Time (Hong Kong)	Chiang Chen Studio Theatre	Alumni Atrium
Sunday, November 2		
10:30 am-12:00 pm	*MIMO Systems*	SS1: *Advanced Sensor Array Signal Processing and its Applications*
03:30 pm-04:45 pm	*Signal Processing for Radio Astronomy and Communications*	SS8: *Spectrum and Direction Estimation with Low-Resolution Data*
04:55 pm-06:10 pm	SS6: *Security and Privacy*	SS9: *Unique Decoding Solutions for Next Generation Wireless Networks*
Monday, November 3		
10:30 am-12:00 pm	*Neural Network Applications to Audio and Visual Processing*	SS3: *Direction Finding and Interference Suppression for Antenna Array Systems*
03:30 pm-05:00 pm	*Hardware Accelerators*	SS2: *AI-Aided Signal and Network Processing Models*
Tuesday, November 4		
10:30 am-12:00 pm	*Channel Equalization and Decoding*	SS4: *Array Signal Processing for Next-Generation Wireless Communication Systems*
02:00 pm-03:30 pm	*Signal Processing for Health and Assisted Living*	*Signal Recovery, Detection and Estimation*
04:00 pm-05:30 pm	SS5: *Low-power Edge Embedded Systems*	SS7: *Signal Processing in Communications, Navigation, and Sensing for Autonomous Systems*

Sunday, November 2 10:30 - 12:00

MIMO Systems

Room: Chiang Chen Studio Theatre
Chair: Jiliang Zhang (Northeastern University, China)

TokenMIMO: Tokenizer-Enhanced Transformer for MIMO Algorithm Prediction
Hantang Liuli (Southeast University, China); Hao Ning (SouthEast University, China); Chuan Zhang (National Mobile Communications Research Laboratory, Southeast University, China)

Expectation Propagation-Guided Diffusion Detection for Large-Scale MIMO Systems
Yi Sun, Jian Zheng, Zhongwen Liu and Xiaosi Tan (Southeast University, China); Chuan Zhang (National Mobile Communications Research Laboratory, Southeast University, China)

Highly Parallel Singular Value Decomposition for Low-Latency MIMO Processing
Sijia Cheng, Liang Liu, Ove Edfors and Juan Vidal Alegria (Lund University, Sweden)

Quantization-Aware Optimization for Breadth-First Search Detection in MIMO Systems
XingChi Zhang (National Mobile Communications Research Laboratory, Southeast University, China); Jian Zheng, Yutai Sun, Wenyue Zhou and Xiaosi Tan (Southeast University, China); Chuan Zhang (National Mobile Communications Research Laboratory, Southeast University, China)

A Low-Complexity Massive MIMO Detector Based on Memory Approximate Message Passing
Yukai Shao, Houren Ji and Yutai Sun (Southeast University, China); Yi Zhang (Southeast University, China & Purple Mountain Laboratories, China); Xiaosi Tan (Southeast University, China); Chuan Zhang (National Mobile Communications Research Laboratory, Southeast University, China)

SS1: Advanced Sensor Array Signal Processing and its Applications

Room: Alumni Atrium
Chairs: Bin Liao (Shenzhen University, China), Qing Shen (Beijing Institute of Technology, China)

A Motion-Based Virtual Aperture Approach for Bistatic FMCW Automotive Radar
Dingli Huang (Queen Mary University of London, United Kingdom (Great Britain)); Wei Liu (The Hong Kong Polytechnic University, Hong Kong)

Spatial-Phase Manipulated Waveforms for Physical Layer Security via Movable Antenna Arrays
Jiaxuan Li, Zhang Bo and Baoju Zhang (Tianjin Normal University, China); Taekon Kim (Korea University, Korea (South)); Jia Song (Tianjin Normal University, China)

Ziv-Zakai Bound for Wideband Two-Dimensional DOA Estimation with a Single Source
YiZhe Wang (Beijing Institute of Technology, China & Beijing ZhongGuanCun Academy, China); Qining Feng (North China Institute of Aerospace Engineering, China); Qing Shen (Beijing Institute of Technology, China); Wei Liu (The Hong Kong Polytechnic University, Hong Kong); Hantian Wu (Beijing Institute of Technology, China)

