MIND 2025

The International Conference on Machine Intelligence and Nature-inspireD Computing

CONFERENCE BROCHURE

Organizers:

Supported by/Co-organizer:

Technical Sponsors:

October 31- November 2, 2025

Xiamen, China

Welcoming Message from the General Co-Chairs

It is our great pleasure to welcome you to the 2025 International Conference on Machine Intelligence and Nature-Inspired Computing (MIND 2025), held from October 31 to November 2, 2025, in Xiamen, China. MIND aims to serve as a vibrant forum for presenting the latest advances and exchanging ideas in areas spanning large-scale learning and foundation models, evolutionary and nature-inspired computation, neuro-symbolic methods, embodied intelligence, and AI for Science.

This year's technical program features a rich mix of keynote speeches, tutorials, invited talks, an Editors-in-Chief, an Industry Forum, a Young Scholars Forum, and a dedicated workshop on brain-inspired computing. These activities not only highlight current research frontiers but also encourage cross-disciplinary conversations and foster collaboration across academia and industry.

A successful conference would not be possible without the high-quality contributions from our authors. MIND 2025 received a great number of submissions, reflecting the global momentum in this dynamic field. After a rigorous peer-review process—conducted by a panel of expert reviewers and area chairs—a total of 93 papers were selected for inclusion in the proceedings. These include 71 regular papers, 22 short papers, and 76 abstracts, covering both theoretical developments and real-world applications. Accepted regular and short papers are submitted to IEEE Xplore for indexing.

We extend our sincere gratitude to all authors for their valuable contributions, and to the Program Committee members and reviewers for their dedication to ensuring a fair, timely, and high-quality reviewing process.

We are deeply grateful to our Keynote Speakers, Tutorial Speakers, and Invited Speakers, who generously shared their insights and experiences. We would also like to thank all participants in the Young Scholars Forum, whose passion and fresh perspectives represent the future of our field. Special thanks go to the Workshop Organizers for curating timely and focused sessions that deepen technical discussion.

We also acknowledge the outstanding efforts of the International Advisory Committee, the Program Chairs, Workshops and Tutorials Chairs, Publication Chairs, Local Arrangements Team, Publicity and Web Team, Finance and Registration Chairs, and our many Student Volunteers. Their professionalism and commitment are at the heart of this conference.

Finally, we extend our heartfelt gratitude to our organizers and sponsors for their generous support: Xiamen University, Sichuan University, Shenzhen University, the Fujian Association for Artificial Intelligence, Xiamen Computer Federation, Nanhubrain.cn (Workshop), Baidu Online Network Technology (Beijing) Co. Ltd., Xiamen An Xiaobei Supply Chain Co. Ltd., Huawei Technologies Co. Ltd., SynGeek, Dongguan Direct Drive Technology Co. Ltd., University of Nottingham Ningbo China, China Unicom (Hong Kong) Innovation Research Institute, Suzhou Dolphin Star Intelligent Technology Co. Ltd., and the Chongqing Key Laboratory of Big Data Intelligence and Privacy Computing. Your commitment and partnership have been instrumental in making MIND 2025 a truly inclusive and impactful event for researchers at all stages of their careers.

We hope that you find this conference intellectually stimulating and personally rewarding. Thank you for joining us in Xiamen, and we wish you an enjoyable and inspiring MIND 2025.

General Co-Chairs

Min Jiang, Xiamen University, China

Gary G. Yen, Sichuan University, China

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Conference Introduction

About MIND 2025

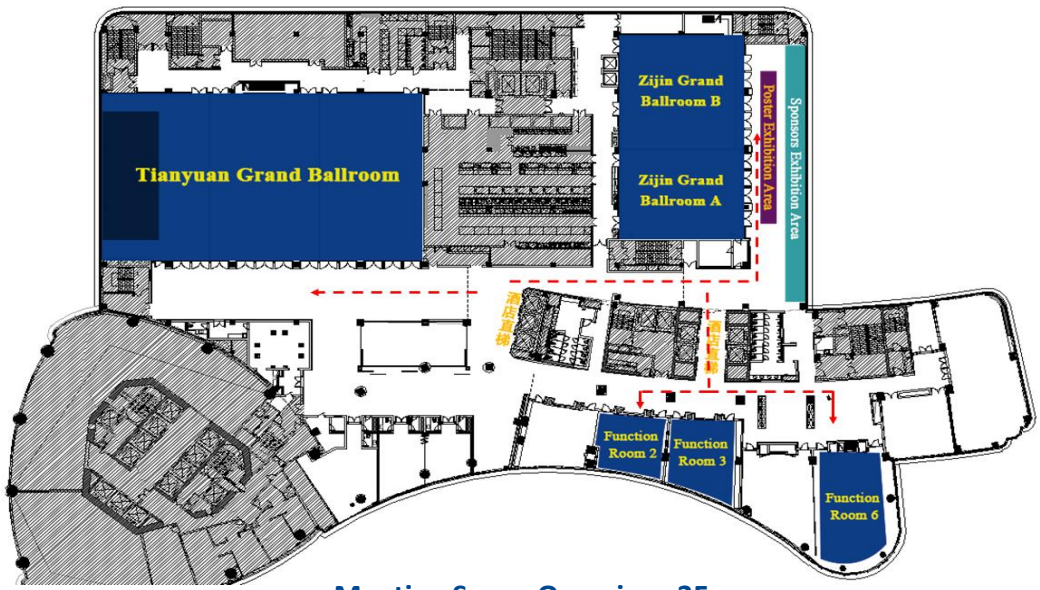
The 2025 International Conference on Machine Intelligence and Nature-InspireD Computing (MIND) will be held in Xiamen, China, from October 31 to November 2, 2025, serving as a premier forum for showcasing original and groundbreaking research contributions in the fields of Machine Intelligence and Nature-Inspired Computing.

The conference aims to bring together researchers, practitioners, and industry experts to share their latest innovations, advancements, and real-world applications. MIND provides a vibrant platform for discussing emerging trends and exploring the transformative potential of machine intelligence combined with computational strategies inspired by nature. Through this convergence, the conference seeks to foster interdisciplinary collaboration and inspire future developments that push the boundaries of these exciting and rapidly evolving research areas.

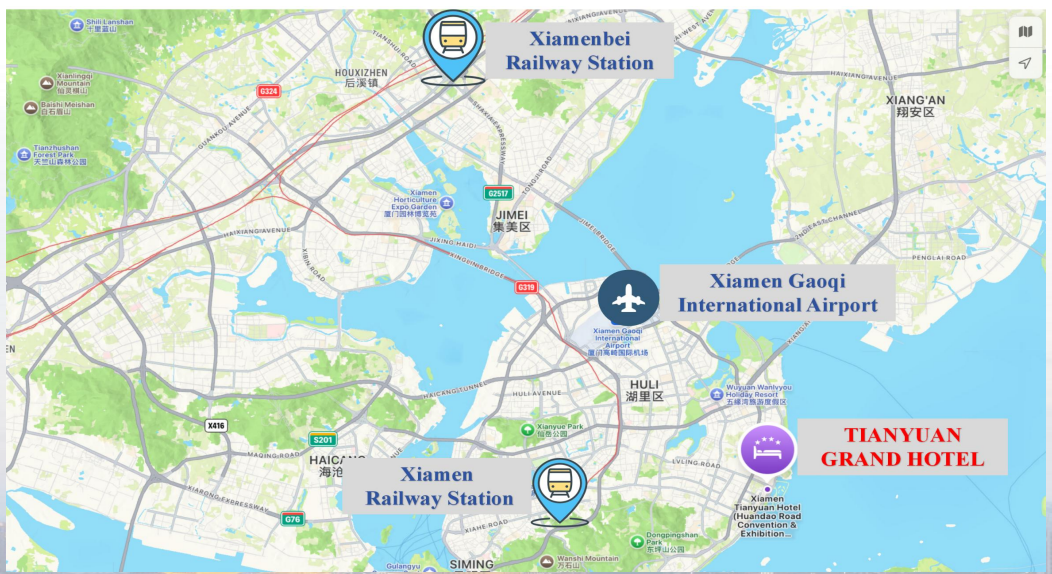
Guidelines for On-Site Participants

Conference Venue

TIANYUAN GRAND HOTEL (No. 1813, East Island Ring Boulevard, Siming District, Xiamen, Fujian)



Meeting Space Overview, 3F



Hotel Location

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The Hong Kong Polytechnic University, Hong Kong SAR, China

Program Overview

Date	Time	Activity	Location
Friday Oct.31	10:30 – 18:00	Registration	Hotel Lobby
	13:00 – 15:00	Best Paper Selection Session	3F, Function Room 3
	13:00 – 14:30	Tutorial Ⅰ	3F, Zijin Grand Ballroom B
		Tutorial Ⅱ	3F, Function Room 2
		Tutorial Ⅲ	3F, Function Room 6
	14:30 – 15:00	Coffee Break	---
	15:00 – 16:30	Tutorial Ⅳ	3F, Zijin Grand Ballroom B
		Tutorial Ⅴ	3F, Function Room 2
		Tutorial Ⅵ	3F, Function Room 6
	16:30 – 18:00	Industry Panel Session	3F, Zijin Grand Ballroom AB
	18:00 – 20:00	Welcome Reception	1F, PALATE All Day Dining Restaurant

Program Overview

Date	Time	Activity	Location
Saturday Nov.1	08:00 – 18:00	Registration	Hotel Lobby
	08:30 – 09:00	Opening Ceremony & Group Photo	3F, Tianyuan Grand Ballroom
	09:00 – 9:50	Keynote Ⅰ	3F, Tianyuan Grand Ballroom
	9:50 – 10:20	Coffee Break	---
	10:20 – 12:00	Keynote Ⅱ & Keynote Ⅲ	3F, Tianyuan Grand Ballroom
	12:00 – 13:30	Lunch	1F, PALATE All Day Dining Restaurant
	13:30 – 15:00	Oral Session Ⅰ	3F, Zijin Grand Ballroom B
		Oral Session Ⅱ	3F，Function Room 2
		Oral Session Ⅲ	3F, Function Room 6
		Oral Session Ⅳ	3F, Function Room 3
	15:00 – 15:30	Coffee Break	---
	15:30 – 17:00	Editors-in-Chief	3F, Zijin Grand Ballroom AB
	17:00 – 18:00	Poster Session	3F, Zijin Grand Ballroom AB Corridor
	19:00 – 21:00	Banquet	3F, Tianyuan Grand Ballroom

Program Overview

Date	Time	Activity	Location
Sunday Nov.2	08:00 – 12:00	Registration	Hotel Lobby
	08:30 – 10:30	Oral Session Ⅴ	3F, Zijin Grand Ballroom B
		Oral Session Ⅵ	3F， Function Room 2
		Oral Session Ⅶ	3F, Function Room 6
		Oral Session Ⅷ	3F, Function Room 3
	10:30 – 11:00	Coffee Break	---
	11:00 – 12:30	Young Scholars Forum	3F, Zijin Grand Ballroom AB
	12:30-14:00	Lunch	1F, PALATE All Day Dining Restaurant

Detailed Program

Time	Session Chairs	Activity	Location
Friday, Oct. 31, 2025			
10:30-18:00	Registration		Hotel Lobby
13:00-14:30	/	**Tutorial Speaker Ⅰ: Dongrui Wu, IEEE Fellow, Huazhong University of Science and Technology, China** Title: Accurate, Secure, and Privacy-Preserving Brain-Computer Interfaces	3F, Zijin Grand Ballroom B
		Tutorial Speaker Ⅱ: Guoqi Li, Distinguished Young Scholar, Institute of Automation, Chinese Academy of Sciences, China Title: Brain-inspired Large Models	3F, Function Room 2
		Tutorial Speaker Ⅲ: Xi Lin, City University of Hong Kong, Hong Kong SAR, China Title: Modelling and Set Constraints in Multi-objective Evolutionary Computation	3F, Function Room 6
14:30-15:00	Coffee Break		
15:00-16:30	/	**Tutorial Speaker Ⅳ: Huajin Tang, Zhejiang University, China** Title: Towards Training Large-Scale High-Performance Spiking Neural Networks: Fundamentals and Advances	3F, Zijin Grand Ballroom B
		Tutorial Speaker Ⅴ: Yiu-Ming Cheung, IEEE Fellow, Hong Kong Baptist University, Hong Kong SAR, China Title: An Introduction to Imbalanced Data Learning and Its Applications	3F, Function Room 2
		Tutorial Speaker Ⅵ: Kay Chen Tan, IEEE Fellow, The Hong Kong Polytechnic University, Hong Kong SAR, China Title: Towards Automated Learning in the Era of Large Models	3F, Function Room 6
16:30-18:00	**Dacheng Tao**, Nanyang Technological University, Singapore	**Talk 1: (16:30-16:50) Xiaoguang Hu, Baidu.com Inc. , China** **Talk Title: Accelerating Scientific Discovery and Applications with PaddlePaddle Framework 3.0** **Industry Panel Session: Empowering Industries with Computational Intelligence: From Large Models to Intelligent Systems** **Yansong Chua, China Nanhu Academy of Electronics and Information Technology, China** **Qinghai Guo, Huawei Technologies Co., Ltd., China** **Xiaoguang Hu, Baidu.com Inc., China** **Han Li, China Unicom (Hong Kong) Innovation Research Institute, China**	3F, Zijin Grand Ballroom AB
18:00-20:00	Welcome Reception		1F, PALATE All Day Dining Restaurant

