T1 Advancements in AI: Transformers, Media Forensics and Cybersecurity

101AB
09:30-11:30

SPEAKERS

Jun-Wei Hsieh, National Yang-Ming Chiao-Tung University, Taiwan

Ming-Ching Chang, University at Albany, State University of New York, USA

T2 Defending against Misinformation in the Wild

101CD
09:30-11:30

SPEAKERS

Chih-Chung Hsu, National Cheng Kung University, Taiwan

Cheng-Te Li, National Cheng Kung University, Taiwan

Jun-Cheng Chen, Academia Sinica, Taiwan

T3 Deep Learning Beyond Curve Fitting - Understanding Bias and Fairness in Computer Vision in the Era of DALL-E and chatGPT

101AB
13:00-15:00

SPEAKERS

Arghya Pal, Monash University Malaysia, Malaysia

Sailaja Rajanala, Monash University Malaysia, Malaysia

Ai-Fang Chai, Monash University Malaysia, Malaysia

T4 Advances in Psychoacoustics and Machine Learning towards Objective Speech Intelligibility Evaluation

101CD
13:00-15:00

SPEAKERS

Fei Chen, Southern University of Science and Technology (SUSTech), China

Yu Tsao, Academia Sinica, Taiwan

T5 Spoofing Face Recognition Systems with Adversarial Examples: Challenges and Countermeasures

101AB
15:30-17:30

SPEAKERS

Mehul S Raval, Ahmedabad University, India

Minoru Kuribayashi, Tohoku University, Japan

Mohendra Roy, Pandit Deendayal Energy University, India

WS Winter School
Chair: Mu-Yen Chen (National Cheng Kung University, Taiwan)

102

09:20-09:30

Opening

Mu-Yen Chen (National Cheng Kung University, Taiwan)

WS 1   09:30-10:30

How far are we from a speech version of ChatGPT?

Hung-Yi Lee, National Taiwan University, Taiwan

WS 2   10:30-11:30

Energy-Efficient Generative AI Future: Low-Power Applications of ADI Max78000

Neal Huang, Analog Devices, Inc., Taiwan

WS 3   13:00-14:00

Deep Regression for Spectral Mapping with Applications to Speech Enhancement, Source Separation and Speech Dereverberation

Chin-Hui Lee, Georgia Institute of Technology, USA

WS 4   14:00-15:00

Metaverse as AI Embodiment: Techniques, Impact, and Research Opportunities

Mario Koeppen, Kyushu Institute of Technology, Japan

WS 5   14:00-15:00

Deep Learning in Image Processing and Computer Vision

Chunghui Kuo, Editor-in-Chief, Journal of Imaging Science and Technology, Society for Imaging Science and Technology, USA

A1   Biomedical Signal Processing and Systems   101AB

Chair: Kiyoshi Nishikawa (Tokyo Metropolitan University, Japan)

A1-1   10:20

Mixed Emotion Recognition Based on EEG Signals

Guanxiong Pei (Zhejiang Lab, China); Bingjie Li (National University of Singapore, China); Taihao Li (Zhejiang Lab, China); Cunhang Fan, Chao Zhang and Zhao Lv (Anhui University, China)

A1-2   10:40

Attention-Based CNN and Relative Phase Feature Modeling for Improved Imagined Speech Recognition

Yoshiki Niimura, Jun Takemoto and Atsuhiko Kai (Shizuoka University, Japan); Seiichi Nakagawa (Chubu University, Japan)

A1-3   11:00

Manipulation of Neuronal Network Firing Patterns Using Temporal Deep Unfolding-Based MPC

Jumpei Aizawa and Masaki Ogura (Osaka University, Japan); Masanori Shimono (Kyoto University, Japan); Naoki Wakamiya (Osaka University, Japan)

A1-4   11:20

Goodness of Fit to the Convolution Model of fMRI Data and Determination of the Regularization Parameter

Wakako Nakamura (Shimane University, Japan)

A1-5   11:40

Detection Model of Sister Chromatid Cohesion Defects Based on Vision Transformer

Shinya Matsumoto, Kan Okubo, Kiyoshi Nishikawa and Takuya Abe (Tokyo Metropolitan University, Japan)

B1   Data Analytics and Machine Learning   101C

Chair: Zixiang Xiong (Texas A&M University, USA) / Heri Prasetyo (Universitas Sebelas Maret, Indonesia)

B1-1   10:20

GRALA: Modeling Social Information for Microblog Sentiment Analysis from the View of Balancing Sparsity and Smoothness of Social Contexts

Xiaomei Zou (Zhejiang Lab, China); Shiyong Hu (Hangzhou Applied Acoustics Research Institute, China); Taihao Li (Zhejiang Lab, China)

B1-2   10:40

Adopting Neural Translation Model in Data Generation for Inverse Text Normalization

Yufei Jiang, Thi-Nga Ho and Eng-Siong Chng (Nanyang Technological University, Singapore)

B1 Data Analytics and Machine Learning   101C

Chair: Zixiang Xiong (Texas A&M University, USA) / Heri Prasetyo (Universitas Sebelas Maret, Indonesia)

B1-3   11:00

Mismatched Semi-Supervised Learning with Feature Similarity Consistency

Zechen Liang and Yuan-Gen Wang (Guangzhou University, China)

B1-4   11:20

Collaborative Pseudo Labeling for Prompt-Based Learning

Jen-Tzung Chien and Chien-Ching Chen (National Yang Ming Chiao Tung University, Taiwan)

B1-5   11:40

Learning Meta Soft Prompt for Few-Shot Language Models

Jen-Tzung Chien and Ming-Yen Chen (National Yang Ming Chiao Tung University, Taiwan); Jing-Hao Xue (University College London, United Kingdom (Great Britain))

C1 Deep Learning: Algorithm, Implementations, and Applications   101D

Chair: Yao-Chung Chang (National Taitung University, Taiwan) / Woon-Seng Gan (Nanyang Technological University, Singapore)

C1-1   10:20

MSDF-Net: A Multi-Scale Deep Fusion Network with Dilated Convolutions for Cloud Removal from Sentinel-2 Imagery

Jayakrishnan A and Venkatesan M (National Institute of Technology Puducherry, India); Prabhavathy Panneer (VIT University, India); Alkha Mohan (Indian Institute of Information Technology Tiruchirappalli, India)

C1-2   10:40

Instance Implant-Aided Non-Uniformly Cropping for Person Detection in Aerial Images

Xiangqing Zhang (Northwestern Polytechnical University & Yan'an University, China); Yan Feng (Northwestern Polytechnical University, China)

C1-3   11:00

Addressing Distortion in Social Distance Monitoring: Calibration for Accurate Distance Calculation

Yi Pei Ng, Chi Wee Tan, Ts. and Yiqi Tew (Tunku Abdul Rahman University of Management and Technology, Malaysia)

C1-4   11:20

Unbiased Decision-Making Framework in Long-Video Macro & Micro-Expression Spotting

Pei Sze Tan, Sailaja Rajanala, Arghya Pal, Raphael C.-W. Phan and Huey Fang Ong (Monash University Malaysia, Malaysia)

D1   Recent Advances on Speech Preprocessing in Multi-Speaker Scenarios   102

Chair: Jun Du (University of Science and Technology of China, China) / Yu Tsao (Academia Sinica, Taiwan)

D1-1   10:20

Adaptive Beamforming Based on Interference-Plus-Noise Covariance Matrix Reconstruction for Speech Separation

Yongxiong Xiao, Shiqiang Zhu, Te Li, Minhong Wan and Wei Song (Zhejiang Lab, China); Jason Gu (Dalhousie University, Canada); Qiang Fu (Zhejiang Lab, China)

D1-2   10:40

Correlated Multi-Level Speech Enhancement for Robust Real-World ASR Applications Using Mask-Waveform-Feature Optimization

Hang Chen, Jun Du, Zhe Wang and Chenxi Wang (University of Science and Technology of China, China); Yuling Ren, Qinglong Li and Ruibo Liu (China Mobile Online Services Company Limited, China); Chin-Hui Lee (Georgia Institute of Technology, USA)

D1-3   11:00

CASA-Net: Cross-Attention and Self-Attention for End-To-End Audio-Visual Speaker Diarization

Haodong Zhou, Tao Li, Jie Wang, Li Lin and Qingyang Hong (Xiamen University, China)

D1-4   11:20

Enhanced Neural Beamformer with Spatial Information for Target Speech Extraction

Aoqi Guo (Ocean University of China, China); Junnan Wu, Peng Gao and Wenbo Zhu (Xiaomi Corporation, China); Qinwen Guo and Gao Da Zhi (Ocean University of China, China); Yujun Wang (Xiaomi Corporation, China)

D1-5   11:40

Low-Complexity Multi-Channel Speaker Extraction with Pure Speech Cues

Bang Zeng (Wuhan University & Duke Kunshan University, China); Hongbin Suo and Yulong Wan (OPPO, China); Ming Li (Duke Kunshan University, China)

E1 SLA-I: Speaker Recognition and Spoken Language Identification 201A
Chair: Man-Wai Mak (The Hong Kong Polytechnic University, Hong Kong)

E1-1 10:20

Modeling Suprasegmental Information Using Finite Difference Network for End-To-End Speaker Verification

Jin Li and Man Wai Mak (The Hong Kong Polytechnic University, Hong Kong); Nan Yan and Lan Wang (Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China)

E1-2 10:40

Relevance of Quadrature Phase for Replay Detection in Voice Assistants (VAs)

Priyanka Gupta, Piyushkumar K. Chodingala and Hemant A. Patil (Dhirubhai Ambani Institute of Information and Communication Technology, India)

