



# IIKI 2025

## The 13th International Conference on Identification, Information & Knowledge in the Internet of Things

December 18-21, 2025

Chengdu Technological University, China

### Organizers:

- ▶ Chengdu Technological University
- ▶ Ritsumeikan University
- ▶ Beijing Normal University
- ▶ University of Johannesburg
- ▶ University of Electronic Science and Technology of China
- ▶ University of South Africa
- ▶ Shandong Big Data Research Association





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## Conference Introduction

**About IIKI 2025:** The 13th International Conference on Identification, Information and Knowledge in the Internet of Things (IIKI 2025) will be held in Chengdu, China, from December 18 to 21, 2025. IIKI 2025 has always been a unique event that realizes the full potential of the Internet of Things (IoT) requires solving technical and business challenges including the identification of things, the organization, integration and management of big data, and the effective use of knowledge-based decision systems. These challenges, and more, are the focus for the International Conference on Identification, Information and Knowledge in the Internet of Things (IIKI) international conference series. IIKI 2025 provides a dedicated forum for international experts to discuss current trends, challenges, and state-of-the-art solutions in the Internet of Things, and digital economy, Fintech.

## Organizer Introduction



Chengdu Technological University, founded in 1913, is the first industrial school established in Sichuan Province after the Xinhai Revolution and has a history of more than 110 years. Marshal Chen Yi studied in the dyeing and weaving program at the institute from 1916 to 1918. Over more than a century of development, the university has remained committed to serving the nation's urgent needs and upholding the educational mission of strengthening the country through industry. It has gradually formed a distinctive educational ethos, embodied in the motto "Integrating theory with practice and learning with doing," a spirit of rigor, pragmatism, diligence, and innovation, and a talent cultivation tradition that emphasizes engineering, application-oriented education, and service to local communities and industries.



The School of Computer Engineering traces its origins to the Computer and Applications Teaching and Research Section established in 1983 at Chengdu Radio Machinery School and has a history of more than 40 years. The school currently offers four undergraduate programs: Computer Science and Technology, Software Engineering, Internet of Things Engineering and Digital Media Technology. Among them, Computer Science and Technology is recognized as a National First-Class Undergraduate Program, while Software Engineering is designated as a Sichuan Provincial First-Class Undergraduate Program and a provincial application-oriented demonstration program for local universities. The school has developed a distinctive disciplinary focus on the integrated and innovative application of next-generation information technologies, and has cultivated more than 8,000 graduates who now serve on the front lines of industry and research, providing strong talent support for social and economic development.

## Organizing Committee

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 Rongfang Bie, Beijing Normal University, China  
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 Yudong Qi, Beijing Normal University, China  
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 Hongwei Li, University of Electronic Science and Technology of China, China  
 Yufeng Shi, Shandong University, China

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 Haiwei Wu, University of Electronic Science and Technology of China, China

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 Xiong Jing, Qufu Normal University  
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 Xiong Li, University of Electronic Science and Technology of China  
 Xiaopin Jin, Chengdu Technological University  
 Feng Zeng, Central South University  
 Haiwei Wu, University of Electronic Science and Technology of China  
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Junhuan Zhang, Beihang University  
Zhengjun Zhang, University of Wisconsin Madison  
Zhangbing Zhou, China University of Geosciences (Beijing)  
Andrej Zemva, University of Ljubljana  
Anming Dong, Qilu University of Technology

## Conference Guide

### Conference Location:

Chengdu Technological University (Pidu Campus)

No. 1, Section 2, Citic Avenue, Pidu District, Chengdu City, Sichuan Province

### Conference Hotel:

Holiday Inn Chengdu Xinxiwang Gaoxin Center

No. 1, Xixin Avenue, Pidu District, Chengdu City, Sichuan Province

DATE	Location
Dinner for Dec.18	Holiday Inn Chengdu Xinxiwang Gaoxin Center · 1 Floor · Qianchuan Hall
Lunch for Dec.19	Chengdu Technological University (Pidu Campus) · 3 Floor · East Four Canteen
Dinner for Dec.19	Holiday Inn Chengdu Xinxiwang Gaoxin Center · 1 Floor · Shurong Hall
Lunch for Dec. 20	Chengdu Technological University (Pidu Campus) · 3 Floor · East Four Canteen
Dinner for Dec. 20	Holiday Inn Chengdu Xinxiwang Gaoxin Center · 1 Floor · Yunshan Hall

### Conference Bus (Exact information will be available on the day):

Departure Time	Departure Point	Destination
Dec.19 8:00am	Hotel Lobby	Conference Location
Dec.19 5:30pm	Conference Location	Hotel Lobby
Dec.20 8:30am	Hotel Lobby	Conference Location
Dec.20 5:30pm	Conference Location	Hotel Lobby

### Contact Us

Miss. Kiko:15013299507

# Conference Program

**Time: December 19, 2025**

**Venue: Library Auditorium**

Time	Presentation Information
08:30-09:00	Registration
09:00-09:20	Opening Remarks
09:20-09:40	Title: Domain-Specific Programming Languages and Development Environments for Cybersecurity: Technologies and Applications Speaker: <b>Prof. Xiaosong Zhang</b> (University of Electronic Science and Technology of China)
09:40-10:00	Title: Multi-Dimensional Dynamic Trust Management Mechanism in Underwater Acoustic Sensor Networks Speaker: <b>Prof. Guangjie Han</b> (Hohai University)
10:00-10:20	Title: Exploration and Practice of the Fusion Computing of Supercomputing and Artificial Intelligence Speaker: <b>Prof. Kenli Li</b> (Hunan University)
10:20-10:40	Coffee Break
10:40-11:00	Title: Exploration of Privacy Protection and Steganographic Embedding Techniques for Cloud-Based Media Data Speaker: <b>Prof. Yuling Chen</b> (Guizhou University)
11:00-11:20	Title: Theoretical and Practical Research in the low-altitude intelligent network in the defense domain Speaker: <b>Dr. Yuan Gao</b> (Unit 32005)
11:20-11:40	Title: Learning at the Edge: Efficient, Adaptive, and Resilient Distributed Intelligence Speaker: <b>Prof. Dongxiao Yu</b> (Shandong University)
11:40-14:00	Lunch Break