Detailed Program

Time	Session Chairs	Activity	Location
Saturday, Nov. 1, 2025			
08:00-18:00	Registration		Hotel Lobby
08:30-09:00	Opening Ceremony & Group Photo		3F, Tianyuan Grand Ballroom
09:00-09:50	**Gary G. Yen**, Sichuan University, China	**Keynote Speaker Ⅰ: Tianyou Chai, IEEE Life Fellow, Northeastern University, China** Title: Intelligent Decision and Control Integrating System Based on End-edge-cloud Collaboration	
09:50–10:20	Coffee Break		/
10:20-12:00	**Huajin Tang**, Zhejiang University, China	**Keynote Speaker Ⅱ: Wolfgang Maass, Graz University of Technology, Austria** Title: New Ingredients for Brain-inspired AI	3F, Tianyuan Grand Ballroom
	Liang Feng, Chongqing University, China	**Keynote Speaker Ⅲ: Xin Yao, IEEE Fellow, Lingnan University, Hong Kong SAR, China** Title: Explaining Explainable Artificial Intelligence (XAI)	
12:00–13:30	Lunch		1F, PALATE All Day Dining Restaurant
13:30–15:00	**Xingyu Wu**, The Hong Kong Polytechnic University, Hong Kong SAR, China	**1. Invited Talk: Feng Xia (RMIT University, Australia)** **Talk Title: Graph Learning: What, Why, and How?** **Oral Session Ⅰ： General Track + Deep Learning and Large Foundation Models** 15. Learning to Control Dynamical Agents via Spiking Neural Networks and Metropolis-Hastings Sampling Ali Safa; Farida Mohsen; Ali Al-Zawqari 31. FreqDGT: Frequency-Adaptive Dynamic Graph Networks with Transformer for Cross-subject EEG Emotion Recognition Yueyang Li; Shengyu Gong; Weiming Zeng; Nizhuan Wang; Wai Ting Siok 46. LLM-driven Evolutionary Algorithm Selection: Bidirectional Framework and Sampling Paradigm Xingyu Wu; Yinglan Feng; Jibin Wu 203. LatentTAS: Constrained Transformer Architecture Search via Surrogate-Driven Latent Evolution Lei Liu; Gary G. Yen; Zhenan He	3F, Zijin Grand Ballroom B
	Cuie Yang, Northeastern University, China	**Oral Session Ⅱ： Nature-inspired Intelligence Ⅰ** 38. Variational Autoencoder-based High-dimensional Expensive Evolutionary Algorithm Yehang Chen; Xinyue Li; Yu Zhang; Wang Hu 50. Island Model Human-based Evolutionary Computation System Yuto Yamada; Takato Utsumi; Kei Ohnishi 79. Physics-Preserving Evolutionary Operators for Symbolic Regression Yunpeng Gong; Can Yang; Sihan Lan; Jun Liao; Zexin Lin; Huolong Wu; Jiajing Lin; Yuzhou Tang; Xiaobo Li; Xiaodan Feng; Min Jiang 89. Unlocking Large Language Model Capabilities for Expensive Dynamic Multiobjective Optimization Huolong Wu; Zhenzhong Wang; Yunpeng Gong; Ming Zhu; Min Jiang 112. A Multi-region Transfer Algorithm for Dynamic Multi-task Multi-objective Optimization Yating Lin; Jinliang Ding; Cuie Yang	3F, Function Room 2

Detailed Program

Time	Session Chairs	Activity	Location
Saturday, Nov. 1, 2025			
13:30–15:00	**Zhenzhong Wang**, Xiamen University, China	**Oral Session Ⅲ：Machine Intelligence Applications** 80. Inducing Implicit Focus through Structured Irrelevance for Robust Neural PDE Solvers Yunpeng Gong; Qingyuan Zeng; Chenchen Liu; Jian Guan; Jiajing Lin; Chuangliang Zhang; Yongjie Hou; Yipeng Huang; Zhenzhong Wang; Xiaobo Li; Xiaodan Feng; Min Jiang 81. Evolutionary Nanorobotic Design Based on Bioinformation Feedback Weiqi Liu; Jiawei Zou; Shaolong Shi 86. NexusSplats: An Efficient Approach for Robust Novel View Synthesis from Unstructured Image Collections Yuzhou Tang; Dejun Xu; Yongjie Hou; Zhenzhong Wang; Yunpeng Gong; Zhenzhong Wang 123. SARD: Segmentation-Aware Anomaly Synthesis via Region-Constrained Diffusion with Discriminative Mask Guidance Yanshu Wang; Xichen Xu; Xiaoning Lei; Guoyang Xie 141. A Robust Drone Based Parking Space Detection System Based on Deep Learning Algorithms Li-Sha Zhou; Tai-Chiu Hsung; Sik-Ho Tsang; Yu-Lin Zhu; Wai-Lun Lo 151. End-to-End Seam Tracking with Flow Matching-Based Diffusion Policy Zhaoqi Chu; Xiangrong Liu; Xuhui Que; Bo Yu; Juan Liu	3F, Function Room 6
	Jibin Wu, The Hong Kong Polytechnic University, Hong Kong SAR, China	**Oral Session Ⅳ：Workshop on Neuromorphic Computing Ⅰ** **Welcome Speech：Huajin Tang, Zhejiang University, China** **1. Invited Talk: Yansong Chua (China Nanhu Academy of Electronics and Information Technology, China)** **Talk Title: The Age of Large Models: The Path Forward for Brain-Inspired Intelligence** 69. Synaptic Delay Plasticity and Temporal Attention Enhance Temporal Classification Capability of Spiking Neural Networks Hangming Zhang; Qiang Yu 167. Spiking U-Net++: A Quantization-Adaptive Rate Encoding Based Spike Image Segmentation Framework Chenxi Zhao; Shi Gu ; De Ma ; Huajin Tang ; Zheng Qian; Gang Pan 105. NeuroPathNet: Dynamic Path Trajectory Learning for Brain Functional Connectivity Analysis Tianqi Guo; Liping Chen; Ciyuan Peng ; Jingjing Zhou; Jing Ren 124. SDAR-Net: A Low-Power Solution to EEG-based Auditory Attention Detection Zheyuan Lin; Sirui Li; Yuan Liao; Siqi Cai; Haizhou Li	3F, Function Room 3
15:00-15:30	Coffee Break		

Detailed Program

Time	Session Chairs	Activity	Location
Saturday, Nov. 1, 2025			
15:30-17:00	**Jon Garibaldi**, University of Nottingham Ningbo China, China	**Editors-in-Chief: Bridging Intelligence: The Evolving Role of CI Journals in Shaping Interdisciplinary AI Research** **Yiu-Ming Cheung, IEEE Fellow, Hong Kong Baptist University, Hong Kong SAR, China** Editor-in-Chief of IEEE Transactions on Emerging Topics in Computational Intelligence **Carlos A. Coello Coello, IEEE Fellow, Instituto Politécnico Nacional (CINVESTAV-IPN), Mexico** Editor-in-Chief of IEEE Transactions on Evolutionary Computation **Jon Garibaldi, IEEE Fellow, University of Nottingham Ningbo China, China** Vice President of IEEE Computational Intelligence Society **Yaochu Jin, IEEE Fellow, Westlake University, China** President of IEEE Computational Intelligence Society **Huajin Tang, Zhejiang University, China** Editor-in-Chief of IEEE Transactions on Cognitive and Developmental Systems **Jun Wang, IEEE Fellow, City University of Hong Kong, Hong Kong SAR, China** Editor-in-Chief of IEEE Transactions on Artificial Intelligence **Dongrui Wu, IEEE Fellow, Huazhong University of Science and Technology, China** Editor-in-Chief of IEEE Transactions on Fuzzy Systems	3F, Zijin Grand Ballroom AB
17:00-18:00	**Zhenan He,** Sichuan University, China **Zhenzhong Wang,** Xiamen University, China	Poster Session	3F, Zijin Grand Ballroom AB Corridor
19:00-21:00		Banquet	3F, Tianyuan Grand Ballroom

Detailed Program

Time	Session Chairs	Activity	Location
Sunday, Nov. 2, 2025			
08:00-12:00	Registration		Hotel Lobby
08:30-10:30	**Jing Liu**, Xidian University, China	**Oral Session Ⅴ：Deep Learning and Large Foundation Models + Machine Intelligence Applications** 221. Leveraging LLMs for LncRNA Classification and LncRNA-Protein Interaction Prediction: A Novel Approach for Sequence-Based Feature Extraction Yuhan Sun; Huaijin Wu; Kaipeng Zeng; Xiaoxing Wang 94. DualCAM++: Dual-saliency Guided Sample Selection for Plug-and-Play Backdoor Enhancement Chuangliang Zhang; Qingyuan Zeng; Yunpeng Gong; Zhenzhong Wang; Jiajing Lin; Min Jiang 169. Community Detection Based on Multi-Information Fusion of Motifs and Attributes Shuo Li; Chunlei Han; Hongbin Cao; Xinyue Luo; Xiangyi Teng; Jing Liu 171. Attention is All You Need for Boosting Graph Convolutional Neural Network Yinwei Wu; Xingyi Yang 174. SDSR: A Multi-Decoder Symbolic Regression Framework for Solving Coupled PDE Systems Zexin Lin; Zhenzhong Wang; Yunpeng Gong; Shengming Gu; Xuan Wei; Min Jiang 193. Recognizing Human Action in Videos via Optimal Computational Visual-textual Clues Hong Lyu; Tao Du; Jinchao Ge; Jiahui Yu 157. Adapting Visual State Space Model for Medical Image Segmentation: A Hybrid-Rank Approach Yibo Zhong; Shilin Li; Yao Zhou 178. Hamiltonian Prediction through Hierarchical Multimodal Alignment Yongjie Hou; Zhenzhong Wang; Yunpeng Gong; Shu Jiang; Kaijun Che; Min Jiang	3F, Zijin Grand Ballroom B
	Zhenan He, Sichuan University, China	**Oral Session Ⅵ：Nature-inspired Intelligence Ⅱ** 115. A Causality-Guided Adaptive Dual-Population Evolutionary Algorithm for Constrained Multi-Objective Optimization Jiachun Huang; Zhaojun Wang; Wenji Li; Jiaping Hu; Biao Xu; Shushan Huang; Junjie Yao; Yun Li; Zhun Fan 119. Evolution Assisted Pareto Set Learning for Multi-modal Multi-objective Optimization Yu Wang; Ke Shang; Zexuan Zhu 152. Multi-Population Evolutionary Neural Architecture Search via Multiple Zero-Cost Proxies Jiehui Feng; Wu Lin; Qingling Zhu; Songbai Liu; Junkai Ji; Qiuzhen Lin 153. Privacy-Preserving Federated Evolutionary Optimization with Personalized Data Transformation Qianhui Ding; Wu Lin; Xiaoming Xue; Qingling Zhu; Genghui Li; Lijia Ma; Qiuzhen Lin 163. A K-Means-Based Cooperative Evolutionary Algorithm for Constrained Multi-objective Optimization Problems with Complex Feasible Regions Liming Liu; Cong Zhu; Yongkuan Yang 185. Multiobjective Optimization using AGE-MOEA-II with Improved Environmental Selection Chia-Tzu Chang; Thammarsat Visutarrom; Tsung-Che Chiang 202. Diffusion Meets Evolution: Constraint-Guided Learning for Large-Scale Dynamic Multi-objective Evolutionary Optimization Chenyang Li; Gary G. Yen; Zhenan He 44. Black-Box Watermark Removal Using Diffusion Models and Self-Attention Mechanisms Qingyuan Zeng; Yunpeng Gong; Chuangliang Zhang; Shu Jiang; Zhenzhong Wang; Min Jiang	3F, Function Room 2

Detailed Program

Time	Session Chairs	Activity	Location
Sunday, Nov. 2, 2025			
08:30-10:30	**Yujie Wu**, The Hong Kong Polytechnic University, Hong Kong SAR, China	**Oral Session Ⅶ: Workshop on Neuromorphic Computing Ⅱ** **1. Invited Talk: Yu Qi (Zhejiang University, China)** **Talk Title: Human Motor Cortex Encodes Complex Handwriting Through a Sequence of Stable Neural States** 59. FSRNN: ANN-SNN Conversion of Full Spike-Driven RNNs for Energy-Efficient Digital Predistortion Long Chen; Han Ji; Xiaotian Song; Yanan Sun 62. Incorporating Hebbian Learning into Biologically Plausible Dendritic Learning Zhenyu Lei; Wenzhu Gu; Xiangmei Li; Jiake Wang; Shangce Gao 82. Multi-Modal Semantic Segmentation Based on Spike Encoding and Early Fusion with Events and Images Zhuxi Li; Qiugang Zhan; Ran Tao; Peiming Kan; Zhiguang Qin; Guisong Liu 83. A Spiking Transfer Learning Method for Event Camera Based on Structural Decoupling Peiming Kan; Qiugang Zhan; Ran Tao; Zhuxi Li; Zhiguang Qin; Guisong Liu 95. JQA: Joint Design of Hardware-Friendly Quantization and Efficient Accelerator for Spiking Neural Networks HanWen Liu; Kexin Shi; Wenyu Chen; Malu Zhang; Yang Yang 96. SEEND: A Spike-Based End-to-End Framework for Energy-Efficient Speaker Diarization Kexin Shi; Hanwen Liu; Jibin Wu; Wenyu Chen; Malu Zhang; Yang Yang 103. Memristive Dynamical Spiking Neural Networks with Spatiotemporal Heterogeneity Xinming Shi; Peng Zhou; Connlaoth McTaggart; Xin Yao	3F, Function Room 6
	Qian Zheng, Zhejiang University, China	**Oral Session Ⅷ: Workshop on Neuromorphic Computing Ⅲ** **1. Invited Talk: Quanying Liu (Southern University of Science and Technology, China)** **Talk Title: Artificial Intelligence as A Surrogate Brain** **2.Invited Talk: Sha Zhao (Zhejiang University, China)** **Talk Title: Towards Large-Scale Foundation Models for Non-Invasive Brain-Computer Interfaces** 144. When LLM Agents Disagree, Do Humans Mirror? Behavioral Comparisons on Moral Dilemmas Haotian Deng; Sitian Wang; Ruxin Wang; Chen Wei; Wei Xuetao; Quanying Liu 192. Deep Spiking Double Descent Natabara Máté Gyöngyössy; Béla János Szekeres; János Botzheim 187. Strategies for Crop Planting Optimization Under Multiple Factors Jinting Lan; Weijun Zheng; Yushi Wu; Lei Chen 190. Time-Varying Low-Rank Recurrent Networks for Predicting and Interpreting Seizure Dynamics Jingzhe Lin; Ziwei Ou; Guangyu Yang; Weiting Sun; ZHICHAO LIANG; Quanying Liu 219. Point AFNO-Transformer: Adaptive Frequency-Domain Attention for LiDAR Point Cloud Segmentation Haiyang Fu; Songdi Jiang; Yangfei Hou; Zichong Yan	3F, Function Room 3

Detailed Program

Time	Session Chairs	Activity	Location
Sunday, Nov. 2, 2025			
10:30-11:00	Coffee Break		/
11:00-12:30	**Ran Cheng**, The Hong Kong Polytechnic University, Hong Kong SAR, China	**Young Scholars Forum: From First Signature Work to Sustainable Impact: Building a High-Impact Early-Career Research Program** **Jing Liang, Zhengzhou University, China** **Yu Qi, Zhejiang University, China** **Chao Qian, Nanjing University, China** **Yujie Wu, The Hong Kong Polytechnic University, Hong Kong SAR, China** **Junchi Yan, Shanghai Jiao Tong University, China**	3F, Zijin Grand Ballroom AB
12:30-14:00	Lunch		1F, PALATE All Day Dining Restaurant