E1-3 11:00

Exploring Residual Cepstral Features for Spoken Language Identification

Baveet Singh Hora, Krishna Parmar, Shrey Machhar and Hemant A. Patil (Dhirubhai Ambani Institute of Information and Communication Technology, India); Kiran Praveen and Balaji Radhakrishnan (Samsung Research Institute, Bangalore, India)

E1-4 11:20

Consideration of Varying Training Lengths for Short-Duration Speaker Verification

WooSeok Ko, Seyun Um, Zhenyu Piao and Hong-Goo Kang (Yonsei University, Korea)

E1-5 11:40

Adversarial Robustness of Mel Based Speaker Recognition Systems

Ritu Srivastava, Saiteja Kosgi, Sarath Sivaprasad Neha Sahipjohn and Vineet Gandhi (IIIT Hyderabad, India)

F1 SLA-II: Music Information Processing 201B
Chair: Hideki Kawahara (Wakayama University, Japan)

F1-1 10:20

Joint Drum Transcription and Metrical Analysis Based on Periodicity-Aware Multi-Task Learning

Daichi Kamakura and Eita Nakamura (Kyoto University, Japan); Kazuyoshi Yoshii (Kyoto University & RIKEN, Japan); Takehisa Oyama (Kyoto University, Japan)

F1-2 10:40

CTC2: End-To-End Drum Transcription Based on Connectionist Temporal Classification with Constant Tempo Constraint

Daichi Kamakura and Eita Nakamura (Kyoto University, Japan); Kazuyoshi Yoshii (Kyoto University & RIKEN, Japan)

F1   SLA-II: Music Information Processing   201B
Chair: Hideki Kawahara (Wakayama University, Japan)

F1-3   11:00

Learning Multifaceted Self-Similarity for Musical Structure Analysis

Tsung-Ping Chen (Kyoto University, Japan); Li Su (Academia Sinica, Taiwan); Kazuyoshi Yoshii (Kyoto University & RIKEN, Japan)

F1-4   11:20

Simultaneous Measurement of Multiple Acoustic Attributes Using Structured Periodic Test Signals Including Music and Other Sound Materials

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)

G1   Advanced Biomedical Signal Processing (I): Human Well-Being   201C
Chair: Yumie Ono (Meiji University, Japan)

G1-1   10:20

Cognitive Assessment of Autism Spectrum Disorder Using an EEG-Based Social Interaction Platform

Yi-Li Tseng (National Sun Yat-sen University, Taiwan)

G1-2   10:40

Gait Analysis in Powered Exoskeleton-Assisted Walking in Patients with Stroke: A Case Series Cohort

Jian-Jia Huang and 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)

G1-3   11:00

Prediction Model of Postoperative Pain Exacerbation Using a Wearable Electrocardiogram Sensor

Toshiyuki Nakanishi (Nagoya City University & Nagoya University, Japan); Koichi Fujiwara (Nagoya University, Japan); Kazuya Sobue (Nagoya City University, Japan)

G1-4   11:20

Directional Neural Connectivity During Robot Mirror Therapy in Patients with Stroke

Yuma Kanaizuka and 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); Yumie Ono (Meiji University, Japan)

G1   Advanced Biomedical Signal Processing (I): Human Well-Being   201C
Chair: Yumie Ono (Meiji University, Japan)

G1-5   11:40

Evaluation of Neural Response Recorded Using Scalp EEG in Virtual Reality Environment

Noriaki Kanayama (AIST, Japan); Makoto Miyakoshi (Swartz Center for Neural Computation, Institute for Neural Computation, University of California San Diego); Maro G Machizawa (Hiroshima University, Japan & Xiberlinc Inc., Japan)

H1   Advanced Information Processing Technologies for Human and World   201D
Chair: Te-Chuan Chiu (National Tsing Hua University, Taiwan)

H1-1   10:20

Machine Learning Based Action Recognition with Modular CNN

Shi-Zong Huang, Ching-Te Chiu and Yu-Jen Chang (National Tsing Hua University, Taiwan)

H1-2   10:40

Real-Time Processing for Weighted Pulse Decomposition of Photoplethysmography Signals Based on Interior Point Method in Wearable Devices for Hemodynamic State

Ting-Jui Wong and Pei-Yun Tsai (National Central University, Taiwan)

H1-3   11:00

QoS-Aware Downlink Beamforming for Joint Transmission in Multi-Cell Networks

Chen-Yen Lin (MediaTek Inc., Taiwan); Kuang-Hao (Stanley) Liu (National Tsing Hua University, Taiwan)

H1-4   11:20

Deep-Learning-Based Lattice Reduction Preprocessing for Time-Correlated MIMO Systems

Yi-Mei Li, Jung-Chun Chi and Yuan-Hao Huang (National Tsing Hua University, Taiwan)

H1-5   11:40

Utilizing Unlabeled Data and Synthetic Data for Bird Sound Detection: Consistency Training, Mean Teacher, and Domain Adaptation Techniques

Fang-Ching Chen and Yi-Wen Liu (National Tsing Hua University, Taiwan)

I1 Selected Papers from APSIPA Workshop in Bandung, Indonesia (I) 201E
Chair: Trio Adiono (Institut Teknologi Bandung, Indonesia)

I1-1 10:20
A Comparative Evaluation of Video Codecs for rPPG-Based Heart Rate Estimation

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)

I1-2 10:40
Human Activity Recognition Based on FMCW Radar Using CNN and Transfer Learning

Listi R Triani and Nur Ahmadi (Bandung Institute of Technology, Indonesia); Trio Adiono (STEI ITB, Indonesia)

I1-3 11:00
DQN Algorithm Design for Fast Efficient Shortest Path System

A Sumarudin (Institut Teknologi Bandung, Indonesia & Politeknik Negeri Indramayu, Indonesia); Nana Sutisna (Institut Teknologi Bandung, Indonesia); Infall Syafalni (Bandung Institute of Technology, Indonesia); Trio Adiono (Institut Teknologi Bandung, Indonesia)

I1-4 11:20
Comparison of MPPT Based on Deep Reinforcement Learning by DQN, DDPG and TD3

Jayandi S Panggabean (Institut Teknologi Bandung & Calvin Institute of Technology, Indonesia); Trio Adiono and Nana Sutisna (Institut Teknologi Bandung, Indonesia); Infall Syafalni (Bandung Institute of Technology, Indonesia)

I1-5 11:40
Signal Quality Assessment for Wearable Multichannel Photoplethysmography Signals

Muhammad Dzaky Prihatmoko and 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)

J1 Selected Papers from APSIPA Workshop in Hanoi, Vietnam (I) 201F

Chair: Nguyen Linh Trung (Vietnam National University, Hanoi, Vietnam)

J1-1 10:20

After-Fatigue Condition: A Novel Analysis Based on Surface EMG Signals

Hieu Van Nguyen (Phenikaa University, Vietnam); Thien Gia Luu (HUTECH University, Vietnam); Thien Van Luong and Trang Xuan Mai (Phenikaa University, Vietnam); Philippe Ravier and Olivier Buttelli (Université d'Orléans, France)

J1-2 10:40

On the Semi-Blind Mutually Referenced Equalizers for MIMO Systems

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)

J1-3 11:00

Accurate Continuous Action and Gesture Recognition Method Based on Skeleton and Sliding Windows Techniques

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, HUST, Vietnam)

J1-4 11:20

Transformer-Based Deep Learning Detector for Dual-Mode Index Modulation 3D-OFDM

Toan Gian and 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)

J1-5 11:40

GAFormer: Wearable IMU-Based Human Activity Recognition with Gramian Angular Field and Transformer

Nguyen Thai Khanh (Hanoi University of Science and Technology, Viet Nam); 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)

A2 IVM-1: Multimedia Content Analysis and Assessment 101AB

Chair: Sanghoon Lee (Yonsei University, Korea) / Michiharu Niimi (Kyushu Institute of Technology, Japan)

A2-1 15:00

CH-MEAD: A Chinese Multimodal Conversational Emotion Analysis Dataset with Fine-Grained Emotion Taxonomy

Yu-Ping Ruan and Taihao Li (Zhejiang Lab, China)

A2-2 15:20

Evolutionary Analysis and Cultural Transmission Models of Color Style Distributions in Painting Arts

Eita Nakamura (Kyoto University, Japan); Yasuyuki Saito (National Institute of Technology, Kisarazu College, Japan)

A2-3 15:40

Ultimatelink Between Characters Having a Certain Meaning in Physical Space to URL in Cyberspace with Robust Print and Scan

Keiji Yamadera and Michiharu Niimi (Kyushu Institute of Technology, Japan)

A2-4 16:00

Human Flow Measurement System Using Floor Estimation of Depth Images for Low-End IoT Devices

Takuya Nagatoshi and Michiharu Niimi (Kyushu Institute of Technology, Japan)

A2-5 16:20

Holo-QoI: A Human Factor-Based Dataset and Prediction Framework for Assessing Quality of Interaction in Augmented Reality

Seongjean Kim, Seonghwa Choi and Sanghoon Lee (Yonsei University, Korea)

B2 Advanced Biomedical Signal Processing (II): Brain Signal Processing 101C and Analysis

Chair: Yumie Ono (Meiji University, Japan)

B2-1 15:00

Supervised Single-Channel EEG Decomposition Using Detector-Kernel Networks for Noise Reduction

Hiroshi Higashi (Osaka University, Japan)

B2 Advanced Biomedical Signal Processing (II): Brain Signal Processing and Analysis 101C