# Conference Program

**Time: December 20, 2025**

**Venue: Library Auditorium**

Time	Presentation Information
09:30-09:50	Title: Key issues for incentive scheme in federated learning under bounded rationality Speaker: <b>Prof. Zhou Su</b> (Xi'an Jiaotong University)
09:50-10:10	Title: Theoretical Foundations of Network Control for the Industrial Internet Speaker: <b>Prof. Shaoyong Guo</b> (Beijing University of Posts and Telecommunications)
10:10-10:30	Title: NextG Communications for Vehicle Networks Speaker: <b>Prof. Yi Shi</b> (Virginia Tech)
10:30-10:50	Coffee Break
10:50-11:10	Title: Research on the Architecture and Technical System of Full Lifecycle Data Management Speaker: <b>Prof. Kun Niu</b> (Beijing University of Posts and Telecommunications)
11:10-11:30	Title: Embodied Intelligence Unmanned System Empowering Forestry and Grassland Ecosystems: A Smart Revolution from Perception to Action Speaker: <b>Prof. Chuanwen Luo</b> (Beijing Forestry University)
11:30-13:30	Lunch Break
13:30-13:55	Title: The Latest Trends in AI: from LLM to Agentic AI Speaker: <b>Prof. Ruidong Zhang</b> (Zhejiang University)
13:55-14:20	Title: Deep learning approaches for BSDEs and applications in financial asset pricing Speaker: <b>Prof. Yufeng Shi</b> (Shandong University)
14:20-14:45	Title: Asset Characteristics and Mutual Fund Performance: Revisiting the style-performance nexus Speaker: <b>Prof. Yezhou Sha</b> (Capital University of Economics and Business)
14:45-15:10	Title: Coherent Measurement of Asymmetric Tail Risk: A GARCH-CQR-based CoES Approach to China's Stock and FX Speaker: <b>Prof. Maoxi Tian</b> (Northwest A&F University)

# Conference Program

**Time: December 19, 2025**
**Venue: Room 011, Building 0**

## Session 1: Segmentation and Scientific Modeling

Time	Presentation Information	Session Chair: Qi Li, Ritsumeikan Univ.
14:00-14:10	Decentralized Power Control for Short Packet Transmission with Multi-Packet Reception, (99) Ni Tian, Shibo Sun, Long Zhang, Deshi Ding, Shangze Lu and Boao Dong	
14:10-14:20	Bio-FlameNet: Flame Detection for Biogas Digesters, (74) Xinzhe Yue, Runqian Zhang, Yingrui Geng, Mengtao Wang, Zenghui Wang and Lin Meng	
14:20-14:30	A Systematic Evaluation of Deep Learning Architectures and Training Strategies for Multi-Class Raindrop Segmentation, (26) Kento Ichihara and Lin Meng	
14:30-14:40	From Foundation to Field: LISA Fine-Tuning for Mine Open-Vocabulary Segmentation, (23) Jibo Wang, Libin Jiao, Zhen Bao, Wenchao Gao and Lianzhi Huo	
14:40-14:50	Graph Contrastive Learning via Noisy Training for Cold-Start Recommendation, (46) Tingting Fang and Qiurui Sun	
14:50-15:00	A High-Accuracy Electricity Theft Detection Method Based on KAN, Autoencoders, and Convolutional Neural Networks, (64) Zhurong Gao, Jiale Liu, Jijun Zheng and Xuanyu Wang	
15:00-15:10	Coffee Break	

## Session 3: Multimodal Tracking, Document Analysis, and Natural Language Generation

Time	Presentation Information	Session Chair: Feng Zeng, Central South Univ.
15:10-15:20	MLLM-Track: An End-to-End Framework for Single Object Tracking, (16) Hao Sun, Guosen Li, Mingzhe Zhang, Cun Ji and Xiangwei Zheng	
15:20-15:30	High-Precision Character Extraction from Historical Japanese Manuscripts Using Tiled Inference with YOLOX, (29) Yuya Yoshizu and Lin Meng	
15:30-15:40	MSDA-Text: Template-Guided Long-Form Text Generation with Multi-Source Data Augmentation, (35) Zheng Dai, Yilun Zhang, Pengjia Wang, Qianpu Jiang, Fuguo Liu and Yufeng Shi	
15:40-15:50	A Transformer-Based Model for Named Entity Recognition in Winning Bid Text, (42) Yalan Ling, Zhuangye Luo, Feng Zeng and Xiaowei Xie	
15:50-16:00	Prompt Template-Driven Large Model SQL Generation, (45) Qiurui Sun and Dong Yang	
16:00-16:10	Lattice-Based Standardized Cross-Chain Payment Protocol for Post-Quantum IoT Ecosystems, (76) Bing Zhang, Guijuan Wang, Yubing Han, Xiang Tian, Chuangen Gao and Ningning Liu	
16:10-16:20	Coffee Break	
16:20-17:30	Panel Discussions	
17:30-17:40	Summary and Closing	

# Conference Program

**Time: December 19, 2025**

**Venue: Room 012, Building 0**

## Session 2: Computer Vision and Human Behavior Understanding

Time	Presentation Information	Session Chair: Rui Dang, Chengdu Technological Univ.
14:00-14:10	Edge-Deployable Dual-Branch Network with Cross-Attention for Multi-Source Gait Recognition, (10) Ruixiang Hu, Yan Wang, Zhengqing He, Chenggang Lu, Hengyi Li, Yuguo Chen and Hongnian Yu	
14:10-14:20	Dual Distillation Vision Transformer with Token-Level Pruning for Efficient and Accurate Student Models, (34) Taiga Tanaka, Ryuto Ishibashi and Lin Meng	
14:20-14:30	Local Feature Patch Matching Enhanced Re-ranking Model for Clothing Image Retrieval, (41) Simeng Cheng, Zhuangye Luo, Feng Zeng and Xiaowei Xie	
14:30-14:40	Construction of 3D Human Motion Capture Model Driven by Multimodal Sensor Fusion, (62) Yuanming You and Rui Dang	
14:40-14:50	Efficient Network Security Situation Assessment With Multi-Strategy DBO-SVR Hybrid Model, (79) Xuetao Du, Ling Chang, Xin Yan and Chen Zhang	
14:50-15:00	Discount Allocation for Benefit Maximization in Social Networks, (119) Chuangen Gao, Shuyang Gu and Guijuan Wang	
15:00-15:10	Coffee Break	