Poster Papers

Paper ID	Authors	Title
16	Zainab Ali; Lujayn Al-Amir; Ali Safa	On the Importance of Neural Membrane Potential Leakage for LIDAR-based Robot Obstacle Avoidance using Spiking Neural Networks
18	Shimin Zhang; Ziyuan Ye; Yinsong Yan; Zeyang Song; Yujie Wu; Jibin Wu	KoopSTD: Reliable Similarity Analysis between Dynamical Systems via Approximating Koopman Spectrum with Timescale Decoupling
21	Shuo Chen; Zeshi Liu; Haihang You	Maximizing Energy Efficiency in Spiking Neural Networks: A Dynamic Joint Pruning Framework
23	Yang Qi; Zhichao Zhu	Stochastic Computing with Spiking Neural Networks
29	Chenjun Xu; Wenwu Jiang; Rui Yan	Synaptic Plasticity in Spiking Neural Networks for Episodic Memory
30	Haohuai He; Zhi-An Huang; Jibin Wu; Kay Chen Tan	Is Deciphering Cell Types in Complex Tissues the Next Frontier for Protein Language Models?
35	Hanle Zheng; Xujie Han; Zegang Peng; Zhuo Zou; Xilin Wang; Jibin Wu; Hao Guo; Lei Deng	EventDiff: A Unified and Efficient Diffusion Model Framework for Event-based Video Frame Interpolation
42	Weihao Zhang; Haoyu Huang; Rui Yang	Structured Instruction Tuning for Syntax-Semantic Fused Software Defect Detection
43	Ninel Dogaru; Michel El Saliby; Eric Medvet	The Role of Pleiotropy in Body-Brain Evolution of Simulated Robotic Agents
48	Jiejing Wei; Zong-Gan Chen; Yuncheng Jiang; Jun Zhang; Zhi-Hui Zhan	An Ant Colony System Approach with Local Search for Multiobjective Logistics Scheduling
52	Binqiang Wang	Spatiotemporal Enhanced Joint Optimization for Spike Camera Based 3D Reconstruction
55	Yupeng Liu; Guowei Peng; Cheng Zeng; Qirong Yang; Xiurui Xie	Active Transfer Learning Strategy for Spiking Neural Networks
57	Jiajing Lin; Zhenzhong Wang; Shu Jian; Yunpeng Gong; Yongjie Hou; Bowen Yu; Lili Qu; Min Jiang	Phy124: Fast Physics-Driven 4D Content Generation from a Single Image
58	Yao Hu; Rui Liu; Jibin Wu; Zhian Huang; Kay Chen Tan	Federated Learning with Robust Local Training for Noisy MRI-Based Mental Disorder Diagnosis
61	Yu Zhou; Haokai Hong; Ran Cheng; Kay Chen Tan	Constrained Human Preference Alignment for Natural Language Planning with LLMs
74	Matteo Nicolini	Multi-Objective Genetic Algorithms in Designing Redundant Water Distribution Systems
76	Guanghua Lv; Yu Zhou; Jiahui Wang; Jiping Lin	LLM-MTPSO: Large Language Model-Assisted Multi-task Particle Swarm Optimization for Imbalanced Classification
78	Xin Deng; Tianhao You; Yihan Liu	Shift Time Channel Mix (STCMix): Spatial Information Fusion for Spiking Neural Networks
85	Wuque Cai; Hongze Sun; Qianqian Liao; Jiayi He; Duo Chen ; Dezhong Yao; Daqing Guo	Brain-Inspired Metric Learning Based on Spiking Prototypes
87	Lee Seng Hong; Hanle Zheng; Lei Deng	Coupling Motor Primitives for Biomimetic Legged Locomotion with Enhanced Adaptability and Robustness
88	Zhong Zheng; Lei Deng; Jing Wei; Hao Guo	Modeling Macroscopic Brain Dynamics with Brain-inspired Computing Architecture
91	Yang Li; Yan Wang	Flipping Time: A Novel Data Augmentation Strategy for Spiking Neural Networks

Poster Papers

Paper ID	Authors	Title
98	Jiawei Zou; Weiqi Liu; Shaolong Shi	An Evolutionary Nanorobotic Cooperative Grasping and Transport Method Based on Information-Sharing Structures
101	Yancheng Zhou; Lei Deng; Yujie Wu	Anchoring Attractor Dynamics in Discrete Feedforward: A Differentiable Hybrid Neural Network for Continuous Object Tracking
102	Haiyun Qiu; Xingyu Wu; Ran Cheng; Kay Chen Tan	DB-Merging: Distribution-Aware Model Merging for Multi-Task Inference
104	Xiaoyue Jin; Yinglan Feng; Ran Cheng; Dengxiu Yu; Kay Chen Tan	Swarm Decision-Making via Evolutionary Optimization in Pursue-Containment Scenarios
106	Chen Liang; Hongyan Jiang; Xiaole Guo; Linjie Wu; Zhixia Zhang; Zhihua Cui	Large-scale Many-objective Evolutionary Algorithm based on Overlapping Grouping of Objective Guided Variables
108	Jisong Yu; Chengjun Zhang; Yuhao Zhang; Jie Yang; Sawan Mohamad	Spiking Decision-Making System Based on Reinforcement Learning
109	Zhipeng Liao; Tianyang Li; Ziyang Shen; Chaoming Fang; Jie Yang; Mohamad Sawan	NeuroPlat: An FPGA-based Neuromorphic Computing Platform with Optimized Toolchain for Efficient SNN Deployment
111	Jianming Zhu; Ping He; Zhiyuan Hu; Rong Xiao	BKD-BSNN: Blurred Knowledge Distillation-Enhanced Binarized Spiking Neural Network for Efficient Neuromorphic Vision
113	Changping Wang; Shi Gu; De Ma; Huajin Tang; Qian Zheng; Gang Pan	Spiking Neuron as Sparse Attention for Long-Term Memory Tasks
116	Chenwen Ding; Wenji Li; Jiachun Huang; Zhaojun Wang; Min Jiang; Biao Xu; Shushan Huang; Yun Li; Zhun Fan	Dynamic Constrained Multiobjective Algorithm Based on Neural Network Learning and Evolutionary Optimization
117	Jiawei Zhao; Xuefeng Chen; Liang Feng	An Efficient Index-based Source Task Selection Approach for Large-scale Evolutionary Sequential Transfer Optimization
118	Kehong Li; Yifan Wang; Xuefeng Chen; Liang Feng	DNSODN: A Detail-Enhanced and Normalized Distance-IoU Aware Network for Small Object Detection
121	Yuxiao Huang; Xuebin Lv; Liang Feng; Kay Chen Tan	Preliminary Study for Autonomous Evolutionary Multitasking Method Design
122	He Xiao; Haobo Liu; Zhengwu Liu; Ngai Wong	Brain-Inspired Quantized Spiking Neural Networks with Efficient Analog Neurons
125	Qiong Xia; Yuzun Wang;Hui Zhang; Ying Zhang; Zezhong Han	Multi-objective Optimization of 2D-Cutting Stock Problem with Long-term Leftover Value
126	Yu Xiao; Peng Chen; Peng Lin; Gang Pan	Bio-plausible Neuron for Efficient Neuromorphic Computing with Dynamical Neural Behaviors
128	Junwei Dong; Yifan Wang; Sijia Wang; Liang Feng	Hierarchical Subspace Adaptation for Efficient Fine-Tuning of Large Language Models
130	Yanfeng Lv; Fan Luo;Zeyu Gao	HLIF: A History-Aware Model Boosting Neuronal Heterogeneity in SNNs
133	Yi Lu; Xiaoming Xue; Kai Zhang; Wu Lin; Kay Chen Tan	Analyzing the Effectiveness of Evolutionary Transfer Optimization Through Bayesian Estimation
138	Yintao Zhou; Wei Huang; Zhengyu Li; Jing Huang; Meng Pang	Facial Expression-based Parkinson's Disease Severity Diagnosis via Feature Fusion and Adaptive Class Balancing
142	Chenming Cao; Xiaoming Xue; Liang Feng; Kay Chen Tan	Why Knowledge Transfer Works in Oracle-Based Optimization: A Brief Analysis
143	Lizhao Xu; Haohuai He; Zhi-An Huang	EvoGraph-PLM: Guiding In Silico Protein Evolution with Structure-Aware Graph Intelligence
145	Lei Liu; Kainan Wang; Aili Wang	KL Divergence Regularization for Stabilizing Output Distributions in Online SNN Learning

Poster Papers

Paper ID	Authors	Title
146	Kainan Wang; Lei Liu; Aili Wang	SAASVIT: Row-Wise Product Based Sparse Attention Acceleration for Spiking ViT
154	Tao Jin; Jian-Yu Li; Zhi-Hui Zhan; Jun Zhang	Singular Value Decomposition of the Pheromone Matrix for Enhancing Ant Colony Optimization
156	Zheng Huang; Mingfan Qiu; Haifan Wu; Zhengyu Li; Lijun Xu; Qing Bin; Meng Pang	Cross-Feature Imputation and Adaptive Weighted Dual-channel Graph Neural Network for Interpretable Stroke Recurrence Prediction
164	Mingyuan Lin	Non-Uniform Exposure Imaging via Neuromorphic Shutter Control
170	Wenzhuo Chen; Keyu Jin; Zhenzhong Wang; Min Jiang	Semi-Supervised Semantic-Subgraph Joint Augmentation for Robust Graph Neural Networks
172	Zihan Huang; Wei Fang; Tong Bu; Peng Xue; Zecheng Hao; Wenxuan Liu; Yuanhong Tang; Zhaofei Yu; Tiejun Huang	Differential Coding for Training-Free ANN-to-SNN Conversion
175	Zhiyuan Li; Bin Wu; Fanggao Wan; Hao Li; Maoguo Gong; Yue Wu	Multiobjective Multitasking Evolutionary Optimization with Adaptive Knowledge Transfer
176	Siyao Zhang; En Lin; Huajin Tang	Hybrid Where–What Neural Decoder: Approximating Bayesian Inference for Real-Time Spike-Train Reconstruction
177	Huang Yipeng; Xu Dejun; Lin Zexin; Gong Yunpeng; Lan Hao; Guo Wei; Jiang Min ; Wang Zhenzhong	Interpretable and Efficient PDE Solving via Multitask Symbolic Regression
182	Jiquan Wang; Sha Zhao; Zhiling Luo; Yangxuan Zhou; Haiteng Jiang; Shijian Li; Tao Li; Gang Pan	CBraMod: A Criss-Cross Brain Foundation Model for EEG Decoding
184	Yuan Zhong; He Yu	Largest Connected Component-centered Dual-layer Gravity Optimization of Network Robustness
191	Huangqi Wang; Li Wang; Feng Chang; Jian Zhu; Wenjing Hong; Zexuan Zhu	LLM-Enhanced Multi-Objective Fair Influence Maximization
194	Zhuolun Li;Dongxu Zhang;Jiayu Yang; Ziqian Lu; Huibin Huang	A Biochemical Reaction Anomaly Detection System Based on Stage-Awareness and Spatiotemporal Feature
198	Yunyun Zeng; Maozhen Han; Hongxiang Peng; Jing Wang; Dewei Bai; Hong Qu	Multimodal Spiking Neural Networks Based on Bayesian Inference
199	Chenxiang Ma; Xinyi Chen; Kay Chen Tan; Jibin Wu	Spatio-Temporal Decoupled Learning for Spiking Neural Networks
204	Shiyao Feng; Fangqing Gu; Hailong Wang; Lei Chen; Zhihui Liang; Hao-Tian Wu	A Mobile Robots Path planning Algorithm based on Evolutionary Decomposition Strategy

Keynote Speakers

Tianyou Chai

IEEE Life Fellow

Northeastern University, China

Title

Intelligent Decision and Control Integrating System Based on End-edge-cloud Collaboration

Location: 3F, Tianyuan Grand Ballroom Time: Nov. 1, 2025, 09:00am-09:50am

Abstract

To address the challenges that online optimization of operational decision-making and control in complex industrial systems cannot be realized, this talk proposes a unified structure and algorithm for integrated operational optimization of decision-making and control, by combining control, optimization, and prediction with AI technology. It also proposed a parameter self-optimizing and self-learning algorithm for operational decision-making and control integrating systems, by combining mechanism analysis with deep learning, and digital twin with reinforcement learning. Based on the tight conjoining of and coordination between the end-edge-cloud collaboration technology of Industrial Internet and PLC control system, an intelligent decision-making and control integrating system based on end-edge-cloud collaboration is developed. The system includes the end serving as an actual operational optimization decision-making and control system at the industrial site, as well as a cloud-edge collaborative parameter self-learning and self-optimizing system in digital space that operates in coordination with the end. The system has been successfully applied in the energy intensive equipment—fused magnesium furnace and achieved remarkable results in the reduction of carbon emission.

Biography

Tianyou Chai received the Ph.D. degree in control theory and engineering in 1985 from Northeastern University, Shenyang, China, where he became a Professor in 1988. He is the founder and Director of the Center of Automation, which became a National Engineering and Technology Research Center and a State Key Laboratory. He is a member of Chinese Academy of Engineering, IFAC Fellow and IEEE Fellow. He has served as director of Department of Information Science of National Natural Science Foundation of China from 2010 to 2018.

His current research interests include modeling, control, optimization and integrated automation and intelligence of complex industrial processes.

He has published 397 peer reviewed international journal papers，including 273 IEEE&IFAC papers. His paper titled Hybrid intelligent control for optimal operation of shaft furnace roasting process was selected as one of three best papers for the Control Engineering Practice Paper Prize for 2011-2013. He has developed control technologies with applications to various industrial processes. For his contributions, he has won 5 prestigious awards of National Natural Science, National Science and Technology Progress and National Technological Innovation, the 2007 Industry Award for Excellence in Transitional Control Research from IEEE Multiple-conference on Systems and Control, and the 2017 Wook Hyun Kwon Education Award from Asian Control Association.

Keynote Speakers

Wolfgang Maass

Graz University of Technology, Austria

Title

New ingredients for brain-inspired AI

Location: 3F, Tianyuan Grand Ballroom Time: Nov. 1, 2025, 10:20am-11:10am

Abstract

I will discuss some recently discovered brain mechanisms that suggest new brain-inspired AI approaches to planning, problem solving, binding, and compositional computing. This was elucidated in recent collaborations with very talented junior researchers from China. Details can be found in our first publications on these results:

Chen, G., Scherr, F., & Maass, W. (2023). Data-based large-scale models provide a window into the organization of cortical computations. bioRxiv

Stöckl, C., Yang, Y., & Maass, W. (2024). Local prediction-learning in high-dimensional spaces enables neural networks to plan. Nature Communications

Wu, Y., & Maass, W. (2025). A simple model for Behavioral Time Scale Synaptic Plasticity (BTSP) provides content addressable memory with binary synapses and one-shot learning. Nature Communications

Yu, C., Wu, Y., Wang, A., & Maass, W. (2025). Behavioral Time Scale Synaptic Plasticity (BTSP) endows Hyperdimensional Computing with attractor features. bioRxiv

Lin, H., Yang, Y., Zhao, R., Pezzulo, G., & Maass, W. (2025). Neural sampling from cognitive maps supports goal-directed imagination and planning. bioRxiv.