Chair: Yumie Ono (Meiji University, Japan)

B2-2 15:20

Cross-Subject Classification of Spoken Mandarin Vowels and Tones with EEG Signals: A Study of End-To-End CNN with Fine-Tuning

Xinyu Wang, Mingtao Li and 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)

B2-3 15:40

Decoding Time-Course of Saliency Network of fMRI Signals by EEG Signals Using Optimized Forward Variable Selection: A Concurrent EEG-fMRI Study

Tung Dang, Kentaro Ono, Takafumi Sasaoka and Shigeto Yamawaki (Hiroshima University, Japan); Maro G Machizawa (Hiroshima University, Japan & Xiberlinc Inc., Japan)

B2-4 16:00

Multimodal Recognition of Speech and Electrocorticogram

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)

C2 Multimedia Security and Privacy in the Age of Deep Learning 101D

Chair: Maung Maung April Pyone (National Institute of Informatics, Japan)

C2-1 15:00

A Reversible Image Processing Method for Color Tone Control Using Data Hiding

Daichi Nakaya (University of Chiba, Japan); Shoko Imaizumi (Chiba University, Japan)

C2-2 15:20

Image-Text Out-Of-Context Detection Using Synthetic Multimodal Misinformation

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, Japan)

November 1 (Wednesday) 15:00-17:00

C2 Multimedia Security and Privacy in the Age of Deep Learning 101D
Chair: Maung Maung April Pyone (National Institute of Informatics, Japan)

C2-3   15:40

Gait Recognition Scheme Focusing on Operating Characteristics at Feature Points Detected by OpenPose

Chinatsu Tanaka (Okayama University, Japan); Minoru Kuribayashi (Tohoku University, Japan); Nobuo Funabiki (Okayama University, Japan)

C2-4   16:00

A Study on Eliminating Biased Node in Federated Learning

Reon Akai (Okayama University, Japan); Minoru Kuribayashi (Tohoku University, Japan); Nobuo Funabiki (Okayama University, Japan)

C2-5   16:20

Can StArtGAN Withstand Image Processing Attacks?

Ng Koi Yee and Simying Ong (University of Malaya, Malaysia); Yuen Peng Loh (Multimedia University, Malaysia)

C2-6   16:40

Enhancing Privacy Preservation with Quantum Computing for Word-Level Audio-Visual Speech Recognition

Chang Wang, Jun Du, Hang Chen and Ruoyu Wang (University of Science and Technology of China, China); Chao-Han Huck Yang (Georgia Institute of Technology, USA); Jiangjiang Zhao, Yuling Ren and Qinglong Li (China Mobile Online Services Company Limited, China); Chin-Hui Lee (Georgia Institute of Technology, USA)

D2 The Intersection of AI and Computer Vision: Advancements and Opportunities 102
Chair: Yuen Peng Loh (Multimedia University, Malaysia) / Sue-Han Lee (Swinburne University of Technology, Malaysia)

D2-1   15:00

Interpretable Image Recognition in Hyperbolic Space

Irina Lebedeva, Mohamed Jaward Bah and Taihao Li (Zhejiang Lab, China)

D2-2   15:20

Low-Light is More than Darkness: An Empirical Study on Illumination Types and Enhancement Methods

Hui Sze Liew (Universiti Malaya, Malaysia); Yuen Peng Loh (Multimedia University, Malaysia); Simying Ong (University of Malaya, Malaysia)

D2　The Intersection of AI and Computer Vision: Advancements and Opportunities　　102

Chair: Yuen Peng Loh (Multimedia University, Malaysia) / Sue-Han Lee (Swinburne University of Technology, Malaysia)

D2-3　15:40

MoMo Strategy: Learn More from More Mistakes

Sophia Chulif (Swinburne University of Technology Sarawak Campus, Malaysia); Sue Han Lee (Swinburne University of Technology, Malaysia); Yang Loong Chang (Neuon 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)

D2-4　16:00

Unveiling Robust Feature Spaces: Image vs. Embedding-Oriented Approaches for Plant Disease Identification

Sue Han Lee, Hamza Ahmed Ishrat and Abel Yu Hao Chai (Swinburne University of Technology, Malaysia); Patrick Then (Swinburne University of Technology Sarawak Campus, Malaysia)

D2-5　16:20

Facial Expression Recognition as Markers of Depression

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)

D2-6　16:40

How Transferable are Herbarium-Field Features in Few-Shot Plant Identification with Triplet Loss?

Sophia Chulif (Swinburne University of Technology Sarawak Campus, Malaysia); Sue Han Lee (Swinburne University of Technology, Malaysia); Yang Loong Chang (Neuon 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)

IF1　Industrial Forum　　201A

Chair: Gwo-Giun Lee (National Central University, Taiwan) / Arun Kumar Sangaiah (National Yunlin University of Science & Technology, Taiwan)

F1-1

Machine Learning for Healthcare Applications

Stefan Winkler (Research Director, Asus Intelligent Cloud Services (AICS), Singapore / Associate Professor, National University of Singapore (NUS), Singapore)

IF1-2

AI - Global Trends and Opportunities

Karthi Madhavan (Country Head, Tata Consultancy Services, Taiwan)

BS1 Best Paper Competition   201B

Chair: Ching-Te Chiu (National Tsing Hua University, Taiwan) / Jia-Ching Wang (National Central University, Taiwan) / Toshihisa Tanaka (Tokyo University of Agriculture and Technology, Japan)

BS1-1   15:00

Enhancing Real-Time Semantic Segmentation with Textual Knowledge of Pre-Trained Vision-Language Model: A Lightweight Approach

Chia-Yi Lin (National Taiwan University, Taiwan); Jun-Cheng Chen (Academia Sinica, Taiwan); Ja-Ling Wu (National Taiwan University, Taiwan)

BS1-2   15:20

EEG Study on Anticipation of Difficulty for Upcoming Auditory Task

Song Zichen (Kyoto University, Japan); Hiroshi Higashi (Osaka University, Japan); Ishii Shin (Kyoto University, Japan)

BS1-3   15:40

Event-Related Potential in Rapid Serial Visual Presentation-Based Partial Face Cognition Depends on Visible Face Components

Ingon Chanpornpakdi and Toshihisa Tanaka (Tokyo University of Agriculture and Technology, Japan)

BS1-4   16:00

Residual, Mixer, and Attention: The Three-Way Combination for Streaming Wake Word Detection Framework

Sattaya Singkul (Kasikorn Business Technology Group, Thailand); Theerat Sakdejayont (Kasikorn Labs, Thailand); Tawunrat Chalothorn (Kasikorn Labs Kasikorn Business-Technology Group, Thailand)

BS1-5   16:20

Audio-To-Score Singing Transcription Based on Joint Estimation of Pitches, Onsets, and Metrical Positions with Tatum-Level CTC Loss

Tengyu Deng and Eita Nakamura (Kyoto University, Japan); Kazuyoshi Yoshii (Kyoto University & RIKEN, Japan)

BS1-6   16:40

Mask2Hand: Learning to Predict the 3D Hand Pose and Shape from Shadow

Li-Jen Chang, Yu-Cheng Liao and 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)

G2 Advanced Image and Video Processing Using Deep Learning 201C
Chair: Chul Lee (Dongguk University, Korea)

G2-1 15:00

Resolution-Adaptive Lossless Image Compression Using Frequency Decomposition Network

Hochang Rhee and Nam Ik Cho (Seoul National University, Korea)

G2-2 15:20

Implementation and Analysis on Backpropagating Refinement Scheme for Interactive Image Segmentation

Chaewon Lee (Korea University, Korea (South)); Won-Dong Jang (Korea University & Media Communications Lab, Korea (South)); Chang-Su Kim (Korea University, Korea (South))

G2-3 15:40

Implicit Neural Representation for Video Coding Through Progressive Feature Extraction

Jihoo Lee and Jewon Kang (Ewha Womans University, Korea)

G2-4 16:00

Deep Unfolded Underwater Image Enhancement Based on Extreme Channels Prior

Thuy T. Pham, Truong T. N Mai and Chul Lee (Dongguk University, Korea)

G2-5 16:20

Low-Light Image Enhancement via Distillation of NIR-To-RGB Conversion Knowledge

Young-Min Jeong, Tae-Sung Park, Jeong-Hyeok Park and Jong-Ok Kim (Korea University, Korea)

G2-6 16:40

3D Human Skeleton Estimation from Single RGB Image Based on Fusion of Predicted Depths from Multiple Virtual-Viewpoints

Wen-Nung Lie and Veasna Vann (National Chung Cheng University, Taiwan)

H2 Advanced Learning-based Computer Vision Technologies 201D
Chair: Chen-Kuo Chiang (National Chung Cheng University, Taiwan)

H2-1 15:00

GNN-Based Small-Data Learning with Area-Control Mechanism for Hyperspectral Satellite Change Detection

Tzu-Hsuan Lin, Chia-Hsiang Lin and Si-Sheng Young (National Cheng Kung University, Taiwan)

H2 — Advanced Learning-based Computer Vision Technologies 201D
Chair: Chen-Kuo Chiang (National Chung Cheng University, Taiwan)

H2-2   15:20

Efficient Constraint-Aware Neural Architecture Search for Object Detection

Wei-Jie Hung, Egor Poliakov and Ching-Chun Huang (National Yang Ming Chiao Tung University, Taiwan)

H2-3   15:40

A Reliable Feature-Based Framework for Vehicle Tracking in Advanced Driver Assistance Systems

