Conference Abstract

2026 8th Asia Conference on Machine Learning and Computing (ACMLC 2026)

July 10-12, 2026

Beijing, China

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Praphan Pavarangkoon, King Mongkut's Institute of Technology Ladkrabang, Thailand
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Khairi Azhar Bin Aziz, Universiti Putra Malaysia (UPM), Malaysia

Welcome Message

On behalf of the Conference Committee, we are delighted to welcome you to the 2026 8th Asia Conference on Machine Learning and Computing (ACMLC 2026) taking place from July 10-12, 2026, in the vibrant city of Beijing, China.

ACMLC 2026 invites contributions from all branches of Machine Learning and Computing. Topics of interest include, but are not limited to: Recommender Systems, Deep learning, Supervised Learning, Reinforcement Learning, Neural Networks and applications, Computational Theories of Learning, Intelligent Search, Statistical Learning, Real-time Decisions, Big Data Visualization, Image Classification, Robot Navigation, Data Mining, Computer Modeling, Parallel Computing, Quantum Computing, High Performance Computing, Distributed and parallel systems, Cognitive Computing, Cloud Computing, Distributed Computing, Grid Computing, Embedded Computing, Scalable Computing, Human-centred Computing, Mobile computing.

This year, ACMLC received an impressive number of submissions from researchers, practitioners, and professionals from industry, and academia. All papers underwent a rigorous peer-review process by our conference committee members and international experts, with acceptance based on the quality and relevance of the submissions, ensuring a program of the highest caliber.

The ACMLC 2026 conference is designed to promote the exchange of knowledge and experiences among experts from industry and academia, as well as students. This will be achieved through keynote speeches, presentation sessions, and informal conversations among colleagues from around the world. We hope this conference will provide a memorable and valuable experience for all participants, fostering the discovery of new research domains, the dissemination of practical knowledge, and the cultivation of personal connections.

We are honored to have three distinguished keynote speakers this year:
- Professor Daoyi Dong, University of Technology Sydney, Australia, IEEE Fellow, ARC Future Fellow.
- Professor Pin-Han Ho, University of Waterloo, Canada, IEEE Fellow, AAIA Fellow.
- Professor Min Chen, South China University of Technology, China, IEEE Fellow, IET

Fellow, AAA Fellow.

With profound appreciation, we extend our deepest gratitude to the esteemed committee members and dedicated staff whose tireless dedication has transformed the vision of this conference into reality. Their expertise, enthusiasm, and commitment have been instrumental in shaping an exceptional program that reflects the highest standards of excellence. We are equally grateful to the authors, reviewers, and attendees whose invaluable contributions and active participation have enriched ACMLC 2026. Their dedication to advancing knowledge and fostering meaningful discussions has been the cornerstone of this conference's success. As we embark on this journey together, we extend our warmest wishes to all presenters and participants. May your time at ACMLC 2026 be intellectually rewarding, personally inspiring, and filled with opportunities for meaningful collaboration and lasting impact.

Respectfully yours,

ACMLC 2026

Conference Co-Chairs

Xiaokun Wu, Renmin University of China, China

Xu Chen, Renmin University of China, China

Useful Information

ZOOM Download Link: https://zoom.us/download
Virtual Background & Slide Template: www.acmlc.org/kits.zip

Please rename your screen name before entering the room.

Rename Screen Name Before Entering the Room	Examples
Authors: Paper ID-Name	AB3001-San Zhang
Delegate: Delegate-Name	Delegate-San Zhang
Keynote Speaker: Keynote-Name	Keynote-San Zhang
Invited Speaker: IS-Name	IS-San Zhang
Committee Member: Committee-Name	Committee-San Zhang

Materials Prepared by the Presenters

✧ **Oral Presentation:**

PowerPoint or PDF files

PowerPoint Background Template: www.acmlc.org/kits.zip

Duration of Each Presentation

✧ Keynote Speech: 45 Minutes of Presentation including Q&A.

✧ Invited Speech: 25 Minutes of Presentation including Q&A.

✧ Regular Oral Presentation: 15 Minutes of Presentation including Q&A.

✧ Poster Oral Presentation: 5 Minutes of Presentation including Q&A.

Tips

✧ The regular oral presentation time arrangement is for reference only. In case any absence or some presentations are less than 15 minutes, please join your session before it starts.

✧ An excellent presentation will be selected from each session which will be announced and awarded an excellent presentation certificate.

✧ The presentation must be given entirely in English.

Related Information

Conference Venue

Renmin University of China

Address: Mingde News Building, No. 59 Zhongguancun Street, Haidian District Beijing, 100872, P.R. China

地址：北京市海淀区中关村大街 59 号明德新闻楼

Transportation Instruction

1. Beijing Capital International Airport 北京国际机场

Taxi: Approximately 35 km, 45–60 mins, about 120–150 CNY fare;

Airport Shuttle Bus Line 4: Get off at Friendship Hotel Stop, then walk 15 mins to the campus east gate, total around 70–90 minutes, shuttle fare 24 CNY.

打车前往中国人民大学约 35 公里，45 至 60 分钟，费用约 120–150 元；

乘坐 4 号线机场大巴至友谊宾馆站下车，步行 15 分钟到校东门，全程约 70–90 分钟，大巴票价 24 元。

2. Beijing Daxing International Airport 北京大兴国际机场

Taxi: Approximately 60 km, 90–110 mins, about 150–180 CNY fare;

Airport Express + Metro: Take Daxing Airport Line to Caoqiao, transfer to Line 10 to Suzhou Street Station (campus west gate), total around 70–80 minutes, combined fare 40 CNY.

打车前往中国人民大学约 60 公里，90 至 110 分钟，费用约 150–180 元；

大兴机场快轨换乘地铁 10 号线至苏州街站（校西门），全程约 70–80 分钟，合计票价 40 元。

3. Beijing North Railway Station 北京北站

Taxi: Approximately 7 km, 14–20 mins, about 25 CNY fare;

Metro: Take Line 13 from Xizhimen to Zhichun Road, transfer to Line 10 to Suzhou Street Station, total around 26 minutes, metro fare 4 CNY.

打车前往中国人民大学约 7 公里，14 至 20 分钟，费用约 25 元；

地铁 13 号线西直门站至知春路站换乘 10 号线到苏州街站，全程约 26 分钟，地铁票价 4 元。

4. Qinghe Railway Station 清河站

Taxi: Approximately 8 km, 18–25 mins, about 30 CNY fare;

Metro: Take Line 16 directly to Suzhou Street Station (west gate of campus), total around 22 minutes, metro fare 4 CNY.

打车前往中国人民大学约 8 公里，18 至 25 分钟，费用约 30 元；

乘坐地铁 16 号线直达苏州街站（学校西门），全程约 22 分钟，地铁票价 4 元。

Important Phone Numbers

(available for Fixed line, public phone, mobile phone, and PHS):

Alarm Call: 110

Emergency Call: 120

Fire Alarm Call: 119

Average Temperature in July Beijing:

High Temp: 31°C Low Temp: 22 °C Mean Temp: 26.5 °C

Campus Visit

Gathering Place

Lobby of Mingde News Building, No. 59 Zhongguancun Street, Haidian District Beijing, 100872, P.R. China

北京市海淀区中关村大街59号明德新闻楼大厅

Campus Visit Time

Campus Visit Time: July 10 14:30-15:30

Gathering Time: 14:20 (GMT+8 Beijing Time)

Renmin University of China Introduction

Renmin University of China, located in Beijing, traces its origin back to Shanbei Public School founded in 1937. As China's flagship university for humanities and social sciences, it is a national Double First-Class, 985 and 211 key university directly under the Ministry of Education. It boasts top-ranked disciplines including economics, law, journalism and artificial intelligence. Guided by the motto "Seek Truth from Facts", RUC gathers distinguished scholars and cultivates outstanding talents for public service. It maintains extensive academic partnerships with hundreds of global universities and owns Gaoling School of Artificial Intelligence and School of Journalism and Communication with remarkable research strength.

Lab Visit

School of Journalism and Communication, Renmin University of China

Gaoling School of Artificial Intelligence, Renmin University of China

Keynote Speaker

July 11, Saturday, 8:40-9:25, GMT+8, Beijing Time

Meeting Room: **Mingde News Building 3F-310**
Zoom Link: https://us02web.zoom.us/j/85375188199
Zoom ID: 853 7518 8199
Password: 202607

Prof. Daoyi Dong

University of Technology Sydney, Australia

IEEE Fellow, ARC Future Fellow

Speech Title: Several results on quantum machine learning

Abstract: In this talk, we will introduce several results on quantum machine learning. Firstly, we will give overview of quantum machine learning. Secondly, we introduce the area of quantum reinforcement learning. Thirdly, we introduce an efficient parameter initialization strategy with theoretical guarantees to enhance the trainability of parameterized quantum circuits. Lastly, we show that noises may make quantum kernel methods to only have poor prediction capability.

Bio: Daoyi Dong (Fellow, IEEE) is currently a Professor and an ARC Future Fellow at the Australian Artificial Intelligence Institute, University of Technology Sydney, Australia and an Honorary Professor at the Australian National University. His research interests include machine learning, quantum estimation and quantum control. Prof. Dong was awarded an ACA Temasek Young Educator Award by The Asian Control Association and is a recipient of a Future Fellowship, an International Collaboration Award and an Australian Post-Doctoral Fellowship from the Australian Research Council, and a Humboldt Research Fellowship from the Alexander von Humboldt Foundation of Germany. He is a Vice President of IEEE Systems, Man and Cybernetics Society, and a member of Board of Governors, IEEE Control Systems Society. He is currently an Associate Editor of Automatica and IEEE Transactions on Cybernetics. He is a Fellow of the IEEE, and a Fellow of the Australian Institute of Physics.

Keynote Speaker

July 11, Saturday, 10:00-10:45, GMT+8, Beijing Time

Meeting Room: **Mingde News Building 3F-310**
Zoom Link: https://us02web.zoom.us/j/85375188199
Zoom ID: 853 7518 8199
Password: 202607

Prof. Pin-Han Ho

University of Waterloo, Canada

IEEE Fellow, AAIA Fellow

Speech Title: Observation-Driven World Models for Embodied Edge AI

Abstract: Embodied edge AI systems are increasingly expected to perceive, reason, and act in open, dynamic, and partially observable environments. However, current AI architectures often treat sensing as a passive front-end and world modeling as a downstream learning problem. This separation overlooks a fundamental constraint: an intelligent agent can only model what its observation process makes distinguishable. This keynote introduces an observation-driven view of embodied edge AI, organized around a five-layer stack: physical sensing, wireless observations, tokens, world models, and belief update.

The first layer, physical sensing, emphasizes that sensing actions should be designed for identifiability, not merely for coverage or aggregate information gain. The second layer, wireless observations, argues that RF evidence must preserve acquisition context, including beam, frequency, waveform, pose, reliability, cost, and time. The third layer, tokens, frames observation tokenization as the interface between raw sensing and AI reasoning, where uncertainty, support, metadata, semantics, and lifecycle information must remain explicit. The fourth layer, world models, introduces the observable quotient perspective: world models should preserve distinctions justified by sensing actions while suppressing nuisance variation and unsupported latent hallucinations. The fifth layer, belief update, closes the loop by selecting future sensing actions that reduce meaningful uncertainty over observable world states.

Together, these layers shift embodied AI from passive perception toward active knowledge refinement. The central message is that better embodied intelligence does not come only from scaling reasoning models; it also requires designing what can be observed, how observations are tokenized, what world states are maintained, and which actions should be taken next. This observation-driven framework provides a conceptual foundation for wireless sensing, semantic token interfaces, quotient world models, and active belief-driven edge intelligence.

Bio: Pin-Han Ho is an IEEE Fellow. He takes a full Professor position in Shenzhen Institute for Advanced Study, UESTC, and the Department of Electrical and Computer Engineering at the University of Waterloo, Canada. Prof. Ho is internationally recognized for his pioneering contributions to optical backbone networks, wireless communications, and the Internet of Things. His research interests span survivable network design, AI-driven networking, fiber-wireless (FiWi) integration, broadband access, unmanned aerial vehicles (UAVs), and cyber-physical systems. In 2019, he was elevated to IEEE Fellow for his outstanding work in optical network failure restoration—a testament to his lasting impact on resilient telecommunications infrastructure. He is also a co-inventor of the Wireless Media Express (WMX) technology and has authored numerous highly cited papers that have shaped modern network architectures. Throughout his career, Prof. Ho has bridged theoretical innovation with practical applications, advancing both the robustness and intelligence of next-generation information AI systems. His work continues to influence emerging areas such as Physical AI，embodied intelligence, and Integrated Sensing and Communication (ISAC).

