yang Ming Chiao Tung University, Taiwan), Wen-Nung Lie (National Chung Cheng University, Taiwan) .....	1739

## SLA-VI: Speech Recognition

<i>Toward Leveraging Pre-Trained Self-Supervised Frontends for Automatic Singing Voice Understanding Tasks: Three Case Studies</i> Yuya Yamamoto (University of Tsukuba, Japan) .....	1745
<i>Out-Of-Vocabulary Word Detection in Spoken Dialogues Based on Joint Decoding with User Response Patterns</i> Miki Oshio (Osaka University, Japan), Hokuto Munakata (Osaka University, Japan), Ryu Takeda (Osaka University, Japan), Kazunori Komatani (Osaka University, Japan) .....	1753
<i>Synthetic Data Augmentation for ASR with Domain Filtering</i> Tuan Vu Ho (Hitachi Ltd., Japan), Shota Horiguchi (Hitachi Ltd., Japan), Shinji Watanabe (Carnegie Mellon University, USA), Leibny Paola Garcia Perera (Johns Hopkins University, USA), Takashi Sumiyoshi (Central Research Laboratory, Hitachi Ltd., Japan) .....	1760
<i>Multi-Self-Supervised Learning Model-Based Throat Microphone Speech Recognition</i> Kohta Masuda (Shizuoka University, Japan), Jun Ogata (National Institute of Advanced Industrial Science and Technology (AIST), Japan), Masafumi Nishida (Shizuoka University, Japan), Masafumi Nishimura (Shizuoka University, Japan and Aichi Sangyo University, Japan, Japan) .....	1766
<i>ASR Model Adaptation for Rare Words Using Synthetic Data Generated by Multiple Text-To-Speech Systems</i> Kwok Chin Yuen (Nanyang Technological University, Singapore), Li Haoyang (Nanyang Technological University, Singapore), Eng-Siong Chng (Nanyang Technological University, Singapore) .....	1771
<i>Streaming End-To-End ASR Using CTC Decoder and DRA for Linguistic Information Substitution</i> Tatsunari Takagi (Toyohashi University of Technology, Japan, Japan), Norihide Kitaoka (Toyohashi University of Technology, Japan), Atunori Ogawa (Nippon Telegraph and Telephone Corporation, Japan), Wakabayashi Yukoh (Toyohashi University of Technology, Japan, Japan) .....	1779

## New Frontiers in Biometric Authentication

<i>A Biometric Signature Scheme with Template Protection and Authenticated Sample Recoverability</i> Wataru Nakamura (Hitachi, Ltd., Japan), Kenta Takahashi (Hitachi, Ltd. & University of Tokyo, Japan) .....	1784
<i>IPFed: Identity Protected Federated Learning for User Authentication</i> Yosuke Kaga (Hitachi Ltd., Japan), Yusei Suzuki (Hitachi, Ltd., Japan), Kenta Takahashi (Hitachi, Ltd. & University of Tokyo, Japan) .....	1792
<i>Privacy-Preserving Image Transformation Method for Person Detection and Re-ID</i> Yumo Ouchi (FUJITSU LIMITED, Japan, USA), Hidetsugu Uchida (Fujitsu Limited, Japan), Narishige Abe (Fujitsu Limited, Japan) .....	1798
<i>Eye Biometrics Combined with Periocular and Iris Recognition Using CNN</i> Taito Tonosaki (Tohoku University, Japan), Shokei Kawakami (Tohoku University, Japan), Koichi Ito (Tohoku University, Japan), Takafumi Aoki (Tohoku University, Japan), Yoshiko Yasumura (Hitachi Ltd., Japan), Masakazu Fujio (Hitachi Ltd., Japan), Yosuke Kaga (Hitachi Ltd., Japan), Kenta Takahashi (Hitachi, Ltd. & University of Tokyo, Japan) .....	1804
<i>Development of a Robust Ear Recognition Algorithm Using Planar Approximation</i> Takahiko Arakawa (Shizuoka University, Japan), Yuya Sato (Shizuoka University, Japan), Hitoshi Sakano (Shimane University, Japan), Tetsushi Ohki (Shizuoka University, Japan) .....	1811

## Poster Session IV

<i>Word Encoding for Word-Looking DGA-Based Botnet Classification</i> Sea Ran Cleon Liew (University of Waterloo, Canada), Ngai Fong Law (Hong Kong Polytechnic University, Hong Kong) .....	1816
<i>Analysis of Spectro-Temporal Modulation Representation for Deep-Fake Speech Detection</i> Haowei Cheng (Japan Advanced Institute of Science and Technology, Japan), Candy Olivia Mawalim (Japan Advanced Institute of Science and Technology, Japan), Kai Li (Japan Advanced Institute of Science and Technology, Japan), Lijun Wang (Japan Advanced Institute of Science and Technology, Japan), Masashi Unoki (Japan Advanced Institute of Science and Technology, Japan) .....	1822
<i>Flexible Evidence Model to Reduce Uncertainty Mismatch Between Speech Enhancement and ASR Based on Encoder-Decoder Architecture</i> Ryu Takeda (Osaka University, Japan), Yui Sudo (Honda Research Institute Japan, Japan), Kazunori Komatani (Osaka University, Japan) .....	1830
<i>Investigating the Effectiveness of Speaker Embeddings for Shout Intensity Prediction</i> Takahiro Fukumori (Ritsumeikan University, Japan), Taito Ishida (Ritsumeikan University, Japan), Yoichi Yamashita (Ritsumeikan University, Japan) .....	1838