L-shaped COLD arrays-based near-field localization with exact spherical wavefront
Lixiang Zhou, Jiefeng Zheng and Hua Chen (Ningbo University, China); Wei Liu (The Hong Kong Polytechnic University, Hong Kong); Ming Jin (Ningbo University, China); Hing Cheung So (City University of Hong Kong, Hong Kong); Chau Yuen (Nanyang Technological University, Singapore)

Phase-Only Beampattern Synthesis With Sensor Position Optimization
Zhilun Xiao and Bin Liao (Shenzhen University, China)

Sunday, November 2 3:30 - 4:45

Signal Processing for Radio Astronomy and Communications

Room: Chiang Chen Studio Theatre
Chairs: Byeong Yong Kong (Kongju National University, Korea (South)), Vassilis Paliouras (University of Patras, Greece)

SimSDP, a Rapid Prototyping tool for Radio Astronomy: From NenuFAR Experiments to SKAO-Scale Simulation

Ophélie Renaud (SATIE, France & IRISA, ENS Rennes, CNRS, France); Cedric Viou (ORN, Observatoire de Paris, Université PSL, Univ Orléans, France); Nicolas Gac (Université Paris-Saclay & SATIE, France); François Orieux (L2S, Université Paris-Saclay, CNRS, CentraleSupélec, France)

Joint Trajectory and Antenna Position Optimization for UAV-DFRC Systems with Movable Antenna

Weijie Chen and Bin Liao (Shenzhen University, China)

Low-Latency PAPR Reduction Architecture for Discrete Multitone Based on Approximate Midrange

Byeong Yong Kong (Kongju National University, Korea (South))

Design and Implementation of a Low-Complexity Neural Detector for Correlated Noise

Emmanouil Kavvousanos and Vassilis Paliouras (University of Patras, Greece)

SS8: Spectrum and Direction Estimation with Low-Resolution Data

Room: Alumni Atrium
Chairs: Zhengyu Wan (Shenzhen MSU-BIT University, China), Zai Yang (Xi'an Jiaotong University, China)

Non-coherent Off-grid DOA Estimation with Magnitude-only Measurements under a Linear Model

Zhengyu Wan (Shenzhen MSU-BIT University, China); Wei Liu (The Hong Kong Polytechnic University, Hong Kong); Junwei Zhang (Communication University of China, China); Bintao Hu (Xi'an Jiaotong-Liverpool University, China & University of Liverpool, United Kingdom (Great Britain))

When Less is More: Low-Bit Quantization for Robust DOA Estimation under Non-Uniform Noise

Xicheng Lu (Queen Mary University of London, United Kingdom (Great Britain)); Zhendong Chen (Xiamen University, China); Wei Liu (The Hong Kong Polytechnic University, Hong Kong)

A Two-Step Wideband DOA Estimation Method Based on One-Bit Measurements

Chenxi Liao and Qing Shen (Beijing Institute of Technology, China); Qining Feng (North China Institute of Aerospace Engineering, China); Min Wang (Beijing Institute of Technology, China); Wei Liu (The Hong Kong Polytechnic University, Hong Kong)

Gridless Line Spectral Estimation with Phaseless Samples

Weichao Zheng and Zai Yang (Xi'an Jiaotong University, China)

Sunday, November 2 4:55 - 6:10

SS6: Security and Privacy

Room: Chiang Chen Studio Theatre
Chairs: Qinhong Jiang (The Hong Kong Polytechnic University, Hong Kong), Youqian Zhang (The Hong Kong Polytechnic University, Hong Kong)

Rainbow Artifacts from Electromagnetic Signal Injection Attacks on Image Sensors

Youqian Zhang, Xinyu Ji, Zhihao Wang and Qinhong Jiang (The Hong Kong Polytechnic University, Hong Kong)

A Practical Two-Stage Optimization for Secure Directional Modulation in UAV Systems

Yibo Wang (大学, China); Zhang Bo, Baoju Zhang and Hailong Gao (Tianjin Normal University, China); Taekon Kim (Korea University, Korea (South))

SoundAuth: Non-Intrusive User Authentication via Keystroke Acoustic Biometrics with Triplet Networks