Keynote Speaker

July 11, Saturday, 10:45-11:30, GMT+8, Beijing Time

Meeting Room: **Mingde News Building 3F-310**
Zoom Link: https://us02web.zoom.us/j/85375188199
Zoom ID: 853 7518 8199
Password: 202607

Prof. Min Chen

South China University of Technology, China

IEEE Fellow, IET Fellow, AAA Fellow

Speech Title: HongWU: Hierarchical On-demand Cognitive Big Model with World Utility

Abstract: This talk introduces HongWU (Hierarchical On-demand Machine-Cognitive Model with World Utility), a unified cognitive framework designed to address fundamental bottlenecks facing contemporary large-scale models: training data depletion, insufficient alignment with human intent, and inadequate grounding in physical systems. The HongWU framework integrates physical models, multi-source data, and intelligent tools into a unified tool matrix orchestrated by the foundation model. Through parameter-efficient Fine-tuning and Human-in-the-loop feedback, the model dynamically aligns its objectives with human needs. Its federated knowledge engine, multi-level spatiotemporal reasoning, and multi-agent workflow ensure physically consistent reasoning and enable scalable management of complex engineering systems.

Bio: Professor Min Chen is a Professor and Doctoral Supervisor at the School of Computer Science, South China University of Technology. He is an IEEE Fellow, IET Fellow, and AAA Fellow, serving as Chief Scientist of a National Key Research and Development Programme. Professor Chen has been named a Clarivate Highly Cited Researcher for eight consecutive years (2018–2025). With over 56,000 citations on Google Scholar and an H-index of 104, his academic influence is globally recognized. He has published more than 200 papers in top venues including Science, Nature Communications, and CCF Class A conferences, with 34 ESI Highly Cited Papers and a single paper cited over 6,060 times. He got IEEE ICC Best Paper Award in 2012, IEEE Communications Society Fred W. Ellersick Prize in 2017, the IEEE Jack Neubauer Memorial Award in 2019, and IEEE ComSoc APB Oustanding Paper Award in 2022. His research focuses on cognitive computing, Large Language Model, big data analytics, Embodied AI, and edge intelligence, etc.

Conference Schedule

Day 1- July 10, 2026, Friday, GMT+8, Beijing Time

Onsite Registration		
Time	**Event**	**Venue**
10:00-17:00	Onsite Sign-in	Lobby of Mingde News Building, Renmin University of China 中国人民大学 明德新闻楼大堂
14:30-15:30	Technical Visit	Gathering Time: 14:20 GMT+8 Gathering Place: 明德新闻楼大堂 Lobby of Mingde News Building

Online Test		
Time	**Presenters**	**ZOOM ID**
9:30-12:00	Committee Members, Invited Speakers (Online), and Session Chairs (Online)	853 7518 8199 Password: 202607
13:30-17:00	Online Presenters: AB1005, AB1009, AB1020, AB1022-A, AB1030, AB1037, AB1046, AB1050, AB1051, AB1059, AB1063, AB1091, AB1092, AB1101, AB1102, AB1109, AB1114, AB1117	853 7518 8199 Password: 202607

Online Test Tips:

- ✧ Please get your presentation file ready for the pretest.
- ✧ Please unmute audio and start video while your presentation.
- ✧ It's suggested to use headset with microphone or earphone with microphone.

Day 2- July 11, 2026, Saturday, GMT+8, Beijing Time

Opening Ceremony, Keynote Speeches

1. Onsite Meeting Room–News Studio of Mingde News Building
2. Online Zoom link: https://us02web.zoom.us/j/85375188199 Password: 202607

08:30-08:35	**Welcome Message** **Prof. Yong Zhou, Renmin University of China, China**
08:35-08:40	**Opening Remarks** **Prof. Xiaokun Wu, Renmin University of China, China**
08:40-09:25	**Keynote Speech I** **Prof. Daoyi Dong, University of Technology Sydney, Australia** *IEEE Fellow, ARC Future Fellow* ***Speech Title: Several results on quantum machine learning***
09:25-10:00	**Group Photo & Coffee Break (Mingde News Building)**
10:00-10:45	**Keynote Speech II** **Prof. Pin-Han Ho, University of Waterloo, Canada** *IEEE Fellow, AAIA Fellow* ***Speech Title: Observation-Driven World Models for Embodied Edge AI***
10:45-11:30	**Keynote Speech III** **Prof. Min Chen, South China University of Technology, China** *Fellow of IEEE* ***Speech Title: HongWU: Hierarchical On-demand Cognitive Big Model with World Utility***
11:30-14:00	**Lunch & Break 新花样餐厅 (New Pattern)**

Onsite Sessions

14:00-17:30	**3F-310**	**Onsite Session 1 - Machine learning theory, models, and data security** **Session Chair: Assoc. Prof. Na Ta, Renmin University of China, China** Invited Speaker: Assoc. Prof. Na Ta, Renmin University of China, China Invited Speaker: Asst Prof. Yanglong Lu, The Hong Kong University of Science and Technology, China AB1003, AB1024, AB1032, AB1055-A, AB1061, AB1066, AB1067, AB1094, AB1089-A
14:00-17:30	**3F-301**	**Onsite Session 2 –Intelligent image analysis and multimodal signal fusion processing method** **Session Chairs: Assoc. Prof. Mingjie Shao, Chinese Academy of Sciences, China**

		Assoc. Prof. Zichi Wang, Shanghai University, China Invited Speaker: Assoc. Prof. Mingjie Shao, Chinese Academy of Sciences, China Invited Speaker: Assoc. Prof. Zichi Wang, Shanghai University, China AB1008, AB1019, AB1053-A, AB1074, AB1075, AB1097, AB1098
14:00-17:15	**3F-303**	**Onsite Session 3 –Big Model Driven Artificial Intelligence Technology and Innovative Applications in Intelligent Autonomous Systems** **Session Chairs: Assoc. Prof. Zhenyu Yang, Aalborg University, Denmark** **Assoc. Prof. Pavel Loskot, ZJU-UIUC Institute, China** Invited Speaker: Assoc. Prof. Thanapong Intharah, Khon Kaen University, Thailand Invited Speaker: Assoc. Prof. Pavel Loskot, ZJU-UIUC Institute, China AB1076, AB1006-A, AB1107, AB1068, AB1069, AB1070, AB1071, AB1073, AB1065
15:30-16:00	**3F- Corridor**	**Coffee Break** **Poster Presentation:** AB1021, AB1058, AB1060, AB1087
18:00	**New Pattern 新花样餐厅**	**Dinner**

Day 3 – July 12, 2026, Sunday, GMT+8, Beijing Time

Online Sessions **Online Zoom ID:** **Online Session 1, Online Session 3** Zoom ID: 853 7518 8199 Password: 202607 **Online Session 2, Online Session 4** Zoom ID: 862 8538 4262 Password: 202607	
09:30-11:45	**Online Session 1–Machine Learning Models and Algorithm Design** **Session Chair:** Asst. Prof. Filbert Juwono, Xi'an Jiaotong-Liverpool University, China Invited Speaker: Prof. Loc Nguyen, Sunflower Soft Company, Vietnam Invited Speaker: Assoc. Prof. Dr. Azhar Imran Mudassir, Beijing University of Technology, China Invited Speaker: Asst. Prof. Filbert Juwono, Xi'an Jiaotong-Liverpool University, China AB1009, AB1020, AB1022-A, AB1030
09:30-11:55	**Online Session 2–Machine learning driven intelligent control systems and their key applications in interdisciplinary fields** **Session Chair:** Assoc. Prof. Xiaohua Zhang, Wenzhou Business College, China Invited Speaker: Prof. R. S. Hegadi, Central University of Karnataka, India Invited Speaker: Assoc. Prof. Xiaohua Zhang, Wenzhou Business College, China Invited Speaker: Assoc. Prof. K. Martin Sagayam, Lincoln University College, Malaysia Invited Speaker: Asst. Prof. Muhammad Shahid Khan, Suan Sunandha Rajabhat University, Thailand AB1059, AB1091, AB1114
11:45-14:00	**Lunch & Break**
14:00-16:20	**Online Session 3 – Generative AI driven Large Language Models and Natural Language Processing Methods** **Session Chair: Dr. Chiagoziem Chima Ukwuoma, Chengdu University of Technology, China** Invited Speaker: Prof. Anand Nayyar, Duy Tan University, Vietnam Invited Speaker: Dr. Chiagoziem Chima Ukwuoma, Chengdu University of Technology, China AB1005, AB1037, AB1063, AB1092, AB1101, AB1102,
14:00-16:55	**Online Session 4 – Intelligent Information Management and Security Protection Strategy Based on Reinforcement Learning** **Session Chair: Prof. Moirangthem Marjit Singh, North Eastern Regional Institute of Science & Technology (NERIST), Arunachal Pradesh, India** Invited Speaker: Prof. Moirangthem Marjit Singh, North Eastern Regional Institute of Science & Technology (NERIST), Arunachal Pradesh, India Invited Speaker: Prof. Shuai Wang, University of Electronic Science and Technology of China, China Invited Speaker: Assoc. Prof. Suraya Masrom, Universiti Teknologi MARA, Malaysia Invited Speaker: Asst Prof. Yanqing Xu, The Chinese University of Hong Kong, Shenzhen, China AB1046, AB1050, AB1051, AB1109, AB1117

Onsite Session 1

Topic: Machine learning theory, models, and data security
Session Chair: Assoc. Prof. Na Ta, Renmin University of China, China
Time: 14:00-17:30 (GMT+8, Beijing Time), Jul. 11, Saturday
Venue: Mingde News Building 3F-310

Invited Speech 14:00-14:25	**Title: Constructing Reality: Understanding Bias, Values, and Governance in Generative AI** **Invited Speaker:** Assoc. Prof. Na Ta, Renmin University of China, China
Invited Speech 14:25-14:50	**Title: Constructing Reality: Understanding Bias, Values, and Governance in Generative AI** **Invited Speaker:** Assoc. Prof. Na Ta, Renmin University of China, China
AB1003 14:50-15:05	**Title**: Toward a Structured Evaluation of Intelligent Agents with a Five-Dimensional Framework **Authors:** Huanhuan Zhang, Runmin Zhang, Guanzi Liu, Yan Li, Keqin Zhou, Wenbin Lu **Presenter:** Huanhuan Zhang, China Unicom Beijing Branch, Beijing China
AB1024 15:05-15:20	**Title**: SecureServ: A Byzantine-Resilient Service Governance Framework for Multi-Modal Intelligent Systems **Authors:** Shuo Sheng,Kun Che **Presenter**: Shuo Sheng,Chengfang Financial Information Technology Services Co., Ltd., Beijing, China
AB1032 15:20-15:35	**Title:** Adaptive Explainable Segmentation of Biomedical Questions for Knowledge Graph-Based Clinical Information Retrieval **Authors:** Mmohammed Alshammari, Amir Atapour-Abarghouei **Presenter:** Mohammed Alshammari, Durham University, United Kingdom
15:25-16:00	**Coffee Break**
AB1055-A 16:00-16:15	**Title:** Music-Inspired Harmony Search Algorithm and its Applications in China **Authors**: Zong Woo Geem **Presenter:** Zong Woo Geem, Gachon University, South Korea
AB1061 16:15-16:30	**Title:** Enhancing Multimodal Continuous Emotion Recognition with Self-Supervised Speech Representations **Authors**: Hadil Mehrez and Sid Ahmed Selouani **Presenter:** Sid Ahmed Selouani, LARIHS Lab. Moncton University, Canada
AB1066 16:30-16:45	**Title**: Defending Adversarial Samples by Injecting Gradient Traps **Authors:** Kaijie Wang, Leyu Yao, Xiaolin Huang **Presenter:** Kaijie Wang, Shanghai Jiao Tong University, China
AB1067 16:45-17:00	**Title:** Improved Fine-Tuning Loss Estimates Using a Loss-Gradient Kernel **Authors**: Nahum Maurice and Viktor Malyshev **Presenter:** Nahum Maurice, S.M. Nikol'skii Mathematical Institute, RUDN University, Russia
AB1094 17:00-17:15	**Title:** Deep learning prediction of age-dependent population dynamics using physics-informed neural networks **Authors:** Dong Qiu **Presenter:** Dong Qiu, East China Normal University, Shanghai, China

AB1089-A 17:15-17:30	**Paper Title**: SGP4 Orbit Residual Correction and Space Object Orbit Prediction Using a BiLSTM Network **Authors:** Qingshan Luo, Ying Cao, Yadi Song, Jiahao Ji **Presenter**: Ying Cao, University of Emergency Management, China

Onsite Session 2

Topic: Intelligent image analysis and multimodal signal fusion processing method
Session Chairs: Assoc. Prof. Mingjie Shao, Chinese Academy of Sciences, China
Assoc. Prof. Zichi Wang, Shanghai University, China
Time: 14:00-17:30 (GMT+8, Beijing Time), Jul. 11, Saturday
Venue: Mingde News Building 3F-301