<i>Is the Ideal Ratio Mask Really the Best?---Exploring the Best Extraction Performance and Optimal Mask of Mask-Based Beamformers</i> Atsuo Hiroe (Tokyo Institute of Technology, Japan), Katsutoshi Itoyama (Tokyo Institute of Technology, Japan), Kazuhiro Nakadai (Tokyo Institute of Technology, Japan, Japan) .....	1843
<i>Language Modeling for Spontaneous Speech Recognition Based on Disfluency Labeling and Generation of Disfluent Text</i> Koharu Horii (Toyoashi University of Technology, Japan), Kengo Ohta (National Institute of Technology, Anan College, Japan), Ryota Nishimura (Tokushima University, Japan), Atsunori Ogawa (NTT Corporation, Japan), Norihide Kitaoka (Toyoashi University of Technology, Japan) .....	1851
<i>Transformer-Based Automatic Speech Recognition of Simultaneous Interpretation with Auxiliary Input of Source Language Text</i> Shuta Taniguchi (Doshisha University, Japan), Tsuneo Kato (Doshisha University, Japan), Akihiro Tamura (Doshisha University, Japan), Yasuda Keiji (MINDWORD, Inc., Japan) .....	1857
<i>An Analysis of Personalized Speech Recognition System Development for the Deaf and Hard-Of-Hearing</i> Lester Phillip G Violeta (Nagoya University, Japan), Tomoki Toda (Nagoya University, Japan) .....	1862
<i>Classification of Vocal Cord Disorders: Comparison Across Voice Datasets, Speech Tasks, and Machine Learning Methods</i> Ching-Chieh Chen (National Tsing Hua University, Taiwan), Wei-Cheng Hsu (China Medical University Hospital, Taiwan), Tzu-Han Lin (National Tsing Hua University, Taiwan), Kuan-Dar Chen (National Tsing Hua University, Taiwan), Yung-An Tsou (China Medical University Hospital, Taiwan), Yi-Wen Liu (National Tsing Hua University, Taiwan) .....	1868
<i>Detecting the Underwater Distance and Swimming Direction of Tilapia Using YOLO</i> Yi-Zeng Hsieh (National Taiwan University of Science and Technology, Taiwan), Chia-Hsuan Wu (National Taiwan University of Science and Technology, Taiwan), Cheng-Hou Chou (National Taiwan University of Science and Technology, Taiwan) .....	N/A
<i>Application of Deep Learning Techniques for Thermal Imagery Analysis in Abnormal Identification of Floor Tiles in Heritage Environments</i> Xin-Yu Chen (Chung Yuan Christian University, Taiwan), Pei-Chen Wu (Chung Yuan Christian University, Taiwan), Li Kuo-Chen (Chung Yuan Christian University, Taiwan), Chu Yu-Chieh (Chung Yuan Christian University, Taiwan), Tsung-Yi Chen (Chung Yuan Christian University, Taiwan), Yu-Lin Liu (Chung Yuan Christian University, Taiwan), Yuan-Jin Lin (National Cheng Kung University, Taiwan), Chiung-An Chen (Ming Chi University of Technology, Taiwan), Mei-Ling Chan (Jiaying University, China), Huang Ching-Hui (Chung Yuan Christian University, Taiwan), Shih-Lun Chen (Chung Yuan Christian University, Taiwan) .....	1878
<i>Wavelet and Cutout in YOLO Architecture for Road Pothole Detection</i> Chih-Hsien Hsia (National Ilan University, Taiwan) .....	1885
<i>Robust Finger Vein Recognition Based on Lightweight Attention Convolutional Neural Networks</i> Chih-Hsien Hsia (National Ilan University, Taiwan) .....	1892
<i>Lightweight CNN and Image Enhancement Using in Palm Vein Recognition</i> Chih-Hsien Hsia (National Ilan University, Taiwan) .....	1896
<i>Breast Cancer Detection Auxiliary System Leveraging Deep Learning and Mixed Reality</i> Szu-Yin Lin (National Ilan University, Taiwan), Ming-Chun Chien (National Ilan University, Taiwan), Edwin Tiong Kwong Meng (National Ilan University, Taiwan), Yu-Chieh Wang (National Ilan University, Taiwan), Yu-Yi Kuo (National Ilan University, Taiwan), Che-Hsuan Lin (National Ilan University, Taiwan) .....	1903
<i>Efficient Reversible Data Hiding for 3D Mesh Models Based on Multi-LSB Substitution and Ring-Prediction</i> Wanli Lyu (Anhui University, China), Lulu Cheng (Anhui University, China), Zhaoxia Yin (East China Normal University, China), Bin Luo (Anhui University, China) .....	1907
<i>MAEDefense: An Effective Masked AutoEncoder Defense Against Adversarial Attacks</i> Mengjiang Wu (Anhui University, China), Wanli Lyu (Anhui University, China), Zhaoxia Yin (East China Normal University, China), Bin Luo (Anhui University, China) .....	1915
<i>Preemptive Image Protection Against Steganography</i> Yusheng Guo (Fudan University, China), Nan Zhong (Fudan University, China), Zhenxing Qian (Fudan University, China), Xinpeng Zhang (Fudan University, China) .....	1923
<i>Zero-Shot Multi-Speaker Accent TTS with Limited Accent Data</i> Mingyang Zhang (The Chinese University of Hong Kong, Shenzhen, China), Yi Zhou (National University of Singapore, Singapore), Zhizheng Wu (The Chinese University of Hong Kong Shenzhen, China), Haizhou Li (The Chinese University of Hong Kong Shenzhen, China) .....	1931
<i>Speech Enhancement with Multi-Granularity Vector Quantization</i> Xiaoying Zhao (University of Science and Technology of China, China), Qiushi Zhu (University of Science and Technology of China, China), Jie Zhang (University of Science and Technology of China, China), Yeping Zhou (China Merchants Bank, China), Peiqi Liu (China Merchants Bank, China) .....	1937
<i>A Comparative Study on Multichannel Speaker-Attributed Automatic Speech Recognition in Multi-Party Meetings</i> Mohan Shi (University of Science and Technology of China, China), Jie Zhang (University of Science and Technology of China, China), Zhihao Du (Alibaba Group, China), Fan Yu (Alibaba Group, China), Qian Chen (Alibaba Group, China), Shiliang Zhang (Alibaba Group, China), Li-Rong Dai (University of Science and Technology of China, China) .....	1943
<i>Hybrid Syllable and Character Representations for Mandarin ASR</i> Fengrun Zhang (TAL Education Group, China), Chengfei Li (TAL Education Group, China) .....	1949
<i>Enhancing Whisper Model for Pronunciation Assessment with Multi-Adapters</i> Jing Li (Xinjiang University, China), Rui Li (Xinjiang University, China), Shen Guo (Xinjiang University, China), Aishan Wumaier (Xinjiang University, China) .....	1955
<i>DoA Estimation of Room Reflections Using NN-Based MUSIC Algorithm</i> Haowen Li (Northwestern Polytechnical University, Xi'an, China, China), Wen Zhang (Northwestern Polytechnical University, China), Lijun Zhang (Northwestern Polytechnical University, China) .....	1960
<i>Hybrid Multi-Task Learning for End-To-End Multimodal Emotion Recognition</i> Junjie Chen (Tianjin Normal University, China), Yongwei Li (CASIA, China), Ziping Zhao (Tianjin Normal University, China), Xuefei Liu (CASIA, China), Zhengqi Wen (Institute of Automation, Chinese Academy of Sciences, China), Jianhua Tao (Tsinghua University, China) .....	1966
<i>It's What You Say and How You Say It: Exploring Audio and Textual Features for Podcast Data</i> Neil Shah (TCS Research, India), Vivek Srivastava (TCS Research, India), Mohit Bhardwaj (TCS Research, India), Satej Kadlay (TCS Research, India), Dharmeshkumar Agrawal (Dhirubhai Ambani Institute of Information and Communication Technology, India), Savita Bhat (Tata Research Development and Design Centre, India), Niranjana Pedaneekar (Tata Research Development and Design Centre & Tata Consultancy Services Limited, India) .....	1972