## Session 4: Object Detection and Intelligent Information Extraction

Time	Presentation Information	Session Chair: Jing Xiong, Qufu Normal Univ.
15:10-15:20	Multi-thread Solution of Permutohedral Refined UNet for Cloud/Shadow Detection in High-resolution Remote Sensing Images, (6) Libin Jiao, Jibo Wang and Zhen Bao	
15:20-15:30	GS-DETR Accurate and Efficient Object Detection in UAV Imagery with Gated Feature Fusion and an Enhanced Pyramid, (9) Junqi Wang, Xiangyang Lu, Hengyi Li and Wang Yandan	
15:30-15:40	WS-YOLO: A single-stage detector designed for aircraft detection by enhancing fine-grained segmentation, (14) Yuzhu Lei, Jun Li, Lei Zhang and Guoming Song	
15:40-15:50	UNet-VITS: Elevating Single-Stage TTS Quality with Spectral Restoration and Post-Processing Optimization, (25) Min Zheng, Danqing Liu, Tengyue Yang, Haoyu Liu and Yanhui Guo	
15:50-16:00	A Method for Extracting News Text Information from Converged Media Videos Based on SWT Algorithm, (58) Lixiang Shi, Jing Liang and Qi Li	
16:10-16:20	Coffee Break	
16:20-17:30	Panel Discussions	
17:30-17:40	Summary and Closing	

# Conference Program

**Time: December 20, 2025**

**Venue: Room 011, Building 0**

## Session 5: Intelligent Manufacturing and Trustworthy IoT Systems

Time	Presentation Information	Session Chair: Zheng Zeng, Chengdu Technological Univ.
14:00-14:10	Multi-projection fusion system for special-shaped metal screen, (17)	Mingcong Ma, Yu Wang, Dongdong Guan, Chenglei Yang and Xiangxu Meng
14:10-14:20	A Trial of Recognition of Electronic Parts by Deep-Learning for Efficient Recycling, (27)	Takuto Shiraishi, Yihong Tang, Qi Li and Tomonori Izumi
14:20-14:30	Research on Pronunciation Error Recognition Method for English Conversation Practice Based on Artificial Intelligence Corpus, (61)	Rui Dang and Zheng Zeng
14:30-14:40	TACB: Traceable Anonymous Credentials with Batch Verification for Universal Internet of Vehicles, (81)	Jiaxin Yu, Xuan Zhao, Yanqi Zhao, Min Xie and Xiaoyi Yang
14:40-14:50	Anonymous and Publicly Linkable Reputation System with Distributed Trust, (101)	Xiaoyi Yang and Yanqi Zhao
14:50-15:00	Anomaly Detection Based on Behavior Feature Correlation for IoT Systems, (117)	Yifan Lu, Qixiao Lin, Jian Mao, Qiange Liu, Ziwon Liu, Yaodong Zhang and Yan Huo
15:10-15:20	From Corrector to Guide: The Evolution of Teacher Feedback Practices in AI-Enhanced EFL Writing Classrooms, (60)	Zheng Zeng and Rui Dang

## Session 7: AI Applications in Education, Healthcare, and Knowledge Services

Time	Presentation Information	Session Chair: Val Vec, University of Ljubljana.
15:20-15:30	Challenges in building movement recognition machine learning models for beginners in sports, (4)	Val Vec, Sašo Tomažič, Anton Kos and Anton Umek
15:30-15:40	Research on Drug Recommendation Method Based on Multi View Learning, (15)	Yanjie Zhao, Xiaomei Yu and Jianlong Zhao
15:40-15:50	Innovation-Driven Personnel Management: Challenges and Opportunities of the Implementation of Yuan'e System in Higher Education in H Province, China, (30)	Rong Huang, Xu Ding and Huaide Ren
15:50-16:00	Adapting to Technological Tides: A Study on the Evolution and Enhancement of Vocational Education Teachers' Competence in China, (31)	Shimin You and Huaide Ren
16:00-16:10	Research on the Traceability and Aggregation System of Intelligent Q&A for University Smart Services, (47)	Dong Yang and Qiurui Sun
16:10-16:20	Coffee Break	

## Session 9: Robotic Control and Multimodal Perception

Time	Presentation Information	Session Chair: Xinyu Liu, Huanghuai Univ.
16:20-16:30	An Autonomous Sorting System for Intelligent Warehouse Robots Based on Mask R-CNN, (44)	Ying Zhou, Xu Ji, Yifei Guo, Jing Tang and Longjun Wu
16:30-16:40	Multi-Modal Video Action Recognition with Learnable Frame Pruning via Temporal Token Scoring, (33)	Takashi Higashi, Ryuto Ishibashi and Lin Meng
16:40-16:50	Real-time Object Detection and Semantic Mapping on CPU-Powered Mobile Robot, (38)	Mikihisa Ishino, Ryuto Ishibashi, Zhenling Su and Lin Meng
16:50-17:00	Design and Implementation of A Multi-Axis Servo Control System Based on PLC, (43)	Yifei Guo, Xu Ji, Ying Zhou, Jing Tang and Longjun Wu
17:00-17:10	A Refined Direct Position Determination for Information Fusion in Sensor Networks, (120)	Yuan Zhang, Guizhou Wu, Fucheng Guo and Shuqiang Zhang

# Conference Program

**Time: December 20, 2025**

**Venue: Room 012, Building 0**

## Session 6: Intelligent Optimization and IoT Applications in Healthcare and Mobility

Time	Presentation Information	Session Chair: Shengnan Ding, Shandong Univ.
14:00-14:10	Multi-level Constraints in PINNs: Theory and Applications to Battery Impedance Modeling, (39) Ryuto Tanigawa, Yingrui Geng, Hayata Kaneko, Ryuto Ishibashi, Qi Li and Lin Meng	
14:10-14:20	An online task offloading method based on improved starfish optimization and blockchain, (57) Lujie Tao, Zhaoyu Su and Yujue Wang	
14:20-14:30	Self-Representation Difference Matrix Graph Convolutional Network for Hyperspectral Image Classification, (100) Shengnan Ding, Fuguo Liu and Yufeng Shi	
14:30-14:40	Cluster-based Accurate Localization in Noisy and Sparse Unmanned Sensing Systems, (86) Bingjie Han, Yingxu Lai and Haodi Ping	
14:40-14:50	IoT-Enabled Closed-Loop BCI-FES Systems for Lower Limb Rehabilitation: Architecture, Algorithms, and Challenges, (98) Xiaoyu Mao, Xueying Hu and Xinyu Liu	
15:00-15:10	Coffee Break	