Invited Speech 14:00-14:25	**Title: Quantized Signal Sensing: Identifiability and Methods** **Invited Speaker:** Assoc. Prof. Mingjie Shao, Chinese Academy of Sciences, China
Invited Speech 14:25-14:50	**Title: From Human–AI Co-Creation to Cultural Computing: An AI-Driven Art and Design for Community-Based Digital Memory and Public Aesthetic Education** **Invited Speaker:** Assoc. Prof. Yuanyuan Chen, Nanjing University of Posts and Telecommunications (NJUPT), China
Invited Speech 14:50-15:15	**Title: Steganography in Neural Networks** **Invited Speaker:** Assoc. Prof. Zichi Wang, Shanghai University, China
AB1008 15:15-15:30	**Title:** Emotion Recognition via an Attention-Enhanced Hybrid Deep Network with Multi-Scale EEG Feature Fusion **Authors**: Jiyuan Miao, Li Zhang, Junyi Liu, Ruihan Zhang **Presenter:** Jiyuan Miao, Communiaction University of China, China
15:30-16:00	**Coffee Break**
AB1019 16:00-16:15	**Title:** A Comparative Study of Machine Learning Models for Hourly Prediction of Air Temperature and Relative Humidity **Authors:** Jiaqi Dong **Presenter**: Jiaqi Dong, Macao Polytechnic University, China
AB1053-A 16:15-16:30	**Title:** A High-Precision Oblique Aerial Dataset for 3D Reconstruction and Object Detection **Authors:** Jiahong Ling, Junchi Bin, Mengwei Liu, Zhixiong Mei, Jiahao Guo, Zhenhua Jiang **Presenter:** Junchi Bin, Guangxi Academy of Sciences
AB1074 16:30-16:45	**Title**: Real-Time Drill Bit Condition Monitoring Using YOLO-Based Object Detection on Raspberry Pi with a Web-Based Visualization Dashboard **Authors:** Pornphot Sriwichayangkul, Nutthanun Moolsradoo, Pasapitch Chujai Michel **Presenter:** Pornphot Sriwichayangkul, KMUTT Thailand
AB1075 16:45-17:00	**Title:** Machine Learning-Based Visual Inspection of Steel Surface Readiness Before Acid Etching **Authors:** Tanathon Tophai,Nutthanun Moolsradoo,Pasapitch Chujai Michel **Presenter:** Tanathon Tophai, KMUTT, Thailand
AB1097 17:00-17:15	**Title**: Dynamic Training Regulation Framework for Cross-Domain Few-Shot Object Detection **Authors:** Huangliang Ren, Jianjun Li, Jie Deng, Saiqi Feng, Qian Wang and Yuqi Liu **Presenter:** Huangliang Ren, Inner Mongolia University of Science and Technology, China
AB1098 17:15-17:30	**Title**: KTP-Former: Adaptive Skeleton-Topology Prior Regularization for Video-Based 3D Human Pose Estimation **Authors:** Junjie Zhang, Jianjun li， Xiaojian Pan, Tianci Sun

	Presenter: Junjie Zhang, Inner Mongolia University of Science and Technology, China

Onsite Session 3

Topic: Big Model Driven Artificial Intelligence Technology and Innovative Applications in Intelligent Autonomous Systems
Session Chairs: Assoc. Prof. Zhenyu Yang, Aalborg University, Denmark
Assoc. Prof. Pavel Loskot, ZJU-UIUC Institute, China
Time: 14:00-17:15 (GMT+8, Beijing Time), Jul. 11, Saturday
Venue: Mingde News Building 3F-303

Invited Speech 14:00-14:25	**Title: Mathematical Models Beyond Vectors and Matrices** **Invited Speaker:** Assoc. Prof. Pavel Loskot, ZJU-UIUC Institute, China
Invited Speech 14:25-14:50	**Title: Quantized Signal Sensing: Identifiability and Methods** **Invited Speaker:** Assoc. Prof. Thanapong Intharah, Khon Kaen University, Thailand
AB1076 14:50-15:05	**Title**: Early Detection of Refrigerant Leakage Using LSTM-Based-Autoencoder for Supermarket Refrigeration Systems **Authors:** Michal Kujawski, Waleed Aslam, Zhenyu Yang, Roozbeh Izadi-Zamanabadi **Presenter:** Zhenyu Yang, Aalborg University, Denmark
AB1006-A 15:05-15:20	**Title**: Resource-Efficient Multimodal Stock Forecasting: Synergizing Llama 3.1 Embeddings with Attentive Bi-LSTM for the Chinese Market **Authors:** Kuan-Cheng Lai and Po-Yueh Chenl **Presenter**: Kuan-Cheng Lai, National Changhua University of Education, Taiwan, China
AB1107 15:20-15:35	**Title:** Critical Scenario Generation for Autonomous Driving Testing via Large Language Model and Reinforcement Learning **Authors:** Jing Zhao, Zhishun Wang, Ruru Hao **Presenter:** Jing Zhao, Chang'an University, China
15:35-16:00	**Coffee Break**
AB1068 16:00-16:15	**Title:** Cloud-Based Machine Learning with Sensor Data for Soil Moisture Forecasting and Intelligent Irrigation **Authors**: Xu Zhong, Pasapitch Chujai Michel **Presenter:** Xu Zhong, King Mongkut's University of Technology Thonburi, Thailand
AB1069 16:15-16:30	**Title:** Diagnostic Accuracy Evolution in DeepSeek Large Language Models: A Pediatric Telehealth Evaluation **Authors**: Linpeng Wang,Pasapitch Chujai Michel **Presenter:** Linpeng Wang, King Mongkut's University of Technology Thonburi, Thailand
AB1070 16:30-16:45	**Title:** Real-Time Student Emotion Monitoring Using Deep Neural Networks and ChatGPT for Adaptive Classroom Teaching **Authors:** Yu Zilong, Pasapitch Chujai Michel **Presenter:** Yu Zilong, King Mongkut's University of Technology Thonburi, Thailand

AB1071 16:45-17:00	**Title:** An Explainable Machine Learning-Based Smart Packaging Framework for Banana Ripeness Monitoring Using IoT Sensor Data and LLM-Assisted Dashboard Analytics **Authors:** Supachai Saengpitak, Tanatorn Tongsumrith, Pasapitch Chujai Michel **Presenter:** Supachai Saengpitak, King Mongkut's University of Technology Thonburi, Thailand
AB1073 17:00-17:15	**Title:** An Image Retrieval-Based Web AR Smart Packaging System Using Large Language Models for Personalized Nutrition Recommendation **Authors**: Setthawuth Chongthong, Tanatorn Tongsumrith, Pasapitch Chujai Michel **Presenter:** Setthawuth Chongthong, King Mongkut's University of Technology Thonburi, Thailand
AB1065 17:15-17:30	**Title:** An AI-Driven Drone Imaging Framework for Precision Corn Disease Detection and Field Analytics **Authors:** Ian Kharl Ramos, Michael James Nazareno, Shane Mae Domero, Uriel Seguban, Kent Vincent Sarsalejo, Owen Pilongo, Genevieve Pilongo **Presenter**: Kent Vincent Sarsalejo, Holy Cross of Davao College, Philippines

Poster Session

Time: 15:30-16:00 (GMT+8, Beijing Time), Jul. 11, Saturday
Venue: Mingde News Building–3F Corridor
Session Chair: Asst Prof. Yanglong Lu, The Hong Kong University of Science and Technology, China

AB1058	**Title:** SACL-Rec: Social-Augmented Contrastive Learning for Recommendation **Authors**: Jianmin Jiang, Yang Tian, and Hui Tian **Presenter**: Jianmin Jiang, Beijing University of Posts and Telecommunications, China
AB1060	**Title:** Vulnerability Analysis of Target Recognition Models Based on Geometric Transformations **Authors:** Haoqi Gao, WenHao Xu, Haoran Liu, Yu Zhang **Presenter**: Haoqi Gao, College of Electronic Engineering National University of Defense Technology Heifei, China
AB1021	**Title:** TemporalFusion: Vision Language Integration for Unified Time Series Reasoning **Authors**: Abdulrahman F. Althorman، Abdullah A. Almarzooq، Moshabbab S. Alotaibi **Presenter:** Abdulrahman F. Althorman, Aramco, Saudi Arabia
AB1087	**Title:** Reducing Numerical Risk while Avoiding Over-Refusal: A Preference Optimization Framework for Automotive Sales Assistants **Authors:** Dongyang Chen, Dong Jin, Qirui Chen, Shuangwu Chen, Shenghao Ye, Wangming Li **Presenter:** Dongyang Chen, University of Science and Technology of China, China

Online Session 1

Topic: Machine Learning Models and Algorithm Design
Session Chair: Asst. Prof. Filbert Juwono, Xi'an Jiaotong-Liverpool University, China
Time: 9:30-11:45 (GMT+8, Beijing Time), Jul.12, Sunday
Zoom ID: 853 7518 8199 Password: 202607
Zoom Link: https://us02web.zoom.us/j/85375188199

Invited Speech 9:30-9:55	**Title: Is matrix neural network the alternative of convolutional neural network?** **Invited Speaker**: Prof. Loc Nguyen, Sunflower Soft Company, Vietnam
Invited Speech 9:55-10:20	**Title: Explainable Deep Learning for Medical Image–Based Disease Diagnosis** **Invited Speaker**: Assoc. Prof. Dr. Azhar Imran Mudassir, Beijing University of Technology, China
Invited Speech 10:20-10:45	**Title: Applications of Machine Learning in Smart Sustainable Agriculture** **Invited Speaker**: Asst. Prof. Filbert Juwono, Xi'an Jiaotong-Liverpool University, China
AB1009 10:45-11:00	**Title**: Cross-Modal Adaptive Adversarial Defense for Medical Imaging with Explanation Stability **Authors:** Muoka Gladys Muoka, Prof. Wang Qingxian, Odeh Adeyi Victor, Chiagoziem C. Ukwuoma **Presenter:** Odeh Adeyi Victor, University of Electronic Science and Technology of China, China
AB1020 11:00-11:15	**Title:** Research on a Multimodal Swallow Balance Assessment Model Based on CNN-SE-BiLSTM **Authors:** Changjian Zhu, Chenghui Qian, Shaowen Du, Nan Yang, Hongtao Jing, Hongfeng Ma **Presenter:** Chenghui Qian, Nanjing Institute of Technology, China
AB1022-A 11:15-11:30	**Title:** HyperGraph Diffusion Trajectory Framework for continuous Parkinson's Disease Prognosis using 3D Genomic Integration **Authors:** S. Pitchumani Angayarkanni, Revathy Iswarya Sekaran **Presenter:** S. Pitchumani Angayarkanni, Aarupadai Veedu Institute of Technology, India
AB1030 11:30-11:45	**Title:** Accelerating Molecular Generation with Structure-aware Quantum Diffusion Models **Authors:** Zisen Shan, Lianghong Chen, Pingzhao Hu **Presenter:** Zisen Shan, Western University, Canada

Online Session 2

Topic: Machine learning driven intelligent control systems and their key applications in interdisciplinary fields
Session Chair: Assoc. Prof. Xiaohua Zhang, Wenzhou Business College, China
Time: 9:30-11:55 (GMT+8, Beijing Time), Jul. 12, Sunday
Zoom ID: 862 8538 4262 Password: 202607
Zoom Link: https://us02web.zoom.us/j/ 862 8538 4262

Invited Speech 9:30-9:55	**Title: Mango Orchard UAV Dataset for Agricultural Applications** **Invited Speaker**: Prof. R. S. Hegadi, Central University of Karnataka, India
Invited Speech 9:55-10:20	**Title: AI-Driven Spatiotemporal Carbon Emission Forecasting Model Based on Big Data for Urban Digital Economye** **Invited Speaker**: Assoc. Prof. Xiaohua Zhang, Wenzhou Business College, China
Invited Speech 10:20-10:45	**Title: Hand gesture image recognition using optimized models of machine learning algorithms for virtual reality applications** **Invited Speaker:** Assoc. Prof. K. Martin Sagayam, Lincoln University College, Malaysia
Invited Speech 10:45-11:10	**Title: Human–Machine Collaboration in Human Resource Management: A Conceptual Framework Linking HR Chatbot Capability and Employee Engagement** **Invited Speaker**: Asst. Prof. Muhammad Shahid Khan, Suan Sunandha Rajabhat University, Thailand
AB1059 11:10-11:25	**Title:** ANN-GA Hybrid Model for Nano-Silica Geopolymer Concrete Strength Prediction with Domain Adaptation and Interpretability Analysis **Authors:** Mohamed I. Mahamud, and Dante L. Silva **Presenter:** Mohamed I. Mahamud, Mapua University, Philippines
AB1091 11:25-11:40	**Title:** A Machine-Learning Based Approach to Leak Detection in Water Distribution Networks **Authors**: Jonathan Weekes, Patrick Hosein **Presenter:** Patrick Hosein / Jonathan Weekes, University of The West Indies, Trinidad
AB1114 11:40-11:55	**Title:** Predicting Motor Insurance Policy Lapse: A Multi-Stage Pipeline Integrating Machine Learning, Survival Analysis, and Claims Behaviour **Authors:** Karlene Philanders and Patrick Hosein **Presenter:** Karlene Philanders, The University of the West Indies, Trinidad