Xutong Liu, Yukun Liang, Mengbo Li, Junbo Zhang, Yizhao Wang and Longjiang Li (University of Electronic Science and Technology of China, China)

Refined Element-Wise Secure Beamforming for Discrete AIRS-Assisted SWIPT System

Jia Song, Zhang Bo, Baoju Zhang and Jiaxuan Li (Tianjin Normal University, China); Taekon Kim (Korea University, Korea (South))

SS9: Unique Decoding Solutions for Next Generation Wireless Networks

Room: Alumni Atrium
Chair: Syed Mohsin Abbas (Tampere University, Finland)

Revisiting GRAND via High Level Synthesis

Tuomas A Aaltonen, Mikko Valkama and Syed Mohsin Abbas (Tampere University, Finland)

Simplified Early-Stopping for AED-SC of Polar Codes

Jiajie Li, Ryan Seah and Warren Gross (McGill University, Canada)

Decoding Product Codes with Belief Propagation

Yifei Shen (EPFL, Switzerland); Zongyao Li (Southeast University, China); Yuqing Ren (EPFL, Switzerland); Emmanuel Boutillon (Université de Bretagne Sud, France); Chuan Zhang (National Mobile Communications Research Laboratory, Southeast University, China); Xiaohu You (National Mobile communication Research Lab., Southeast University, China); Andreas Burg (EPFL, Switzerland)

IGRAND Query Reduction using Even Codes

Arslan Riaz (Boston University, USA); Jiewei Feng (Northeastern University, USA); Kevin Galligan (Maynooth University, Ireland); Muriel Médard (MIT, USA); Rabia T Yazicigil (Boston University, USA); Ken R. Duffy (Northeastern University, USA)

Monday, November 3 10:30 - 12:00

Neural Network Applications to Audio and Visual Processing

Room: Chiang Chen Studio Theatre
Chair: Koichi Ichige (Yokohama National University, Japan)

Multichannel Speech Enhancement Method Using Dilated Semi-Dense Convolutional Network

Tomohiro Ueyama and Koichi Ichige (Yokohama National University, Japan); Takahiro Murakami (Meiji University, Japan)

Evolutionary Prompt Design for LLM-Based Post-ASR Error Correction

Rithik Sachdev (Carnegie Mellon University, USA); Zhong-Qiu Wang (Southern University of Science and Technology, China); Chao-Han Huck Yang (NVIDIA Research, USA)

Edge-Server Distributed Architecture for Efficient Monocular Visual Localization

Li-Yang Huang, Hsin-Yu Chen, Tang-I Wang and Shao-Yi Chien (National Taiwan University, Taiwan)

SAWP: Scaled Adaptive Wavelet Pooling for Audio Classification Tasks

Supun Jayaminda Bandara and Uthayasanker Thayasivam (University of Moratuwa, Sri Lanka)

AECRN: A Unified Neural-Network for Improving Hearing Aid Speech Enhancement

Boxuan Cao (Orka Labs Inc., China); Linkai Li (Stanford University, USA); Changgeng Mo and Haoshuai Zhou (Orka Labs Inc., China); Shan Xiang Wang (Stanford University, USA)

SS3: Direction Finding and Interference Suppression for Antenna Array Systems

Room: Alumni Atrium
Chair: Ivan Wang-Hei Ho (The Hong Kong Polytechnic University, Hong Kong)

A computationally efficient MUSIC algorithm for linear COLD array

Hao Nan (Nanjing University of Science and Technology, China & No, China); Xiaofeng Ma (Nanjing University of Science& Technology, China); Yubing Han (Nanjing University of Science and Technology, China)

Spatial Covariance Matrix Reconstruction Based DOA Estimation in HADS-MIMO with Unknown Mutual Coupling

Hongyun Zhao and Ye Tian (Ningbo University, China); Wei Liu (The Hong Kong Polytechnic University, Hong Kong); Hua Chen (Ningbo University, China)

Tensorial Hankel Reconstruction for Multi-Frequency Sparse Array with Sensor Failure

Youhao Kong and Qing Shen (Beijing Institute of Technology, China); Qining Feng (North China Institute of Aerospace Engineering, China); Chenxi Liao (Beijing Institute of Technology, China); Wei Liu (The Hong Kong Polytechnic University, Hong Kong)