## Session 8: Federated Learning and Wireless Communication Networks

Time	Presentation Information	Session Chair: Anming Dong, Qilu University of Technology.
15:10-15:20	Sum-Rate Optimization for RIS-assisted Multiuser System based on Deep Reinforcement Learning, (7) Qian Guo, Anming Dong, Sufang Li, Jiguo Yu and You Zhou	
15:20-15:30	FedTP: A Federated Learning Framework for Traffic Prediction, (37) Baobao Chai, Zhongyuan Yu, Tianqing He, Qingze He, Jianyuan Li and Yang Cao	
15:30-15:40	FedDyna: Privacy-Preserving Federated Learning with Dynamic Noise Adaptation and Structural Bias Alignment for Non-IID Environments, (75) Guijuan Wang, Zhiyu Zuo, Anming Dong, Jiguo Yu and Yanqi Zhao	
15:40-15:50	Secure Federated Learning for Multi-UAV Networks: A Framework Based on Cooperative Beamforming and Participant Selection, (78) Xiujuan Zhang, Zhenyu Zheng, Yu Du, Xin Fan, Jin Qian and Chuanwen Luo	
15:50-16:00	Multi-Objective Optimization for Secure UAV-Assisted Data Collection via Intermittent Jamming, (80) Xiujuan Zhang, Yujiao Han, Shiyu Wang, Xin Fan, Jin Qian and Chuanwen Luo	
16:10-16:20	Coffee Break	

## Session 10: Data-Driven Decision Making in Finance and Industrial Systems

Time	Presentation Information	Session Chair: Yanhui Guo, Shandong Women's Univ.
16:20-16:30	Adaptive SMC for Lower Limb Rehabilitation Robots Using a Sliding Mode Hyperbolic ESO, (8) Yanlei Yin, Aihui Wang, Hengyi Li, Yan Wang and Xuebin Yue	
16:30-16:40	Towards Fast Federated Learning Aggregation with ABE Privacy-preserving for Edge Mobile Devices, (96) Jiannan Wei and Weicheng Zhang	
16:40-16:50	PS2former: Parallel Spatial-Spectral Transformer Network for Hyperspectral Image Classification, (18) Guanliang Wang, Danqin Liu, Tengyue Yang and Yanhui Guo	
16:50-17:00	EviFlash: Uncertainty-Aware Flashover Prediction Using Selective State Space Model, (66) He Xue, Hang Yin, Xiaohan Yang, Tingxia Gan, Longfei Tan and Zhonghai He	
17:00-17:10	Multi-projection fusion system for special-shaped metal screen, (17) Mingcong Ma, Yu Wang, Dongdong Guan, Chenglei Yang and Xiangxu Meng	

## Conference Program

**Time: December 20, 2025**

**Venue: Room 041, Building 0**

### Digital Economy and Digital Finance

**Chair: Xiaoping Zeng / Tsinghua University, Mengyang Li / Changji University**

Time	Presentation Information
15:10-15:25	The Localization of Stablecoin (70) Yunchuan Sun, Feiyang Liu, Ying Xu
15:25-15:40	A Study on the Boosting Effect of the Belt and Road Initiative on Renminbi Competitiveness (93) Mengyang Li, Fuguo Liu, Yufeng Shi
15:40-15:55	Uncertain Waits, Waiting Anxiety, and Stock Market Reaction: Evidence from China (82) Sijing Wang, Lizhengbo Yang
15:55-16:10	How the Emerging Digital Technology Stock Markets Interact with Specific Clean Energy and Traditional Energy Assets? (95) Yifei Wang, Kaihua Wang
16:10-16:25	Digital Governance of Debt: A Study on Systematic Risk Resolution Paths Based on CDC Algorithms and FDI Vouchers (73) Ji'an Jiang
16:25-16:40	The Impact of Home and Community Elderly Care Services on Family Medical Insurance Reimbursement (83) Rufan Zhao, Biao Ma
16:40-16:55	Based on LDA-FA and Transformer models: artificial intelligence quantitative trading strategies for the civilian consumer drone industry (2) Zhengnan Chen, Yi'Ao Xu, Yuanman Huang, Yihua Sun, Hongjie Cai and Bo Shao
16:55-17:10	Multi-Agent Reinforcement Learning of MEV Allocation under Proposer–Builder Separation (65) Shengyu Chen, Hui Zhang and Junhuan Zhang
17:10-17:25	Crowds of Wisdom or Madness? The Impact of Social Media Sentiment on Earnings Announcement Returns (105) Yunchuan Sun, Xiaoping Zeng and Yuhan Gan

## Keynote Speakers



**Prof. Xiaosong Zhang, University of Electronic Science and Technology of China**

**Speech Title:** Domain-Specific Programming Languages and Development Environments for Cybersecurity: Technologies and Applications

**Brief Introduction:** Xiaosong Zhang is Dean of the School of Information and Software Engineering (Demonstration Software College) and Concurrent Dean of the School of Cyberspace Security at the University of Electronic Science and Technology of China (UESTC), a National-level Talent, Professor, Doctoral Supervisor, and Fellow of the China Computer Federation (CCF), China Communications Society (CCS), Chinese Institute of Electronics (CIE), and Chinese Association of Command and Control (C2IS). He has long been engaged in the research and tackling of key issues in computer systems and network security; as the first completer, he won the First-Class National Science and Technology Progress Award (2019) and the Second-Class National Science and Technology Progress Award (2012), has been honored with four First-Class Provincial/Ministerial Technological Invention Awards and Science and Technology Progress Awards, has presided over more than 40 national key and major projects, published 5 monographs as the first author, and authored 249 SCI/EI-indexed academic papers. His notable honors include the 6th Outstanding Engineer Award, the 1st National Famous Innovation Craftsman Award, the 2nd National Innovation and Excellence Award, and the National Outstanding Talent Award in Cybersecurity, while the innovative development and application of Yaklang—a dedicated programming language for cybersecurity led by him—was selected into the Top 10 Technological Advances in the Information and Communications Field (2023) and won the First-Class Science and Technology Progress Award of the China Communications Society (2025).