Online Session 3

Topic: Generative AI driven Large Language Models and Natural Language Processing Methods
Session Chair: Dr. Chiagoziem Chima Ukwuoma, Chengdu University of Technology, China
Time: 14:00-16:20 (GMT+8, Beijing Time), Jul. 12, Sunday
Zoom ID: 853 7518 8199 Password: 202607
Zoom Link: https://us02web.zoom.us/j/85375188199

Invited Speech 14:00-14:25	**Title: Responsible AI and Ethical Data Governance: Building Transparent, Fair, and Human-Centric Intelligent Systems** **Invited Speaker**: Prof. Anand Nayyar, Duy Tan University, Vietnam
Invited Speech 14:25-14:50	**Title:** Bridging the Benchmark–Operations Gap in Solar PV Power Forecasting: Why Lightweight CNN Hybrids Endure in Real-World Deployments Despite Advances in Transformers and Physics-Informed Models: A Deployment-Centric Review **Invited Speaker**: Chiagoziem Chima Ukwuoma, Chengdu University of Technology, China
AB1005 14:50-15:05	**Title:** A Controlled Analysis of In-Context Learning in Large Language Models Through Constructed Languages **Authors:** Niño Rey S. Cabiltes, Philippe Andrei S. Dael, Alessandra Beatriz A. Kisteria, Frenz Nicole K. Repunte, Jun Albert S. Pardillo **Presenter:** Niño Rey S. Cabiltes, Cebu Institute of Technology University, Philippines
AB1037 15:05-15:20	**Title:** An Emotion-Aware Preference-Optimized Agent for Adaptive Tool Use: A Thompson Sampling-Based Approach **Authors:** Cheng Zeng, Shenwei Kang **Presenter:** Shenwei Kang, School of Computer and Cyber Sciences Communication University of China, China
AB1063 15:20-15:35	**Title:** A Mechanism Study of Virtual Alignment Prompting for Zero-Shot Defensive Generation **Authors:** Ziwei Hong, Zhongheng Yang, Lu Cheng, Kailin Zheng,Tian Sang, Yachen Tang **Presenter**: Ziwei Hong, Walmart, USA
AB1092 15:35-15:50	**Title:** A NLP Method for Estimating the Alignment of University Curricula with Essential Job Skills **Authors:** Daria Hypolite, Denelle Mohammed and Patrick Hosein **Presenter:** Daria Hypolite, The University of the West Indies, Trinidad
AB1101 15:50-16:05	**Title**: NEXT: Fusing Current-Turn Semantics with Time-Decay Weighted Dialogue History for Next-Turn Sentiment Prediction **Authors**: Bao-Doanh Nguyen, Tan-Trong Nguyen, Huy-Hoang Nguyen, Thien-Truc Nguyen, Quynh-Chi Nguyen, Hoai-Phan Truong, Hoanh-Su Le, Phuc Nguyen **Presenter**: Bao-Doanh Nguyen, University of Economics and Law, Vietnam
AB1102 16:05-16:20	**Title:** Dual-Branch Frequency-Enhanced Network with Adaptive Fusion for Image Deblurring **Authors:** Cuicui Zheng, Xianwu Huang, Haili Shang, Wanting Shi, Zhenheng Zhang, Shuoxu Mu **Presenter:** Cuicui Zheng, Inner Mongolia University of Science and Technology, China

Online Session 4

Topic: Intelligent Information Management and Security Protection Strategy Based on Reinforcement Learning
Session Chair: Prof. Moirangthem Marjit Singh, North Eastern Regional Institute of Science & Technology (NERIST), Arunachal Pradesh, India
Time: 14:00-16:55 (GMT+8, Beijing Time), Jul. 12, Sunday
Zoom ID: 862 8538 4262 Password: 202607
Zoom Link: https://us02web.zoom.us/j/862 8538 4262

Invited Speech 14:00-14:25	**Title: ANN Synchronization for Enhanced Security in Wireless Networks** **Invited Speaker**: Prof. Moirangthem Marjit Singh, North Eastern Regional Institute of Science & Technology (NERIST), Arunachal Pradesh, India
Invited Speech 14:25-14:50	**Title: Beyond ADMM: A Unified Client-Variance-Reduced Adaptive Federated Learning Framework** **Invited Speaker**: Prof. Shuai Wang, University of Electronic Science and Technology of China, China
Invited Speech 14:50-15:15	**Title: Automated Machine Learning based on Genetic Programming** **Invited Speaker**: Assoc. Prof. Suraya Masrom, Universiti Teknologi MARA, Malaysia
Invited Speech 15:15-15:40	**Title: Environment-Aware Region-Level Design for Generalized Pinching-Antenna Systems** **Invited Speaker**: Asst Prof. Yanqing Xu, The Chinese University of Hong Kong, Shenzhen, China
AB1046 15:40-15:55	**Title:** Decentralized Multi-Player Q-Learning in Episodic Markov Decision Processes with Information Asymmetry **Authors:** Larissa Xu, King Bi, William Chang **Presenter:** William Chang, University of California, USA
AB1050 15:55-16:10	**Title:** DCM Bandits: Multiplayer Information Asymmetric Cascading Bandits for Multiple Clicks **Authors:** Andy Wang, Charlton Shih, William Chang **Presenter:** Andy Wang, University of California, USA
AB1051 **16:10-16:25**	**Title:** DINO-SAM-TRANS: An Integrated Foundation-Model Framework for Roadway Obstacle Detection and Safe Navigation of Autonomous Vehicles **Authors:** Malik Haris, Guoqiang Zhang, Lu Sun, Muhammad Shahid Mastoi, Jibran Hussain, Zidong Zhao **Presenter:** Malik Haris, Zhejiang University, China
AB1109 16:25-16:40	**Title:** Decision-Centric Customer Re-Engagement: Integrating Survival Analysis and Uplift Modeling for Optimal Intervention **Authors:** Ngoc-Nhu-Y Huynh, Viet-Cam Chu, Hoai-Phan Truong, Hoanh-Su Le, Phuc Nguyen **Presenter:** Viet-Cam Chu, University of Economics and Law, Vietnam
AB1117 16:40-16:55	**Title:** Research on Adaptive Track Association Discrimination Method for Low-Altitude Scenarios Based on Large Generative Models **Authors:** Kai Zhao, Ming Liu, Peiyuan Ni, Zhongzheng Sun, Ming Gen, Zhicun Wang, Chaoyu Yang, Jiapeng Qi, Jianqin Wang **Presenter:** Kai Zhao, The 28th Research Institute of CETC, China

Invited Speaker

July 12, Sunday, 14:25-14:50, GMT+8, Beijing Time

ZOOM Link: https://us02web.zoom.us/j/862 8538 4262
Zoom ID: 862 8538 4262
Password: 202607

Prof. Shuai Wang

University of Electronic Science and Technology of China, China

Speech Title: Beyond ADMM: A Unified Client-Variance-Reduced Adaptive Federated Learning Framework

Abstract: As a novel distributed learning paradigm, federated learning (FL) faces serious challenges in dealing with massive clients with heterogeneous data distribution and computation and communication resources. Various client-variance-reduction schemes and client sampling strategies have been respectively introduced to improve the robustness of FL. Among others, primal-dual algorithms such as the alternating direction of method multipliers (ADMM) have been found being resilient to data distribution and outperform most of the primal-only FL algorithms. However, the reason behind remains a mystery still. In this paper, we firstly reveal the fact that the federated ADMM is essentially a client-variance-reduced algorithm. While this explains the inherent robustness of federated ADMM, the vanilla version of it lacks the ability to be adaptive to the degree of client heterogeneity. Besides, the global model at the server under client sampling is biased which slows down the practical convergence. To go beyond ADMM, we propose a novel primal-dual FL algorithm, termed FedVRA, that allows one to adaptively control the variance-reduction level and biasness of the global model. In addition, FedVRA unifies several representative FL algorithms in the sense that they are either special instances of FedVRA or are close to it. Experiments based on (semi-) supervised image classification tasks demonstrate superiority of FedVRA over the existing schemes in learning scenarios with massive heterogeneous clients and client sampling.

Bio: Shuai Wang received the PhD degree from the School of Science and Engineering, The Chinese University of Hong Kong, Shenzhen, China, in 2021. He is currently an assistant professor at the University of Electronic Science and Technology of China. Before that, he was a postdoctoral research fellow with the Information Systems Technology and Design Pillar, Singapore University of Technology and Design, Singapore. His current primary research interests include optimization algorithms for signal processing, machine learning and communication systems, distributed optimization and federated learning (FL), data security and privacy protection in distributed systems, integrated sensing and communication (ISAC), etc. He has published more than 30 academic papers and serves as the Youth Editorial Board Member of two journals, and the session chair of ICCT 2025.

Invited Speaker

July 12, Sunday, 9:30-9:55, GMT+8, Beijing Time

ZOOM Link: https://us02web.zoom.us/j/ 862 8538 4262
Zoom ID: 862 8538 4262
Password: 202607

Prof. R. S. Hegadi

Central University of Karnataka, India

Speech Title: Mango Orchard UAV Dataset for Agricultural Applications

Abstract: The rapid advancement of precision agriculture has highlighted the need for efficient and automated monitoring systems for orchard management. This work presents a comprehensive UAV-based aerial image dataset of mango orchards designed to support research in tree detection, segmentation, and automated pesticide spraying applications. High-resolution RGB images were systematically collected using a DJI Air 2S unmanned aerial vehicle across major mango-growing regions of Karnataka and Maharashtra, India, during the flowering and fruiting season. A total of 3,917 aerial images were captured under controlled flight conditions using grid-based mission planning with optimized overlap and altitude settings.

To facilitate deep learning applications, the collected images were processed through an automated workflow involving image slicing, HSV-based vegetation extraction, contour analysis, and automatic annotation. The original UAV images were divided into smaller frames, generating 78,340 image patches for efficient processing. Using image processing techniques, frames were classified into “Tree Present” and “Tree Absent” categories, resulting in 69,607 tree-containing frames. An automatic annotation pipeline was further developed to generate YOLO-compatible bounding box annotations, producing 58,608 annotated frames.

The resulting dataset is high-resolution, georeferenced, and comprehensively labeled, making it a valuable resource for developing lightweight and real-time AI models for agricultural automation in resource-constrained environments. The dataset can support applications such as fruit tree detection, canopy monitoring, precision spraying, and orchard management. This work contributes toward bridging the gap in publicly available agricultural UAV datasets and promotes further research in intelligent farming systems and drone-assisted precision agriculture.

Bio: Prof. Ravindra Hegadi received his PhD in Computer Science from Gulbarga University, India. Dr Hegadi has served in various positions at institutions of higher education since 1997, and is currently Professor and Dean of Academics at Central University of Karnataka, India. He has brought research projects worth more than 5 crores. His research interests include Digital image processing, AI, Machine learning, Robotics, and Medical image analysis. He served as Dean of the School of Computer Science. Dr Hegadi is a Senior Member of IEEE and has received the Prof. Satish Dhawan Young Scientist Award from the Government of Karnataka.

Invited Speaker

July 12, Sunday, 14:00-14:25, GMT+8, Beijing Time

ZOOM Link: https://us02web.zoom.us/j/85375188199
Zoom ID: 853 7518 8199
Password: 202607

Prof. Anand Nayyar

Duy Tan University, Vietnam

Speech Title: Responsible AI and Ethical Data Governance: Building Transparent, Fair, and Human-Centric Intelligent Systems

Abstract: Artificial Intelligence is rapidly reshaping healthcare, finance, education, governance, mobility, media, and the future of work. Yet, as data becomes the new economic fuel, the ethical responsibility of capturing, governing, interpreting, and using that data becomes equally critical. This keynote explores the intersection of AI ethics, responsible AI, data privacy, algorithmic bias, explainability, and governance in an era where intelligent systems increasingly influence high-stakes human decisions. Drawing from real-world examples such as biased hiring systems, predictive policing, autonomous vehicles, medical AI, deepfakes, chatbot failures, surveillance concerns, and AI-driven decision-making, the talk highlights why technical performance alone is insufficient. It examines how bias enters datasets, how black-box models create accountability gaps, and why fairness, transparency, privacy, safety, robustness, and corrigibility must be designed into AI systems from the beginning. The keynote further discusses practical frameworks for ethical AI adoption, including data ethics governance, explainable AI, human-AI collaboration, privacy-by-design, risk management, and responsible innovation. It argues that the future of AI must not be defined only by intelligence and automation, but by trust, accountability, inclusiveness, and measurable social benefit. Ultimately, the session calls for building AI systems that serve people, respect rights, and advance society responsibly.