<i>Improved One-Class Learning for Voice Spoofing Detection</i>	
Lixiang Li (Beijing University of Posts and Telecommunications, China), Xiaopeng Xue (Beijing University of Posts and Telecommunications, China), Haipeng Peng (Beijing University of Posts and Telecommunications, China), Yeqing Ren (Beijing University of Posts and Telecommunications, China), Mengmeng Zhao (Beijing University of Posts and Telecommunications, China) .....	1978
<i>Sound Field Estimation Around a Rigid Sphere with Physics-Informed Neural Network</i>	
Xingyu Chen (Australian National University, Australia), Fei Ma (Australian National University, Australia) .....	1984
<i>A Controlled Noise Reduction Wiener Filter Based on the Quadratic Eigenvalue Problem</i>	
Ningning Pan (Southwestern University of Finance and Economics, China), Jacob Benesty (INRS-EMT, University of Quebec, Canada), Jingdong Chen (Center of Intelligent Acoustics and Immersive Communications, China) .....	1990
<i>Target Speaker Extraction with Attention Enhancement and Gated Fusion Mechanism</i>	
Sijie Wang (Xinjiang University, China), Askar Hamdulla (Xinjiang University of China, China), Ablimit Mijit (Xinjiang University, China) .....	1995

## SLA-VII: Speech Separation and Tracking

<i>Analysis of Speech Separation Performance Degradation on Emotional Speech Mixtures</i>	
Jia Qi Yip (Nanyang Technological University & Alibaba Group, Singapore), Dianwen Ng (Nanyang Technological University & Alibaba Group, Singapore), Bin Ma (Alibaba Group, Singapore), Eng-Siong Chng (Nanyang Technological University, Singapore) .....	2002
<i>Geometrically Constrained Blind Moving Source Extraction Based on Constant Separation Vector and Auxiliary Function Technique</i>	
Ruifeng Zhang (Waseda University, Japan), Tetsuya Ueda (Waseda University, Japan), Shoji Makino (Waseda University, Japan) .....	2008
<i>Universal Sound Separation Using Replay-Based Data Sampling in Incremental Learning</i>	
Kanta Shimonishi (Ritsumeikan University, Japan), Takahiro Fukumori (Ritsumeikan University, Japan), Yoichi Yamashita (Ritsumeikan University, Japan) .....	2013
<i>Multiple Sound Source Tracking Based on Generative Modeling and Recursive Bayesian Filtering of Spatial Gradient Spectra</i>	
Keisuke Takazawa (Keio University, Japan), Hirokazu Kameoka (Nippon Telegraph and Telephone Corporation, Japan), Masahiro Yukawa (Keio University, Japan) .....	2019
<i>Spatially-Regularized Switching Independent Vector Analysis</i>	
Tetsuya Ueda (Waseda University, Japan), Tomohiro Nakatani (NTT Corporation, Japan), Rintaro Ikeshita (NTT Corporation, Japan), Shoko Araki (NTT Communication Science Laboratories, Japan), Shoji Makino (Waseda University, Japan) .....	2024