**Abstract:** The "shortage of 'cores' and 'souls'" has become a critical bottleneck constraining the development of China's information industry—while programming languages and development platforms, as fundamental technologies of information technology, serve as the foundational capability and "soul" of software; extending to the cybersecurity field, specialized and efficient programming languages and tools are equally the "soul" and core foundation of cybersecurity technologies and applications. Previously, the lack of a unified and efficient specialized development platform led to cybersecurity development relying on heterogeneous general-purpose languages such as C/C++, Java, Python, and Go, resulting in numerous issues including high technical barriers, low development efficiency, difficult post-maintenance, and significant security risks—effectively reflecting an fragmented ecosystem and reliance on external underlying technologies. As China's first independently developed open-source specialized programming language and integrated development platform for cybersecurity, YAK has made fruitful explorations and tackled key challenges to address the predicament of the cybersecurity industry, with its established ecosystem attracting a growing number of industry peers to participate. This report will analyze the background and overall approach, major innovations and technical content, index comparisons and intellectual property rights, as well as application directions and scenarios.

## Keynote Speakers



**Prof. Guangjie Han, Hohai University**

**Speech Title:** Multi-Dimensional Dynamic Trust Management  
Mechanism in Underwater Acoustic Sensor Networks

**Brief Introduction:** Guangjie Han is a professor, currently serving as the Dean of the School of Information Science and Engineering at Hohai University. He is an IEEE Fellow, IET/IEE Fellow, and AAIA Fellow. His main research interests include smart oceans, industrial IoT, artificial intelligence, networks, and security. In recent years, he has published more than 350 high-level SCI journal papers, including over 130 papers in the IEEE/ACM Trans. series, in international journals such as IEEE JSAC, IEEE TMC, IEEE TPDS, and IEEE TCC. His publications have been cited over 21900 times on Google Scholar, with an H-index of 79. He has authored three monographs and translated one book. He has led more than 30 provincial and ministerial-level research projects, including national key R&D programs and national natural science foundation key projects. He has been granted 130 national invention patents and 6 PCT international authorized patents. He has received numerous awards, including the second prize of the China Business Federation Science and Technology Award, the third prize of the Jiangsu Provincial Science and Technology Award, the second prize of the Liaoning Provincial Science and Technology Progress Award, and the Best Paper Award of the IEEE Systems Journal in 2020. For seven consecutive years (2019-2025), he has been listed as one of the top 2% of scientists globally, as well as for the Chinese Highly Cited Researchers list for five consecutive years (2020-2024). Currently, he serves as an associate editor for more than ten international journals, including IEEE TII, IEEE TCCN, IEEE TVT, IEEE TNSM and IEEE Systems.

**Abstract:** The underwater acoustic sensor network (UASN) is a pivotal component in realizing the concept of a "smart ocean." However, its potential remains underutilized in complex aquatic environments. The primary challenge lies in the absence of effective methods to ensure UASN security and reliable data transmission. This report presents our team's research on the trust management mechanisms for UASNs. Our main research areas include: 1) an intrusion detection algorithm based on energy prediction model; 2) a multi-dimensional trust calculation algorithm grounded in fuzzy theory; 3) a trust evaluation algorithm utilizing cloud theory; and 4) a trust prediction algorithm driven by machine learning. These research outcomes hold significant theoretical and practical implications for advancing the security technologies and applications of UASNs.

## Keynote Speakers



**Prof. Kenli Li, Hunan University**

**Speech Title:** Exploration and Practice of the Fusion Computing of Supercomputing and Artificial Intelligence

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**Brief Introduction:** Kenli Li is currently a Cheung Kong Scholar Chair Professor and the Vice-President of the Hunan University and the Director of National Supercomputing Center in Changsha. He is also the principle investigator (PI) of the Creative Research Groups Program and the Distinguished Youth Science Fund of the National Natural Science Foundation of China. Professor Li is a CCF Fellow and is also supported by the Program for the “Ten-thousand Talents”. Professor Li’s research interests mainly include high-performance computing scheduling and applications, as the PI, he has been responsible for eighteen research projects including the National Key R&D Project and major projects under the National Science and Technology Innovation 2030 Initiative. He was selected for the National Innovation and Excellence Award. As the first-completer, he has won the second-class Award of National Science and Technology Progress (twice), one China Patent Gold Award, and four first-class awards of science and technology from provincial or ministerial departments or academic societies.

**Abstract:** Supercomputing and artificial intelligence are significantly accelerating the pace of scientific and technological innovation. Complex applications of supercomputing are confronted with the challenges of explosive computational demands and convergence difficulties. AI computing methods such as deep learning offer effective solutions. Large-scale AI computing applications like smart cities require supercomputers to provide high-precision computing power for precise problem-solving. The fusion computing of supercomputing and AI has become an important trend, but it faces significant challenges in hardware integration, programming frameworks, and computing platforms. This lecture introduces our team’s exploration and practical progress in the fusion computing of supercomputing and AI, and finally conducts an in-depth analysis and outlook on their deep fusion.

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## Keynote Speakers



**Prof. Yuling Chen, Guizhou University**

**Speech Title:** Exploration of Privacy Protection and Steganographic Embedding Techniques for Cloud-Based Media Data

**Brief Introduction:** Professor Yuling Chen, doctoral supervisor, academic discipline leader, Young Changjiang Scholar of Guizhou University, deputy director of the State Key Laboratory of Public Big Data, deputy director of the Guizhou Institute of Big Data Industry Development and Application, and member of the Guiyang CPPCC. Research on cryptography, big data security and privacy protection, blockchain security, and big model security technologies is carried out for trusted security regulation of data transactions and the protection system of the computing power hub. She has presided over more than 20 projects at various levels, including the key projects of the National Natural Science Foundation of China Joint Fund and the key projects of Guizhou Province. She edited 5 academic monographs and textbooks and published more than 120 SCI/EI papers. She has authorized more than 20 invention patents and formulated 10 national, industrial, local and group standards. "Won the Advanced Worker of Guizhou Province (Provincial Model Worker)", "Baogang Excellent Teacher Award of the Ministry of Education", "Guizhou Teaching Teacher", "Guizhou Youth Science and Technology Award", the Second Prize of Guizhou Science and Technology Progress Award (ranked 1), and the Top Ten Outstanding Science and Technology Achievement Award of Guizhou Province (ranked 1).