Bio: Dr. Anand Nayyar received Ph.D (Computer Science) from Desh Bhagat University in 2017 in the area of Wireless Sensor Networks, Swarm Intelligence and Network Simulation. He is currently working in School of Computer Science-Duy Tan University, Da Nang, Vietnam as Professor, Scientist, Vice-Chairman (Research) and Director- IoT and Intelligent Systems Lab. A Certified Professional with 280+ Professional certifications from CISCO, Microsoft, CompTIA, Amazon, Alibaba Cloud, Oracle, Google, Salesforce, Tableau, FinOps, Beingcert, EXIN, GAQM, Cyberoam and many more. Published more than 300+ Research Papers in various High-Quality ISI-

SCI/SCIE/SSCI Impact Factor- Q1, Q2, Q3, Q4 Journals cum Scopus/ESCI indexed Journals, 80+ Papers in International Conferences indexed with Springer, IEEE and ACM Digital Library, 60+ Book Chapters in various SCOPUS/WEB OF SCIENCE Indexed Books with Springer, CRC Press, Wiley, IET, Elsevier with Citations: (Google Scholar): 23000+, H-Index: 77 and I-Index: 314; (Scopus): 13000+; H-index: 60. Member of more than 60+ Associations as Senior and Life Member like: IEEE (Senior Member) and ACM (Senior Member). He has authored/co-authored cum Edited 70+ Books of Computer Science. Associated with more than 600+ International Conferences as Programme Committee/Chair/Advisory Board/Review Board member. He has completed 1 Grassroot and 1 ASEAN Project. He has 18 Australian Patents, 16 German Patents, 4 Japanese Patents, 44 Indian Design cum Utility Patents, 13 UK Patents, 1 USA Patent, 3 Indian Copyrights and 2 Canadian Copyrights to his credit in the area of Wireless Communications, Artificial Intelligence, Cloud Computing, IoT, Healthcare, Drones, Robotics and Image Processing. He has guided more than 200+ Undergraduate Students (B.S. Degree), 30 MCA, 7 M.S. Students and completed 1 Ph.D Student and currently 3 Ph.D Scholars are working under him. He has completed 4 Research Grants Projects including 1 ASEAN and 1 Glocal 30 Project and 1 Grassroot Project in DTU. Awarded 56 Awards for Teaching and Research—Young Scientist, Best Scientist, Best Senior Scientist, Asia Top 50 Academicians and Researchers, Young Researcher Award, Outstanding Researcher Award, Excellence in Teaching, Best Senior Scientist Award, DTU Best Professor and Researcher Award- 2019, 2020-2021, 2022, 2022-2023, 2023-2024, Distinguished Scientist Award by National University of Singapore, Obada Prize 2023, Lifetime Achievement Award 2023, 2024; Asian Admirable Achievers 2024; Distinguished Academic Leader 2024, Lifetime Achievement Award 2024 and many more.

He is listed in Top 2% Scientists as per Stanford University (2020, 2021, 2022, 2023, 2024, 2025), Ad Index (Rank No:1 Duy Tan University, Rank No:2 Computer Science in Viet Nam) and Listed on Research.com (Top Scientist of Computer Science in Viet Nam- National Ranking: 2; D-Index: 56; World Ranking: 3694).

He is acting as Associate Editor for Computer Communications (Elsevier), International Journal of Sensor Networks (IJSNET) (Inderscience), Tech Science Press- IASC, Cogent Engineering, Human Centric Computing and Information Sciences (HCIS), IEEE Transactions on Artificial Intelligence (IEEE TAI), Indonesian Journal of Electrical Engineering and Computer Science, IJFC, IJISP, IJDST, IJCINI, IJGC, IJSIR, IJBDCN, IJNR, IJSI, IJIES. He is acting as Managing Editor of IGI-Global Journal, USA titled “International Journal of Knowledge and Systems Science (IJKSS)”. He has reviewed more than 5700+ Articles for diverse Web of Science and Scopus Indexed Journals. He is currently researching in the area of Wireless Sensor Networks, Internet of Things, Swarm Intelligence, Cloud Computing, Artificial Intelligence, Drones, Blockchain, Cyber Security, Healthcare Informatics, Big Data and Wireless Communications.

Invited Speaker

July 11, Saturday, 14:00-14:25, GMT+8, Beijing Time

Meeting Room: **Mingde News Building 3F-301**

Assoc. Prof. Mingjie Shao

Chinese Academy of Sciences, China

Speech Title: Quantized Signal Sensing: Identifiability and Methods

Abstract: In this talk, we explore sensing from quantized signals, focusing on quantized linear regression (QLR), which has applications in signal processing, data analysis, and wireless communication. We introduce formulations for maximum-likelihood estimation (MLE) and amplitude retrieval (AR), highlighting challenges with integrals and nonsmooth objective functions. We discuss algorithm designs. For quantized MIMO detection, we present an efficient branch-and-bound method that reduces complexity compared to exhaustive search. For parameter estimation, we reveal a hidden relationship between EM and proximal gradient methods, offering insights into EM convergence and facilitating the development of novel accelerated schemes. Additionally, we introduce a deep unfolding adaptation to enhance performance and efficiency, supported by a theoretical explanation of the activation function. Simulation results demonstrate the effectiveness of our approaches.

Bio: Mingjie Shao is an Associate Professor in the Academy of Mathematics and Systems Science, Chinese Academy of Sciences. He was selected into the "CAS Young Pioneer Hundred Talents Program" and the "Chen Jingrun Future Star" program. His main research direction is the interdisciplinary research between optimization methods and the information field, including signal processing, wireless communication, and machine learning. He obtained his Ph.D. from The Chinese University of Hong Kong in 2020. He was selected into the "Hong Kong Ph.D. Fellowship Scheme". He has published more than 50 SCI/EI papers, mainly in top journals in the field of signal processing such as IEEE TSP, IEEE JSTSP, IEEE TIFS and top conferences including IEEE ICASSP. Many of his papers have been selected into the popular paper lists of their respective journals.

Invited Speaker

July 12, Sunday, 9:55-10:20, GMT+8, Beijing Time

ZOOM Link: https://us02web.zoom.us/j/85375188199
Zoom ID: 853 7518 8199
Password: 202607

Assoc. Prof. Dr. Azhar Imran Mudassir

Beijing University of Technology, China

Speech Title: Explainable Deep Learning for Medical Image–Based Disease Diagnosis

Abstract: Advances in machine learning and deep learning have revolutionized medical image analysis, enabling accurate and automated disease diagnosis. This talk presents recent developments in deep learning models for medical image–based diagnosis, highlighting convolutional neural networks and vision transformer architectures. Special emphasis is placed on explainable AI techniques that enhance model transparency and clinical trust. Key challenges, including limited labeled data, model generalization, and ethical concerns, are discussed along with emerging solutions such as transfer learning and self-supervised learning. The talk concludes with future research directions and opportunities for deploying reliable deep learning systems in real-world healthcare applications.

Bio: Azhar Imran Mudassir received his PhD in Software Engineering from Beijing University of Technology, China, and his Master's degree in Computer Science from the University of Sargodha, Pakistan. He is currently an Associate Professor in Computer Science, with research and teaching focused on machine learning and deep learning–based image analysis.

Dr. Mudasir has over 13 years of national and international academic experience. His research interests include medical image analysis, machine learning, deep learning, explainable AI, healthcare informatics, and social media analytics. He has published more than 100 research articles in well-reputed international journals and conferences and actively serves as an editorial board member and reviewer for several SCI- and Scopus-indexed journals, including IEEE Access and MDPI journals. He is a regular member of IEEE and has contributed to numerous international conferences as a keynote speaker, invited speaker, session chair, and technical committee member.

Invited Speaker

July 11, Saturday, 14:25-14:50, GMT+8, Beijing Time

Meeting Room: **Mingde News Building 3F-303**

Assoc. Prof. Thanapong Intharah

Khon Kaen University, Thailand

Speech Title: Harnessing Artificial Intelligence for Enhanced Screening of Regional Health Problems

Abstract: Opisthorchiasis and cholangiocarcinoma are significant public health concerns in Southeast Asia, requiring effective screening methods for early detection and management. This talk focuses on two innovative AI-powered platforms, OV-RDT and BiTNet, which aim to revolutionize the screening process for these regional diseases.

The OV-RDT platform utilizes AI algorithms to analyze images of the OV-Rapid Diagnostic Test, a urine-based test for opisthorchiasis. By automating the interpretation of test results and real-time data analytic dashboard, the OV-RDT platform improves the accuracy and efficiency of screening, reducing the reliance on skilled technicians and enabling broader access to testing in resource-limited settings.

BiTNet, on the other hand, is an AI-driven platform that analyzes ultrasound images to detect early signs of cholangiocarcinoma and other biliary tract abnormalities. Trained on a large dataset of annotated images, BiTNet employs deep learning techniques to identify subtle changes and patterns associated with the disease, assisting medical professionals in making accurate diagnoses.

The talk will present the development and validation of these platforms and their potential impact on enhancing regional disease screening. We will discuss how OV-RDT and BiTNet can be integrated into existing healthcare systems, enabling remote screening and telemedicine applications. Furthermore, we will highlight the collaborative efforts between researchers, healthcare professionals, and AI experts to ensure the responsible deployment and continuous improvement of these AI-powered tools.

By leveraging the capabilities of OV-RDT and BiTNet, we can significantly enhance the accessibility, accuracy, and efficiency of screening for opisthorchiasis and cholangiocarcinoma. These platforms have the potential to transform the landscape of regional disease management, ultimately improving patient outcomes and public health in affected communities.

Bio: Thanapong Intharah received his PhD in Computer Science from University College London (UCL), United Kingdom. Prior to his doctoral studies, he earned an MSc in Machine Learning from UCL and an MSc in Computer Science from Chulalongkorn University. Dr. Intharah is currently an Associate Professor in the Department of

Statistics, Faculty of Science at Khon Kaen University. His research interests include computer vision, machine learning, deep learning, human-machine interaction, artificial intelligence, and cloud computing with specialized applications in healthcare and medical diagnostics. Dr. Intharah's research focuses on developing AI-powered medical diagnostic systems, including the BiTNet platform for ultrasound image analysis of cholangiocarcinoma risk groups and upper abdominal abnormalities, portable AI-ultrasound systems with tele-ultrasound capabilities, and the OV-RDT intelligence platform for opisthorchiasis screening. In 2020, he was awarded the Leaders in Innovation Fellowships by the Royal Academy of Engineering.

Invited Speaker

July 12, Sunday, 14:00-14:25, GMT+8, Beijing Time

ZOOM Link: https://us02web.zoom.us/j/ 862 8538 4262
Zoom ID: 862 8538 4262
Password: 202607

Prof. Moirangthem Marjit Singh

North Eastern Regional Institute of Science & Technology (NERIST), Arunachal Pradesh, India

Speech Title: ANN Synchronization for Enhanced Security in Wireless Networks

Abstract: This invited talk focuses on the use of Artificial Neural Network (ANN) Synchronization for enhancing the security of wireless networks. ANN synchronization enables key agreement through mutual learning between Tree Parity Machines (TPM). ANN synchronization creates shared keys by having two devices learn together over a public link. Two nodes exchange public inputs and outputs, learning until their weights match to form a shared secret key over an insecure Channel. An eavesdropper in the same public channel can not synchronize without access to internal states, thereby ensuring security. ANN synchronization paves way to learning together and securing together for robust communication between them. The talk will also briefly highlight research landscape, challenges and overview of relevant solution domain.

Bio: Dr. Moirangthem Marjit Singh is a Professor in Computer Science & Engineering Department at North Eastern Regional Institute of Science & Technology (NERIST), Arunachal Pradesh, India. He received B.Tech. & M.Tech. degrees from NERIST and PhD degree from University of Kalyani, India in 2001,2010 and 2017 respectively. He was the Head of Department Computer Science & Engineering, NERIST (2018 – 2022), founder Honorary Joint Secretary of the IE(I), Arunachal Pradesh State Centre, India (2019-2021) and founder member Unnat Bharat Abhiyan NERIST Cell (2017-2024). Currently, he is In-charge of Educational Technology Cell at NERIST, Chief Information Security Officer (CISO) NERIST and Single Point of Contact (SPoC) for National Institute of Electronics and Information Technology (NIELIT, Ministry of Electronics and IT, Govt. of India) Itanagar Centre at NERIST. He is a Fellow of IETE India, Fellow of IE (I) and senior member IEEE, USA. He is an Editor of IETE-Journal of Research published by Taylor & Francis.