Biography

PhD in Mathematics at the Ludwig-Maximilians-Universitaet in Munich.

1979 - 1984 research at MIT, the University of Chicago, and the University of California at Berkeley as Heisenberg-Fellow of the Deutsche Forschungsgemeinschaft.

1982 - 1986 Associate Professor and 1986 - 1993 Professor of Computer Science at the University of Illinois in Chicago.

Since 1991 Professor of Computer Science at the Graz University of Technology in Austria.

Sloan Fellow at the Computational Neurobiology Lab of the Salk Institute (La Jolla, USA) during 1997/98.

2002/3 and 2012 Visiting Professor at the Brain-Mind Institute, EPFL, Lausanne, Switzerland.

Since 2005 Adjunct Fellow of the Frankfurt Institute of Advanced Studies (FIAS)

2008 - 2012 Member of the Board of Governors of the International Neural Network Society.

Since 2013 Member of the Academia Europaea

2018: Co-Organizer of the Special Semester "The Brain and Computation" at the Simons Institute, University of California at Berkeley

Since 2023: ELLIS Fellow, and Director of the ELLIS unit
Graz (ELLIS = European Lab for Learning and Intelligent Systems)

Keynote Speakers

Xin Yao
IEEE Fellow
Lingnan University, Hong Kong SAR, China

Title

Explaining Explainable Artificial Intelligence (XAI)

Location: 3F, Tianyuan Grand Ballroom Time: Nov. 1, 2025, 11:10am-12:00pm

Abstract

Explainable Artificial Intelligence (XAI) has been a hot topic in recent years. Many papers and books have been published by researchers and practitioners from different communities, addressing different aspects of XAI. However, different papers seem to focus on different definitions of explainability. It is not entirely clear what XAI really means. Firstly, this talk will try to clarify what XAI actually means to different people, at different times and for different purposes. In other words, the talk will first put XAI in a four dimensional space and characterise it in terms of explaining to whom, when, what and how. Secondly, after identifying the most popular XAI technique --- feature attribution explanation (FAE), we will illustrate how evolutionary multi-objective optimisation could be used naturally to enhance explainability of machine learning models. Thirdly, in the opposite direction, we will demonstrate how XAI techniques can be used to enhance the performance of evolutionary algorithms. There are interesting synergies between XAI and evolutionary computation techniques. Finally, this talk ends with some concluding remarks and future research directions.

Biography

Xin Yao is the Vice President (Research and Innovation) and the Tong Tin Sun Chair Professor of Machine Learning at Lingnan University, Hong Kong SAR. He is an IEEE Fellow and was a Distinguished Lecturer of the IEEE Computational Intelligence Society (CIS). He served as the President (2014-15) of IEEE CIS and the Editor-in-Chief (2003-08) of IEEE Transactions on Evolutionary Computation. His major research interests include evolutionary computation, neural network ensembles, and multi-objective learning. His recent interests include online learning, class imbalance learning and trustworthy artificial intelligence. His work won the 2001 IEEE Donald G. Fink Prize Paper Award; 2010, 2016 and 2017 IEEE Transactions on Evolutionary Computation Outstanding Paper Awards; 2011 IEEE Transactions on Neural Networks Outstanding Paper Award; 2010 BT Gordon Radley Award for Best Author of Innovation (Finalist); and many other best paper awards at conferences. He received the 2012 Royal Society Wolfson Research Merit Award, the 2013 IEEE CIS Evolutionary Computation Pioneer Award, and the 2020 IEEE Frank Rosenblatt Award.

Invited Speaker

Feng Xia
RMIT University, Australia

Title

Graph Learning: What, Why, and How?

Location: 3F, Zijin Grand Ballroom B Time: Nov. 1, 2025, 13:30pm-14:00pm

Abstract

Graphs are the natural representation of relational data, capturing not only entities but also the rich web of interactions that connect them. From brain and molecules to transportation systems, social networks, and knowledge bases, graphs are the hidden structure underlying some of the most important challenges in science, technology, and society. Yet for decades, machine learning has been dominated by models designed for independent and identically distributed data (e.g., images, text, and sequences), leaving relational structure largely underutilized. Graph Learning seeks to close this gap. By enabling models to reason directly about nodes and edges, graph learning methods such as Graph Neural Networks, Graph Transformers, and emerging Graph Foundation Models open new opportunities for discovery and innovation. In this talk, I will explore three guiding questions: What is graph learning? Why does it matter? And how do we do it? I will highlight key challenges facing this field and showcase recent solutions to these challenges. The talk will conclude by outlining a forward-looking research agenda that positions graph learning as a cornerstone of future AI.

Biography

Dr. Feng Xia is a Professor of Data Science & AI at RMIT University, Melbourne, Australia. He is/was Associate/Guest Editor of over 20 journals (e.g., TIST, TKDD, TOMM, TAI, TNNLS, TCSS, TITS, TETC, and TII). He has served as the General Chair, PC Chair, Area Chair, Workshop Chair, or Publicity Chair of over 30 conferences, and (Senior) PC Member of over 100 conferences (e.g., IJCAI, AAAI, ICLR, KDD, WWW/TheWebConf, and NetSci). Dr. Xia has authored/co-authored over 300 scientific papers in journals and conferences (such as IEEE TAI, TKDE, TNNLS, TC, TMC, TBD, TCSS, TNSE, TETCI, TETC, THMS, TVT, TITS, ACM TKDD, TIST, TWEB, TOMM; IJCAI, AAAI, NeurIPS, ICLR, KDD, WWW, MM, SIGIR, EMNLP, and INFOCOM). He was recognized as a Highly Cited Researcher (2019). Dr. Xia received a number of prestigious awards, including e.g. IEEE Transactions on Neural Networks and Learning Systems Outstanding Associate Editor of 2023-2024, IEEE Vehicular Technology Society 2020 Best Land Transportation Paper Award, ACM/IEEE JCDL 2020 The Vannevar Bush Best Paper Honorable Mention, and WWW 2017 Best Demo Award. He has been invited as Keynote Speaker at several international conferences, and delivered a number of Invited Talks at international conferences and many universities worldwide. He is Vice-Chair of IEEE Task Force on Learning for Graphs. His research interests include artificial intelligence, graph learning, brain, robotics, and cyber-physical systems. He is a Senior Member of IEEE and ACM, and an ACM Distinguished Speaker.

Tutorial Speakers

Accurate, Secure and Privacy-Preserving Brain-Computer Interfaces

Location: 3F, Zijin Grand Ballroom B Time: Oct 31, 2025, 13:00pm-14:30pm

Dongrui Wu

IEEE Fellow

Huazhong University of Science and Technology, China

Abstract

A brain-computer interface (BCI) enables direct communication between the brain and external devices. Electroencephalograms (EEGs) used in BCIs are weak, easily contaminated by interference and noise, non-stationary for the same subject, and varying across different subjects and sessions. Thus, sophisticated machine learning approaches are needed for accurate and reliable EEG decoding. Additionally, adversarial security and privacy protection are also very important to the broad applications of BCIs. This tutorial will introduce machine learning algorithms for accurate, secure and privacy-preserving BCIs.

Biography

Dongrui Wu (IEEE Fellow) received a PhD in Electrical Engineering from the University of Southern California, Los Angeles, CA, in 2009. He is now Professor and Vice Dean of School of Artificial Intelligence and Automation, Huazhong University of Science and Technology, Wuhan, China. Prof. Wu's research interests include brain-computer interface, machine learning, computational intelligence, and affective computing. He has more than 200 publications (16000+ Google Scholar citations; h=67). He received the IEEE Computational Intelligence Society Outstanding PhD Dissertation Award in 2012, the IEEE Transactions on Fuzzy Systems Outstanding Paper Award in 2014, the IEEE Systems, Man and Cybernetics Society Early Career Award in 2017, the Chinese Association of Automation (CAA) Early Career Award in 2021, the Ministry of Education Young Scientist Award in 2022, and First Prize of the CAA Natural Science Award in 2023. His team won National Championships of the China Brain-Computer Interface Competition in six successive years (2019-2024). Prof. Wu is the Editors-in-Chief of IEEE Transactions on Fuzzy Systems.

Tutorial Speakers

Brain-inspired Large Models

Location: 3F, Function Room 2 Time: Oct 31, 2025, 13:00pm-14:30pm

Guoqi Li

Distinguished Young Scholar

Institute of Automation, Chinese Academy of Sciences, China

Abstract

Current large models predominantly use the Transformer architecture and have rapidly expanded in scale following scaling laws. However, the Transformer's quadratic computational complexity — which grows dramatically with input sequence length — makes continuous scaling unsustainable. This challenge requires us to identify sustainable approaches for advancing AI systems toward general artificial intelligence. Drawing inspiration from the brain's information processing mechanisms, this report focuses on dendritic spiking neural networks. By integrating the presenter's recent research advancements, we clarify the core scientific challenges in establishing fundamental frameworks for next-generation brain-inspired general-purpose models, and explore innovative pathways to develop low-power AI systems through novel architectural designs.

Biography

Guoqi Li is currently a Professor in the Institute of Automation, Chinese Academy of Sciences (CASIA). He serves as the Deputy Director of the National Key Laboratory of Brain Cognition and Brain-inspired Intelligence and the Director of the Beijing Key Laboratory of General Brain-inspired Intelligence Large Models. He is a recipient of the National Science Fund for Distinguished Young Scholars. With over 200 publications in journals including Nature, Nature sister journals, Science family journals, and top-tier AI conferences, his work has garnered more than 17,000 citations. He has led over 30 major research projects, including Key Projects of the National Natural Science Foundation of China, Joint Key Projects, and Key R&D Programs of the Ministry of Science and Technology. He holds editorial board positions at IEEE Transactions on Neural Networks and Learning Systems (TNNLS), IEEE Transactions on Cognitive and Developmental Systems (TCDS), and the Journal of Tsinghua University (Science and Technology). His honors include the First Prize in Natural Science Award of the Chinese Association of Automation (CAA), ECCV Best Paper Award Nomination, Best Paper Award at the China Computing Conference, Beijing Distinguished Young Scholar, CAS Hundred Talents Program, DeepTech China Innovator in Intelligent Computing Technology and China Computing Youth Pioneer Award.

Tutorial Speakers

Modelling and Set Constraints in Multi-objective Evolutionary Computation

Location: 3F, Function Room 6 Time: Oct 31, 2025, 13:00pm-14:30pm

Xi Lin

City University of Hong Kong, Hong Kong SAR, China

Abstract

It is well-known that the Pareto set of a continuous multi-objective optimization problem is piecewise continuous under mild conditions. However, most current multiobjective evolutionary algorithms can only generate a finite number of optimal solutions. In this talk, I will first introduce our recently developed Pareto Set Learning algorithm. It treats the task of finding the Pareto set as a function approximation problem and uses neural network learning methods to produce a math model for approximating the Pareto set. I will introduce the basic idea and techniques behind PSL. The other topic in my talk is on structure constraints on the optimal solution set. Where modular or personalized designs are required, a decision maker needs to consider such constraints. These constraints can used for supporting so-called “innovization”. I will explain how trade off Pareto optimality with set constraints in Pareto set learning.

Biography

Xi Lin is a post-doctoral research fellow with the Department of Computer Science at the City University of Hong Kong, working with Prof. Qingfu Zhang. He received the B.Sc. degree from South China University of Technology, the M.A. degree from Columbia University, and the Ph.D. degree from City University of Hong Kong under the supervision of Prof. Qingfu Zhang and Prof. Sam Kwong. His research interests include multi-objective optimization, learning based optimization, and evolutionary computation. His work has been published in top-tier conferences and journals such as ICML, NeurIPS, ICLR, and TEVC. He serves as an Area Chair for NeurIPS and ICLR, as well as an Action Editor for Transactions on Machine Learning Research (TMLR), and has received five outstanding reviewer awards from ICML, ICLR, and TMLR. He has co-organized three tutorials on multi-objective optimization at CVPR 2023, WCCI 2024, and IJCAI 2025.

Tutorial Speakers

Towards Training Large-Scale High-Performance Spiking Neural Networks: Fundamentals and Advances

Location: 3F, Zijin Grand Ballroom B Time: Oct 31, 2025, 15:00pm-16:30pm

Huajin Tang

Zhejiang University, China

Abstract

Spiking neural networks (SNNs) offer advantages in low power consumption and high computational efficiency. However, due to the discontinuous and non-differentiable nature of their spike firing process, error backpropagation algorithms are difficult to directly apply to SNN training. Currently the surrogate gradient method is widely applied by employ approximate functions with fixed smoothing coefficients for end-to-end training. However, this approach inevitably introduces smoothing errors leading to gradient mismatch and limiting the network's convergence efficiency and generalization performance. This talk will introduce the fundamentals of SNNs and recent advances in pushing the performance and scale of spiking neural networks for various AI applications, such as event-based vision, reinforcement learning, robotics, etc.

Biography

Prof. Huajin Tang is currently a professor with Zhejiang University, College of Computer Science and Technology, and The State Key Lab for Brain-Machine Intelligence, China. His research interests include neuromorphic computing, neuromorphic hardware and cognitive systems, robotic cognition, etc. He received a number of prestigious recognitions and awards, such as 2011 Role Model Award of Institute for Infocomm Research Singapore, 2016 IEEE Transactions on Neural Networks and Learning Systems Outstanding Paper Award, 2019 IEEE Computational Intelligence Magazine Outstanding Paper Award, 2023 Neural Networks Best Paper Award, and 2024 APNNS Outstanding Achievement Award, etc. Prof. Tang is the Editors-in-Chief of IEEE Transactions on Cognitive and Developmental Systems since 2022. Prof. Tang has served as an Associate Editor of IEEE Transactions on Neural Networks and Learning Systems, IEEE Transactions on Cognitive and Developmental Systems and Frontiers in Neuromorphic Engineering, Neural Networks, and Editorial Board Member for Frontiers in Robotics and AI. He was the General Co-Chair of IEEE CIS-RAM 2024, Program Chair of IEEE CIS-RAM (2015, 2017), and Chair of IEEE Symposium on Neuromorphic Cognitive Computing (2016-2020), and International Symposium on Neural Networks (2019). He is a Board of Governor member of International Neural Network Society since 2019.

Tutorial Speakers

An Introduction to Imbalanced Data Learning and Its Applications

Location: 3F, Function Room 2 Time: Oct 31, 2025, 15:00pm-16:30pm

Yiu-Ming Cheung

IEEE Fellow

Hong Kong Baptist University, Hong Kong SAR, China

Abstract

Imbalanced data learning is quite common in a variety of real applications, which is mainly studied within the framework of supervised learning. Normally, this learning consists of two main research lines: class imbalanced problem and long-tailed data learning. The former mainly focuses on classifying datasets with two classes, while the latter classifies datasets with a large number of classes. In this tutorial, the research advances along these two research lines will be introduced, including the basic concepts, models and algorithms, as well as their applications. Besides that, the class imbalanced learning under the unsupervised learning setting is explored as well.