Blind Calibration Against Mutual Coupling and Parameter Estimation of Non-Circular Sources with Polarization Sensitive Arrays

Jiaming Yang, Qing Shen, Kangning Li, Tianyuan Gu and Yuzheng Bao (Beijing Institute of Technology, China)

Matched Filtering Based Wideband DOA Estimation Method for Active Sensing

Yuxiang Jiang (Beijing Institution of Technology, China); Qining Feng (North China Institute of Aerospace Engineering, China); Chenxi Liao and Qing Shen (Beijing Institute of Technology, China)

Monday, November 3 3:30 - 5:00

Hardware Accelerators

Room: Chiang Chen Studio Theatre
Chair: Joseph R. Cavallaro (Rice University, USA)

Scalable Low-latency Systolic Arrays using Toroidal and Bi-Directional Dataflows

Linus Svensson and Joachim Rodrigues (Lund University, Sweden); Oscar Gustafsson (Linköping University, Sweden)

Lightweight FPGA Classifiers using Tangled Program Graphs

Jarlath Warner (Queen's University Belfast, United Kingdom (Great Britain)); John McAllister (QUB, United Kingdom (Great Britain)); Karol Desnos (INSA Rennes, France)

NMCu-CNN: A Scalable Near-Memory Computing Co-Processor on a RISC-V MCU in 22 nm FDSOI

Arturo Prieto, Masoud Nouripayam, Kristoffer Westring, Sergio Castillo Mohedano, Alex Allfjord, Linus Svensson, Per Andersson and Joachim Rodrigues (Lund University, Sweden)

FPGA-Based Hybrid Beamforming under Quantization and Phase Resolution Constraints

Mengyu Zhang (Friedrich-Alexander-University Erlangen-Nürnberg, Germany); Robert Weigel (Friedrich-Alexander Universität Erlangen-Nürnberg, Germany); Norman Franchi and Torsten Reissland (Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany)

Low-Complexity and High-Performance Accelerator for 3D Gaussian Splatting Preprocessing

Yongzhen Zhang, Jian Gao, Shikun Zhang, Yao Yao, Hao Zhu and Jing Tian (Nanjing University, China)

SS2: AI-Aided Signal and Network Processing Models

Room: Alumni Atrium

Chair: Yi Wang (The Hong Kong Polytechnic University, Hong Kong)

DRAQ: Deep Reinforcement Learning-based Automated Quantization for MIMO Detection

Yuwei Zeng (Southeast University, China); Yingmeng Ge (Nanjing University of Aeronautics and Astronautics, China); Wenyue Zhou (Southeast University, China); You You (Purple Mountain Laboratories, China); Chuan Zhang (National Mobile Communications Research Laboratory, Southeast University, China)

Model-Based Deep Learning for Underdetermined DOA Estimation Exploiting High-Order Difference Co-Arrays

Yuzheng Bao, Qing Shen, Zejun Yang, Zheng Fu and Li Shen (Beijing Institute of Technology, China); Wei Liu (The Hong Kong Polytechnic University, Hong Kong)

Model-Based Deep Learning for Multi-Source 2D-DOA Estimation with Uniform Circular Array

Zejun Yang, Yuzheng Bao and Qing Shen (Beijing Institute of Technology, China)

Chinese Sign Language Classification Based on Millimeter-wave Radar Multimodal Data Fusion

Xiliang Bo (DongGuan University of Technology, China); Gao Chen (Dongguan University of Technology, China); Chanzi Liu (Southwest Jiaotong University, China)

UST-Net: Unsupervised Swin Transformer Network for Change Detection from Heterogeneous Remote Sensing Images

Paixin Xie, Gao Chen and Qingfeng Zhou (Dongguan University of Technology, China)

Tuesday, November 4 10:30 - 12:00

Channel Equalization and Decoding

Room: Chiang Chen Studio Theatre

Chair: Camille Leroux (IMS Lab - Bordeaux INP, France)

Multiple Diffusion Sampling Decoding for Binary Block Codes

Jiahuan Ni, Jian Zheng, Zongyao Li and Xiaosi Tan (Southeast University, China); Chuan Zhang (National Mobile Communications Research Laboratory, Southeast University, China)