Ngoc-Quan Ha-Phan, Thanh-Nguyen Truong and Vu-Hoang Tran (Ho Chi Minh City University of Technology and Education, Vietnam); Ching-Chun Huang (National Yang Ming Chiao Tung University, Taiwan)

H2-4   16:00

Light-Weight Zero-Reference-Based Image Enhancement for Low-Light Images

Jie-Fan Chang (National Taiwan University, Taiwan); KuanTing Lai, Cheng-Xuan Zhuang, Guo-Shiang Lin and Ku-Yaw Chang (National Chin-Yi University of Technology, Taiwan)

H2-5   16:20

Class-Wise Self-Paced Self-Training for Semi-Supervised Image Classification

Cheng-Yu Lu, Heng-Cheng Hsu and Chen-Kuo Chiang (National Chung Cheng University, Taiwan)

H2-6   16:40

CapFormer: A Space-Time Video Description Model Using Joint-Attention Transformer

Mahamat Moussa, Chern Hong Lim and KokSheik Wong (Monash University Malaysia, Malaysia)

I2 — Physics-Inspired Image Restoration and Enhancement 201E
Chair: Yuichi Tanaka (Osaka University, Japan)

I2-1   15:00

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)

I2-2   15:20

Marine Snow Removal Benchmarking Dataset

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

I2   Physics-Inspired Image Restoration and Enhancement   201E
Chair: Yuichi Tanaka (Osaka University, Japan)

I2-3   15:40

Cross-Frame Foreground Structural Similarity Modeling by Convolutional Sparse Representation

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

I2-4   16:00

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)

I2-5   16:20

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

Hsuan Lin and Hirakawa Keigo (University of Dayton, USA)

I2-6   16:40

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

Seishi Takamura (Hosei University & NTT Corporation, Japan)

J2   IVM-2: Multimedia Generation and Synthesis   201F
Chair: Masaaki Ikehara (Keio University, Japan) / Shih-Hsuan Yang (National Taipei University of Technology, Taiwan)

J2-1   15:00

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)

J2-2   15:20

ArtHDR-Net: Perceptually Realistic and Accurate HDR Content Creation

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

J2-3   15:40

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

Wei Wang and 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)

J2   IVM-2: Multimedia Generation and Synthesis   201F

Chair: Masaaki Ikehara (Keio University, Japan) / Shih-Hsuan Yang (National Taipei University of Technology, Taiwan)

J2-4   16:00

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

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

J2-5   16:20

Enhanced Residual Fourier Transformation Network for Lightweight Image Super-Resolution

Yunming Yang and Masaaki Ikehara (Keio University, Japan)

J2-6   16:40

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

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

A3

SLA-III: Speech Emotion Recognition 101AB

Chair: Bagus Tris Atmaja (National Institute of Advanced Industrial Science and Technology, Japan)

A3-1   09:00

Speech Emotion Recognition by Late Fusion of Linguistic and Acoustic Features Using Deep Learning Models

Kiyohide Sato, Keita Kishi and Tetsuo Kosaka (Yamagata University, Japan)

A3-2   09:20

Multilingual, Cross-Lingual, and Monolingual Speech Emotion Recognition on EmoFilm Dataset

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)

A3-3   09:40

Ensembling Multilingual Pre-Trained Models for Predicting Multi-Label Regression Emotion Share from Speech

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)

A3-4   10:00

An Automatic Pipeline for Building Emotional Speech Dataset

Anh Thi Ngoc Anh, Hai Van Do, Nhat Minh Le and Thang Bao Ta (Viettel Cyberspace Center, Viettel Group, Vietnam)

A3-5   10:20

Analysis of Emotions in Speech Using AESDD

Uthiraa S and Hemant A. Patil (Dhirubhai Ambani Institute of Information and Communication Technology, India)

B3   Acoustic Scene Analysis and Signal Enhancement Based on Advanced Signal Processing and Machine Learning   101C

Chair: Shoji Makino (Waseda University, Japan) / Hiroshi Saruwatari (The University of Tokyo, Japan)

B3-1   09:00

Modified Parametric Multichannel Wiener Filter for Low-Latency Enhancement of Speech Mixtures with Unknown Number of Speakers

Ning Guo (International Audio Laboratories Erlangen, Germany); Tomohiro Nakatani (NTT Corporation, Japan); Shoko Araki (NTT Communication Science Laboratories, Japan); Takehiro Moriya (NTT, Japan)

B3-2   09:20

Blind Source Separation Using Independent Low-Rank Matrix Analysis with Spectrogram-Consistency Regularization

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)

B3-3   09:40

Moving Interference Speaker Removal Using Geometrically Constrained Independent Vector Analysis

Shinya Furunaga, Tetsuya Ueda and Shoji Makino (Waseda University, Japan)

B3-4   10:00

A Dual-Channel Three-Stage Model for DoA and Speech Enhancement

Meng-Hsuan Wu, Yih Liang Shen and Hsuan-Cheng Chou (National Yang Ming Chiao Tung University, Taiwan); Bo-Wun Shih (Realtek Semiconductor Corporation, Taiwan); Tai-Shih Chi (National Yang Ming Chiao Tung University, Taiwan)

B3-5   10:20

A Weighted Binary Cross-Entropy for Sound Event Representation Learning and Few-Shot Classification

Zhongxin Bai, Chao Pan and Gong Chen (Northwestern Polytechnical University, China); Jingdong Chen (Northwestern Polytechnical University, USA); Jacob Benesty (INRS-EMT, University of Quebec, Canada)

C3   Intelligent Recognition Applications   101D

Chair: Chuan-Yu Chang (National Yunlin University of Science and Technology, Taiwan)

C3-1   09:00

A Reconfigurable Hardware Architecture for Graph Convolution Network in Action Recognition

Tsung-Han Tsai and Tzu-Chieh Chen (National Central University, Taiwan)

C3 Intelligent Recognition Applications 101D
Chair: Chuan-Yu Chang (National Yunlin University of Science and Technology, Taiwan)

C3-2 09:20
Automated Carina Detection in Chest X-Ray Images Using Non-Overlapping and Cross-Squeeze Convolutional Neural Networks

Chung-Chian Hsu, Chi-Yuan Chen, S M Salahuddin Morsalin and Arthur Chang (National Yunlin University of Science and Technology, Taiwan); Wen-Lin Fan (Dalin Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Taiwan)

C3-3 09:40
Identifying the Style of Chatting

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

C3-4 10:00
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)

C3-5 10:20
Integration of Contextual Information with YOLOv5 for Detecting Tracheobronchial Foreign Objects

Chuan-Yu Chang (National Yunlin University of Science and Technology, Taiwan); Chun-Liang Lai (Dalin Tzu Chi Hospital, Taiwan); Yu Shan Peng and Roshana Mukhtar (National Yunlin University of Science and Technology, Taiwan)

D3 Signal and Information Processing Theory and Methods 102
Chair: Shuichi Ohno (Osaka Metropolitan University, Japan)

D3-1 09:00
Real-Time Noise Suppression Using Harmonic/Percussive Separation with Morphological Operations for Hammering Test

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

D3-2 09:20
$\Delta\Sigma$ Modulators for Discrete-Time Closed Loop Control Systems with Quantization and Saturation

Shuichi Ohno and Shenjian Wang (Osaka Metropolitan University, Japan); Kiyotsugu Takaba (Ritsumeikan University, Japan)

D3 Signal and Information Processing Theory and Methods 102
Chair: Shuichi Ohno (Osaka Metropolitan University, Japan)

D3-3   09:40

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)

D3-4   10:00

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)

D3-5   10:20

Moreau Envelope ADMM for Decentralized Weakly Convex Optimization

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

E3 SLA-IV: Speech Enhancement 201A
Chair: Chih-Peng Fan (National Chung Hsing University, Taiwan)

E3-1   09:00

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

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

E3-2   09:20

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

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

E3-3   09:40

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

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

E3 SLA-IV: Speech Enhancement   201A
Chair: Chih-Peng Fan (National Chung Hsing University, Taiwan)

E3-4   10:00

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

Kenta Iwai and Takanobu Nishiura (Ritsumeikan University, Japan)

E3-5   10:20

Enhancing Spectrogram for Audio Classification Using Time-Frequency Enhancer

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

F3 SLA-V: Text-to-Speech and Voice Conversion   201B
Chair: Masanobu Abe (Okayama University, Japan) / Tomoki Toda (Nagoya University, Japan)

F3-1   09:00

Evaluating Methods for Ground-Truth-Free Foreign Accent Conversion

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

F3-2   09:20

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

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

F3-3   09:40

Speech Synthesis Using Ambiguous Inputs from Wearable Keyboards

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

F3-4   10:00

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

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

F3-5   10:20

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

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

G3　Distributed and Multi-task Learning Algorithms and Applications　201C
Chair: Yih-Fang Huang (University of Notre Dame, USA) / Anthony Kuh (University of Hawaii at Manoa, USA)

G3-1　09:00
Robust Networked Federated Learning for Localization

Reza Mirzaeifard (Norwegian University of Science and Technology, Norway); Naveen K. D. Venkategowda (Linköping University, Sweden); Stefan Werner (NTNU, Norway)

G3-2　09:20
Continual Local Updates for Federated Learning with Enhanced Robustness to Link Noise

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)

G3-3　09:40
Multi-Task Gaussian Process Learning to Fill in Gaps in LBS Mobile Data

Ekin Ugurel, Shuai Huang and Cynthia Chen (University of Washington, USA)

G3-4　10:00
Distributed On-Line Anomaly Detection Using Kernel Methods

Anthony Kuh and Tyler Baguio (University of Hawaii, Manoa, USA)