Biography

Yiu-ming Cheung is currently a Chair Professor (Artificial Intelligence) of the Department of Computer Science, Dean of Institute for Research and Continuing Education (IRACE), and Associate Director of Institute of Computational and Theoretical Studies in Hong Kong Baptist University (HKBU). He received PhD degree from Department of Computer Science and Engineering at The Chinese University of Hong Kong in 2000, and then joined the Department of Computer Science at HKBU in 2001. He is a member of European Academy of Sciences and Arts, and an IEEE Fellow, AAAS Fellow, IAPR Fellow, IET Fellow, and British Computer Society (BCS) Fellow. He is the recipient of 2023-2024 RGC Senior Research Fellow Award. Since 2019, he has been ranked the World's Top 1% Most-cited Scientists in the field of Artificial Intelligence and Image Processing by Stanford University for six consecutive years. He was elected as a Distinguished Lecturer of IEEE Computational Intelligence Society in 2020, and named a Chair Professor of Changjiang Scholars Program by the Ministry of Education of the People's Republic of China for the dedication and exceptional achievements in his academic career. Also, he is the Editors-in-Chief of IEEE Transactions on Emerging Topics in Computational Intelligence.

Tutorial Speakers

Biography

His research interests include machine learning and visual computing, as well as their applications in data science, pattern recognition, multi-objective optimization, and information security. He has published over 300 articles in the high-quality conferences and journals, including TPAMI, TNNLS, TIFS, TIP, TMM, TKDE, TCYB, CVPR, IJCAI, AAAI, and so on. His four co-authored papers have been selected as ESI Highly Cited Papers (i.e. listed in Top 1% globally in the corresponding discipline). Moreover, he has been granted one Chinese patent and two US patents. Subsequently, the underlying technique of his eye-gaze tracking patent has been successfully applied to develop the first mobile app for fatigue driving detection. It turns out that, selected from 1000 new inventions and products of 700+ competition teams from 40 countries, he was awarded two most prestigious prizes: (1) the Gold Medal with Distinction (i.e. the highest grade in Gold Medals) and (2) Swiss Automobile Club Prize, in the 45th International Exhibition of Invention, Geneva, Switzerland, on March 29-April 2, 2017, in recognition of his innovative work. Also, he was the Gold Award Winner of Hong Kong Innovative Invention Award in the Seventh Hong Kong Innovative Technologies Achievement Award 2017. In addition, he won the Gold Medal with Congratulations of Jury (i.e. the highest grade in Gold Medals) and the Award of Excellence from Romania, respectively, at the 46th International Exhibition of Inventions of Geneva 2018, and Gold Medal Award at the 15th International Invention Fair in the Middle East 2025. He was the recipient of: (1) 2023-2024 President's Award for Outstanding Performance in Scholarly Work at HKBU, (2) HKBU Innovation Award 2024, (3) 2023 APNNS Outstanding Achievement Award, (4) Best Research Award of Department of Computer Science at HKBU in 2011 and 2021, respectively, (5) 2022-23 Faculty Research Excellence Paper Award in HKBU, (6) Best in Theoretical Paper Award in WI-IAT'2020, (7) Best Student Paper Award in ISMIS'2018, and (8) Best Paper Awards in DOCS'2024, SEAL'2017, ISICA'2017, ICNC- FSKD'2014, and IEEE IWDVT'2005.

He is the Founding Chairman of IEEE (Hong Kong) Computational Intelligence Chapter and the Chair of Technical Community on Intelligent Informatics (TCII) of IEEE Computer Society. He has served in various capacities (e.g., Organizing Committee Chair, Program Committee Chair, Program Committee Area Chair, and Financial Chair) at several top-tier international conferences, including IJCAI'2021, ICPR'2020, ICDM'2017 & 2018, WCCI'2016, WI-IAT'2012, ICDM'2006 & WI-IAT'2006, to name a few. He is an Associate Editor of several prestigious journals, including IEEE Transactions on Cybernetics, IEEE Transactions on Emerging Topics in Computational Intelligence, IEEE Transactions on Cognitive and Developmental Systems, IEEE Transactions on Neural Networks and Learning Systems (2014-2020), Pattern Recognition, Pattern Recognition Letters, Knowledge and Information Systems (KAIS), and Neurocomputing, as well as the Guest Editor in several international journals. Currently, he is an Engineering Panel member of Research Grants Council, Hong Kong, a member of assessment panel of Enterprise Support Scheme (ESS) under the Innovation and Technology Fund (ITF), and a Fellow Evaluation Committee member of IEEE Computational Intelligence Society and IEEE Computer Society, respectively.

Tutorial Speakers

Towards Automated Learning in the Era of Large Models

Location: 3F, Function Room 6 Time: Oct 31, 2025, 15:00pm-16:30pm

Kay Chen Tan

IEEE Fellow

The Hong Kong Polytechnic University, Hong Kong SAR, China

Abstract

The advent of Large Language Models (LLMs) has brought transformative potential not only as powerful learners, but also as participants in shaping the automation of learning itself. This tutorial explores the emerging bidirectional synergy between LLMs and automated machine learning (AutoML): how LLMs can empower automated learning, and how AutoML techniques can in turn improve the design and deployment of LLMs. We begin by showcasing how LLMs can serve as general-purpose reasoning engines to advance multiple aspects of AutoML. Specifically, we demonstrate their capability to extract high-dimensional, semantically rich representations of algorithms from code, enabling more informed algorithm selection. We then highlight how LLMs can be leveraged to automate the design of learning algorithms by refining components through interaction. Further, we present the use of LLMs in neural architecture search, where design principles extracted from prior architectures are transferred to new tasks, significantly reducing search costs while maintaining performance. In the second half of the tutorial, we examine how AutoML contributes to optimizing LLMs themselves, especially under constraints of efficiency and resource-awareness. We introduce recent advances in model merging, which provide alternatives to full retraining by integrating multiple task-specific LLMs. We systematically discuss techniques for merging at both the parameter level and the architectural level, covering fine-grained expert recombination, modular reuse, and hierarchical multi-objective optimization. By illuminating these two intertwined directions, this tutorial aims to provide a unified view of how LLMs and AutoML co-evolve—where LLMs not only automate learning processes but are themselves subject to automated optimization. The tutorial offers both conceptual insights and practical methodologies for researchers interested in the next generation of intelligent, self-improving learning systems.

Tutorial Speakers

Biography

Prof. Kay Chen Tan is the founding Head and Chair Professor of Computational Intelligence at the Department of Data Science and Artificial Intelligence at The Hong Kong Polytechnic University. He earned his B.Eng. (First Class Honours) and Ph.D. degrees in Electronics and Electrical Engineering from the University of Glasgow, U.K., in 1994 and 1997, respectively. With a prolific academic output in the field of computational intelligence, Prof. Tan has co-authored eight books and published over 300 peer-reviewed journal articles, which have collectively received more than 36,000 citations on Google Scholar, with an h-index of 94. His contributions to the scientific community have garnered him numerous accolades, including being named an IEEE Fellow and RGC Senior Research Fellow. Additionally, he has consistently ranked among the World's Top 2% Most-Cited Scientists by Stanford University and has been recognized as a Highly Cited Researcher by Clarivate.

Prof. Tan has held significant editorial and leadership positions, including Chair of the IEEE Fellow Evaluating Committee (2027) for the IEEE Computational Intelligence Society, Vice-President for Publications (2021-2024) of the IEEE Computational Intelligence Society, Editor-in-Chief of the IEEE Transactions on Evolutionary Computation (2015-2020), and Editor-in-Chief of the IEEE Computational Intelligence Magazine (2010-2013). Currently, he serves as Chief Co-Editor of the Springer Book Series on Machine Learning: Foundations, Methodologies, and Applications. His expertise has led to invitations as a plenary or keynote speaker at over 80 international conferences, and he has co-organized more than 60 major conferences, including his roles as General Co-Chair for the 2019 IEEE Congress on Evolutionary Computation and the 2016 IEEE World Congress on Computational Intelligence.

Prof. Tan's research work has garnered numerous awards, reflecting his significant contributions to the field. Among these accolades are the IEEE Computational Intelligence Society Evolutionary Computation Pioneer Award in 2026, the Best Paper Award at the IEEE Congress on Evolutionary Computation in 2025, and the Best Paper Award at the IEEE Conference on Artificial Intelligence in 2024. He has also received the IEEE Computational Intelligence Magazine Outstanding Paper Award in both 2024 and 2019, the IEEE Andrew P. Sage Best Transactions Paper Award in 2020, and the IEEE Transactions on Neural Networks and Learning Systems Outstanding Paper Award in 2016. In 2012, he was honored with the IEEE Computational Intelligence Society Outstanding Early Career Award, among other recognitions.

Industry Panel Session

Empowering Industries with Computational Intelligence: From Large Models to Intelligent Systems

Location: 3F, Zijin Grand Ballroom AB Time: Oct. 31, 2025, 16:30pm-18:00pm

The industry panel session will bring together leading experts and professionals from industry to share practical insights, showcase innovative real-world applications, and discuss the challenges and opportunities at the forefront of machine intelligence and nature-inspired computing. Attendees will have the unique opportunity to engage directly with industry leaders, explore current trends driving the field, and gain valuable perspectives on how cutting-edge research is being translated into impactful solutions and technologies. This session is designed to inspire dialogue, foster networking, and highlight the vital role of industry in shaping the future of these dynamic and rapidly growing areas.

Panelists:

Yansong Chua, China Nanhu Academy of Electronics and Information Technology, China

Qinghai Guo, Huawei Technologies Co., Ltd., China

Xiaoguang Hu, Baidu.com Inc., China

Han Li, China Unicom (Hong Kong) Innovation Research Institute, China

Moderator:

Dacheng Tao

IEEE Fellow, Nanyang Technological University, Singapore

Industry Panel Session

Moderator:

Dacheng Tao

IEEE Fellow

Nanyang Technological University, Singapore

Biography

Dr Dacheng Tao is currently a Distinguished University Professor in the College of Computing & Data Science at Nanyang Technological University. He mainly applies statistics and mathematics to artificial intelligence and data science, and his research is detailed in one monograph and over 200 publications in prestigious journals and proceedings at leading conferences, with best paper awards, best student paper awards, and test-of-time awards. His publications have been cited over 112K times and he has an h-index 160+ in Google Scholar. He received the 2015 and 2020 Australian Eureka Prize, the 2018 IEEE ICDM Research Contributions Award, and the 2021 IEEE Computer Society McCluskey Technical Achievement Award. He is a Fellow of the Australian Academy of Science, AAAS, ACM and IEEE.

Industry Panel Session

Panelists:

Yansong Chua

China Nanhu Academy of Electronics and Information Technology, China

Biography

Yansong Chua is the Chief Expert of China Electronics Technology Group (CETC) and Chief Expert of Nanhu Research Institute. He holds a Ph.D. in Biology from the University of Freiburg, Germany, and a Master of Computer Science from the National University of Singapore. He has been selected as a leading talent in the “National Thousand Talents Program” and has participated in the National Key R&D Program “Brain Science and Brain-Like Intelligence” under the Ministry of Science and Technology's Science and Technology Innovation 2030 Agenda, serving as the leader for Project 2 and a key contributor to Project 6. He has engaged in the State-owned Assets Supervision and Administration Commission (SASAC) major initiative to foster future industries in brain-like computing, and has been involved in the top-level design and coordinated implementation of the “High-Performance Brain-Inspired Computing Chips and Basic Software” project, which was elevated from a local Science and Technology Commission program to a national key project. He has spearheaded major projects, such as “Constructing a Digital Brain via Large-Scale Brain Simulation”, and established original technology sources based on breakthroughs in “Brain Science and Brain-Like Research”. Executed SASAC and Science and Technology Commission innovation and industrialisation tasks, planned the top-level layout for brain-like computing, and published over 40 high-quality papers in brain science and brain-like research. He has collaborated with State Grid to launch the power industry’s first self-controllable, heterogeneous integrated brain-like computing platform and intelligent agent, capable of supporting full-scenario applications, including panoramic power inspection, equipment maintenance, and grid regulation. He has released China’s first brain-inspired medical large model, “NaoQi-SuWen” at the 2024 World Internet Conference.

Industry Panel Session

Panelists:

Qinghai Guo

Huawei Technologies Co., Ltd., China

Biography

Qinghai Guo is currently a Senior Researcher at the Advanced Computing and Storage Laboratory of Huawei Central Research Institute, and serves as the Project Manager for Brain-inspired Computing. He obtained his Ph.D. in Mathematics from the University of Göttingen, Germany, in 2017, and subsequently joined Huawei, where he has been engaged in research in the fields of artificial intelligence and brain-inspired computing. He has conducted in-depth research in areas such as neural network quantization, spiking neural network algorithms, DVS algorithms, machine learning theory, and brain-inspired intelligence. His technological contributions have been implemented across multiple Huawei product lines, including consumer devices, wireless networks, computing, and cloud services. Since 2021, he has held positions as the Technical Lead for Brain-inspired Algorithms and Assistant Scientist in Huawei's Computing domain. Since joining Huawei, he has filed dozens of patents and published over 30 papers in top-tier conferences and journals such as ICLR, ICML, NeurIPS, CVPR, and TNNLS. As one of the principal leads, he has participated in several major national projects, including the Science and Technology Innovation 2030 — “New Generation Artificial Intelligence” and “Brain Science and Brain-Like Research” initiatives.

Industry Panel Session

Panelists:

Xiaoguang Hu

Baidu.com Inc., China

Title

Accelerating Scientific Discovery and Applications with PaddlePaddle Framework 3.0

Abstract:

Artificial intelligence technologies, represented by large models, are flourishing and powerfully driving scientific discovery. Leveraging a series of core capabilities such as automatic parallelization, high-order automatic differentiation, and neural network compilers, PaddlePaddle Framework 3.0 significantly enhances the training and inference efficiency of large models, thereby effectively driving the progress of scientific exploration. Based on the PaddlePaddle Framework, we have trained and open-sourced the ERNIE (Wenxin) Large Model series. Additionally, we have developed the PaddleCFD intelligent computational fluid dynamics (CFD) development suite, which focuses on accelerating CFD simulations using deep surrogate modeling and supports numerical simulation acceleration, equation discovery, shape optimization, and control strategy generation. Concurrently, we launched the PaddleMaterials intelligent materials science development suite, constructing a materials intelligent R&D platform that integrates mathematical and physical dual-driven approaches, integrates both general-purpose and domain-specific capabilities. This report will systematically elaborate on the design philosophy and core advantages of PaddlePaddle Framework 3.0. analyze key technologies for large model training and inference through the practice of ERNIE 4.5 series models, and showcase innovative and practical achievements of PaddlePaddle in fields such as fluid dynamics and materials science.