**Abstract:** With the rapid growth of cloud storage services and the explosive increase in data volume, secure storage and efficient management of data have become increasingly critical. Today, it is common for users to upload various types of media data—such as images, audio, and video—to cloud servers. However, the sensitive information carried by such media data raises serious concerns regarding information privacy protection. Therefore, this report focuses on the security of cloud-based media data and conducts an in-depth investigation from two complementary perspectives: image encryption and the extension from image steganography to video steganography. In the encryption dimension, the emphasis is placed on balancing usability and privacy; while in the steganographic dimension, the focus lies on the efficiency and practicality of steganographic techniques for visual media resources. Finally, the report looks ahead from image- and video-level privacy protection toward model-level privacy protection research.

## Keynote Speakers



**Dr. Yuan Gao, Unit 32005**

**Speech Title:** Theoretical and Practical Research in the low-altitude intelligent network in the defense domain

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**Brief Introduction:** Dr. Yuan Gao serves as the Director of the Science and Technology Innovation Center in Unit 32005 and holds the position of Professor. He is recognized as a Distinguished Young Scholar by the National Natural Science Foundation of China and is listed among the high-level innovative talents in the military. His primary research focuses on mobile communications and intelligent communications. He currently leads a specialized task expert group and has presided over more than 10 projects, including grants from the National Natural Science Foundation and national defense initiatives. He has received over 6 awards at the provincial or ministerial level and holds more than 80 authorized invention patents globally.

**Abstract:** In the defense domain, the low-altitude intelligent network is not merely a simple extension of drone "swarm" tactics; rather, it constitutes the core infrastructure for building future intelligent, distributed, and resilient operational systems. It aims to achieve autonomous coordination and collective intelligence among widely dispersed, dynamically heterogeneous low-altitude assets (such as reconnaissance, strike, communication relay, and electronic warfare platforms) in highly contested, communication-weak, and highly dynamic environments. This report will focus on several fundamental scientific issues arising from the application of low-altitude intelligent networks in defense. We will begin by deconstructing its core essence, then systematically explore a series of key challenges—ranging from foundational network science (such as dynamic self-organization and resource-aware allocation) to mission-level intelligent science (such as cross-domain collaborative perception and distributed autonomous decision-making). Finally, drawing on typical practical cases, I will outline future research directions. The purpose of this report is to stimulate discussion, with the hope of engaging interdisciplinary researchers in joint reflection and contributing theoretical foundations to this strategic field, which is critical to the future development of defense science and technology.

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## Keynote Speakers



**Prof. Dongxiao Yu, Shandong University**

**Speech Title:** Learning at the Edge: Efficient, Adaptive, and Resilient Distributed Intelligence

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**Brief Introduction:** Dongxiao Yu is now a professor at the School of Computer Science and Technology, Shandong University. His research interests include edge intelligence, and distributed computing. He has published over 100 papers in CCF-A/JCR Q1 conferences or journals in the past five years; holds 39 authorized national invention patents. He has been awarded seven Best Paper/ Runner-Up Awards at conferences including ACM MobiHoc 2023, IEEE IPCCC 2020, PDCAT 2024, Second Prize of Shandong Provincial Natural Science Award and so on. He serves as an area editor for Computer Communications and as an associate editor for IEEE Transactions on Computers, IEEE Transactions on Wireless Communications, Big Data Management and Analytics, and Journal of Computer and System Sciences. He has also been included in Stanford University's "World's Top 2% Scientists" list (2022, 2024, 2025).

**Abstract:** As distributed learning becomes a key enabler of edge intelligence, addressing challenges related to limited computing resources, constrained communication bandwidth, and system robustness is crucial for scalable and efficient AI deployment. This talk will present novel approaches that enhance communication efficiency, adapt to resource heterogeneity, and ensure fault tolerance in federated and decentralized learning. It will cover advances in resource-adaptive federated learning that optimize training for devices with varying computational constraints, communication-efficient decentralized learning that leverages over-the-air computation and power control to reduce bandwidth usage while preserving privacy, and Byzantine-resilient algorithms that fortify learning systems against adversarial attacks. By integrating theoretical insights with practical advancements, this talk will provide a comprehensive perspective on designing scalable, secure, and efficient distributed AI systems for real-world applications.

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## Keynote Speakers



**Prof. Shaoyong Guo, Beijing University of Posts and Telecommunications**

**Speech Title:** Theoretical Foundations of Network Control for the Industrial Internet

**Brief Introduction:** Shaoyong Guo is a Professor and Ph.D. supervisor, currently serving as the Associate Dean of the School of Computer Science at Beijing University of Posts and Telecommunications. His research focuses on network management and control for the Industrial Internet. He has led multiple research projects funded by the National Natural Science Foundation of China and has achieved significant research outcomes in power communication networks, industrial Internet network control, and network security. He has published more than twenty high-quality research papers as the first or corresponding author and holds over thirty international and domestic patents. He has also led the development of several ITU-T international standards as well as national and industry standards. His honors include the Jiangsu Provincial Science and Technology Progress Award (First Prize), the Henan Provincial Science and Technology Progress Award (First Prize), the Beijing Science and Technology Award (Second Prize), and the Science and Technology Progress Award of the China Institute of Electronics (Second Prize).

**Abstract:** The development of the Industrial Internet has become a national strategy. Network management and control is an important means to support the secure and reliable interconnection among humans, machines, and objects in the Industrial Internet, as well as the collaboration of all elements, the entire industrial chain, and the whole value chain. However, with the continued development of the Industrial Internet, network management and control faces three major challenges: unified resource representation, operational optimization and control, and terminal access control. To address the question of how to achieve efficient and precise network management and control in the Industrial Internet, this report systematically introduces the theoretical and technological system of Industrial Internet network management and control, covering innovative achievements such as unified network resource representation models, network operation optimization and regulation mechanisms, and network access control methods. It also explores future development directions of Industrial Internet network management and control technologies from the perspectives of data and computing power.

## Keynote Speakers



**Prof. Yi Shi, Virginia Tech**

**Speech Title:** NextG Communications for Vehicle Networks

**Brief Introduction:** Dr. Yi Shi is a Research Associate Professor at the Commonwealth Cyber Initiative, Virginia Tech and an IEEE Fellow. His recent research focuses on machine learning, algorithm design, and optimization for 5G and NextG networks, satellite networks. His research has been funded by NSF, ONR, CCI, MDA, and AFRL. He published more than 200 papers in leading IEEE and ACM journals and top-tier international conferences. He received many paper awards, including the Test of Time Paper Award at IEEE INFOCOM 2023, the Best Paper Award at IEEE INFOCOM 2008, and the Best Paper Award Runner-Up at IEEE INFOCOM 2011.