G3-5　10:20
Communication-Efficient Design of Leaning System for Energy Demand Forecasting of Electrical Vehicles

Jiacong Xu (Johns Hopkins University, USA); Riley Kilfoyle and Zixiang Xiong (Texas A&M University, USA); Ligang Lu (Shell Intl. E&P, USA)

H3　Recent Advances on Signal and Information Processing for Active Control of Sound　201D
Chair: Yoshinobu Kajikawa (Kansai University, Japan)

H3-1　09:00
Radiated Sound Field Reproduction for Surrounding Loudspeaker Array Based on Higher-Order Ambisonics

Shota Naiki, Shumpei Miura, Kenta Iwai and Takanobu Nishiura (Ritsumeikan University, Japan); Yoshiharu Soeta (National Institute of Advanced Industrial Science and Technology (AIST), Japan)

H3 Recent Advances on Signal and Information Processing for Active Control of Sound 201D

Chair: Yoshinobu Kajikawa (Kansai University, Japan)

H3-2 09:20

Multichannel Learning-Based Spatially Extended Active Noise Control via Model Matching and Sensor Transfer Function Interpolation

Pei-Lin Zhong, You-Siang Chen and Mingsian Bai (National Tsing Hua University, Taiwan)

H3-3 09:40

A Study of the Microphone Protection of Active Noise Control for Axial Fan

Yi-Tsung Shen and Cheng-Yuan Chang (Chung Yuan Christian University, Taiwan)

H3-4 10:00

SFANC with Compensation Filter Based on MEFxDCTLMS Algorithm

Kenya Doi and Yoshinobu Kajikawa (Kansai University, Japan)

H3-5 10:20

Practical Active Noise Control: Restriction of Maximum Output Power

Woon Seng Gan and Dong-Yuan Shi (Nanyang Technological University, Singapore); XiaoYi Shen (NTU, Singapore)

I3 Selected Papers from APSIPA Workshop in Bandung, Indonesia (II) 201E

Chair: Trio Adiono (Institut Teknologi Bandung, Indonesia)

I3-1 09:00

A QoS Throughput Performance Measurement Comparison Between UGS and BE Services of a Real-Time FPGA Based OFDM Multi-User System Design Implementation

Trio Adiono, Michael Jonathan, Erwin Setiawan, Nana Sutisna and Rahmat Mulyawan (Institut Teknologi Bandung, Indonesia); Infall Syafalni (Bandung Institute of Technology, Indonesia)

I3-2 09:20

Algorithm Development for Step-Wise Valve Deflation Method in Blood Pressure Measurement

Trio Adiono (STEI ITB, Indonesia); Reina Puteri Ramadhani and Clarence Amadeus (Bandung Institute of Technology, Indonesia); Sindy Novaria Cicilya Sinaga (PT. Xirka Dama Persada, Indonesia)

I3   Selected Papers from APSIPA Workshop in Bandung, Indonesia (II)   201E
Chair: Trio Adiono (Institut Teknologi Bandung, Indonesia)

I3-3   09:40

SUMO Based Hardware/Software Co-Simulation for Two-Intersection Adaptive and Collaborative Traffic Signal Controller

Kendrik Emkel Ginting and Nana Sutisna (Institut Teknologi Bandung, Indonesia); Infall Syafalni (Bandung Institute of Technology, Indonesia); Trio Adiono (Institut Teknologi Bandung, Indonesia)

I3-4   10:00

Sparsity Exploration for Structured and Unstructured Weight Formations in CNN Architecture

Devi Noor Endrawati and Infall Syafalni (Bandung Institute of Technology, Indonesia); Nana Sutisna (Institut Teknologi Bandung, Indonesia); Trio Adiono (STEI ITB, Indonesia)

J3   Selected Papers from APSIPA Workshop in Hanoi, Vietnam (II)   201F
Chair: Nguyen Linh Trung (Vietnam National University, Hanoi, Vietnam)

J3-1   09:00

1M Parameters are Enough? A Lightweight CNN-Based Model for Medical Image Segmentation

Binh-Duong Dinh, Thanh-Thu Nguyen, Thi-Thao Tran and Van-Truong Pham (Hanoi University of Science and Technology, Vietnam)

J3-2   09:20

Imaging Ultrasound Scattering Targets Using Density-Enhanced Chaotic Compressive Sampling

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)

J3-3   09:40

Segmentation and Observation of Hand Rehabilitation Exercises by Supporting of Acceleration Signals

Vu Hai (Ha Noi University of Science and Tenology, 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)

J3   Selected Papers from APSIPA Workshop in Hanoi, Vietnam (II)   201F
Chair: Nguyen Linh Trung (Vietnam National University, Hanoi, Vietnam)

J3-4   10:00

Investigating the Role of Human Action Detector in Visual-Guide Audio Source Separation System

Thanh Thi-Hien Duong (Hanoi University of Mining and Geology, Vietnam & Hanoi University of Science and Technology, Vietnam); Trung-Hieu Nguyen and 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)

J3-5   10:20

A Combination of Time and Frequency Synchronization with Doppler Compensation in Coded OFDM-Based UWA Systems

Nguyen Thi Hoai Linh (Ha Noi University of Science and Technology, Vietnam); Quoc Khuong Nguyen and Nguyen Van Duc (HUST, Vietnam)

A4 IVM-3: Multimedia Representation and Identification 101AB

Chair: Zhaojie Luo (Osaka University, Japan) / Mei-Chen Yeh (National Taiwan Normal University, Taiwan)

A4-1 13:30

ResNet-Based Camera Model Identification with Adaptive Preprocessing Module and Weight Fusion of Global Information

Boru Chen and Waleed H. Abdulla (The University of Auckland, New Zealand)

A4-2 13:50

Structural Quality Assured Global Optimization for CTU-Level Rate Control of Screen Content Coding

Tong Tang, Yuan Tan, Shihang Ding and Zhidu Li (Chongqing University of Posts and Telecommunications, China)

A4-3 14:10

Multi-Modal Emotion Recognition Based on 2D Kernel Density Estimation for Multiple Labels Fusion

Zhaojie Luo and Kazunori Komatani (Osaka University, Japan)

A4-4 14:30

RobustL2S: Speaker-Specific Lip-To-Speech Synthesis Exploiting Self-Supervised Representations

Neha Sahipjohn, Neil Shah, Vishal Tambrahalli and Vineet Gandhi (IIIT Hyderabad, India)

A4-5 14:50

Realizing Nipple in Profile Recognition and Nipple Detection Using a Single Classification

Yi-Chong Zeng (Institute for Information Industry, Taiwan)

A4-16 15:10

Exploring a CLIP-Enhanced Automated Approach for Video Description Generation

Siang-Ling Zhang, Huai-Hsun Cheng, Yen-Hsin Chen and Mei-Chen Yeh (National Taiwan Normal University, Taiwan)

B4 — Innovative Technology on 3D Point Cloud and Image Processing — 101C
Chair: Seishi Takamura (Hosei University / NTT Corporation, Japan)

B4-1   13:30

3D Point Cloud Denoising Based on Color Attribute

Wei-Chi Lin (Chung Yuan Christian University, Taiwan); Ming Zhan Lee (National Cheng Kung University, Taiwan); He-Sheng Chou, Yuan-Jin Lin and 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)

B4-2   13:50

The VLSI Design DSP and DDR4 for Multi-Sensor in Biomedical System

Jia-Sheng Zhang (Ming Chi University, Taiwan); Chiung-An Chen (Ming Chi University of Technology, Taiwan); Shih-Lun Chen (Chung Yuan Christian University, Taiwan)

B4-3   14:10

Identification of Victims Wearing Vibrant Clothing Using MATLAB

Hao-Cheng Lu and Chiung-An Chen (Ming Chi University of Technology, Taiwan)

B4-4   14:30

Point Cloud Inpainting Based on Delaunay Triangulation

Yu-Lin Liu and 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)

B4-5   14:50

Dense Three-Dimensional Color Reconstruction for Large-Scale Outdoor Scenes

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)

B4-6   15:10

Safety Enhancement for Mobility Scooter with Rule-Based Danger Prevention

Yan-Ru Chen (Chang Gung University, Taiwan)

C4 — Machine Learning under Data-Constrained Conditions — 101D
Chair: Jen-Tzung Chien (National Yang Ming Chiao Tung University, Taiwan)

C4-1   13:30

Dictionary-Driven Chinese ASR Entity Correction with Controllable Decoding

Rongjun Li and Wei Peng (Huawei Technologies, Co., Ltd., China)

C4 Machine Learning under Data-Constrained Conditions 101D

Chair: Jen-Tzung Chien (National Yang Ming Chiao Tung University, Taiwan)

C4-2   13:50

A Method of Efficient Synthesizing Post-Disaster Remote Sensing Image with Diffusion Model and LLM

Ruizhe Ou, Ming Wu, Chuang Zhang and Haotian Yan (Beijing University of Posts and Telecommunications, China)

C4-3   14:10

Privacy-Oriented Coded Caching in Mobile Information-Centric Network

Binchen Yang, Yu Guo and Xingyan Chen (Southwestern University of Finance and Economics, China)

C4-4   14:30

MKTformer: Fine-Grained Meter Classification Based on Multi-Modal Knowledge Transfer

Zhaoye Zheng, Zhang Ke and Chaojun Shi (North China Electric Power University, China)

C4-5   14:50

Feature Augmentation Reconstruction Network for Few-Shot Image Classification

Zhen Li, Lang Wang, Wenjuan An, Qi Song and Xiaoxu Li (Lanzhou University of Technology, China); Xuezhi Fei (Machinery Industry Shanghai Lanya Petrochemical Equipment Testing Institute, China)