Biography

Xiaoguang Hu is currently the Distinguished Architect at Baidu's Deep Learning Technology Platform Department, with primary research areas spanning natural language processing, deep learning frameworks, and AI for scientific computing. He leads the core technology development for PaddlePaddle's training framework and scientific computing capabilities, having designed the new API architecture for PaddlePaddle 2.0, which established its unified dynamic and static graph capabilities and integrated training and deployment workflows. He has also developed foundational technologies, including a highly reusable operator library and neural network compiler, to enable hardware-software co-optimization for large-scale model development, while spearheading the creation of PaddlePaddle's industry-grade open-source model library and the construction of an industrial-level deep learning open platform that has achieved widespread large-scale industrial application. His honors include the Second Prize of the National Award for Scientific and Technological Progress, the First Prize of the Science and Technology Progress Award by the Chinese Institute of Electronics, and the First Prize of the Beijing Municipal Award for Scientific and Technological Progress.

Industry Panel Session

Panelists:

Han Li

China Unicom (Hong Kong) Innovation Research Institute, China

Biography

Han Li is currently the Director of Big Data and AI Application Research at China Unicom (Hong Kong) Innovation Research Institute and is recognized as an Outstanding Individual by the Ministry of Industry and Information Technology. He also acts as an Engineering Master's Supervisor for China Unicom. Previously, he held positions as General Manager of Unicom Wo Music, General Manager of the Digital Content Innovation Development Department at China Unicom Guangdong Branch, and General Manager of the Product Operations Department under the Internet Development Division. He led the Unicom Wo Music team in achieving product and business transformation, delivering a compound annual growth rate in revenue and profit exceeding 20% for five consecutive years. Under his leadership, the company was honored as one of the "Top 30 Cultural Growth Enterprises in China by 2025" by the Publicity Department and designated as the "5G AI Future Imaging Engineering Technology Research Center" by the Guangdong Provincial Department of Science and Technology. He has presided over multiple key projects, including the SASAC 5G LHT Initiative, scientific and technological innovation projects under the National Ministry of Culture and Tourism and the Guangdong Provincial Department of Culture and Tourism, as well as core technology projects for China Unicom. His research outcomes have repeatedly earned him the China Unicom Group Science and Technology Progress Award. Additionally, he contributed to the development of "38 international industry standards for 5G-A core network convergence and innovation in next-generation mobile communications" and "29 international, industry, and enterprise standards for AI technologies in digital-intelligent integration." For these contributions, he received the First Prize of the China Unicom Technology Standards Award.

Editors-in-Chief Forum

Bridging Intelligence: The Evolving Role of CI Journals in Shaping Interdisciplinary AI Research

Location: 3F, Zijin Grand Ballroom AB Time: Nov. 1, 2025, 15:30pm-17:00pm

The Editors-in-Chief Panel Session creates a forum for leaders of the IEEE CIS Transactions to share practical insights, experiences, and best practices in scholarly publishing with conference attendees. As AI and computational intelligence reshape the publication landscape through open science, reproducibility standards, and the rise of generative tools, this discussion will highlight emerging trends, key challenges, and new opportunities.

Attendees will engage directly with the Editors-in-Chief on timely topics, including evolving publication norms and their impact on research dissemination; ethical expectations for authors, reviewers, and editors; strategies for effective submission, review, and revision; policies on preprints and AI-assisted writing; strengthening peer review and addressing plagiarism and scientific misconduct; and the importance of closer collaboration between researchers and journals to advance rigor, transparency, and impact.

Panelists:

Yiu-ming Cheung, Hong Kong Baptist University, Hong Kong SAR, China

Carlos A. Coello Coello, CINVESTAV-IPN, Mexico

Jon Garibaldi, University of Nottingham Ningbo China, China

Yaochu Jin, Westlake University, China

Huajin Tang, Zhejiang University, China

Jun Wang, City University of Hong Kong, Hong Kong SAR, China

Dongrui Wu, Huazhong University of Science and Technology, China

Moderator:

Jon Garibaldi

IEEE Fellow

Vice President for Publications of IEEE Computational Intelligence Society

University of Nottingham Ningbo China, China

Editors-in-Chief Forum

Moderator:

Jon Garibaldi

IEEE Fellow

Vice President for Publications of IEEE Computational Intelligence Society

University of Nottingham Ningbo China, China

Biography

Jon Garibaldi is currently the Provost of the University of Nottingham Ningbo China, and a member of the University of Nottingham Executive Board (UEB). He is the Head of the Intelligent Modelling and Analysis (IMA) Research Group and was a Founding Director (together with Prof. Richard Emes) of the Advanced Data Analysis Centre (ADAC). He obtained a BSc (Hons) in Physics from University of Bristol in 1984, an MSc in Intelligent Systems from University of Plymouth in 1991, and a PhD in Intelligent Techniques for Handling Uncertainty in the Assessment of Neonatal Outcome from University of Plymouth in 1997. He was the Head of School of Computer Science from 2016-2023. After joining the School in 2002, He became a full Professor in 2012, and held a variety of administrative roles including Admissions Tutor, Director of Teaching and then Head of School. He is a Fellow of the IEEE; He was the Editors-in-Chief of IEEE Transactions on Fuzzy Systems, the leading international journal in my main research field, from Jan 2017 to Dec 2022.

Editors-in-Chief Forum

Panelists:

Yiu-Ming Cheung

IEEE Fellow

Editor-in-Chief of IEEE Transactions on Emerging Topics in Computational Intelligence

Hong Kong Baptist University, Hong Kong SAR, China

Biography

Yiu-ming Cheung is currently a Chair Professor (Artificial Intelligence) of the Department of Computer Science, Dean of Institute for Research and Continuing Education (IRACE), and Associate Director of Institute of Computational and Theoretical Studies in Hong Kong Baptist University (HKBU). He received PhD degree from Department of Computer Science and Engineering at The Chinese University of Hong Kong in 2000, and then joined the Department of Computer Science at HKBU in 2001. He is a member of European Academy of Sciences and Arts, and an IEEE Fellow, AAAS Fellow, IAPR Fellow, IET Fellow, and British Computer Society (BCS) Fellow. He is the recipient of 2023-2024 RGC Senior Research Fellow Award. Since 2019, he has been ranked the World's Top 1% Most-cited Scientists in the field of Artificial Intelligence and Image Processing by Stanford University for six consecutive years. He was elected as a Distinguished Lecturer of IEEE Computational Intelligence Society in 2020, and named a Chair Professor of Changjiang Scholars Program by the Ministry of Education of the People's Republic of China for the dedication and exceptional achievements in his academic career. Also, he is the Editors-in-Chief of IEEE Transactions on Emerging Topics in Computational Intelligence.

His research interests include machine learning and visual computing, as well as their applications in data science, pattern recognition, multi-objective optimization, and information security. He has published over 300 articles in the high-quality conferences and journals, including TPAMI, TNNLS, TIFS, TIP, TMM, TKDE, TCYB, CVPR, IJCAI, AAAI, and so on. His four co-authored papers have been selected as ESI Highly Cited Papers (i.e. listed in Top 1% globally in the corresponding discipline). Moreover, he has been granted one Chinese patent and two US patents. Subsequently, the underlying technique of his eye-gaze tracking patent has been successfully applied to develop the first mobile app for fatigue driving detection. It turns out that, selected from 1000 new inventions and products of 700+ competition teams from 40 countries, he was awarded two most prestigious prizes: (1) the Gold Medal with Distinction (i.e. the highest grade in Gold Medals) and (2) Swiss Automobile Club Prize, in the 45th International Exhibition of Invention, Geneva, Switzerland, on March 29-April 2, 2017, in recognition of his innovative work. Also, he was the Gold Award Winner of Hong Kong Innovative Invention Award in the Seventh Hong Kong Innovative Technologies Achievement Award 2017.

Editors-in-Chief Forum

Biography

In addition, he won the Gold Medal with Congratulations of Jury (i.e. the highest grade in Gold Medals) and the Award of Excellence from Romania, respectively, at the 46th International Exhibition of Inventions of Geneva 2018, and Gold Medal Award at the 15th International Invention Fair in the Middle East 2025. He was the recipient of: (1) 2023-2024 President's Award for Outstanding Performance in Scholarly Work at HKBU, (2) HKBU Innovation Award 2024, (3) 2023 APNNS Outstanding Achievement Award, (4) Best Research Award of Department of Computer Science at HKBU in 2011 and 2021, respectively, (5) 2022-23 Faculty Research Excellence Paper Award in HKBU, (6) Best in Theoretical Paper Award in WI-IAT'2020, (7) Best Student Paper Award in ISMIS'2018, and (8) Best Paper Awards in DOCS'2024, SEAL'2017, ISICA'2017, ICNC- FSKD'2014, and IEEE IWDVT'2005.

He is the Founding Chairman of IEEE (Hong Kong) Computational Intelligence Chapter and the Chair of Technical Community on Intelligent Informatics (TCII) of IEEE Computer Society. He has served in various capacities (e.g., Organizing Committee Chair, Program Committee Chair, Program Committee Area Chair, and Financial Chair) at several top-tier international conferences, including IJCAI'2021, ICPR'2020, ICDM'2017 & 2018, WCCI'2016, WI-IAT'2012, ICDM'2006 & WI-IAT'2006, to name a few. He is an Associate Editor of several prestigious journals, including IEEE Transactions on Cybernetics, IEEE Transactions on Emerging Topics in Computational Intelligence, IEEE Transactions on Cognitive and Developmental Systems, IEEE Transactions on Neural Networks and Learning Systems (2014-2020), Pattern Recognition, Pattern Recognition Letters, Knowledge and Information Systems (KAIS), and Neurocomputing, as well as the Guest Editor in several international journals. Currently, he is an Engineering Panel member of Research Grants Council, Hong Kong, a member of assessment panel of Enterprise Support Scheme (ESS) under the Innovation and Technology Fund (ITF), and a Fellow Evaluation Committee member of IEEE Computational Intelligence Society and IEEE Computer Society, respectively.

Editors-in-Chief Forum

Panelists:

Carlos A. Coello Coello

IEEE Fellow

Editor-in-Chief of IEEE Transactions on Evolutionary Computation

Instituto Politécnico Nacional (CINVESTAV-IPN), Mexico

Biography

Carlos Artemio Coello Coello received the Ph.D. degree in computer science from Tulane University, New Orleans, LA, USA, in 1996, He is a Professor (CINVESTAV-3F Researcher) with the Department of Computer Science, CINVESTAV-IPN, Mexico City, México. He has authored and coauthored over 450 technical papers and book chapters. He has also coauthored the book entitled Evolutionary Algorithms for Solving Multi-Objective Problems (Second Edition, Springer, 2007). His publications currently report over 48,900 Google Scholar citations with an H-index of 80. His research interests include evolutionary multiobjective optimization and constraint-handling techniques for evolutionary algorithms.,Prof. Coello Coello is a recipient of the 2007 National Research Award from the Mexican Academy of Sciences in the area of Exact Sciences, the 2013 IEEE Kiyo Tomiyasu Award, and the 2012 National Medal of Science and Arts in the area of Physical, Mathematical and Natural Sciences. He is a member of the Association for Computing Machinery and the Mexican Academy of Science.

Editors-in-Chief Forum

Panelists:

Yaochu Jin

IEEE Fellow

President for IEEE Computational Intelligence Society

Westlake University, China

Biography

Yaochu Jin obtained the BSc., MSc. and PhD degree all in automatic control from the Electrical Engineering Department, Zhejiang University, China, in 1988, 1991, and 1996, respectively, and the Dr.-Ing. from the Institute of Neuroinformatics, Ruhr-University Bochum, Germany in 2001. He is currently a Chair Professor of Artificial Intelligence with the School of Engineering, Westlake University. Before joining Westlake University, he was an Alexander von Humboldt Professor for Artificial Intelligence endowed by the German Federal Ministry of Education and Research, Bielefeld University, Germany from 2021 to 2023, and a Surrey Distinguished Chair Professor in Computational Intelligence, University of Surrey, Guildford, U.K., from 2010 to 2021. He was a “Finland Distinguished Professor” of University of Jyväskylä, Finland, and “Changjiang Distinguished Visiting Professor”, Northeastern University, China from 2015 to 2017. He is a Member of Academia Europaea and Fellow of IEEE.

Editors-in-Chief Forum

Panelists:

Huajin Tang

Editor-in-Chief of IEEE Transactions on Cognitive and Developmental Systems

Zhejiang University, China

Biography

Prof. Huajin Tang is currently a professor with Zhejiang University, College of Computer Science and Technology, and The State Key Lab for Brain-Machine Intelligence, China. His research interests include neuromorphic computing, neuromorphic hardware and cognitive systems, robotic cognition, etc. He received a number of prestigious recognitions and awards, such as 2011 Role Model Award of Institute for Infocomm Research Singapore, 2016 IEEE Transactions on Neural Networks and Learning Systems Outstanding Paper Award, 2019 IEEE Computational Intelligence Magazine Outstanding Paper Award, 2023 Neural Networks Best Paper Award, and 2024 APNNS Outstanding Achievement Award, etc. Prof. Tang is the Editors-in-Chief of IEEE Transactions on Cognitive and Developmental Systems since 2022. Prof. Tang has served as an Associate Editor of IEEE Transactions on Neural Networks and Learning Systems, IEEE Transactions on Cognitive and Developmental Systems and Frontiers in Neuromorphic Engineering, Neural Networks, and Editorial Board Member for Frontiers in Robotics and AI. He was the General Co-Chair of IEEE CIS-RAM 2024, Program Chair of IEEE CIS-RAM (2015, 2017), and Chair of IEEE Symposium on Neuromorphic Cognitive Computing (2016-2020), and International Symposium on Neural Networks (2019). He is a Board of Governor member of International Neural Network Society since 2019.