Prof. Marjit was honoured with “Academic Excellence Award” by Taylor’s University, Malaysia in recognition of his outstanding academic performance on 13 September 2023. He received the “IE(I) Young Engineers Award 2014–2015” in Computer Engineering Division from Institution of Engineers, India. He also received the “Best Paper Awards” at international conferences namely the ICEAI 2023(Taylors’ University, Malaysia), the SETSM

2025(Hanoi University of Industry, Vietnam) the ICACCT 2016, (APIIT, India) and Best Paper Award 1st Runner-Up in ICDAI2024(TINT, India).

Prof. Marjit did his schooling at JNVSA Kakching, Thoubal District, Manipur (1990-1997). He secured First Position in X and Second Position in XII Examinations conducted by CBSE, New Delhi, India, amongst the candidates sent up from Jawahar Navodaya Vidyalayas (JNVs) of North Eastern region states of India, in 1995 and 1997 respectively. He was felicitated as one of the Eminent Alumni (JNVs of North Eastern Region India) by Navodaya Vidyalaya Samiti Regional Office Shillong, Ministry of Education, Govt. of India on 22 April 2023 at JNV Rangia, Assam. He was Gold Medallist in the M.Tech.(CSE) program too.

Prof. Marjit has a patent granted for 20 years by the Patents office Govt. of India with effect from 30 July, 2021(Patent Number:542853). He has published several papers in international journals, book chapters and conferences of repute. He has been associated with many technical conferences held in India and abroad. He has delivered many technical/invited talks as well. His research interests include MaNet, WSN, Security, ML, DL and Image Classification.

Invited Speaker

July 12, Sunday, 9:30-9:55, GMT+8, Beijing Time

ZOOM Link: https://us02web.zoom.us/j/85375188199
Zoom ID: 853 7518 8199
Password: 202607

Prof. Loc Nguyen

Sunflower Soft Company, Vietnam

Speech Title: Is matrix neural network the alternative of convolutional neural network?

Abstract: "Currently, deep learning is the most important and popular methodology in artificial intelligence (AI) and artificial neural network (ANN) is the foundation of deep learning. The main drawback of ANN is the boom problem of a huge number of parametric weights when ANN in deep learning establishes a large number of hidden layers. The excellent solution for image processing within context of deep learning is convolutional neural network (CNN) equipped filtering kernel. Another solution of the boom problem is that large parametric weight vector is organized as matrix, which leads to a so-called matrix neural network (MNN). Computation cost of MNN is decreased significantly in comparison with ANN but it is necessary to test the main hypothesis "whether MNN is the alternative of CNN". Moreover, transformer which is the new trend in AI and deep learning, which aims to improve/replace traditional ANN by self-supervised learning, in which attention is the significant mechanism of self-supervised learning. Therefore, the implicit deep meanings of attention and filtering kernel are similar, which represents feature of data, which does not go beyond parametric weights too. In general, the research has two goals: 1) explaining and implementing ANN, CNN, and transformer (attention) and 2) applying analysis of variance (ANOVA) into evaluating the effectiveness of ANN, CNN, and transformer (attention) within context of image classification. The ultimate result is that it is not asserted that MNN is the alternative of CNN but MNN can be an optional choice for implementing ANN instead of focusing on the unique CNN solution. Moreover, the incorporation of MNN and attention in implementing transformer produces a compromising solution of high performance and computational cost".

Bio: Loc Nguyen is an independent scholar from 2017. He holds Master degree in Computer Science from University of Science, Vietnam in 2005. He holds PhD degree in Computer Science and Education at Ho Chi Minh University of Science in 2009. His PhD dissertation was honored by World Engineering Education Forum (WEEF) and awarded

by Standard Scientific Research and Essays as excellent PhD dissertation in 2014. He holds Postdoctoral degree in Computer Science from 2013, certified by Institute for Systems and Technologies of Information, Control and Communication (INSTICC) by 2015. Now he is interested in poetry, computer science, statistics, mathematics, education, and medicine. He serves as reviewer, editor, speaker, and lecturer in a wide range of international journals and conferences from 2014. He is volunteer of Statistics Without Borders from 2015. He was granted as Mathematician by London Mathematical Society for Postdoctoral research in Mathematics from 2016. He is awarded as Professor by Scientific Advances and Science Publishing Group from 2016. He was awarded Doctorate of Statistical Medicine by Ho Chi Minh City Society for Reproductive Medicine (HOSREM) from 2016. He was awarded and glorified as contributive scientist by International Cross-cultural Exchange and Professional Development-Thailand (ICEPD-Thailand) from 2021 and by Eudoxia Research University USA (ERU) and Eudoxia Research Centre India (ERC) from 2022. He has published 101 papers and preprints in journals, books, conference proceedings, and preprint services. He is author of 5 scientific books. He is author and creator of 10 scientific and technological products.

Invited Speaker

July 11, Saturday, 14:00-14:25, GMT+8, Beijing Time

Meeting Room: **Mingde News Building 3F-310**

Assoc. Prof. Na Ta

Renmin University of China, China

Speech Title: Constructing Reality: Understanding Bias, Values, and Governance in Generative AI

Abstract: Recent advances in generative AI have shifted artificial intelligence from retrieving information to producing language, opinions, and visual content at an unprecedented scale. As these systems become increasingly integrated into everyday information ecosystems, a fundamental question emerges: rather than merely reflecting reality, how do generative AI systems construct social reality?

This talk presents a series of computational auditing studies examining how generative AI shapes representations across multiple modalities. Drawing on cross-platform and cross-cultural evaluations of conversational AI, we first demonstrate how large language models exhibit systematic differences in generating discriminatory content and responding to controversial social issues, revealing structural biases that extend beyond individual prompts or isolated models. We then extend this perspective to AI-generated photorealistic news images, showing that text-to-image models systematically reshape visual news values by favoring prototypical people, recognizable locations, conflict, and social impact over the diverse and context-dependent representations found in real news photography. Across these studies, model-specific characteristics consistently exert stronger influence than prompt engineering, suggesting that many biases originate from internal representational mechanisms rather than surface-level interactions. These findings are supported by large-scale computational analyses combining algorithm auditing, natural language processing, computer vision, and multimodal evaluation.

Building on these findings, we argue that the next generation of AI evaluation should move beyond conventional performance benchmarks toward assessing how AI systems construct social reality across language, opinion, and vision. Such a perspective provides a foundation for developing human-centered evaluation frameworks and governance strategies that promote fairness, transparency, and responsible deployment of generative AI.

Bio: Dr. Tana is an associate professor at the School of Journalism and Communication, Renmin University of China. She received her doctoral degree in computer science and technology from Tsinghua University. Her current research interests include computational communication research, application and governance of Artificial Intelligence, and multimodal content. Her publications appear on international academic journals of various disciplines, including IEEE Transactions on Knowledge and Data Engineering, Computers in Human Behaviors, Information, Communication & Society, etc. She is the PI and core member of several China's Natural Science Foundation projects and projects of similar levels. She teaches interdisciplinary courses such as Computational Communication, Big Data in Journalism and Communication, Application of Digital Communication Technologies, etc.

Invited Speaker

July 11, Saturday, 14:00-14:25, GMT+8, Beijing Time

Meeting Room: **Mingde News Building 3F-303**

Assoc. Prof. Pavel Loskot

ZJU-UIUC Institute, China

Speech Title: Mathematical Models Beyond Vectors and Matrices

Abstract: The vast majority of contemporary computational models are built as low-level primitive arithmetic operations over elements of vectors and matrices. Such models are universal, but their downside is that they numerically very expensive, and require large computational resources. In many practical scenarios, it is useful to adopt more abstract models that can effectively describe systems and the underlying phenomena without requiring excessive computational resources, and while naturally offering interpretability. In this talk, I will survey fundamental mathematical concepts and objects that are useful in building these abstract models including the key ideas in abstract algebra, set theory, algebraic geometry and topology, and their applications in topological data analysis and geometric machine learning.

Bio: Pavel Loskot received his PhD in Wireless Communications from the University of Alberta, Canada. Before he joined the ZJU-UIUC Institute, he was 14 years a Senior Lecturer at Swansea University, UK. In the past 30 years, he was involved in numerous collaborative research and development projects, and also held a number of paid consultancy contracts with industry. His research interests focus on mathematical and probabilistic modeling, statistical and digital signal processing, and machine learning for multi-sensor, tabular, and longitudinal data. He is the Senior Member of IEEE, the Member of ACM, a Fellow of the HEA, UK, the Recognized Research Supervisor of the UKCGE, and the IARIA Fellow. He serves as the Editor in ICT Express and Frontiers in Genetics.

Invited Speaker

July 12, 10:20-10:45 Sunday, GMT+8, Beijing Time

ZOOM Link: https://us02web.zoom.us/j/ 862 8538 4262
Zoom ID: 862 8538 4262
Password: 202607

Assoc. Prof. K. Martin Sagayam

Lincoln University College, Malaysia

Speech Title: Hand gesture image recognition using optimized models of machine learning algorithms for virtual reality applications

Bio: Dr. K. Martin Sagayam is an accomplished academician and researcher currently serving as an Associate Professor in the Department of Electronics and Communication Engineering. He completed his Ph.D. in the field of Image Processing and Machine Learning Algorithms and further strengthened his expertise through postdoctoral research in Medical Image Processing using Machine Learning and Deep Learning techniques from Lincoln University College, Malaysia.

His research interests include Artificial Intelligence, IoT, Neuromorphic Computing, and smart healthcare systems, with a strong focus on real-world societal applications. Dr. Sagayam has made substantial scholarly contributions, with more than 165 publications in reputed SCI/SCIE and Scopus-indexed journals and conferences. He has also edited over 15 books, authored more than 25 book chapters, and is currently leading an ongoing book series with CRC Press (Taylor & Francis Group).

He is an active IEEE Professional Member, involved in various IEEE societies, and a member of the IEEE Young Professionals Society. His research impact is reflected through over 3300 citations and an H-index exceeding 30. He has also demonstrated strong research leadership by securing funding support, including approximately ₹0.93 lakhs for AICTE ATAL FDP and ₹1.15 lakhs for organizing an IEEE international conference.

Dr. Sagayam is also actively engaged in industry collaboration, working with reputed organizations such as Mohler Machines Pvt. Ltd., Coimbatore and Gislen Software Pvt. Ltd., Chennai, facilitating live industrial projects, student internships, and product development initiatives.

He has been recognized among the Top 2% Scientists worldwide as listed by Stanford University, USA, highlighting his global research impact. He continues to contribute to interdisciplinary research, mentoring students and scholars, and organizing workshops, FDPs, and micro-credential programs, thereby bridging the gap between academic research and real-world implementation.

Invited Speaker

July 12, Sunday, 9:55-10:20, GMT+8, Beijing Time

ZOOM Link: https://us02web.zoom.us/j/ 862 8538 4262
Zoom ID: 862 8538 4262
Password: 202607

Assoc. Prof. Xiaohua Zhang

Wenzhou Business College, China

Speech Title: AI-Driven Spatiotemporal Carbon Emission Forecasting Model Based on Big Data for Urban Digital Economye

Abstract: Against the background of dual-carbon goals and booming urban digital economy, accurate carbon emission prediction is critical for local government low-carbon policy formulation. This study constructs an AI hybrid prediction framework combining big data preprocessing and multi-algorithm ensemble targeting Wenzhou's industrial carbon emissions from 2013 to 2023. First, multi-source heterogeneous datasets covering digital infrastructure, digital industrialization and manufacturing energy consumption are collected and cleaned with big data filtering rules; the entropy weight method quantifies the development level of regional digital economy and decouples its inner influencing path on carbon emission changes. Second, LSTM, Random Forest and SVM machine learning algorithms are fused to build a spatiotemporal carbon emission prediction model, with hyperparameter optimization to improve fitting accuracy and reduce forecast error below 10%. Third, verified by over 100 manufacturing enterprise survey data in Wenzhou, the optimized model achieves goodness-of-fit above 0.5 and effectively identifies high-carbon industrial sectors driven by digital transformation. Empirical results reveal differentiated carbon reduction effects of digital economy across local industries, and this research outputs targeted digital low-carbon policy suggestions for municipal double-carbon governance. The lightweight open prediction toolkit developed in this work can be deployed in industrial parks to support real-time carbon monitoring for enterprises, providing an operable intelligent decision-making paradigm for city-level carbon emission management under digital economy development.

Bio: Xiaohua Zhang is a computing educator and senior engineer, holding professional credentials including Associate Professor, Information System Project Manager, and First-Class Constructor (Mechatronics). He is also a member of Zhejiang Government Procurement Review Expert Database and Wenzhou's second batch of Educational Technology Project Experts. Boasting rich cross-sector experience, he has served in key roles at China State Construction International Engineering Co., Ltd., Huanghe Science and Technology College's Artificial Intelligence Research Institute, and Hangzhou Kehong Network Technology Co., Ltd.—forging a strong link between academic theory and industrial practice. Currently with Wenzhou Business University's Computer Science Department, he teaches core courses like Python Data Analysis and Applied Statistics, focusing on project-driven learning. As

principal investigator, he has led over 10 national, provincial, and municipal projects, including the Ministry of Education's Industry-University Cooperation Program.