C4-6   15:10

Dual Feature Reconstruction Network Based on Few-Shot Image Classification

Xiaowei Guo, Jijie Wu, Kai Ren, Qi Song and Xiaoxu Li (Lanzhou University of Technology, China)

D4 Signal Processing and Artificial Intelligence in Biomedicine and Healthcare 102

Chair: Jian-Jia Huang (Chang Gung University, Taiwan)

D4-1   13:30

A Cloud-Based Data Platform for Efficient EEG Data Management, Collaboration, and Analysis

Qi Tian, Wen Wu, Qin Zhu, Tao Cai, Siyi Jiang, Yaqing Li, Jinrun Zhou, Nan Zhu, Yina Wei and Tao Tang (Zhejiang Lab, China); Kedi Xu (Qiushi Academy for Advanced Studies, Zhejiang University, China); Feng Lin and Linqing Feng (Zhejiang Lab, China)

D4 Signal Processing and Artificial Intelligence in Biomedicine and Healthcare
102

Chair: Jian-Jia Huang (Chang Gung University, Taiwan)

D4-2   13:50

Incorporating the Digit Triplet Test in A Lightweight Speech Intelligibility Prediction for Hearing Aids

Xiajie Zhou, Candy Olivia Mawalim, Benita Angela Titalim and Masashi Unoki (Japan Advanced Institute of Science and Technology, Japan)

D4-3   14:10

Deep Learning-Based MRI Super-Resolution Using Non-Uniform Segmented Phase-Scrambling Fourier Transform Signals

Kazuki Yamato, Shuntaro Fujisawa and Satoshi Ito (Utsunomiya University, Japan)

D4-4   14:30

An Extreme Gradient Boosting-Based Prediction for Depression

Ahmed Dawod Mohammed Ibrahum (Chungbuk National University, Korea)

D4-5   14:50

An Improved Check Digit-Based Participant Identification System for Human Biorepositories

Minseok Chu (Chungbuk University & National Institute of Health, Korea); Keunho Ryu (Ton Duc Thang University, Vietnam and Chungbuk National University, Korea)

D4-6   15:10

Enhancing Snoring Detection with Statistical Analysis of Audio Features

Suphachok Buaruk and Somrudee Deepaisarn (Sirindhorn International Institute of Technology, Thammasat University, Thailand)

E4 Artificial Intelligence (AI) for Multimedia Processing and Applications
201A

Chair: Tsung-Jung Liu (National Chung Hsing University, Taiwan) / Kuan-Hsien Liu (National Taichung University of Science and Technology, Taiwan)

E4-1   13:30

Un-Rectifying in ReLU Networks and Applications

Shih-Shuo Tung (Academia Sinica, Taiwan); Ming-Yu Chung (National Taiwan University, Taiwan); Jinn Ho and Wen-Liang Hwang (Academia Sinica, Taiwan)

E4 　Artificial Intelligence (AI) for Multimedia Processing and Applications　　201A

Chair: Tsung-Jung Liu (National Chung Hsing University, Taiwan) / Kuan-Hsien Liu (National Taichung University of Science and Technology, Taiwan)

E4-2　　13:50

OpenPose Based Yoga Poses Difficulty Estimation for Dynamic and Static Yoga Exercises

Wan-Chia Huang and Cheng-Liang Shih (National Chung Hsing University, Taiwan); Irin Tri Anggraini, Yanqi Xiao and Nobuo Funabiki (Okayama University, Japan); Chih-Peng Fan (National Chung Hsing University, Taiwan)

E4-3　　14:10

Multimodal Multifaceted Music Emotion Recognition Based on Self-Attentive Fusion of Psychology-Inspired Symbolic and Acoustic Features

Jiahao Zhao and Eita Nakamura (Kyoto University, Japan); Kazuyoshi Yoshii (Kyoto University & RIKEN, Japan)

E4-4　　14:30

Learned String Quartet Music with Variational Auto Encoder

Young-Long Chen, Hsin-I Huang and Tzu-Te Yen (National Taichung University of Science and Technology, Taiwan)

E4-5　　14:50

SOAda-YOLOR: Small Object Adaptive YOLOR Algorithm for Road Object Detection

Yu-Fang Huang, Tsung-Jung Liu and Chun-An Lin (National Chung Hsing University, Taiwan); Kuan-Hsien Liu (National Taichung University of Science and Technology, Taiwan)

E4-6　　15:10

Badminton Self-Training System Based on Virtual Reality

Wei-Shen Tai and Kuan-Hsien Liu (National Taichung University of Science and Technology, Taiwan)

F4 　Emerging Trends in Privacy, Multimedia Security and Forensics: Deep Learning and AI Approaches　　201B

Chair: Ahmed Khan (Monash University Malaysia, Malaysia) / Minoru Kuribayashi (Tohoku University, Japan)

F4-1　　13:30

Rotation Angle Detection Using a Pilot Signal from Rotated Stego-Image

Rinka Kawano and Masaki Kawamura (Yamaguchi University, Japan)

F4 Emerging Trends in Privacy, Multimedia Security and Forensics: Deep Learning and AI Approaches 201B

Chair: Ahmed Khan (Monash University Malaysia, Malaysia) / Minoru Kuribayashi (Tohoku University, Japan)

F4-2 13:50

Application for Generating Re-Accessible Screenshots of Web Pages Using Histogram Shrinkage

Ayaka Sakamoto, Rinka Kawano and Masaki Kawamura (Yamaguchi University, Japan)

F4-3 14:10

Domain Adaptation for Efficiently Fine-Tuning Vision Transformer with Encrypted Images

Teru Nagamori, Sayaka Shiota and Hitoshi Kiya (Tokyo Metropolitan University, Japan)

F4-4 14:30

Study on Face Landmark-Based Analysis for Synthetic Media Identification Generated by Adversarial Generative Networks

Akinobu Ura (Okayama University, Japan); Minoru Kuribayashi (Tohoku University, Japan); Nobuo Funabiki (Okayama University, Japan)

F4-5 14:50

HDR Image Watermarking Based on Saliency Detection and Quantization Index Modulation

Ahmed Khan (Monash University, Malaysia); Minoru Kuribayashi (Tohoku University, Japan); KokSheik Wong and Vishnu Monn Baskaran (Monash University Malaysia, Malaysia)

F4-6 15:10

Quick Response (QR) Codes Embedding in VVC Using Quantisation Parameter Manipulation

Joan Hau (TARUMT, Malaysia); Li Peng Tan (Tunku Abdul Rahman University College, Malaysia); Yiqi Tew (Tunku Abdul Rahman University of Management and Technology, Malaysia)

G4 Intelligent Visual Data Processing, Analytics, and Representation 201C

Chair: Ching-Chun Huang (National Yang Ming Chiao Tung University, Taiwan) / Shang-Hong Lai (National Tsing Hua University, Taiwan)

G4-1 13:30

CPIPS: Learning to Preserve Perceptual Distances in End-To-End Image Compression

Chen-Hsiu Huang and Ja-Ling Wu (National Taiwan University, Taiwan)

G4-2 13:50

Task-Specific Pruning: Efficient Parameter Reduction in Multi-Task Object Detection Models

Wei-Hsun Ke and Yu-Wen Tseng (National Yang Ming Chiao Tung University, Taiwan); Wen-Huang Cheng (National Taiwan University, Taiwan)

G4 Intelligent Visual Data Processing, Analytics, and Representation 201C

Chair: Ching-Chun Huang (National Yang Ming Chiao Tung University, Taiwan) / Shang-Hong Lai (National Tsing Hua University, Taiwan)

G4-3 14:10

Transformer-Based Image Compression with Variable Image Quality Objectives

Chia-Hao Kao, Yi-Hsin Chen, Cheng Chien, Wei-Chen Chiu and Wen-Hsiao Peng (National Yang Ming Chiao Tung University, Taiwan)

G4-4 14:30

From Synthetic to Real: Enhancing Deep Learning Models with Generative Adversarial Networks for Efficient Data Utilization in Automatic Retail Stores

Cong-Ty Dang, Vu-Hoang Tran and Ngoc-Hoang-Lam Le (Ho Chi Minh City University of Technology and Education, Vietnam); Ching-Chun Huang (National Yang Ming Chiao Tung University, Taiwan)

G4-5 14:50

Virtual Garment Fitting Through Parsing and Context-Aware Generative Adversarial Networks with Discriminator Group

Wei-Hong Su, Sze-Ann Chen, Chen-I Chin and Hsu-Feng Hsiao (National Yang Ming Chiao Tung University, Taiwan)

G4-6 15:10

Sparse Tensor-Based Point Cloud Attribute Compression Using Augmented Normalizing Flows

Tzu-Po Lin, Monyneath Yim and 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)

H4 SLA-VI: Speech Recognition 201D

Chair: Cheng-Yuan Chang (Chung Yuan Christian University, Taiwan)

H4-1 13:30

Toward Leveraging Pre-Trained Self-Supervised Frontends for Automatic Singing Voice Understanding Tasks: Three Case Studies

Yuya Yamamoto (University of Tsukuba, Japan)

H4-2 13:50

Out-Of-Vocabulary Word Detection in Spoken Dialogues Based on Joint Decoding with User Response Patterns

Miki Oshio, Hokuto Munakata, Ryu Takeda and Kazunori Komatani (Osaka University, Japan)

H4 — SLA-VI: Speech Recognition   201D

Chair: Cheng-Yuan Chang (Chung Yuan Christian University, Taiwan)