Editors-in-Chief Forum

Panelists:

Jun Wang

IEEE Fellow

Editor-in-Chief of IEEE Transactions on Artificial Intelligence

City University of Hong Kong, Hong Kong SAR, China

Biography

Jun Wang is a Chair Professor of Computational Intelligence in the Department of Computer Science and Department of Data Science at City University of Hong Kong. Prior to this position, he held various academic positions at Dalian University of Technology, Case Western Reserve University, University of North Dakota, and Chinese University of Hong Kong. He also held various part-time visiting positions at US Air Force Armstrong Laboratory, RIKEN Brain Science Institute, Huazhong University of Science and Technology, Dalian University of Technology, and Shanghai Jiao Tong University. He received a B.S. degree in electrical engineering and an M.S. degree in systems engineering from Dalian University of Technology, Dalian, China. He received his Ph.D. degree in systems engineering from Case Western Reserve University, Cleveland, Ohio, USA. His current research interests include neural networks and their applications. He published about 330 journal papers, 16 book chapters, 11 edited books, and numerous conference papers in these areas. He has served on the editorial boards of many journals in different capacities, such as the IEEE Transactions on Artificial Intelligence; IEEE Transactions on Cybernetics; IEEE Transactions on Neural Networks; IEEE Transactions on Systems, Man, and Cybernetics–Part C; International Journal of Neural Systems; and Neural Networks. He was also a guest editor of special issues in the European Journal of Operational Research; IEEE Transactions on Systems, Man and Cybernetics: Systems; International Journal of Neural Systems; Neurocomputing; International Journal of Fuzzy Systems; and Journal of the Franklin Institute. He was an organizer of several international conferences. He was a distinguished lecturer of the IEEE Computational Intelligence Society and IEEE Systems, Man and Cybernetics Society. In addition, he served as President of the Asia Pacific Neural Network Assembly and many organizations such as the IEEE Fellow Committee; IEEE Computational Intelligence Society Awards Committee, IEEE Systems, Man, and Cybernetics Society Board of Governors and Awards Committee. He is a life fellow of the IEEE, a fellow of the International Association for Pattern Recognition and Hong Kong Academy of Engineering, and a foreign member of Academia Europaea.

Editors-in-Chief Forum

Panelists:

Dongrui Wu

IEEE Fellow

Editor-in-Chief of IEEE Transactions on Fuzzy Systems

Huazhong University of Science and Technology, China

Biography

Dongrui Wu (IEEE Fellow) received a PhD in Electrical Engineering from the University of Southern California, Los Angeles, CA, in 2009. He is now Professor and Vice Dean of School of Artificial Intelligence and Automation, Huazhong University of Science and Technology, Wuhan, China. Prof. Wu's research interests include brain-computer interface, machine learning, computational intelligence, and affective computing. He has more than 200 publications (16000+ Google Scholar citations; h=67). He received the IEEE Computational Intelligence Society Outstanding PhD Dissertation Award in 2012, the IEEE Transactions on Fuzzy Systems Outstanding Paper Award in 2014, the IEEE Systems, Man and Cybernetics Society Early Career Award in 2017, the Chinese Association of Automation (CAA) Early Career Award in 2021, the Ministry of Education Young Scientist Award in 2022, and First Prize of the CAA Natural Science Award in 2023. His team won National Championships of the China Brain-Computer Interface Competition in six successive years (2019-2024). Prof. Wu is the Editors-in-Chief of IEEE Transactions on Fuzzy Systems.

Young Scholars Forum

From First Signature Work to Sustainable Impact: Building a High-Impact Early-Career Research Program

Location: 3F, Zijin Grand Ballroom AB Time: Nov. 2, 2025, 11:00am-12:30pm

The Young Researchers Forum provides a platform for emerging leaders in computational intelligence, machine learning, brain-inspired computing, and nature-inspired optimization to share forward-looking perspectives on the future of AI. As the field moves rapidly toward integrating large-scale models, neuromorphic architectures, interpretable systems, and data-efficient learning, early- and mid-career researchers are at the forefront of driving these transformations.

This interactive session will explore how new paradigms, e.g., neuro-symbolic reasoning, bio-inspired algorithms, cross-domain transfer, and embodied intelligence, are reshaping both fundamental research and practical applications. Discussions will address the latest challenges and opportunities in reproducibility, ethical AI, and open science, as well as strategies for building impactful collaborations in an increasingly interdisciplinary landscape. Attendees will gain first-hand insights into the directions that will shape the next decade of machine intelligence and nature-inspired computing.

Panelists:

Jing Liang, Zhengzhou University, China

Yu Qi, Zhejiang University, China

Chao Qian, Nanjing University, China

Yujie Wu, The Hong Kong Polytechnic University, Hong Kong SAR, China

Junchi Yan, Shanghai Jiao Tong University, China

Moderator:

Ran Cheng

The Hong Kong Polytechnic University, Hong Kong SAR, China

Young Scholars Forum

Moderator:

Ran Cheng

The Hong Kong Polytechnic University, Hong Kong SAR, China

Biography

Ran Cheng is currently an Associate Professor (Presidential Young Scholar) with the Department of Data Science & Artificial Intelligence and Department of Computing at The Hong Kong Polytechnic University (PolyU). Previously, he was an Associate Professor with the Department of Computer Science and Engineering at Southern University of Science and Technology (SUSTech). He received the BSc degree from Northeastern University (China) in 2010 and the PhD degree from the University of Surrey (UK) in 2016. Between 2010 and 2012, he spent a cherished period at Zhejiang University as a postgraduate student. His research philosophy is centered on benefiting humanity by bridging nature and technology. Within the broad domain of Artificial Intelligence (AI), my research focuses on advancing Computational Intelligence (CI) to tackle modeling and optimization challenges in complex systems. Ran Cheng primary research interests include Evolutionary Computation and Representation Learning, with an emphasis on developing efficient and scalable computational methods leveraging modern hardware acceleration. As a representative effort, he initiated the EvoX project, aiming at bridging traditional EC methodologies with advanced GPU computing infrastructures. He is the founding chair of IEEE Computational Intelligence Society (CIS) Shenzhen Chapter. He is serving as an Associate Editor/Editorial Board Member for several journals, including: ACM Transactions on Evolutionary Learning and Optimization, IEEE Transactions on Evolutionary Computation, IEEE Transactions on Emerging Topics in Computational Intelligence, IEEE Transactions on Cognitive and Developmental Systems, IEEE Transactions on Artificial Intelligence, etc. He is the recipient of the IEEE Transactions on Evolutionary Computation Outstanding Paper Awards (2018, 2021), the IEEE CIS Outstanding PhD Dissertation Award (2019), the IEEE Computational Intelligence Magazine Outstanding Paper Award (2020), and the IEEE CIS Outstanding Early Career Award (2025). He has been featured among the World's Top 2% Scientists (2020–2024) and the Clarivate Highly Cited Researchers (2023, 2024). He is a Senior Member of IEEE.

Young Scholars Forum

Panelists:

Jing Liang

Zhengzhou University, China

Biography

Jing Liang received the B.E. degree from the Harbin Institute of Technology, Harbin, China, in 2003, and the Ph.D. degree from Nanyang Technological University, Singapore, in 2009. She is currently a Professor with the School of Electrical Engineering, Zhengzhou University, Zhengzhou, China. Her main research interests are evolutionary computation, swarm intelligence, multiobjective optimization, and neural network. Dr. Liang serves as an Associate Editor for IEEE Transactions on Evolutionary Computation and Swarm and Evolutionary Computation.

Young Scholars Forum

Panelists:

Yu Qi

Zhejiang University, China

Biography

Yu Qi is a tenure-track professor and doctoral supervisor at the Frontier Science Center for Brain and Brain-Computer Fusion, Zhejiang University. She was graduated from the School of Computer Science and Technology, Zhejiang University, with a Ph.D. in Engineering, and visited the University of Florida as a visiting student. The main research directions include brain-computer interface, artificial intelligence, and brain-like computing. She has proposed a series of innovative methods and systems for the dynamic modeling of brain information. In 2015, she established a prototype system for epilepsy warning-suppression diagnosis and treatment. In 2019, she completed the first domestic clinical volunteer invasive brain-computer interface research as a key member. She has published more than 30 high-level academic papers and undertaken a number of national-level projects. She is the young editor of Cyborg and Bionic Systems, the editor of Frontiers in Neuroscience, the program committee member of top artificial intelligence conferences NeurIPS, IJCAI, and ICML, and the reviewer of top journals such as TNNLS, TBME, and TNSRE.

Young Scholars Forum

Panelists:

Chao Qian

Nanjing University, China

Biography

Chao Qian received B.Sc. and Ph.D. degrees in the Department of Computer Science and Technology from Nanjing University in 2009 and 2015, respectively, under the supervision of Prof. Zhi-Hua Zhou. After finishing PhD, he became an associate researcher in the School of Computer Science and Technology, University of Science and Technology of China, until 2019, when he returned to Nanjing University as an associate professor in the School of Artificial Intelligence. In 2024, he became a full professor. He visited the University of the Basque Country (Spain) and the University of Birmingham (UK). He is also a member of LAMDA Group.

Young Scholars Forum

Panelists:

Yujie Wu

The Hong Kong Polytechnic University, Hong Kong SAR, China

Biography

Yujie Wu is currently an Assistant Professor (Presidential Young Scholar) in the Department of Computing at The Hong Kong Polytechnic University (PolyU). Previously, he received his Ph.D. from Tsinghua University in 2021 and subsequently conducted postdoctoral research in Professor Wolfgang Maass's group in Austria (October 2021–February 2024). Dr. Wu's research interests focus on computational neuroscience and brain-inspired intelligence. His work has been published in leading journals and conferences, including Nature, Science Robotics, Nature Computational Science, Nature Communications, ICML, and AAAI. These publications have garnered significant distinctions, such as several cover features, ESI Top 1% Highly Cited Papers, Featured Articles, Annual Recommended Papers, and Best Paper Awards. Dr. Wu currently serves as an Associate Editor for Neurocomputing and has been recognized among the World's Top 2% Most Cited Scientists by Stanford University (2024, 2025).

Young Scholars Forum

Panelists:

Junchi Yan

Shanghai Jiao Tong University, China

Biography

Full Professor (tenured), IAPR/IET/AAIA Fellow

Founding Program Director of Zhiyuan AI Elite Class

Founding Assistant Director of MoE Key Lab of AI

Founding Assistant Director of SJTU School of AI

Area Chair for ICLR/ICML/NeurIPS/SIGKDD etc.

Associate Editor for TPAMI/TOPML/PRJ

Reviewer for Nature Comm./PNAS Nexus etc.

Workshop

The Second Young Scholars Workshop on Neuromorphic Computing

Organizing Committee:

Jibin Wu (The Hong Kong Polytechnic University)

Yujie Wu (The Hong Kong Polytechnic University)

Qian Zheng (Zhejiang University)

Huajin Tang (Zhejiang University)

Technical Committee (in alphabetical order by the last name)

Siqi Cai (Harbin Institute of Technology, Shenzhen)

Congying Chu (Institute of Automation, Chinese Academy of Sciences)

Guozhang Chen (Peking University)

Yansong Chua (China Nanhu Academy of Electronics and Information Technology)

Lei Deng (Tsinghua University)

Xin Deng (Chongqing University of Posts and Telecommunications)

Shukai Duan (Southwest University)

Shi Gu (Zhejiang University)

Daqing Guo (University of Electronic Science and Technology of China)

Qinghai Guo (Huawei Technologies Co., Ltd)

Workshop

Technical Committee (in alphabetical order by the last name)

Yufei Guo (Intelligent Science & Technology Academy of CASIC)

Wanzeng Kong (Hangzhou Dianzi University)

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Peng Lin (Zhejiang University)

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Jizhao Liu (Lanzhou University)

Quanying Liu (Southern University of Science and Technology)

Yanfeng Lv (Institute of Automation, Chinese Academy of Sciences)

Ning Qiao (SynSense)

Qinyuan Ren (Zhejiang University)

Bailu Si (Beijing Normal University)

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Huamin Wang (Southwest University)

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Yan Wang (Sichuan University)

Qi Xu (Dalian University of Technology)

Feng Xia (RMIT University)

Xiurui Xie (University of Electronic Science and Technology)

Rui Yan (Zhejiang University of Technology)

Lei Yu (Wuhan University)

Workshop

Technical Committee (in alphabetical order by the last name)

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Qiang Yu (Tianjin University)

Zhaofei Yu (Peking University)

Feifei Zhao (Institute of Automation,Chinese Academy of Sciences)

Malu Zhang (University of Electronic Science and Technology of China)

Tielin Zhang (Institute of Automation, Chinese Academy of Sciences)

Youhui Zhang (Tsinghua University)

Jun Zhou (University of Electronic Science and Technology of China)

Workshop Agenda

Time	Event	Location
	Saturday, Nov. 1, 2025	
	Chair: Jibin Wu (The Hong Kong Polytechnic University, Hong Kong SAR, China)	
13:30-13:35	Welcome Speech: Huajin Tang (Zhejiang University, China)	3F, Function Room 3
13:35–14:05	**Invited Talk: Yansong Chua (China Nanhu Academy of Electronics and Information Technology, China)** Talk Title: The Age of Large Models: The Path Forward for Brain-Inspired Intelligence	
14:05-15:00	Oral Presentations Session 69. Synaptic Delay Plasticity and Temporal Attention Enhance Temporal Classification Capability of Spiking Neural Networks Hangming ZHANG; Qiang YU 167. Spiking U-Net++: A Quantization-Adaptive Rate Encoding Based Spike Image Segmentation Framework Chenxi Zhao; Shi Gu; De Ma; Huajin Tang; Zheng Qian; Gang Pan 105. NeuroPathNet: Dynamic Path Trajectory Learning for Brain Functional Connectivity Analysis Tianqi Guo; Liping Chen; Ciyuan Peng; Jingjing Zhou; Jing Ren 124. SDAR-Net: A Low-Power Solution to EEG-based Auditory Attention Detection Zheyuan Lin; Sirui Li; Yuan Liao; Siqi Cai; Haizhou Li	
	Sunday, Nov. 2, 2025	
	Chair: Yujie Wu (The Hong Kong Polytechnic University, Hong Kong SAR, China)	
08:30-09:00	**Invited Talk: Yu Qi (Zhejiang University, China)** Talk Title: Human Motor Cortex Encodes Complex Handwriting Through a Sequence of Stable Neural States	3F, Function Room 6
09:00-10:30	Oral Presentations Session 59. FSRNN: ANN-SNN Conversion of Full Spike-Driven RNNs for Energy-Efficient Digital Predistortion Long Chen; Han Ji; Xiaotian Song; Yanan Sun 62. Incorporating Hebbian Learning into Biologically Plausible Dendritic Learning Zhenyu Lei; Wenzhu Gu; Xiangmei Li; Jiake Wang; Shangce Gao 82. Multi-Modal Semantic Segmentation Based on Spike Encoding and Early Fusion with Events and Images Zhuxi Li; Qiugang Zhan; Ran Tao; Peiming Kan; Zhiguang Qin; Guisong Liu 83. A Spiking Transfer Learning Method for Event Camera Based on Structural Decoupling Peiming Kan; Qiugang Zhan; Ran Tao; Zhuxi Li; Zhiguang Qin; Guisong Liu 95. JQA: Joint Design of Hardware-Friendly Quantization and Efficient Accelerator for Spiking Neural Networks HanWen Liu; Kexin Shi; Wenyu Chen; Malu Zhang; Yang Yang 96. SEEND: A Spike-Based End-to-End Framework for Energy-Efficient Speaker Diarization Kexin Shi; Hanwen Liu; Jibin Wu; Wenyu Chen; Malu Zhang; Yang Yang 103. Memristive Dynamical Spiking Neural Networks with Spatiotemporal Heterogeneity Xinming Shi; Peng Zhou; Connlaoth McTaggart; Xin Yao	