## High Performance Image and Video Processing and Applications

<i>ASF-LLRDA: Locality-Regularized Linear Regression Discriminant Analysis with Approximately Symmetrical Face Preprocessing for Face Recognition</i>	
Shintami Chusnul Hidayati (Institut Teknologi Sepuluh Nopember, Indonesia), Arya Widyadhana (Institut Teknologi Sepuluh Nopember, Indonesia), Yeni Anistyasari (Universitas Negeri Surabaya, Indonesia) .....	2031
<i>Joint Optimization Algorithm for Adaptive Bit Allocation Based on Temporal-Spatial Information</i>	
Shaokang Wang (Beijing University of Posts and Telecommunications, China), Sun Songlin (Beijing University of Posts and Telecommunications, China) .....	2037
<i>Maximization of 2D Cross-Correlation Based on Auxiliary Function Method for Image Alignment</i>	
Yuma Kinoshita (Tokai University, Japan), Kouei Yamaoka (Tokyo Metropolitan University, Japan), Hitoshi Kiya (Tokyo Metropolitan University, Japan) .....	2043
<i>Multitask Record for Badminton Match</i>	
Jing-Ming Guo (National Taiwan University of Science and Technology, Taiwan), Yu-Shun Huang (National Taiwan University of Science and Technology, Taiwan), Ting-Yu Chang (National Taiwan University of Science and Technology, Taiwan), Tai-Cyuan Ciou (National Taiwan University of Science and Technology, Taiwan), Yun-Ching Yeh (National Taiwan University of Science and Technology, Taiwan), Jeffrey Chen (National Taiwan University of Science and Technology, Taiwan) .....	2048
<i>Deep Residual and Classified Neural Networks for Inverse Halftoning</i>	
Jing-Ming Guo (National Taiwan University of Science and Technology, Taiwan), S Sankarasinivasan (National Taiwan University of Science and Technology, Taiwan), L v Hung (NTUST Taiwan, Taiwan) .....	2053

## Advanced Topics on Sound Event and Scene Analysis

<i>DOA-Aware Audio-Visual Self-Supervised Learning for Sound Event Localization and Detection</i>	
Yoto Fujita (Kyoto University, Japan), Yoshiaki Bando (National Institute of Advanced Industrial Science and Technology, Japan), Keisuke Imoto (Doshisha University, Japan), Masaki Onishi (AIST, Japan), Kazuyoshi Yoshii (Kyoto University & RIKEN, Japan) .....	2061
<i>Improving Sound Event Localization and Detection with Class-Dependent Sound Separation for Real-World Scenarios</i>	
Shi Cheng (University of Science and Technology of China, China), Jun Du (University of Science and Technology of China, China), Qing Wang (University of Science and Technology of China, China), Ya Jiang (University of Science and Technology of China, China), Zhaoxu Nian (University of Science and Technology of China, China), Shutong Niu (University of Science and Technology of China, China), Chin-Hui Lee (Georgia Institute of Technology, USA), Yu Gao (AI Innovation Center, Midea Group (Shanghai) Co., Ltd., China), Wenbin Zhang (AI Innovation Center, Midea Group (Shanghai) Co., Ltd., China) .....	2068

<i>Joint Analysis of Acoustic Scenes and Sound Events Based on Semi-Supervised Approach</i>	
Ami Igarashi (Doshisha University, Japan), Shunsuke Tsubaki (Doshisha University, Japan), Daisuke Niizumi (NTT Corporation, Japan), Daiki Takeuchi (NTT Corporation, Japan), Yasunori Ohishi (NTT Communication Science Laboratories, NTT Corporation, Japan), Noboru Harada (NTT, Japan), Keisuke Imoto (Doshisha University, Japan)	2074
<i>Cross-Domain Sound Recognition for Efficient Underwater Data Analysis</i>	
Jeongsoo Park (Cochl, Korea (South)), Hyoung Sul La (Korea Polar Research Institute, Korea (South)), Yoonchang Han (Cochl Inc, Korea (South))	2081
<i>Augmentation of Various Speed Data by Controlling Frame Overlap for Acoustic Traffic Monitoring</i>	
Tomohiro Takahashi (Tokyo Metropolitan University, Japan), Yuma Kinoshita (Tokai University, Japan), Natsuki Ueno (Tokyo Metropolitan University, Japan), Wakabayashi Yukoh (Toyohashi University of Technology & Tokyo Metropolitan University, Japan), Nobutaka Ono (Tokyo Metropolitan University, Japan), Jun Honda (NEXCO-EAST Engineering, Japan), Seishi Fukuma (NEXCO-EAST Engineering, Japan), Aoi Kitamori (NEXCO-EAST Engineering, Japan), Hiroshi Nakagawa (NEXCO-EAST Engineering, Japan)	2087