Coarse-Grained ASIP Design for MIMO Sphere Decoding

Junsu Heo and Shinyoung Kim (Konkuk University, Korea (South)); Sungkyung Park (Pusan National University, Korea (South)); Chester Park (Konkuk University, Korea (South))

Reduced-Memory Fast-SC Decoding for Polar Codes With Parity Constraints

Yu Tian (Southeast University, China); Huayi Zhou (Southeast University, China & Purple Mountain Laboratories, China); Chuan Zhang (National Mobile Communications Research Laboratory, Southeast University, China)

GPU-Accelerated Projection-Aggregation Decoding of RM Codes with Bank Conflict-Free Shared Memory Access

Kairui Tian, Rong Ke Liu, Zheng Lu and Yansong Li (Beihang University, China); Zhanxian Liu (University of Science and Technology Beijing, China)

A Low-Complexity Soft-Output MLSE Equalizer with DFE-Assisted State Reduction

Peng Zhang (Sun Yat-sen University, China); Changfu He (Nanjing University, China); Zhongfeng Wang and Suwen Song (Sun Yat-sen University, China)

SS4: Array Signal Processing for Next-Generation Wireless Communication Systems

Room: Alumni Atrium
Chairs: Zhang Bo (Tianjin Normal University, China), Junwei Zhang (Communication University of China, China)

Antenna Number Minimisation for Phase-Only Multi-Beam Multiplexing Based on Hybrid Beamforming Architectures

Junwei Zhang, Zicheng Wang, Shufeng Li and Libiao Jin (Communication University of China, China); Zhengyu Wan (Shenzhen MSU-BIT University, China); Wei Liu (The Hong Kong Polytechnic University, Hong Kong); Hing Cheung So (City University of Hong Kong, Hong Kong)

Connectivity-Probability-Driven Multi-RIS Placement in Irregular Regions

Yunpeng Zhao, Qing Shen and Jing Tian (Beijing Institute of Technology, China); Wei Liu (The Hong Kong Polytechnic University, Hong Kong)

Artificial Intelligence Enhanced Signal Processing for Large-scale Antenna Arrays via Memristor Crossbar Architectures

Can Wang (The Chinese University of Hong Kong, Hong Kong); Yanming Zhang (Chinese University of Hong Kong, Hong Kong); Wei Liu (The Hong Kong Polytechnic University, Hong Kong); Steven Shichang Gao (Chinese University of Hong Kong, China)

Hybrid Beamforming-Based Directional Modulation Design for SWIPT

Jiyuan Fan, Zhang Bo, Baoju Zhang and Li Maolin (Tianjin Normal University, China); Taekon Kim (Korea University, Korea (South))

Optimization of Mainlobe Width and Array Geometry via Mixed-Integer Programming

Tianyuan Gu, Wenbo Li, Kejiang Wu and Qing Shen (Beijing Institute of Technology, China)

Tuesday, November 4 2:00 - 3:30

Signal Processing for Health and Assisted Living

Room: Chiang Chen Studio Theatre
Chair: Wai C Chu (Amazon Lab126, USA)

TFL: A Hybrid Time-Frequency Loss Function for Robust EEG Signal Denoising

Ping Liang and Anton Louise P De Ocampo (Batangas State University, Philippines)

Development and Evaluation of a Rule-Based Detection System for Visually Induced Motion Sickness Using Blood Flow and tcpCO_2 Signals

Rei Usami (Mie University, Japan)

Sound Source Localization for Household Robot - Algorithms and System Integration

Wai C Chu (Amazon Lab126, USA)

Design and Deployment of Mobile Air Quality Monitoring System Using Node-RED and MQTT

Nam Do Huy (Ha Noi Technical and Professional College, Vietnam); Tam Pham Thanh and Thanh Han-Trong (Hanoi University of Science and Technology, Vietnam); Hung V. Dao (Hanoi University of Science and Technology & School of Electrical and Electronic Engineering, Vietnam); Phat Huu Nguyen (Hanoi University of Science and Technology, Vietnam)

Improving SSVEP BCI Spellers with Data Augmentation and Language Models

Kipngeno Koech (Carnegie Mellon University Africa, Rwanda); Joseph Zhang, Ruiming Zhang, David Hill and Kateryna Shapovalenko (Carnegie Mellon University, USA)