Workshop Agenda

Time	Event	Location
	Sunday, Nov. 2, 2025	
	Chair: Qian Zheng (Zhejiang University, China)	
08:30-08:50	**Invited Talk: Quanying Liu (Southern University of Science and Technology, China)** Talk Title: Artificial Intelligence as a Surrogate Brain	3F, Function Room 3
08:50-09:10	**Invited Talk: Sha Zhao (Zhejiang University, China)** Talk Title: Towards Large-Scale Foundation Models for Non-Invasive Brain-Computer Interfaces	
09:10-10:30	Oral Presentations Session 144. When LLM Agents Disagree, Do Humans Mirror? Behavioral Comparisons on Moral Dilemmas Haotian Deng; Sitian Wang; Ruxin Wang; Chen Wei; Wei Xuetao; Quanying Liu 192. Deep Spiking Double Descent Natabara Máté Gyöngyössy; Béla János Szekeres; János Botzheim 187. Strategies for Crop Planting Optimization Under Multiple Factors Jinting Lan; Weijun Zheng; Yushi Wu; Lei Chen 190. Time-Varying Low-Rank Recurrent Networks for Predicting and Interpreting Seizure Dynamics Jingzhe Lin; Ziwei Ou; Guangyu Yang; Weiting Sun; ZHICHAO LIANG; Quanying Liu 219. Point AFNO-Transformer: Adaptive Frequency-Domain Attention for LiDAR Point Cloud Segmentation Haiyang Fu;Songdi Jiang; Yangfei Hou ; Zichong Yan	

Workshop Speakers

Yansong Chua

China Nanhu Academy of Electronics and Information Technology, China

Title

The Age of Large Models: The Path Forward for Brain-Inspired Intelligence

Abstract

This talk explores the evolving landscape of large language models (LLMs) through the lens of brain-inspired intelligence, highlighting the critical gaps between current approaches and the efficiency, adaptability, and reasoning capabilities of the human brains. Key differentiating innovations include energy-efficient spiking neural networks, brain-inspired linear attention mechanisms enabling long-range sequence processing, and hippocampus inspired retrieval-augmented generation. We briefly touch on the importance of symbolic reasoning; whereby new learning approaches are required to reconcile how continuous neural activities may give rise to discrete concepts—a mark of human-level intelligence. Applications such as the brain-inspired medical LLM was presented. Finally, we outline future directions emphasizing the co-design of hardware, software, and algorithms to realize human-level embodied intelligence, which is capable of logical reasoning, active perception, and social cognition. We hope to inspire more collaborative efforts in bridging AI with neuroscience to forge next-generation intelligent machines.

Biography

Yansong Chua is the Chief Expert of China Electronics Technology Group (CETC) and Chief Expert of Nanhu Research Institute. He holds a Ph.D. in Biology from the University of Freiburg, Germany, and a Master of Computer Science from the National University of Singapore. He has been selected as a leading talent in the “National Thousand Talents Program” and has participated in the National Key R&D Program “Brain Science and Brain-Like Intelligence” under the Ministry of Science and Technology's Science and Technology Innovation 2030 Agenda, serving as the leader for Project 2 and a key contributor to Project 6. He has engaged in the State-owned Assets Supervision and Administration Commission (SASAC) major initiative to foster future industries in brain-like computing, and has been involved in the top-level design and coordinated implementation of the “High-Performance Brain-Inspired Computing Chips and Basic Software” project, which was elevated from a local Science and Technology Commission program to a national key project. He has spearheaded major projects, such as “Constructing a Digital Brain via Large-Scale Brain Simulation”, and established original technology sources based on breakthroughs in “Brain Science and Brain-Like Research”. Executed SASAC and Science and Technology Commission innovation and industrialisation tasks, planned the top-level layout for brain-like computing, and published over 40 high-quality papers in brain science and brain-like research. He has collaborated with State Grid to launch the power industry’s first self-controllable, heterogeneous integrated brain-like computing platform and intelligent agent, capable of supporting full-scenario applications, including panoramic power inspection, equipment maintenance, and grid regulation. He has released China’s first brain-inspired medical large model, “NaoQi-SuWen” at the 2024 World Internet Conference.

Workshop Speakers

Quanying Liu

Southern University of Science and Technology, China

Title

Artificial Intelligence as a Surrogate Brain

Abstract

The brain is a dynamic system, characterized by intricate spatiotemporal dynamics that underpin cognitive functions and behaviors. However, the explicit formula and mechanism of this dynamic system remain elusive, thus necessitating the construction of brain dynamics models and the resolution of the inverse problem. In this talk, I will first present a data-driven approach from a self-supervised learning perspective. This approach involves training an artificial intelligence (AI) model to learn the dynamics of the brain by predicting the future from the past. The trained AI model serves as a surrogate brain. By conducting virtual perturbation experiments on this surrogate brain, we can obtain a whole-brain effective connectome. This effective connectome reflects the intensity, directionality, and excitatory-inhibitory characteristics of the brain's information flow, as well as the causal relationships between different brain regions. It thereby provides guidance for the selection of brain region targets in neuromodulation. Furthermore, I will introduce a surrogate brain-guided optimal control framework for controlling biological neural dynamics. We have validated this framework through experiments on in vitro neurons, which suggest that the closed-loop electrical stimulation designed with our framework can effectively achieve the control goals. Our framework paves new ways for the personalized treatment of brain diseases, the enhancement of brain functions, and the regulation of behavior.

Biography

Dr. Quanying Liu is an associate professor at Department of Biomedical Engineering, Southern University of Science and Technology (SUSTech), PI, the head of Neural Computing and Control laboratory (NCC lab). She received the B.S. degree in electrical engineering in 2010 and the M.S. degree in computer science at Lanzhou University, in 2013. After receiving her Ph.D. degree in biomedical engineering at ETH Zurich in 2017, she became a postdoctoral research fellow at CalTech. Quanying's main research interests are bridging human intelligence and artificial intelligence. She builds AI surrogate brain to model the the neural dynamical system by self-supervised learning on multi-modal neural data (e.g., EEG sources, fMRI, ECoG, SEEG), and applies control theory to manipulate the brain network dynamics (via visual stimuli, or DBS, TES, TMS).

Workshop Speakers

Yu Qi

Zhejiang University, China

Title

Human Motor Cortex Encodes Complex Handwriting Through a Sequence of Stable Neural States

Abstract

How the human motor cortex (MC) orchestrates sophisticated sequences of fine movements such as handwriting remains a puzzle. Here, we investigate this question through Utah array recordings from human MC during imagined handwriting of Chinese characters. We find that MC programs the writing of complicated characters by sequencing a small set of stable neural states, which control the writing of a fragment of a stroke. By building models that can automatically infer the primitive states and implement state-dependent directional tuning, we can significantly better explain the firing pattern of individual neurons, and reconstruct recognizable handwriting trajectories with 84% improvement compared with baseline models. Our findings unveil that skilled and sophisticated movements are programmed through state-specific neural configurations.

Biography

Yu Qi is a tenure-track professor and principal investigator at the State Key Lab of Brain-Machine Intelligence, the MOE Frontier Science Center for Brain Science and Brain-machine Integration, Zhejiang University. Her research interests include brain-computer interface, artificial intelligence, and brain-inspired computing. She aims to construct neural decoding algorithms and systems for high-performance brain-computer interfaces. Her representative studies were published in Nature human behavoiurs, NeurIPS, ICML, IEEE Trans. on BME, and IEEE Trans. on NSRE.

Workshop Speakers

Sha Zhao

Zhejiang University, China

Title

Towards Large-Scale Foundation Models for Non-Invasive Brain-Computer Interfaces

Abstract

Non-invasive brain-computer interfaces (BCIs) establish direct communication pathways between the brain and external devices through safe, non-invasive neural sensing technologies, demonstrating significant potential in brain-computer interaction, mental state assessment, and intervention. Inspired by the technical roadmap of large language models, recent years have witnessed the emergence of large-scale foundation models for non-invasive BCIs. The core idea is to learn unified neural representations from multi-source brain data, thereby mitigating generalization challenges in brain state decoding caused by individual physiological differences, device heterogeneity, and environmental variability. This presentation will systematically introduce our preliminary explorations and practical progress in constructing large-scale foundation models for non-invasive BCIs, followed by an in-depth discussion of current core difficulties and key challenges for future development.

Biography

Sha Zhao is a Professor and Doctoral Supervisor at the College of Computer Science and Technology / The State Key Lab of Brain-Machine Intelligence, Zhejiang University. She also serves as the Deputy Secretary-General of the CCF Technical Committee on Pervasive Computing. Her research focuses on Brain-Computer Interfaces and Artificial Intelligence, with an emphasis on non-invasive neural signal decoding and closed-loop regulation. She has published over 50 high-quality papers and has received five Best Paper/Award honors, including the ACM UbiComp Best Paper Award (CCF-A; first-authored and the first from China). In 2022, she was honored with the ACM Hangzhou Rising Star Award. She has led several prestigious research projects, including grants from the National Natural Science Foundation of China (General and Youth Programs), the Zhejiang Provincial Natural Science Foundation (Key Program), and sub-projects of STI 2030 Major Projects. She actively contributes to the academic community as a Program Committee Member for top-tier conferences such as ICLR and NeurIPS, and as a reviewer for leading international journals including TCDS, TNSRE, and JBHI.

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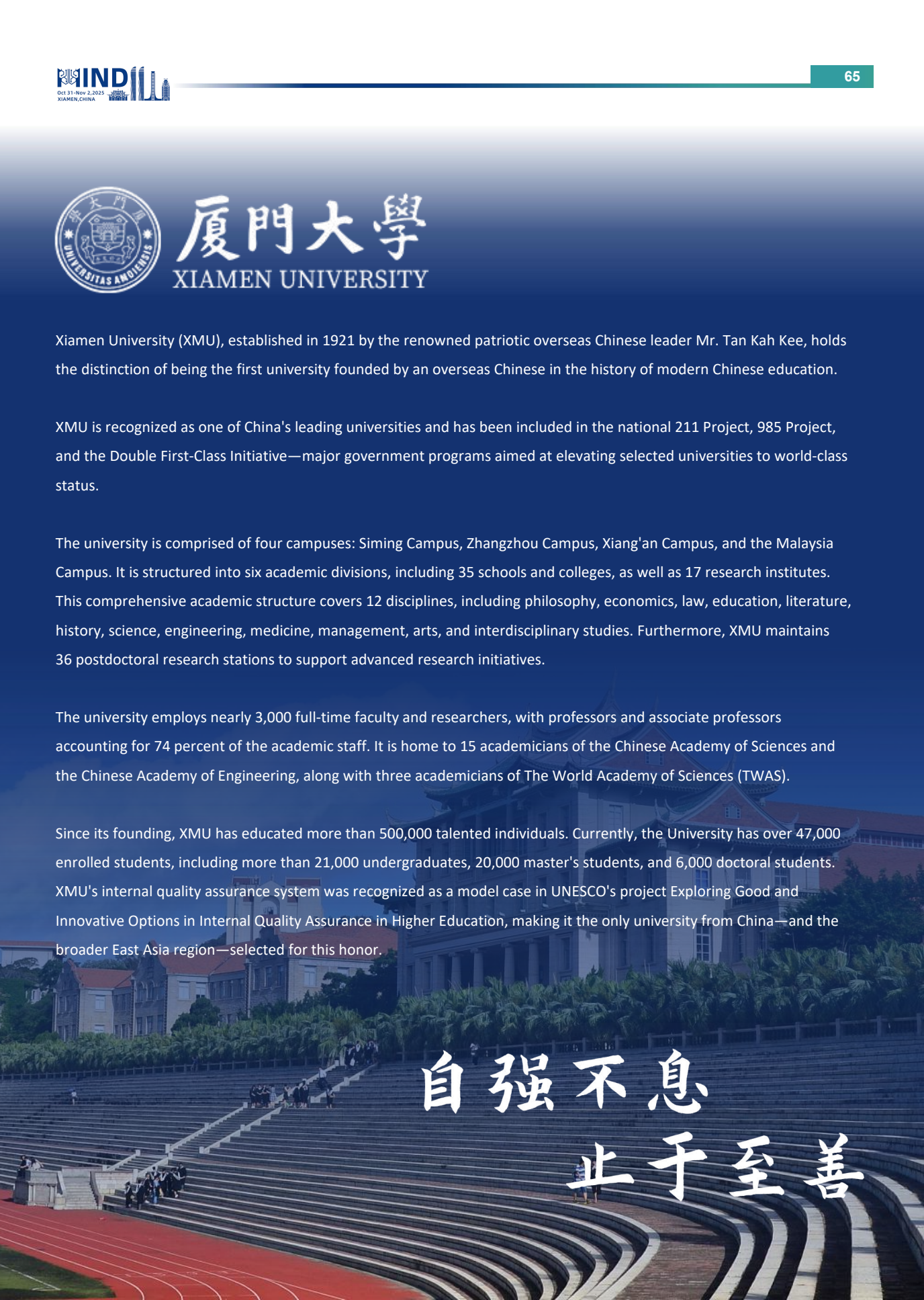
Xiamen University (XMU), established in 1921 by the renowned patriotic overseas Chinese leader Mr. Tan Kah Kee, holds the distinction of being the first university founded by an overseas Chinese in the history of modern Chinese education.

XMU is recognized as one of China's leading universities and has been included in the national 211 Project, 985 Project, and the Double First-Class Initiative—major government programs aimed at elevating selected universities to world-class status.

The university is comprised of four campuses: Siming Campus, Zhangzhou Campus, Xiang'an Campus, and the Malaysia Campus. It is structured into six academic divisions, including 35 schools and colleges, as well as 17 research institutes. This comprehensive academic structure covers 12 disciplines, including philosophy, economics, law, education, literature, history, science, engineering, medicine, management, arts, and interdisciplinary studies. Furthermore, XMU maintains 36 postdoctoral research stations to support advanced research initiatives.

The university employs nearly 3,000 full-time faculty and researchers, with professors and associate professors accounting for 74 percent of the academic staff. It is home to 15 academicians of the Chinese Academy of Sciences and the Chinese Academy of Engineering, along with three academicians of The World Academy of Sciences (TWAS).

Since its founding, XMU has educated more than 500,000 talented individuals. Currently, the University has over 47,000 enrolled students, including more than 21,000 undergraduates, 20,000 master's students, and 6,000 doctoral students. XMU's internal quality assurance system was recognized as a model case in UNESCO's project Exploring Good and Innovative Options in Internal Quality Assurance in Higher Education, making it the only university from China—and the broader East Asia region—selected for this honor.



2026 International Conference on Machine Intelligence and Nature-InspireD Computing (MIND 2026)

Host City: Chongqing **Dates: Oct. – Nov. 2026**

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- Deep Learning and Large Foundation Models
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