## Modern Signal Analysis and Representation Methods and Their Applications

<i>Distributed Computation of Heat Kernel Smoothing Using Series Expansion Method</i>	
Chien-Cheng Tseng (National Kaohsiung University of Science and Technology, Taiwan), Su-Ling Lee (Chang-Jung Christian University, Taiwan)	2092
<i>In-Air Handwriting for Chinese Character Recognition from Monocular Camera: A Deep Learning Based Approach with Fingertip Detection and Virtual Strokes Elimination</i>	
Chih Chang Yu (Chung Yuan Christian University, Taiwan), Zi Hang Huang (Chung Yuan Christian University, Taiwan), Hsu-Yung Cheng (National Central University, Taiwan)	2099
<i>EffSegmentNet: Efficient Design for Real-Time Semantic Segmentation</i>	
Cyun-Bo Wang (National Taiwan University, Taiwan), Jian-Jiun Ding (National Taiwan University, Taiwan)	2104
<i>Universal Optimal Parameters of the Closed-Form Linear Canonical Wigner Distribution</i>	
Zhichao Zhang (Nanjing University of Information Science and Technology, China)	2112
<i>Autoencoder-Enhanced Federated Learning with Reduced Overhead and Lower Latency</i>	
Chi-Kai Hsieh (National Yang Ming Chiao Tung University, Taiwan), Feng-Tsun Chien (National Yang Ming Chiao Tung University, Taiwan), Min-Kuan Chang (National Chung Hsing University, Taiwan)	2118

## Digital Convergence of 5G/B5G, AIoT and Security

<i>Deep Unfolding-Based Distributed MIMO Detection</i>	
Masaya Kumagai (Nagoya Institute of Technology, Japan), Ayano Nakai-Kasai (Nagoya Institute of Technology, Japan), Tadashi Wadayama (Nagoya Institute of Technology, Japan)	2124
<i>A Comparative Analysis of the Yolo Models for Intelligent Lobster Surveillance Camera</i>	
Fityanul Akhyar (Telkom University, Indonesia), Ledya Novamizanti (Telkom University, Indonesia), Koredianto Usman (Telkom University, Indonesia), Ghanes Mahesa Aditya (Telkom University, Indonesia), Farhan Nur Hakim (Telkom University, Indonesia), Mukhamad Zidni Ilman (Telkom University, Indonesia), Ferdi Ramdhon (PT. Aruna Jaya Nusantara, Indonesia), Chih-Yang Lin (National Central University, Taiwan)	2131
<i>A UAV Indoor Obstacle Avoidance System Based on Deep Reinforcement Learning</i>	
Lee Chung-Nan (National Sun Yat-Sen University, Taiwan), Chun-Huang Lo (National Sun Yat-Sen University, Taiwan)	2137
<i>Approximate Modeling of Malware Diffusion on Wireless Mobile Devices</i>	
Hideyoshi Miura (Kansai University, Japan), Shoya Abukawa (Kansai University, Japan), Tomotaka Kimura (Doshisha University, Japan), Kouji Hirata (Kansai University, Japan)	2144
<i>Impacts of 5G-TDD Time Slot Configurations on the Downlink and Uplink Data Rates</i>	
Wen-Ping Lai (Yuan-Ze University, Taiwan), Wen-Ru Chen (Yuan Ze University, Taiwan), Hong-Lun Lai (Yuan Ze University, Taiwan)	2149

## Recent Advances in Industry 4.0: Exploring New Technologies, Applications, and Best Practices

<i>Bearing Fault Diagnosis and Interpretation Based on 2D Images and Convolutional Neural Network</i>	
Zhenzhen Tian (Shandong Normal University, China), Xinyu Zhang (Shandong Normal University, China), Wei Yan (Shandong Normal University, China), Jihua Wang (Shandong Normal University, China)	2155
<i>Study on the Reduction of Background Fringes for Detect Detection on Specular Surface</i>	
An-Chi Wei (National Central University, Taiwan), Jyh-Rou Sze (Instrument Technology Research Center-NARL, Taiwan), Yi-Cheng Chang (National Central University, Taiwan)	2163

<i>On the Optimal Self-Supervised Multi-Fault Detector for Temperature Sensor Data</i>	
Latifa Nabila Harfiya (National Central University, Taiwan), Yan-Cheng Hsu (University of California, San Diego, USA), Yung-Hui Li (AI Research Center, Hon Hai Research Institute, Taiwan), Jia-Ching Wang (National Central University, Taiwan) .....	2168
<i>Application of Wafer Defect Pattern Classification Model in the Semiconductor Industry</i>	
Chin-Wei Lee (Soochow University, Taiwan), Daniel Hladek (Technical University of Kosice, Slovakia), Matus Pleva (Technical University of Kosice, Slovakia), Yuan-Fu Liao (National Yang Ming Chiao Tung University, Taiwan), Ming-Hsiang Su (Soochow University, Taiwan) .....	2173
<i>Question Answering System Based on Pre-Training Model and Retrieval Reranking for Industry 4.0</i>	
Ta-Fu Chen (National Central University, Taiwan), Yi-Xing Lin (National Central University, Taiwan), Ming-Hsiang Su (Soochow University, Taiwan), Po-Kai Chen (National Central University, Taiwan), Tzu-Chiang Tai (Providence University, Taiwan), Jia-Ching Wang (National Central University, Taiwan) .....	2178