H4-3   14:10

Synthetic Data Augmentation for ASR with Domain Filtering

Tuan Vu Ho and 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)

H4-4   14:30

Multi-Self-Supervised Learning Model-Based Throat Microphone Speech Recognition

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)

H4-5   14:50

ASR Model Adaptation for Rare Words Using Synthetic Data Generated by Multiple Text-To-Speech Systems

Kwok Chin Yuen, Li Haoyang and Eng-Siong Chng (Nanyang Technological University, Singapore)

H4-6   15:10

Streaming End-To-End ASR Using CTC Decoder and DRA for Linguistic Information Substitution

Tatsunari Takagi and Norihide Kitaoka (Toyohashi University of Technology, Japan); Atunori Ogawa (Nippon Telegraph and Telephone Corporation, Japan); Wakabayashi Yukoh (Toyohashi University of Technology, Japan)

I4 — New Frontiers in Biometric Authentication   201E

Chair: Koichi Ito (Tohoku University, Japan)

I4-1   13:30

A Biometric Signature Scheme with Template Protection and Authenticated Sample Recoverability

Wataru Nakamura (Hitachi, Ltd., Japan); Kenta Takahashi (Hitachi, Ltd. & University of Tokyo, Japan)

I4-2   13:50

IPFed: Identity Protected Federated Learning for User Authentication

Yosuke Kaga and Yusei Suzuki (Hitachi Ltd., Japan); Kenta Takahashi (Hitachi Ltd. & University of Tokyo, Japan)

I4 New Frontiers in Biometric Authentication 201E
Chair: Koichi Ito (Tohoku University, Japan)

I4-3 14:10

Privacy-Preserving Image Transformation Method for Person Detection and Re-ID

Yumo Ouchi, Hidetsugu Uchida and Narishige Abe (Fujitsu Limited, Japan)

I4-4 14:30

Eye Biometrics Combined with Periocular and Iris Recognition Using CNN

Taito Tonosaki, Shokei Kawakami, Koichi Ito and Takafumi Aoki (Tohoku University, Japan); Yoshiko Yasumura, Masakazu Fujio and Yosuke Kaga (Hitachi Ltd., Japan); Kenta Takahashi (Hitachi Ltd. & University of Tokyo, Japan)

I4-5 14:50

Development of a Robust Ear Recognition Algorithm Using Planar Approximation

Takahiko Arakawa and Yuya Sato (Shizuoka University, Japan); Hitoshi Sakano (Shimane University, Japan); Tetsushi Ohki (Shizuoka University, Japan)

OS1 Overview Section (I) 201F
Chair: Chuan-Yu Chang (National Yunlin University of Science and Technology, Taiwan)

OS1-1 14:50

Detecting Situs Inversus in Chest Radiographs

Chuan-Yu Chang (National Yunlin University of Science and Technology, Taiwan)

OS1-2 15:10

Fully Automatic Prediction and Selection of Ureteral Stone Lithotripsy Based on Enhanced-ResStage-UNet3+ Ureteral Stone Segmentation and Stacking-Ensemble-Learning Ureteral Stone Analysis

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

OS1-3 14:50

Deep Learning Based Endotracheal Tube Detection System

Chung-Chian Hsu (National Yunlin University of Science and Technology, Taiwan)

A5   SLA-VII: Speech Separation and Tracking   101AB

Chair: Masahiro Yukawa (Keio University, Japan) / Yi-Wen Liu (National Tsing Hua University, Taiwan)

A5-1   09:00

Analysis of Speech Separation Performance Degradation on Emotional Speech Mixtures

Jia Qi Yip and Dianwen Ng (Nanyang Technological University & Alibaba Group, Singapore); Bin Ma (Alibaba Group, Singapore); Eng-Siong Chng (Nanyang Technological University, Singapore)

A5-2   09:20

Geometrically Constrained Blind Moving Source Extraction Based on Constant Separation Vector and Auxiliary Function Technique

Ruifeng Zhang, Tetsuya Ueda and Shoji Makino (Waseda University, Japan)

A5-3   09:40

Universal Sound Separation Using Replay-Based Data Sampling in Incremental Learning

Kanta Shimonishi, Takahiro Fukumori and Yoichi Yamashita (Ritsumeikan University, Japan)

A5-4   10:00

Multiple Sound Source Tracking Based on Generative Modeling and Recursive Bayesian Filtering of Spatial Gradient Spectra

Keisuke Takazawa (Keio University, Japan); Hirokazu Kameoka (Nippon Telegraph and Telephone Corporation, Japan); Masahiro Yukawa (Keio University, Japan)

A5-5   10:20

Spatially-Regularized Switching Independent Vector Analysis

Tetsuya Ueda (Waseda University, Japan); Tomohiro Nakatani and Rintaro Ikeshita (NTT Corporation, Japan); Shoko Araki (NTT Communication Science Laboratories, Japan); Shoji Makino (Waseda University, Japan)

B5   High Performance Image and Video Processing and Applications   101C

Chair: Kosin Chamnongthai (King Mongkut's University of Technology Thonburi, Thailand)

B5-1   09:00

ASF-LLRDA: Locality-Regularized Linear Regression Discriminant Analysis with Approximately Symmetrical Face Preprocessing for Face Recognition

Shintami Chusnul Hidayati and Arya Widyadhana (Institut Teknologi Sepuluh Nopember, Indonesia); Yeni Anistyasari (Universitas Negeri Surabaya, Indonesia)

B5-2   09:20

Joint Optimization Algorithm for Adaptive Bit Allocation Based on Temporal-Spatial Information

Shaokang Wang and Sun Songlin (Beijing University of Posts and Telecommunications, China)

B5 — High Performance Image and Video Processing and Applications   101C
Chair: Kosin Chamnongthai (King Mongkut's University of Technology Thonburi, Thailand)

B5-3   09:40

Maximization of 2D Cross-Correlation Based on Auxiliary Function Method for Image Alignment

Yuma Kinoshita (Tokai University, Japan); Kouei Yamaoka and Hitoshi Kiya (Tokyo Metropolitan University, Japan)

B5-4   10:00

Multitask Record for Badminton Match

Jing-Ming Guo, Yu-Shun Huang, Ting-Yu Chang, Tai-Cyuan Ciou, Yun-Ching Yeh and Jeffrey Chen (National Taiwan University of Science and Technology, Taiwan)

B5-5   10:20

Deep Residual and Classified Neural Networks for Inverse Halftoning

Jing-Ming Guo, S Sankarasrinivasan and L v Hung (National Taiwan University of Science and Technology, Taiwan)

C5 — Advanced Topics on Sound Event and Scene Analysis   101D
Chair: Nobutaka Ono (Tokyo Metropolitan University, Japan) / Keisuke Imoto (Doshisha University, Japan)

C5-1   09:00

DOA-Aware Audio-Visual Self-Supervised Learning for Sound Event Localization and Detection

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)

C5-2   09:20

Improving Sound Event Localization and Detection with Class-Dependent Sound Separation for Real-World Scenarios

Shi Cheng, Jun Du, Qing Wang, Ya Jiang, Zhaoxu Nian and Shutong Niu (University of Science and Technology of China, China); Chin-Hui Lee (Georgia Institute of Technology, USA); Yu Gao and Wenbin Zhang (AI Innovation Center, Midea Group (Shanghai) Co., Ltd., China)

C5-3   09:40

Joint Analysis of Acoustic Scenes and Sound Events Based on Semi-Supervised Approach

Ami Igarashi and Shunsuke Tsubaki (Doshisha University, Japan); Daisuke Niizumi, Daiki Takeuchi, Yasunori Ohishi and Noboru Harada (NTT Corporation, Japan); Keisuke Imoto (Doshisha University, Japan)

C5 — Advanced Topics on Sound Event and Scene Analysis   101D

Chair: Nobutaka Ono (Tokyo Metropolitan University, Japan) / Keisuke Imoto (Doshisha University, Japan)

C5-4   10:00

Cross-Domain Sound Recognition for Efficient Underwater Data Analysis

Jeongsoo Park (Cochl, Korea); Hyoung Sul La (Korea Polar Research Institute, Korea); Yoonchang Han (Cochl Inc, Korea)

C5-5   10:20

Augmentation of Various Speed Data by Controlling Frame Overlap for Acoustic Traffic Monitoring

Tomohiro Takahashi (Tokyo Metropolitan University, Japan); Yuma Kinoshita (Tokai University, Japan); Natsuki Ueno (Tokyo Metropolitan University, Japan); Wakabayashi Yukoh (Toyohashi University of Technology, Japan & Tokyo Metropolitan University, Japan); Nobutaka Ono (Tokyo Metropolitan University, Japan); Jun Honda, Seishi Fukuma, Aoi Kitamori and Hiroshi Nakagawa (NEXCO-EAST Engineering, Japan)

D5 — Modern Signal Analysis and Representation Methods and Their Applications   102

Chair: Jian-Jiun Ding (National Taiwan University, Taiwan)

D5-1   09:00

Distributed Computation of Heat Kernel Smoothing Using Series Expansion Method

Chien-Cheng Tseng (National Kaohsiung University of Science and Technology, Taiwan); Su-Ling Lee (Chang-Jung Christian University, Taiwan)

D5-2   09:20

In-Air Handwriting for Chinese Character Recognition from Monocular Camera: A Deep Learning Based Approach with Fingertip Detection and Virtual Strokes Elimination

Chih Chang Yu and Zi Hang Huang (Chung Yuan Christian University, Taiwan); Hsu-Yung Cheng (National Central University, Taiwan)