His achievements include 20+ academic papers, 50+ utility model patents and software copyrights, and 2 new-form computer textbooks for higher education. He has served as Session Chair for IEEE conferences like ACMLC 2025 (Hong Kong) and ICAISE 2025 (Yokohama), solidifying his influence in "cloud + AI + education".

Invited Speaker

July 11, Saturday, 14:25-14:50, GMT+8, Beijing Time

Meeting Room: **Mingde News Building 3F-301**

Assoc. Prof. Yuanyuan Chen

Nanjing University of Posts and Telecommunications (NJUPT), China

Speech Title: From Human–AI Co-Creation to Cultural Computing: An AI-Driven Art and Design for Community-Based Digital Memory and Public Aesthetic Education

Abstract: Generative AI is reshaping art and design education. This talk outlines an AI-driven workflow that integrates field research, cultural-semantic extraction, concept generation, visual and interactive prototyping, public presentation and iteration. Based on the PBL courses, it shows how teachers, students and community members co-create local cultural memory with AI. Two cases—"Chuangyi Shiguang" student creative market and "AI: Home Beneath the City Wall—Xiaoxihu Digital Memory Co-Creation"—demonstrate AI's roles as inspiration catalyst, form-iteration engine and medium for social co-creation. The talk proposes a dual-subject paradigm combining human emotional judgment and AI-enabled form evolution to drive cultural innovation and public aesthetic education.

Bio: Yuanyuan CHEN is an Associate Professor, Master's Supervisor and Head of the Basic-level Teaching Organization at the Nanjing University of Posts and Telecommunications. She holds a Ph.D. in Design from Tongji University. Her pioneering research resides at the intersection of technology and creativity, with a primary focus on AI-driven Art, Interaction Design, and the innovative cultural transformation of rural landscapes.

She has spearheaded over 10 high-level research initiatives, including national, provincial, and municipal projects, as well as significant provincial-level industry-university collaborative programs. She has published over 20 academic papers and has been recognized with more than 20 national and provincial teaching excellence awards. Her design portfolio has garnered over 20 prestigious international and domestic awards, reflecting her expertise in blending aesthetic innovation with digital intelligence.

Beyond her academic and creative pursuits, she holds several key leadership and advisory roles. She serves as a Thesis Review Expert for the Ministry of Education's Degree Office, and is a Director of the China Association of Creativity (CAC), where she also acts as Deputy Secretary-General of the Innovation Transformation Branch. Additionally, she is a Standing Committee Member of the Rural Art Construction Special Committee of the National University Alliance for Rural Construction, and a member of the Digital Intelligence Manufacturing and Design Committee of the Jiangsu Industrial Design Society.

Her work continues to push the boundaries of how AI-driven and interactive technologies can revitalize traditional culture and redefine the future of digital art.

Invited Speaker

July 12, Sunday, 14:50-15:15, GMT+8, Beijing Time

ZOOM Link: https://us02web.zoom.us/j/ 862 8538 4262
Zoom ID: 862 8538 4262
Password: 202607

Assoc. Prof. Suraya Masrom

Universiti Teknologi MARA, Malaysia

Speech Title: Automated Machine Learning based on Genetic Programming

Abstract: Machine learning (ML) has become a foundational technology underpinning advancements across a wide range of application domains, including healthcare, finance, manufacturing, and environmental analytics. Despite its widespread adoption, developing high-performance ML models remains a complex and resource-intensive process that requires expertise in data pre-processing, algorithm selection, and hyperparameter optimization. These tasks involve iterative experimentation and substantial technical effort, which often limits effective participation by domain specialists and applied researchers who lack advanced programming or ML expertise. While many rapid software provide intuitive graphical environments for machine learning modeling, the support for Genetic Programming–based Automated Machine Learning (GP-AutoML) remains limited. Moreover, systematic understanding of GP-AutoML system performance behavior across different execution environments is still lacking.

To address these gaps, a new web-based visual modeling environment that utilizes GP-AutoML based on Python TPOT framework has been developed. A unified normalized evaluation framework to characterize the performance of GP-AutoML implemented with the proposed visual modeling system from the aspects of scalability, accuracy, and robustness will be presented.

Bio: Associate Professor Ts. Dr. Suraya Masrom is the head of Machine Learning and Interactive Visualization (MaLIV) Research Group at Universiti Teknologi MARA (UiTM) Perak Branch. She received her Ph.D. in Information Technology and Quantitative Science from UiTM in 2015. She started her career in the information technology industry as an Associate Network Engineer at Ramgate Systems Sdn. Bhd. (a subsidiary of DRBHICOM) in June 1996 after receiving her bachelor's degree in computer science from Universiti Teknologi Malaysia (UTM) in Mac 1996. She started her career as a lecturer at UTM after receiving her master's degree in Computer Science from Universiti Putra Malaysia in 2001. She transferred to the Universiti Teknologi MARA (UiTM), Seri Iskandar, Perak, Malaysia, in 2004. She is an active researcher in the meta-heuristics search approach, machine learning, and educational technology. She can be contacted through email at suray078@uitm.edu.my.

Invited Speaker

July 12, Sunday, 14:25-14:50, GMT+8, Beijing Time

Meeting Room: **Mingde News Building 3F-310**

Asst Prof. Yanglong Lu

The Hong Kong University of Science and Technology, China

Speech Title: Process Monitoring and Quality Control in Additive Manufacturing of Self-Adaptive Point Cloud Modeled Periodic Surface Lattices

Abstract: Periodic surface (PS) structures are increasingly recognized for their customizable density, high surface area-to-volume (SA/V) ratios, and exceptional strength-to-weight ratios. Their complexity makes them highly compatible with additive manufacturing (AM), which facilitates layer-by-layer fabrication. However, the intricate geometries of PS lattice structures often result in STL files with an excessive number of vertices and facets necessary for maintaining surface quality, leading to increased storage requirements and reduced slicing efficiency. Conversely, simplifying these models can introduce inaccuracies that adversely affect the final product quality. To address these challenges, we introduce a novel self-adaptive point cloud generation (SaPCG) method that computes targeted points at the intersections of three implicit surfaces while recursively refining intersection regions. By integrating longitude and latitude concepts into the PS model, SaPCG generates critical points, intersection points, and boundary points sequentially. This approach supports both uniform wall thickness and B-spline-based spatially varying thickness, allowing the point cloud to adapt naturally to local curvature. The final STL model is created by independently triangulating the two offset PS structures and the boundary planes using self-adaptive point cloud reconstruction (SaPCR), which are then assembled into a cohesive design. This method enhances the design and manufacturing processes for sheet-based PS structures, demonstrated by reduced printing errors and improved surface quality in metal AM experiments. Despite the benefits of AM, challenges to the structural integrity of PS lattices remain due to their intricate structures. Because of the rapid melting and solidification process in metal AM, such as selective laser melting, real-time monitoring of the melt pool temperature is crucial for maintaining stability during melting. However, current techniques allow monitoring only of the surface temperature field. To assess the three-dimensional morphology of the melt pool, we utilize a hybrid physics and data modeling approach that predicts the time-series 3D melt pool shape based on sparse surface temperature data. This 3D temperature field facilitates melt pool geometry reconstruction and identification of defects, such as pores. Moreover, by optimizing process parameters like laser power, scanning speed, and strategies, overall structural quality can be significantly enhanced.

Bio: Prof. Lu currently serves as an Assistant Professor in the Department of Mechanical and Aerospace Engineering at the Hong Kong University of Science and Technology. He obtained his Bachelor's and Doctoral degrees in Mechanical Engineering from the Georgia Institute of Technology in 2016 and 2020, respectively. Following that, he worked as a Postdoctoral Researcher at the University of Michigan, Ann Arbor, for one year. His research focuses on additive manufacturing process monitoring, multiphysics field simulation, machine fault diagnosis, and structural optimization. He has published about 40 research papers in renowned international journals and conferences and has filed four US patents. He has served as Session Chair and Technical Committee at well-known international academic conferences such as ASME-IDETC, MSEC/NAMRC, and IISE. He has received several awards, including the Best Doctoral Dissertation Award and Best Conference Paper Award from ASME-CIE, finalist in the 2023 US National Science Foundation Manufacturing Blue Sky Competition, the Postdoctoral Association Conference Award from the University of Michigan, and the Poster Competition Award from ASME Manufacturing and Lifecycle Design Conference, among others. Additionally, he co-founded SolCharged Solar Energy Company in 2016. Currently, he is leading projects funded by University Grants Committee (Hong Kong), Innovation and Technology Commission (Hong Kong), and the Hong Kong University of Science and Technology-Industry Collaboration Center, National Science Foundation of China, among others.

Invited Speaker

July 12, Sunday, 15:15-15:40, GMT+8, Beijing Time

ZOOM Link: https://us02web.zoom.us/j/ 862 8538 4262
Zoom ID: 862 8538 4262
Password: 202607

Asst Prof. Yanqing Xu

The Chinese University of Hong Kong, China

Speech Title: Environment-Aware Region-Level Design for Generalized Pinching-Antenna Systems

Abstract: Generalized pinching-antenna (GPA) systems enable a reconfigurable radiation point along a guided medium, offering a new degree of freedom beyond conventional fixed-aperture deployments. While most existing studies focus on link-level optimization for quasi-static users, such designs typically require frequent re-computation as users move or enter/leave the network, and they do not directly capture area-oriented objectives (e.g., region-wide coverage and hotspot service) that evolve on a longer time scale. This talk presents an environment-aware, region-level design framework for GPA systems that shifts the objective from serving specific instantaneous users to shaping area coverage and hotspot service over longer time scales. In particular, we consider two representative settings: traffic-aware and geometry-aware. In the traffic-aware case, we model spatial demand using slowly varying hotspot profiles and optimize the activation/positioning of pinching points to align the radiated energy with traffic intensity, together with resource allocation to balance hotspot performance across the service region. In the geometry-aware case, we incorporate site-map information such as obstacles and visibility constraints into the network metric, and optimize pinching-point deployment to mitigate blockage-induced coverage holes. For each setting, we formulate a region-level optimization problem, develop low-complexity structure-exploiting algorithms, and quantify the performance–overhead tradeoff associated with antenna reconfiguration. Simulation results demonstrate that environment-aware GPA design can substantially improve region-wide coverage and hotspot service quality compared to fixed-aperture baselines and user-driven link-level heuristics, especially in obstructed environments or highly non-uniform traffic scenarios.

Bio: Yanqing Xu received the Ph.D. degree in communication and information system from the State Key Laboratory of Rail Traffic Control and Safety, Beijing Jiaotong University, Beijing, China, in 2019. He was a senior engineer with Huawei Technologies Company Ltd., from July 2019 to July 2020. From September 2020 to August 2022, he

was a PostDoc researcher with The Chinese University of Hong Kong, Shenzhen, where he is currently working as a research assistant professor. He is also with the Shenzhen Research Institute of Big Data. Dr. Xu's current research interest lies in machine learning and signal processing algorithm designs and their applications for wireless communication systems. Dr. Xu served as a special session co-organizer and chair in IEEE SPAWC 2024. He was a recipient of the Shenzhen Overseas High-Caliber Personnel, and the Top 3% Paper Recognition of the IEEE ICASSP 2023. Several of his research outcomes have been successfully deployed in Huawei's base stations, for which he has received the Huawei Technical Cooperation Achievement Transformation Award (1st Prize) in 2024, the Huawei Wireless Product Line Outstanding Technical Cooperation Project Award in 2024, and the Huawei Technical Cooperation Achievement Transformation Award (2nd Prize) in 2022. He is currently serving as the Deputy Editor of IEEE Transactions on Signal and Information Processing over Networks and an Associated Editor of EURASIP Journal on Wireless Communications and Networking. He is a member of the IEEE.