## Recent Advances in Intelligent Signal Processing

<i>Deepfake-Speech Detection with Pathological Features and Multilayer Perceptron Neural Network</i>	
Anuwat Chaiwongyen (Japan Advanced Institute of Science and Technology, Japan), Suradej Duangpummet (National Science and Technology Development Agency, Thailand), Jessada Karnjana (National Science and Technology Development Agency, Thailand), Waree Kongprawechnon (SIIT, Thailand), Masashi Unoki (Japan Advanced Institute of Science and Technology, Japan) .....	2182
<i>Temporal and Type Correlation in Digital Phenotyping for Bipolar Disorder State Prediction Using Multitask Self-Supervised Learning</i>	
Jia-Hao Hsu (National Cheng Kung University, Taiwan), Hua-Wei Tseng (National Cheng Kung University, Taiwan), Chung-Hsien Wu (National Cheng Kung University, Taiwan), Esther Ching-Lan Lin (National Cheng Kung University, Taiwan), Po-See Chen (National Cheng Kung University, Taiwan) .....	2189
<i>Data Selection Based on Phoneme Affinity Matrix for Electrolarynx Speech Recognition</i>	
I-Ting Hsieh (National Cheng Kung University, Taiwan), Chung-Hsien Wu (National Cheng Kung University, Taiwan), Shu-Wei Tsai (National Cheng Kung University Hospital, Taiwan) .....	2196
<i>Reduction of Annotation Effort in Medical Image Analysis Based on Self-Supervised Learning</i>	
Kai-Hsuan Chan (Institute for Information Industry, Taiwan), Yi-Chong Zeng (Institute for Information Industry, Taiwan) .....	2203
<i>STUA-Net: A Fingerprint Reconstruction with Swin Transformer and Soft Collective Attention</i>	
Farchan Raswa (National Central University, Taiwan), Prabowo Yoga Wicaksana (National Central University, Taiwan), Wenny Ramadhya Putri (National Central University, Taiwan), Agus Harjoko (Universitas Gadjah Mada, Indonesia), Jia-Ching Wang (National Central University, Taiwan) .....	2209

## Advanced Topics for Automatic Speaker Recognition

<i>Coarse-Age Loss: A New Training Method Using Coarse-Age Labeled Data for Speaker Age Estimation</i>	
Yuki Kitagishi (NTT Corporation, Japan), Hosana Kamiyama (NTT Corporation, Japan), Naohiro Tawara (NTT Corporation, Japan), Atsunori Ogawa (NTT Corporation, Japan), Noboru Miyazaki (NTT Corporation, Japan), Taichi Asami (NTT Corporation, Japan) .....	2213
<i>Contribution of Modulation Spectral Features for Cross-Lingual Speech Emotion Recognition Under Noisy Reverberant Conditions</i>	
Taiyang Guo (Japan Advanced Institute of Science and Technology, Japan), Sixia Li (Japan Advanced Institute of Science and Technology, Japan), Shunsuke Kidani (Japan Advanced Institute of Science and Technology, Japan), Shogo Okada (Japan Advanced Institute of Science and Technology, Japan), Masashi Unoki (Japan Advanced Institute of Science and Technology, Japan) .....	2221
<i>Vocal Tract Length Perturbation-Based Pseudo-Speaker Augmentation for Speaker Embedding Learning</i>	
Tomoka Wakamatsu (Tokyo Metropolitan University, Japan), Sayaka Shiota (Tokyo Metropolitan University, Japan), Hitoshi Kiya (Tokyo Metropolitan University, Japan) .....	2228
<i>Automatic Call Classification of Autism Model Marmosets by Deep Learning and Analysis of Their Vocal Development</i>	
Minato Uesaka (Tokyo Metropolitan University, Japan), Hideto Kawauchi (Tokyo Metropolitan University, Japan), Kouei Yamaoka (Tokyo Metropolitan University, Japan), Wakabayashi Yukoh (Toyohashi University of Technology & Tokyo Metropolitan University, Japan), Yuma Kinoshita (Tokai University, Japan), Nobutaka Ono (Tokyo Metropolitan University, Japan), Jun Noguchi (National Center of Neurology and Psychiatry, Japan), Satoshi Watanabe (National Center of Neurology and Psychiatry, Japan), Noritaka Ichinohe (National Center of Neurology and Psychiatry, Japan), Seico Benner (National Institute for Environmental Studies & Hamamatsu University School of Medicine, Japan), Hidenori Yamasue (Hamamatsu University School of Medicine, Japan) .....	2233
<i>Cross-Domain Adaptation in Distance Space for Speaker Verification</i>	
Lu Yi (The Hong Kong Polytechnic University, Hong Kong), Man-wai Mak (Hong Kong Polytechnic University, Hong Kong) .....	2238

## AI in Earth and Environment

<i>Urban Noise Monitoring Using Edge Computing with CNN-LSTM on Jetson Nano</i>	
Bo Peng (The University of Auckland, New Zealand), Waleed H. Abdulla (The University of Auckland, New Zealand), Kevin I-Kai Wang (The University of Auckland, New Zealand) .....	2244
<i>Random Forest of Classification and Regression Tree (CART) in the Estimation of SWC Based on Meteorological Inputs and Hydrodynamics Behind</i>	
Tsung-Hsi Wu (National Central University, Taiwan), Pei-Yuan Chen (National Central University, Taiwan), Chien-Chih Chen (National Central University, Taiwan), Meng-Ju Chung (National Central University, Taiwan), Zheng-Kai Ye (National Central University, Taiwan), Ming-Hsu Li (National Central University, Taiwan) .....	2251

<i>A Framework for Reusing Earth Science Data on Data and Model Marketplaces</i>	2256
Chung-I Huang (National Center for High Performance Computing, Taiwan), Jih-Sheng Chang (National Center for High-performance Computing, Taiwan), Chen-Kai Sun (National Center for High-performance Computing, Taiwan), Tai-chi Wang (NCHC, Taiwan), Wei-Yu Chen (National Center for High-performance Computing, Taiwan), Hui Hung Yu (National Center for High-performance Computing, Taiwan), Wen-Yi Chang (High-Performance Computing National Applied Research Laboratories, Taiwan), Fang-Pang Lin (Narlabs, Taiwan)	
<i>Impact of the Weighted Loss Function on the Innovative CMAQ-CNN PM2.5 Forecasting Model</i>	2261
Yi-Ju Lee (National Central University, Taiwan), Fang-Yi Cheng (National Central University, Taiwan), Chih-Yung Feng (Manysplendid Infotech, Taiwan), Zhih-Min Yang (Manysplendid Infotech, Taiwan)	