Dr. Shi currently serves as a Workshop Chair for IEEE INFOCOM 2026, a Distinguished Lecturer for IEEE Vehicular Technology Society, an Editor for IEEE Communications Surveys and Tutorials and IEEE Transactions on Cognitive Communications and Networking. He has also served as a Co-Chair for various IEEE and ACM Workshops, Conference Tracks, and Symposia, as well as a TPC member for many top international conferences. His excellent service has been recognized as a Distinguished TPC member for IEEE INFOCOM 2025 and 2021, an Exemplary Editor for IEEE Transactions on Cognitive Communications and Networking in 2023, and an Exemplary Editor for IEEE Communications Surveys and Tutorials in 2014.

**Abstract:** Vehicle networks enable a wide range of emerging and important applications, including safe driving, traffic efficiency, autonomous driving, vehicle diagnostics, software updates, Internet access, and in-vehicle entertainment. However, the frequency band currently allocated for vehicle networks provides only 20 MHz of bandwidth, which is insufficient to meet growing communication demands. There is a pressing need to identify additional spectrum resources for vehicular communications. With the expansion of 5G and beyond technologies across multiple frequency bands through spectrum sharing, new opportunities have emerged to support the increasing data requirements of vehicle networks. This talk reviews the opportunities and unique challenges associated with the CBRS band and the 4.9 GHz band, and presents spectrum sharing solutions that can enable large-area, reliable communication services for vehicle networks.

## Keynote Speakers



**Prof. Kun Niu, Beijing University of Posts and Telecommunications**

**Speech Title:** Research on the Architecture and Technical System of Full Lifecycle Data Management

**Brief Introduction:** Kun Niu, Professor, PhD & Master Supervisor, School of Computer Science, BUPT. Director of BUPT-Yongyou Joint Laboratory of Intelligent Computing, recipient of Second-Class Beijing Science and Technology Progress Award. Her research focuses on cross-domain data fusion, intelligent optimization, AI engines and big data algorithms. She has published over 100 papers, authored a monograph, and presided over 30+ projects including national key R&D programs. She serves as PC member and reviewer for top international conferences/journals. Her technologies have been widely applied in Huawei, Xiaomi, State Grid and other leading enterprises.

**Abstract:** Data is a fundamental and strategic resource in the digital age, as well as a key production factor of the digital economy. How to further tap into the value of data resources and unleash the potential of massive data has become a crucial support for enterprises' core competitiveness. Data middle platforms can help implement a unified data ecosystem, break down data silos, and achieve data assetization and business intelligence. However, traditional data processing models face pain points such as high technical thresholds, low process efficiency, and non-standard indicator management. Addressing the issues of diverse data demand forms, complex requirements, and inconsistent quality, the report focuses on basic scientific issues such as efficient collaboration and value release throughout the entire data lifecycle. It systematically introduces the integrated theoretical architecture and technical system of data factories and intelligent middle platforms, covering innovative achievements including efficient data synchronization models, low-code real-time data development frameworks, and standardized visual indicator management systems. Additionally, it looks forward to the development direction of future enterprise-level data production and transformation technologies from the perspectives of technology integration and scenario expansion.

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## Keynote Speakers



**Prof. Chuanwen Luo, Beijing Forestry University**

**Speech Title:** Embodied Intelligence Unmanned System Empowering Forestry and Grassland Ecosystems: A Smart Revolution from Perception to Action

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**Brief Introduction:** Chuanwen Luo is an Associate Professor and Assistant Dean at the School of Information Science and Technology (School of Artificial Intelligence), Beijing Forestry University. His research focuses on the Internet of Things and embodied intelligent unmanned systems, where he has tackled key technologies such as edge computing offloading and resource scheduling and so on. He has published over 50 papers indexed by SCI/EI and has received several awards, including the Best Paper Award at IEEE SpaCCS 2023, the Outstanding Paper Award at IEEE GreenCom 2023, and the Beijing High-Attention Academic Paper Award. He presided over the Youth Talent Support Program of CAST and participated in the Youth Marxism Training Project. In addition, he has led more than 10 research projects, including grants from the National Natural Science Foundation of China (General Program, Young Scientists Program, and Joint Key Program) as well as various industry-sponsored projects.

**Abstract:** Embodied intelligent unmanned systems are transforming forestry and grassland ecosystem management from traditional methods to an integrated intelligent closed loop of "perception-decision-action." Leveraging technologies such as hyperspectral imaging, bionic robots, and multi-machine collaboration, these systems enable precise monitoring of vegetation physiology, pests, soil pollution, and autonomous execution of tasks like patrol, planting, and restoration, significantly improving efficiency and accuracy. This intelligent revolution not only reshapes ecosystem management paradigms but also provides key support for carbon neutrality and biodiversity conservation. Moving forward, deeper integration of swarm intelligence and ecological models will drive forestry and grassland management toward greater autonomy, inclusivity, and collaboration.