Signal Recovery, Detection and Estimation

Room: Alumni Atrium
Chair: Zhiyuan Yan (Lehigh University, USA)

Fast Signal Recovery for Modulo ADC using Compressed Sensing and Sliding DFT
Neil Irwin Bernardo (University of the Philippines Diliman, Philippines)

DSP Hardware Tradeoffs for Digital Predistortion based on Pruned Volterra Series
Talemwa Mubanda, Per Larsson-Edefors, Thomas Eriksson and Jorge Muñoz Bautista (Chalmers University of Technology, Sweden)

Symbol Detection Using an Integrate-and-Fire Time Encoding Receiver
Neil Irwin Bernardo (University of the Philippines Diliman, Philippines)

A New Non-Binary Response Generation Scheme from Physical Unclonable Functions
Yonghong Bai (Broadcom, USA); Zhiyuan Yan (Lehigh University, USA)

Beat Frequency Estimation for Fusion Plasma Microwave Reflectometry Signals
Subramaniyan N (BITS PILANI KK BIRLA GOA CAMPUS, India); Janmejay Umeshbhai Buch (Institute for Plasma Research, India); A Amalin Prince (Birla Institute of Technology and Science, Pilani, Goa Campus, India); Surya Pathak (Institute for Plasma Research, India)

Tuesday, November 4 4:00 - 5:30

SS5: Low-power Edge Embedded Systems

Room: Chiang Chen Studio Theatre
Chairs: Junrui Liang (ShanghaiTech University, China), Bao Zhao (Hong Kong Polytechnic University, Hong Kong)

A Lightweight and Efficient Framework for Wiring Inspection in Electric Power Systems
Haitian Yang (ShanghaiTech University, China); Yaohua Liao and Mengmeng Zhu (China Southern Power Grid, China); Yuming Liu (Yunnan Electric Power Dispatching Control Center, China); Dezhi Ji (China Southern Power Grid, China); Xin Lou and Wei Zhou (ShanghaiTech University, China)

Electromechanical Metamaterials Enhanced Self-powered Sensing Systems
Bao Zhao and Xingbo Pu (Hong Kong Polytechnic University, Hong Kong)

ViPSN-OMS: A Battery-free Occupancy Monitoring System using a Time-of-flight Sensor
Shengqi Gao, Jiacong Qiu and Junrui Liang (ShanghaiTech University, China)

A Battery-free Sensorless Thermoelectric Tag for Temperature Difference Estimation
Li Ni, Lei Che, Jiacong Qiu and Junrui Liang (ShanghaiTech University, China)

Design and Implementation of A Fingertip-motion-powered Game for Geriatric Rehabilitation
Xin Li (Xidian University, China & The Chinese University of Hong Kong, Hong Kong); Yuxing Zhong (China); Yaoyi Li (Xidian University, China); Wei-Hsin Liao (The Chinese University of Hong Kong, Hong Kong)

SS7: Signal Processing in Communications, Navigation, and Sensing for Autonomous Systems

Room: Alumni Atrium
Chairs: Elia Favarelli (University of Bologna, Italy), Enrico Testi (University of Bologna, Italy)

Enhancing Secrecy Rates in UAV Communications via Phase Optimization and Artificial Noise Beamforming

Xiaoqing Weng, Zhang Bo, Baoju Zhang and Hailong Gao (Tianjin Normal University, China); Taekon Kim (Korea University, Korea (South))

Phase Spectrum Design for Multi-Beam Analog Beamforming in mmWave Planar Arrays

Jiazhe Li and Miao Li (Harbin Institute of Technology, China); Shuai Yuan and Xiaoying Zhang (China Academy of Space Technology, China); Heng Dong and Zhuoming Li (Harbin Institute of Technology, China)

Cramér-Rao Bound for Direct Position Estimation in OFDM Based Cellular Systems

Sijia Li, Rui Sun and Bing Xu (The Hong Kong Polytechnic University, Hong Kong); Yuanwei Liu (The University of Hong Kong, Hong Kong)

End-to-end Radio SLAM for Autonomous Systems

Kyeong-Ju Cha, Hyunwoo Park, Wankyu Choe, Soonmin Hwang and Sunwoo Kim (Hanyang University, Korea (South))