## Poster Session V

<i>Jointly Modelling Transcriptions and Phonemes with Optimal Features to Detect Dementia from Spontaneous Cantonese</i>	2267
Xiaoquan Ke (The Hong Kong Polytechnic University, Hong Kong), Man Wai Mak (Hong Kong Polytechnic University, Hong Kong), Helen Meng (Chinese University of Hong Kong, Hong Kong)	
<i>Combining Multiple End-To-End Speech Recognition Models Based on Density Ratio Approach</i>	2274
Keigo Hojo (University of Technology, Japan), Daiki Mori (Toyoashi University of Technology, Japan), Wakabayashi Yukoh (Toyoashi University of Technology & Tokyo Metropolitan University, Japan), Kengo Ohta (National Institute of Technology, Anan College, Japan), Atsunori Ogawa (NTT Corporation, Japan), Norihide Kitaoka (Toyoashi University of Technology, Japan)	
<i>Speech-Emotion Control for Text-To-Speech in Spoken Dialogue Systems Using Voice Conversion and x-Vector Embedding</i>	2280
Shunichi Kohara (Okayama University, Japan), Masanobu Abe (Okayama University, Japan), Sunao Hara (Okayama University, Japan)	
<i>Narrow-Edged Acoustical Beamforming Utilizing Phase Inversion for Frequency Modulation-Based Parametric Array Loudspeaker</i>	2287
Yuting Geng (Ritsumeikan University, Japan), Masato Nakayama (Osaka Sangyo University, Japan), Takanobu Nishiura (Ritsumeikan University, Japan)	
<i>Corpus Construction for Deaf Speakers and Analysis by Automatic Speech Recognition</i>	2294
Akio Kobayashi (Yamato University, Japan), Keiichi Yasu (Tsukuba University of Technology, Japan)	
<i>Ensemble of Transformer and Convolutional Recurrent Neural Network for Improving Discrimination Accuracy in Automatic Chord Recognition</i>	2299
Hikaru Yamaga (Iwate Prefectural University, Japan), Toshifumi Momma (Japan), Kazunori Kojima (Iwate Prefectural University, Japan), Yoshiaki Itoh (Iwate Prefectural University, Japan)	
<i>Construction of Automatic Speech Recognition Model That Recognizes Linguistic Information and Verbal/Non-Verbal Phenomena</i>	2306
Nagito Shione (Toyoashi University of Technology, Japan), Norihide Kitaoka (Toyoashi University of Technology, Japan), Wakabayashi Yukoh (Toyoashi University of Technology & Tokyo Metropolitan University, Japan)	
<i>Exploring Isolated Musical Notes as Pre-Training Data for Predominant Instrument Recognition in Polyphonic Music</i>	2312
Lifan Zhong (The University of Tokyo, Japan), Erica Cooper (National Institute of Informatics, Japan), Junichi Yamagishi (National Institute of Informatics, Japan), Nobuaki Minematsu (The University of Tokyo, Japan)	
<i>Speech Quality Improvement Utilizing Out-Of-Focus Areas in Rolling-Shutter Video on Speech Extraction</i>	2320
Hayata Nakano (Ritsumeikan University, Japan), Tsubasa Yoshizawa (Ritsumeikan University, Japan), Yuting Geng (Ritsumeikan University, Japan), Kenta Iwai (Ritsumeikan University, Japan), Takanobu Nishiura (Ritsumeikan University, Japan)	
<i>Personalized Audio Quality Preference Prediction</i>	2326
Chung-Che Wang (National Taiwan University, Taiwan), Yu-Chun Lin (National Taiwan University, Taiwan), Yu-Teng Hsu (National Taiwan University, Taiwan), Jyh-Shing Jang (NTU, Taiwan)	
<i>AVATAR: Robust Voice Search Engine Leveraging Autoregressive Document Retrieval and Contrastive Learning</i>	2331
Yi-Cheng Wang (National Taiwan Normal University, Taiwan), Tzu-Ting Yang (National Taiwan Normal University, Taiwan), Hsin-Wei Wang (National Taiwan Normal University, Taiwan), Bi-Cheng Yan (National Taiwan Normal University, Taiwan), Berlin Chen (National Taiwan Normal University, Taiwan)	
<i>Regression-Based Sound Event Detection with Semi-Supervised Learning</i>	2336
Chia-Chuan Liu (National Sun Yat-sen University, Taiwan), Chia-Ping Chen (National Sun Yat-Sen University, Taiwan), Chung-Li Lu (Chunghwa Telecom Laboratories, Taiwan), Bo-Cheng Chan (Chunghwa Telecom Laboratories, Taiwan), Yu-Han Cheng (Chunghwa Telecom Laboratories, Taiwan), Hsiang-Feng Chuang (Chunghwa Telecom Laboratories, Taiwan), Wei-Yu Chen (Chunghwa Telecom Laboratories, Taiwan)	
<i>Proportionate NLMS with Variable Step-Size for Adaptive Feedback Cancellation in Hearing Aids</i>	2343
Linh T. T. Tran (Posts and Telecommunications Institute of Technology, Vietnam), Felix Albu (Valahia University of Targoviste, Romania), Hieu Nguyen (PTIT University, Vietnam), Nordholm Sven (Curtin University of Technology, Australia)	
<i>Residual Echo Suppression Using Spatial Feature for Stereo Acoustic Echo Cancellation</i>	2349
Hsuan-Cheng Chou (National Yang Ming Chiao Tung University, Taiwan), Yih Liang Shen (National Yang Ming Chiao Tung University, Taiwan), Meng-Hsuan Wu (National Yang Ming Chiao Tung University, Taiwan), Bo-Wun Shih (Realtek Semiconductor Corporation, Taiwan), Tai-Shih Chi (National Chiao Tung University, Taiwan)	
<i>Multitaper Adaptive Time-Frequency Windowed Fourier Transform Based on the Reliable Region of Window Widths</i>	2354
Jen-Chieh Cheng (National Taiwan University, Taiwan), Jian-Jiun Ding (National Taiwan University, Taiwan)	
<i>Enhancing Retinal Disease Classification with Dual Scale Twin Vision Transformers Using OCT Imaging</i>	2362
Prakash Kumar Karn (University of Auckland, New Zealand), Waleed H. Abdulla (The University of Auckland, New Zealand)	
<i>Classification of Infant Sleep/Wake States: Cross-Attention Among Large Scale Pretrained Transformer Networks Using Audio, ECG, and IMU Data</i>	2370
Kai Chieh Chang (University of Illinois at Urbana-Champaign, USA), Mark Hasegawa-Johnson (University of Illinois, USA), Nancy McElwain (University of Illinois Urbana-Champaign, USA), Bashima Islam (Worcester Polytechnic Institute, USA)	