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## Keynote Speakers



**Prof. Yufeng Shi, Shandong University**

**Speech Title:** Deep learning approaches for BSDEs and applications in financial asset pricing

**Brief Introduction:** Yufeng Shi is a professor at the School of Mathematics and the Institute of Finance of Shandong University, a doctoral supervisor, a special-appointed expert of Taishan Scholars, the vice dean of the Financial Research Institute of Shandong University, and the director of the Institute of Industrial Big Models of Shandong University. He has also served as the dean of the School of Statistics and the Director of the Big Data and Index Research Institute at Shandong University of Finance and Economics. He is a member of the Shandong Provincial Committee of the Science and Technology Association, the chief expert of the core team of the Digital Economy of the Shandong Provincial Science and Technology Think Tank, a member of the Shandong Provincial Statistical Expert Consultation Committee, the deputy director of the Financial Quantitative Analysis and Computing Professional Committee of the Chinese Cross-Science Society, the president of the Shandong Provincial Big Data Research Association, the vice president of the Shandong Blockchain Research Association, the vice president of the Shandong Statistical Society, the vice president of the Shandong Applied Statistics Society, a regular member of the China Statistical Society, a regular member of the National Industrial Statistics Teaching Research Association, and a member of the China Industrial and Applied Mathematics Society. His research fields include probability statistics, stochastic analysis, stochastic control, financial mathematics, financial engineering, risk management, quantitative investment, artificial intelligence, financial technology, and digital economy. As the project leader, he has completed five National Natural Science Foundation projects and more than twenty provincial-level projects above the level of the Ministry of Education and the State Council. He is a core member of the Education Minister's Innovation Team and the "Financial Mathematics" Innovation Group of the National Natural Science Foundation of China. He has published over 100 papers in domestic and foreign academic journals, among which more than 70 are indexed by SCI/SSCI. He has obtained five patents in the fields of financial technology, digital economy, and artificial intelligence, six software copyrights, and has applied for more than ten patents in the fields of artificial intelligence, financial technology, and information security. He has received the first-class collective commendation and the honorary title of the first batch of outstanding innovation teams (core members) awarded by the Shandong Provincial Government, the second prize of the Shandong Provincial Teaching Achievement Award (first place), and the honorary title of the Shandong Provincial Outstanding Scientist.

**Abstract:** Deep learning can effectively overcome dimensional disasters in the numerical methods of Nonlinear partial differential equation and backward Stochastic differential equation, and has become an important research direction of numerical computation in recent years. We study the numerical calculation methods of high-dimensional backward doubly stochastic differential equations and high-dimensional mean field backward doubly stochastic differential equations, in which the deep neural network is introduced as the key step to achieve numerical solution. Based on the numerical method of backward Stochastic differential equation, this paper studies the option data driven g-pricing modeling method, and verifies the model performance with SPX options. At the same time, with the help of deep learning data mining capabilities, a model for mining high-frequency order book price change information was established, and empirical research was conducted using high-frequency order book data

## Keynote Speakers



**Prof. Yezhou Sha, Capital University of Economics and Business**

**Speech Title:** Asset Characteristics and Mutual Fund Performance:  
Revisiting the style-performance nexus

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**Brief Introduction:** Yezhou Sha graduated from the University of Nottingham in the UK in 2018 with a Ph.D. in Finance and Risk. Currently, he is a professor at the School of Finance and the vice dean of the School of Statistics and Data Science at Capital University of Economics and Business. His main research areas include empirical asset pricing, such as market anomalies, individual and household portfolio analysis, stock and mutual fund returns, market efficiency, and emerging country capital markets. In the past two years, he has published over ten papers in journals such as the Journal of Management Science and the Journal of Banking and Finance. His main social positions include being a member of the Asia-Pacific Applied Economics Association; a communication reviewer for the Research Grants Council of the Hong Kong Special Administrative Region (2020); an associate editor of Emerging Markets Finance and Trade and Economic Analysis and Policy (since 2020); a member of the major research project cultivation special project and the university's young research team at Capital University of Economics and Business; and a reviewer for journals such as Journal of Economic Behavior and Organization, Energy Economics, Pacific-Basin Finance Journal, and Economic Modelling.

**Abstract:** We construct a new variable to explore whether fund managers' style drift can be explained by the correlation among stocks held by mutual funds. We constructed a joint database using CMSAR and RESSET and conducted the research within the framework of the HBSA-SD theory. We have demonstrated that style drift is common in China and found that style drift can improve the fund's returns to some extent. The data shows that funds with high style drift have an average monthly return 0.51% higher than those with low style drift. We find that funds with high passive style drift gain more from active style drift than those with low passive style drift. Cross-sectional regression results are consistent with the portfolio analysis, further indicating that idiosyncratic volatility and total  $R^2$  do not affect the style drift premium or its predictive power for fund returns.

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## Keynote Speakers



**Dr. Maoxi Tian, Northwest A&F University**

**Speech Title:** Coherent Measurement of Asymmetric Tail Risk: A GARCH CQR-based CoES Approach to China's Stock and FX

**Brief Introduction:** Dr. Maoxi Tian is a Lecturer and Master's Supervisor at the College of Economics and Management, Northwest A&F University, China. He received his Ph.D. in Economics from the Jinhe Center for Economic Research, Xi'an Jiaotong University in 2017. His research focuses on financial econometrics, financial risk management, quantitative economic modeling, energy finance, FinTech, and financial markets. His published work centers on themes such as risk spillover measurement and GARCH copula quantile regression modeling. He has published several peer-reviewed articles in leading international journals, including Journal of International Financial Markets, Institutions & Money, Energy Economics, Finance Research Letters, North American Journal of Economics and Finance, Annals of Operations Research, and European Journal of Finance, among others, as well as in prominent Chinese academic journals. He has presided over research projects such as the Youth Program of Humanities and Social Sciences under the Ministry of Education, and actively participates in multiple National Natural Science Foundation of China projects.

**Abstract:** Extreme spillovers between China's equity and FX markets pose critical risks to financial stability, yet prevailing approaches often lack coherence in capturing their state dependence and asymmetry. This study develops a GARCH Copula Quantile Regression-based Conditional Expected Shortfall (GARCH CQR based CoES) framework that embeds a coherent tail-risk measure within a flexible copula structure, enabling the identification of directional and magnitude asymmetries in extreme comovements. Using daily returns of CSI300 and onshore USD/CNY from June 2010 to August 2025, we uncover two key patterns. Directional asymmetry: spillovers from FX to equity dominate the reverse—approximately  $3.2\times$  larger in downside states and  $4.8\times$  larger in upside states. Magnitude asymmetry: downside spillovers consistently exceed upside spillovers in both directions, consistent with leverage and loss-aversion effects. Methodologically, the framework advances coherent modeling of tail dependencies; practically, it informs systemic-risk surveillance, stress testing, and cross-asset hedging.

# Route Guidance

## School Map:



- 📍 East Four Canteen
- 📍 Library
- 📍 North Gate
- 📍 Building 0

## Distance to Transportation Hubs

Transportation Hub	Driving Distance	Driving Time
Chengdu East Railway Station	49 km	52 - 60 minutes
Chengdu South Railway Station	35 km	40 - 50 minutes
Chengdu West Railway Station	28 km	35 - 40 minutes
Chengdu Shuangliu International Airport	32 - 40 km	40 - 60 minutes
Chengdu Tianfu International Airport	85 - 90 km	1.5 - 2 hours







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