Invited Speaker

July 12. Sunday, 10:45-11:10, GMT+8, Beijing Time

ZOOM Link: https://us02web.zoom.us/j/ 862 8538 4262
Zoom ID: 862 8538 4262
Password: 202607

Asst. Prof. Muhammad Shahid Khan

Suan Sunandha Rajabhat University, Thailand

Speech Title: Human–Machine Collaboration in Human Resource Management: A Conceptual Framework Linking HR Chatbot Capability and Employee Engagement

Abstract: The rapid digital transformation of workplaces following the COVID-19 pandemic has fundamentally reshaped how organizations manage and engage employees. The widespread adoption of remote and hybrid work arrangements has created new challenges for Human Resource (HR) departments in maintaining effective communication, delivering timely services, and sustaining employee engagement. More recently, ongoing geopolitical tensions, rising energy prices, inflationary pressures, and economic uncertainty have further encouraged many organizations to expand flexible and work-from-home arrangements as a strategy to reduce operational costs and enhance organizational resilience. While remote work offers numerous advantages, it also presents significant challenges in maintaining employee connectivity, organizational support, and engagement. In response to these challenges, Artificial Intelligence (AI)-powered HR chatbots have emerged as an innovative solution capable of providing instant support, automating routine HR functions, and enhancing employee experiences regardless of employees' physical work locations. Despite growing organizational investment in AI-enabled HR technologies, limited conceptual research has examined the mechanisms through which HR chatbot capabilities influence employee engagement and organizational performance. Therefore, this study develops a conceptual framework to explain the relationship between HR chatbot capability and employee engagement through key organizational service factors. Drawing upon the Technology Acceptance Theory, Service Quality Theory, and Human Resource Management literature, the proposed framework identifies HR Chatbot Capability as the primary antecedent influencing Employee Engagement through three critical pathways: Service Response Speed, HR Practices Efficiency, and Information Accessibility. The framework proposes that advanced HR chatbots can improve the speed of employee service delivery, streamline HR processes, and provide employees with immediate access to organizational information, policies, benefits, and support services. These improvements are expected to enhance employee satisfaction,

strengthen employee–organization relationships, and ultimately foster higher levels of engagement. The model further suggests that engaged employees contribute to improved organizational outcomes through increased productivity, commitment, innovation, and overall performance.

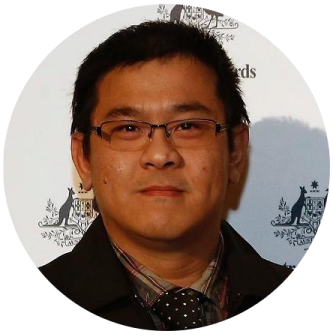
This conceptual study contributes to the emerging literature on AI-driven Human Resource Management by providing an integrated framework that explains how intelligent HR technologies can support employee engagement in contemporary work environments. The proposed model offers valuable insights for HR practitioners, managers, and policymakers seeking to leverage AI technologies to modernize HR functions and address the challenges associated with remote and hybrid work settings. By highlighting the mediating roles of service response speed, HR practices efficiency, and information accessibility, this study presents a novel perspective on AI-enabled employee management and establishes a foundation for future empirical investigations. The framework ultimately demonstrates how AI-powered HR chatbots can serve as a strategic tool for enhancing HR effectiveness, strengthening employee engagement, and improving organizational performance in an increasingly digital, uncertain, and geographically dispersed workplace environment.

Bio: Dr. Muhammad Shahid Khan is an accomplished academic and researcher with a Ph.D. in Management and over a decade of post-doctoral teaching and industry experience. Currently serving as a Lecturer at Suan Sunandha Rajabhat University (Thailand) and a Visiting Professor at ABA Teachers College and Sanmenxia Polytechnic College (China), he has also held key roles in international diplomacy and industry collaboration, including work with the Pakistan High Commission in Kuala Lumpur. With a strong research portfolio, Dr. Khan has authored 70+ publications in peer-reviewed journals and conference proceedings, including SSCIindexed and high-impact factor publications. His research expertise spans Innovative Management, Sustainable Business, Environmental Sustainability, Knowledge Management, and Green HRM, contributing to both academic scholarship and practical industry applications.

Invited Speaker

July 12, Sunday, 10:20-10:45, GMT+8, Beijing Time

ZOOM Link: https://us02web.zoom.us/j/85375188199
Zoom ID: 853 7518 8199
Password: 202607



Asst. Prof. Filbert Juwono

Xi'an Jiaotong-Liverpool University, China

Speech Title: Applications of Machine Learning in Smart Sustainable Agriculture

Abstract: Agriculture is a major economic driver for many countries and remains a cornerstone of global food security. However, the sector faces some challenges from climate change, resource scarcity, and the need to reduce environmental degradation. With the advancement of digital technology, agriculture practices have shifted from traditional approaches to smarter, data-driven ones that also integrate climate change mitigation, known as smart sustainable agriculture. In this talk, we present the role of machine learning in the applications of smart sustainable agriculture. The applications are divided into four areas, i.e., resource optimization, yield prediction, disease identification, and climate change adaptation. The future work will also be discussed.

Bio: Filbert H. Juwono (Senior Member, IEEE) received the B.Eng. degree in electrical engineering and the M.Eng. degree in telecommunication engineering from Universitas Indonesia, Depok, Indonesia, in 2007 and 2009, respectively, and the Ph.D. degree in electrical and electronic engineering from The University of Western Australia, Perth, WA, Australia, in 2017. He is currently with the Department of Electrical and Electronic Engineering, Xi'an Jiaotong-Liverpool University. His research interests include signal processing for communications, wireless communications, power-line communications, smart grids and battery technology, machine learning applications, and biomedical engineering. He was a recipient of the Prestigious Australian Awards Scholarship, in 2012. He serves as an Associate Editor for IEEE Access, a Review Editor for Frontiers in Signal Processing, an Editor for Scientific Reports, and the Editor-in-Chief for a newly established journal Green Intelligent Systems and Applications.

Invited Speaker

July 12, Sunday, 14:25-14:50, GMT+8, Beijing Time

ZOOM Link: https://us02web.zoom.us/j/85375188199
Zoom ID: 853 7518 8199
Password: 202607

Dr. Chiagoziem Chima Ukwuoma

Chengdu University of Technology, China

Speech Title: Bridging the Benchmark–Operations Gap in Solar PV Power Forecasting: Why Lightweight CNN Hybrids Endure in Real-World Deployments Despite Advances in Transformers and Physics-Informed Models: A Deployment-Centric Review

Abstract: As global solar photovoltaic (PV) capacity surpassed 1.6TW by 2025, accurate power forecasting has become essential for grid stability, reserve scheduling, and market operations. Yet a persistent gap remains between models that dominate academic benchmarks and those actually used in utility control rooms and inverter-level systems.

In this speech, we present a deployment-centric review that examines a decade of deep learning research (2015–2026) for solar PV power forecasting. We focus on why lightweight convolutional neural network (CNN) hybrids continue to prevail in real-world operations despite notable advances in Transformer-based architectures and physics-informed neural networks (PINNs).

The review systematically analyses the evolution of key model families: gated recurrent networks, CNN–recurrent hybrids, efficient temporal models such as temporal convolutional networks (TCNs), Transformer variants (Informer, Autoformer, Temporal Fusion Transformer), physics-informed approaches, and emerging foundation-model hybrids. These are evaluated across different forecast horizons, input modalities (SCADA time series, sky imagery, satellite data, and numerical weather prediction fields), and operational constraints.

While Transformer and PINN models frequently report 8–25% improvements in RMSE or MAE on curated benchmarks like SIRTA, SURFRAD, DKASC, and SolarCube, these gains often diminish or disappear under the noisy, incomplete, drifting, and curtailment-contaminated data typical of operational PV plants.

To make this trade-off explicit and measurable, we introduce a practical Deployability Index that evaluates architectures across four critical dimensions: predictive accuracy, inference latency and edge feasibility, robustness to real-world stressors (missing data, sensor drift, label contamination), and maintainability under limited MLOps resources.

Applying this index reveals why compact CNN–LSTM, ConvLSTM, and TCN-based hybrids consistently score highest in production settings: they deliver reliable performance (typically 8–15% nRMSE) with sub-100ms latency on edge hardware, degrade gracefully under imperfect telemetry, and require modest retraining effort.

The session concludes with targeted, actionable recommendations to narrow the benchmark–operations divide, including parameter-efficient CNN–Transformer hybrids, knowledge distillation pipelines tailored to operational noise, federated learning under data silos, and modular physics adapters that can be integrated into lightweight backbones without sacrificing deployability.

By prioritizing real-world constraints alongside algorithmic innovation, this talk provides both researchers and practitioners with a clearer roadmap for making deep learning advances genuinely useful at a multi-terawatt scale.

Bio: Dr. Chiagoziem Chima Ukwuoma is an AI researcher and computing educator specializing in trustworthy artificial intelligence, attention-based deep learning, and sustainable machine learning with applications in healthcare, renewable energy, and remote sensing. He earned his Ph.D. in Software Engineering from the University of Electronic Science and Technology of China (UESTC) in 2023 and currently serves as a Lecturer and Module Leader at Chengdu University of Technology, Oxford Brookes College, where he leads large-cohort courses in Computing Systems and Secure Operating Systems. He has published over 50 peer-reviewed papers in high-impact journals such as Renewable Energy, Applied Energy, and the Journal of Advanced Research, accumulating over 1,500 citations and achieving an h-index of 21. He mentors undergraduate, master's, and doctoral students, and he runs a free global Machine Learning & Computer Vision bootcamp that trains over 120 learners each cycle. His work bridges methodological rigor with societal impact, aligning strongly with priorities in health data science, data ethics, and sustainable AI. Dr. Ukwuoma's scholarship, teaching excellence, and mentorship reflect his commitment to improving AI systems while broadening access to high-quality computing and data science education worldwide.

Invited Speaker

July 12, Sunday, 14:50-15:15, GMT+8, Beijing Time

Meeting Room: **Mingde News Building 3F-301**

Assoc. Prof. Zichi Wang

Shanghai University, China

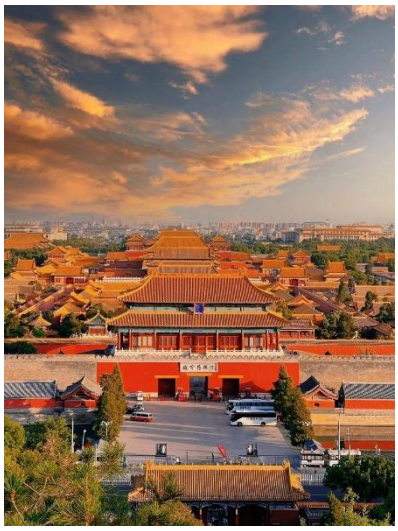
Speech Title: Steganography in Neural Networks

Abstract: Steganography aims to achieve covert communication by hiding secret data into a normal cover and transmitting it over a public channel, which is significant for national information security. Traditional steganography transmits secret data through multimedia such as image, audio and video. Neural network model is a new type of data which grows rapidly in recent years and is widely used. Steganography for neural network models is an emerging research field that needs to be developed. Compared with multimedia, neural network model has complex structure, wide variety and large number of parameters. For this reason, traditional steganographic methods cannot be used for neural network model directly. This speech will discuss the secure steganography for neural network models.

Bio: Zichi Wang received the BS degree in electronics and information engineering from Shanghai University, China, in 2014, and received the MS degree in signal and information processing in 2017, the PhD degree in information and communication engineering from the same university in 2020. He is currently with the School of Communication and Information Engineering, Shanghai University, Shanghai, as an Associate professor. His research interests include steganography, steganalysis, and artificial intelligence security. He has published over 100 papers in these areas. He has served as a TPC member for several international conferences, including ICECI 2022 and AAIP 2025.

Beijing Attractions

The Forbidden City



Located at the heart of Beijing, the Palace Museum, widely known as the Forbidden City, served as the imperial palace for 24 emperors of the Ming and Qing dynasties over nearly 500 years. Covering an area of 720,000 square meters, it houses more than 9,000 wooden buildings arranged along a strict north-south central axis, embodying ancient China's supreme standards of imperial architecture and geomancy.

Divided into the Outer Court and the Inner Court, the Outer Court features grand halls such as the Hall of Supreme Harmony for state ceremonies, while the Inner Court was the private living zone for royal families. Every detail, from golden glazed tiles and red lacquered walls to stone dragon carvings, symbolizes imperial power and extraordinary craftsmanship.

Declared a UNESCO World Cultural Heritage Site in 1987, the museum preserves over 1.8 million precious relics including paintings, porcelain, jade and calligraphy. As China's largest and best-preserved wooden imperial complex, it draws millions of visitors annually, acting as an irreplaceable window to showcase splendid ancient Chinese civilization to the world.

The Great Wall

The Great Wall of China is one of the world's most impressive ancient architectures and a UNESCO World Cultural Heritage Site since 1987, also listed among the New Seven Wonders of the World.

Its construction started in the Warring States Period. After unifying the country, Emperor Qin Shi Huang linked scattered defensive walls into a unified barrier. Most well-preserved sections we visit today were rebuilt in the Ming Dynasty. Stretching over 21,000 kilometers, the wall runs like a huge dragon from Shanhaiguan in the east to Jiayuguan in the west, winding across mountains and plateaus in northern China.Along the wall stand numerous watchtowers and beacon towers for military defense and sending emergency signals. Built with massive bricks and stones, the wall was once a critical military system to guard central plains against nomadic tribes.

Nowadays, famous sections near Beijing such as Badaling and Mutianyu welcome tourists worldwide. More than a military project, the Great Wall carries ancient Chinese people's wisdom and perseverance. It stands as the most recognizable cultural symbol of China, recording thousands of years of cultural communication and integration.

Note