<i>Dynamic Characteristics of Electroencephalogram Reflecting Driving-Experience-Dependent Performance Using Microstates</i> Yuta Iinuma (Chiba Institute of Technology, Japan), Takuto Ozawa (Chiba Institute of Technology, Japan), Sou Nobukawa (Chiba Institute of Technology, Japan), Nobuhiko Wagatsuma (Toho University, Japan), Keiichiro Inagaki (Chubu University, Japan) .....	2378
<i>Quefreny Domain Features with Residual Networks for Spoof Speech Detection</i> Madhu R Kamble (Samsung Research and Development Institute Bangalore India & Samsung India, India) .....	2384
<i>PDF-NET: Pitch-Adaptive Dynamic Filter Network for Intra-Gender Speaker Verification</i> Zhenyu Piao (Yonsei University, Korea (South)), Hyungseob Lim (Yonsei University, Korea (South)), Miseul Kim (Yonsei University, Korea (South)), Hong-Goo Kang (Yonsei University, Korea (South)) .....	2390
<i>Subjective Evaluation of a Focused Sound Source Reproducing at the Positions of a Listener's Moving Hand</i> Miho Hirohashi (The University of Electro-Communications, Japan), Yoichi Haneda (The University of Electro-Communications, Japan) .....	2395
<i>Time Sensitive Hash and Adaptive Image Recovery Based Self-Embedding Fragile Watermarking Scheme in Encrypted Images</i> Xin Wang (Southwest Jiaotong University, China), Hongjie He (Southwest Jiaotong University, China), Fan Chen (Southwest Jiaotong University, China) .....	2402
<i>Multi-Granularity Semantic and Acoustic Stress Prediction for Expressive TTS</i> Xiaoqin Feng (Shanghai Mobvoi Information Technology Co., Ltd, China), Yunlin Chen (Shanghai Mobvoi Information Technology, China), Wenjiang Chi (Shanghai Mobvoi Information Technology, China), Liumeng Xue Xue (Audio Speech and Language Processing Group, China), Lei Xie (Northwestern Polytechnical University, China), Zhifei Li (Shanghai Mobvoi Information Technology, China) .....	2409
<i>NADiffuSE: Noise-Aware Diffusion-Based Model for Speech Enhancement</i> Wen Wang (PeKing University, China), Dongchao Yang (PeKing University, China), Qichen Ye (PeKing University, China), Bowen Cao (PeKing University, China), Yuxian Zou (Peking University, China) .....	2416
<i>Multi-Accent Pronunciation Assessment Based on Domain Adversarial Training</i> Binghuai Lin (Tencent, China), Liyuan Wang (Tencent, China) .....	2424
<i>GAN-Based Time-Domain Packet Loss Concealment Method with Consistent Mapping Approach</i> Yunhao Zhao (Beijing University of Technology, China), Changchun Bao (Beijing University of Technology, China), Xue Yang (Beijing University of Technology, China), Jing Zhou (Beijing University of Technology, China) .....	2429
<i>MHM-Based Reversible Data Hiding with Adaptive Feature Selection</i> Shaowei Weng (Fujian University of Technology, China), Tanshuai Hou (Fujian University of Technology, China), Haiyang Rao (Fujian University of Technology, China) .....	N/A
<i>Feature Selection Based on Clonal Selection Algorithm for Image Steganalysis</i> Yu Liu (Sichuan University, China), Hongxia Wang (Sichuan University, China) .....	2441
<i>ScaleFormer: Transformer-Based Speech Enhancement in the Multi-Scale Time Domain</i> Tianci Wu (College of Computer Science, Inner Mongolia University, China, USA), Shulin He (Inner Mongolia University, China) .....	2448
<i>UniVR: A Unified Framework for Pitch-Shifted Voice Restoration in Speaker Identification</i> Yangfu Li (Huaqiao University, China), Xiaodan Lin (Huaqiao University, China) .....	2454