D5-13   09:40

EffSegmentNet: Efficient Design for Real-Time Semantic Segmentation

Cyun-Bo Wang and Jian-Jiun Ding (National Taiwan University, Taiwan)

D5-4   10:00

Universal Optimal Parameters of the Closed-Form Linear Canonical Wigner Distribution

Zhichao Zhang (Nanjing University of Information Science and Technology, China)

D5 Modern Signal Analysis and Representation Methods and Their Applications

102

Chair: Jian-Jiun Ding (National Taiwan University, Taiwan)

D5-5   10:20

Autoencoder-Enhanced Federated Learning with Reduced Overhead and Lower Latency

Chi-Kai Hsieh and Feng-Tsun Chien (National Yang Ming Chiao Tung University, Taiwan); Min-Kuan Chang (National Chung Hsing University, Taiwan)

E5 Digital Convergence of 5G/B5G, AIoT and Security

201A

Chair: Wen-Ping Lai (Yuan Ze University, Taiwan)

E5-1   09:00

Deep Unfolding-Based Distributed MIMO Detection

Masaya Kumagai, Ayano Nakai-Kasai and Tadashi Wadayama (Nagoya Institute of Technology, Japan)

E5-2   09:20

A Comparative Analysis of the Yolo Models for Intelligent Lobster Surveillance Camera

Fityanul Akhyar, Ledya Novamizanti, Koredianto Usman, Ghanes Mahesa Aditya, Farhan Nur Hakim and Mukhamad Zidni Ilman (Telkom University, Indonesia); Ferdi Ramdhon (PT. Aruna Jaya Nusantara, Indonesia); Chih-Yang Lin (National Central University, Taiwan)

E5-3   09:40

A UAV Indoor Obstacle Avoidance System Based on Deep Reinforcement Learning

Lee Chung-Nan and Chun-Huang Lo (National Sun Yat-Sen University, Taiwan)

E5-4   10:00

Approximate Modeling of Malware Diffusion on Wireless Mobile Devices

Hideyoshi Miura and Shoya Abukawa (Kansai University, Japan); Tomotaka Kimura (Doshisha University, Japan); Kouji Hirata (Kansai University, Japan)

E5-5   10:20

Impacts of 5G-TDD Time Slot Configurations on the Downlink and Uplink Data Rates

Wen-Ping Lai, Wen-Ru Chen and Hong-Lun Lai (Yuan Ze University, Taiwan)

F5 Recent Advances in Industry 4.0: Exploring New Technologies, Applications, and Best Practices

201B

Chair: Ming-Hsiang Su (Soochow University, Taiwan) / Sze-Teng Liong (Feng Chia University, Taiwan)

F5-1   09:00

Explainable Deep Mechanical Troubleshooting

Zhenzhen Tian, Xinyu Zhang, Wei Yan and Jihua Wang (Shandong Normal University, China)

F5-2   09:20

Study on the Reduction of Background Fringes for Detect Detection on Specular Surface

An-Chi Wei (National Central University, Taiwan); Jyh-Rou Sze (Instrument Technology Research Center-NARL, Taiwan); Yi-Cheng Chang (National Central University, Taiwan)

F5-3   09:40

On the Optimal Self-Supervised Multi-Fault Detector for Temperature Sensor Data

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)

F5-4   10:00

Application of Wafer Defect Pattern Classification Model in the Semiconductor Industry

Chin-Wei Lee (Soochow University, Taiwan); Daniel Hladek and Matus Pleva (Technical University of Kosice, Slovakia); Yuan-Fu Liao (National Yang Ming Chiao Tung University, Taiwan); Ming-Hsiang Su (Soochow University, Taiwan)

F5-5   10:20

Question Answering System Based on Pre-Training Model and Retrieval Reranking for Industry 4.0

Ta-Fu Chen and 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)

G5 · Recent Advances in Intelligent Signal Processing · 201C

Chair: Jia-Ching Wang (National Central University, Taiwan) / Chih-Chang Yu (Chung Yuan Christian University, Taiwan)

G5-1   09:00

Deepfake-Speech Detection with Pathological Features and Multilayer Perceptron Neural Network

Anuwat Chaiwongyen (Japan Advanced Institute of Science and Technology, Japan); Suradej Duangpummet and Jessada Karnjana (National Science and Technology Development Agency, Thailand); Waree Kongprawechnon (SIIT, Thailand); Masashi Unoki (Japan Advanced Institute of Science and Technology, Japan)

G5-2   09:20

Temporal and Type Correlation in Digital Phenotyping for Bipolar Disorder State Prediction Using Multitask Self-Supervised Learning

Jia-Hao Hsu, Hua-Wei Tseng, Chung-Hsien Wu, Esther Ching-Lan Lin and Po-See Chen (National Cheng Kung University, Taiwan)

G5-3   09:40

Data Selection Based on Phoneme Affinity Matrix for Electrolarynx Speech Recognition

I-Ting Hsieh and Chung-Hsien Wu (National Cheng Kung University, Taiwan); Shu-Wei Tsai (National Cheng Kung University Hospital, Taiwan)

G5-4   10:00

Reduction of Annotation Effort in Medical Image Analysis Based on Self-Supervised Learning

Kai-Hsuan Chan and Yi-Chong Zeng (Institute for Information Industry, Taiwan)

G5-5   10:20

STUA-Net: A Fingerprint Reconstruction with Swin Transformer and Soft Collective Attention

Farchan Raswa, Prabowo Yoga Wicaksana and Wenny Ramadha Putri (National Central University, Taiwan); Agus Harjoko (Universitas Gadjah Mada, Indonesia); Jia-Ching Wang (National Central University, Taiwan)

H5 · Advanced Topics for Automatic Speaker Recognition · 201D

Chair: Sayaka Shiota (Tokyo Metropolitan University, Japan) / Naohiro Tawara (NTT Corporation, Japan)

H5-1   09:00

Coarse-Age Loss: A New Training Method Using Coarse-Age Labeled Data for Speaker Age Estimation

Yuki Kitagishi, Hosana Kamiyama, Naohiro Tawara, Atsunori Ogawa, Noboru Miyazaki and Taichi Asami (NTT Corporation, Japan)

H5 — Advanced Topics for Automatic Speaker Recognition   201D

Chair: Sayaka Shiota (Tokyo Metropolitan University, Japan) / Naohiro Tawara (NTT Corporation, Japan)

H5-2   09:20

Contribution of Modulation Spectral Features for Cross-Lingual Speech Emotion Recognition Under Noisy Reverberant Conditions

Taiyang Guo, Sixia Li, Shunsuke Kidani, Shogo Okada and Masashi Unoki (Japan Advanced Institute of Science and Technology, Japan)

H5-3   09:40

Vocal Tract Length Perturbation-Based Pseudo-Speaker Augmentation for Speaker Embedding Learning

Tomoka Wakamatsu, Sayaka Shiota and Hitoshi Kiya (Tokyo Metropolitan University, Japan)

H5-4   10:00

Automatic Call Classification of Autism Model Marmosets by Deep Learning and Analysis of Their Vocal Development

Minato Uesaka, Hideto Kawauchi and Kouei Yamaoka (Tokyo Metropolitan University, Japan); Wakabayashi Yukoh (Toyohashi University of Technology, Japan & Tokyo Metropolitan University, Japan); Yuma Kinoshita (Tokai University, Japan); Nobutaka Ono (Tokyo Metropolitan University, Japan); Jun Noguchi, Satoshi Watanabe and 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)

H5-5   10:20

Cross-Domain Adaptation in Distance Space for Speaker Verification

Lu Yi and Man-wai Mak (The Hong Kong Polytechnic University, Hong Kong)

I5 — AI in Earth and Environment   201E

Chair: Fang-Yi Cheng (National Central University, Taiwan)

I5-1   09:00

Urban Noise Monitoring Using Edge Computing with CNN-LSTM on Jetson Nano

Bo Peng, Waleed H. Abdulla and Kevin I-Kai Wang (The University of Auckland, New Zealand)

I5-2   09:20

Random Forest of Classification and Regression Tree (CART) in the Estimation of SWC Based on Meteorological Inputs and Hydrodynamics Behind

Tsung-Hsi Wu, Pei-Yuan Chen, Chien-Chih Chen, Meng-Ju Chung, Zheng-Kai Ye and Ming-Hsu Li (National Central University, Taiwan)

I5   AI in Earth and Environment   201E

Chair: Fang-Yi Cheng (National Central University, Taiwan)

I5-3   09:40

A Framework for Reusing Earth Science Data on Data and Model Marketplaces

Chung-I Huang, Jih-Sheng Chang, Chen-Kai Sun, Tai-chi Wang and Wei-Yu Chen and 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)

I5-4   10:00

Impact of the Weighted Loss Function on the Innovative CMAQ-CNN PM2.5 Forecasting Model

Yi-Ju Lee and Fang-Yi Cheng (National Central University, Taiwan); Chih-Yung Feng and Zhih-Min Yang (Manysplendid Infotech, Taiwan)

OS2   Overview Section (II)   201F

Chair: Yuichi Tanaka (Osaka University, Japan)

OS2-1   09:00

Graph Signal Restoration and Graph Estimation/Learning

Yuichi Tanaka (Osaka University, Japan)

OS2-2   09:30

Towards Trustworthy Graph Machine Learning

Cheng-Te Li (National Cheng Kung University, Taiwan)

OS2-3   10:00

Computation of Graph Fourier Transform Centrality of Complex Network Using Graph Filter

Chien-Cheng Tseng (National Kaohsiung University of Science and Technology, Taiwan)