APWEB-WAIM

2023 WUHAN

The 7th APWeb-WAIM International Joint Conference on Web and Big Data

Conference Program

October 6-8, 2023

Wuhan, Hubei, P. R. China

Contents

Conference Introduction

The Asia Pacific Web (APWeb) and Web-Age Information Management (WAIM) Joint International Conference on Web and Big Data (APWeb-WAIM) is aiming at attracting professionals of different communities related to Web and Big Data who have common interests in interdisciplinary research to share and exchange ideas, experience and the underlying techniques and applications, including Web technologies, database systems, information management, software engineering and big data. The 7th APWeb-WAIM joint international conference on Web and Big Data 2023 will be held in Wuhan, China, 6-8 October, 2023. It is our great pleasure to invite you to contribute papers and participate in this premier annual event. With the increased focus on Big Data, the new joint conference is expected to attract more professionals from different industrial and academic communities, not only from the Asia Pacific countries but also from other continents.

Conference Committee

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Program Overview

Day1. Friday, October 6th	
Conference Reception & On-site Registration (Location: First Floor of **Tingtao Court**)	
Day2. Saturday, October 7th Main Conference (Room: Huanghe Hall of **East Lake International Conference Center**)	
Time	**Event**
09:00-09:15	Opening Ceremony
09:15-09:20	PC Chair Report
09:20-10:00	Keynote 1
10:00-10:30	Group Photo & Coffee Break
10:30-11:10	Keynote 2
11:10-14:00	Lunch (Room: Oriole Hall of **Tingtao Court**)
14:00-14:40	Keynote 3
14:40-15:00	Coffee Break
15:00-16:00	Panel
16:00-16:15	Awards
18:00-21:00	Banquet (Room: Qing Dao Hu of **Nanshan Court**)

Day3. Sunday, October 8th Tutorials & Workshops & Research Sessions				
Time	**Room (Location: East Lake International Conference Center)**			
	Xiantao Hall	**Qianjiang Hall**	**Dingxiang Hall**	**Moli Hall**
09:00-10:30	Invited Tutorial 1	Workshop SemiBDMA2023	Workshops KGMA2023	Research Session 8
10:30-10:45	Coffee Break			
10:45-12:45	Invited Tutorial 2	Research Session 2	Research Session 5	Research Session 9
12:45-14:00	Lunch (Room: Oriole Hall of **Tingtao Court**)			
14:00-15:30	Invited Tutorial 3	Research Session 3	Research Session 6	Research Session 10
15:30-15:45	Coffee Break			
15:45-17:15	Research Session 1	Research Session 4	Research Session 7	Research Session 11
18:00-20:00	Dinner (Room: Oriole Hall of **Tingtao Court**)			

Detailed Program

Day 1 (Friday, October 6th)

Time	Events
09:00-22:00	**Conference Reception & On-site Registration** **(Location: First Floor of Tingtao Court)** *Notes:* *(1) Please collect the meeting materials for those who have already paid the registration fee online.* *(2) Individuals who have not yet completed registration can go through the registration procedures on-site and collect meeting materials.*

Day 2 (Saturday, October 7th)

Main Conference			
Time	**Location**	**Events**	**Chair**
09:00-09:15	Huanghe Hall, East Lake International Conference Center	**Opening Ceremony** **Prof. Lizhe Wang**, *China University of Geosciences, China* **Prof. Yanchun Zhang**, *Guangzhou University & Pengcheng Lab, China; Victoria University, Australia* **Prof. Guoren Wang**, *Beijing Institute of Technology, China*	Prof. Jianxin Li, *Pengcheng Lab*
09:15-09:20		**PC Chair Report** **Prof. Yunliang Chen**, *China University of Geosciences, China*	Prof. Jianxin Li, *Pengcheng Lab*
09:20-10:00		**Keynote 1: Machine Learning for Decision Support in Complex Environments** **Prof. Jie Lu** *AO (Officer of the Order of Australia)* *IEEE Fellow, IFSA Fellow, Australian Laureate Fellow* *Director of Australian Artificial Intelligence Institute* *University of Technology Sydney, Australia*	Prof. Yanchun Zhang, *Guangzhou University & Pengcheng Lab, China; Victoria University, Australia*
10:00-10:30		**Group Photo & Coffee Break**	Prof. Jianga Shang, *China University of Geosciences, China*
10:30-11:10		**Keynote 2: Dataflow based High Efficient Graph Processing** **Prof. Hai Jin** *IEEE Fellow, CCF Fellow, life member of the ACM* *Huazhong University of Science and Technology, China*	Prof. Guoren Wang, *Beijing Institute of Technology, China*
11:10-14:00	Oriole Hall, Tingtao Court	**Lunch**	

14:00-14:40	Huanghe Hall, East Lake International Conference Center	**Keynote 3: Distributed Control and Optimization of Networked Microgrids** **Prof. Qing-Long Han** *Member of the Academia Europaea (The Academy of Europe)* *IEEE Fellow, IFAC Fellow, IEAust Fellow, CAA Fellow* *Pro Vice-Chancellor (Research Quality)* *Swinburne University of Technology, Australia*	Prof. Song Guo, *Hong Kong University of Science and Technology, China*
14:40-15:00		**Coffee Break**	
15:00-16:00		**Panel: AI meets Data Science** Invited Guests: **Prof. Zhiguo Gong**, *University of Macau, China* **Prof. Song Guo**, *Hong Kong University of Science and Technology, China* **Prof. Xiaochun Yang**, *Northeastern University, China* **Prof. Haofen Wang**, *Tongji University, China* **Prof. Ye Yuan**, *Beijing Institute of Technology, China* **Prof. Hongyan Zhang**, *China University of Geosciences, China* **Dr. Xuke Hu**, *Data Science Institute of the Germany Aerospace Center, Germany*	Prof. Xin Wang, *Tianjin University, China*
16:00-16:15		**Awards** Best Paper Award Best Paper Runner Up Student Best Paper Student Best Paper Runner Up Best Demo & Industry Award Best Service Recognition Award	Prof. Tao Lu, *Wuhan Institute of Technology*

18:00-21:00	Qing Dao Hu, Nanshan Court	**Banquet**	Prof. Jianxin Li, *Pengcheng Lab*

Day 3 (Sunday, October 8th)

Tutorials & Workshops & Research Sessions Location: East Lake International Conference Center				
Time	**Room**			
	Xiantao Hall	**Qianjiang Hall**	**Dingxiang Hall**	**Moli Hall**
09:00-10:30	**Invited Tutorial 1** Graph Learning for Fraud Detection (Prof. Jiawei Jiang, *Wuhan University*) (Chair: Prof. Bohan Li, *Nanjing University of Aeronautics and Astronautics, China*)	**Workshop** SemiBDMA2023 (Chair: Prof. Mo Li, *Liaoning University, China*)	**Workshop** KGMA2023 (Chair: Prof. Xiang Zhao, *National University of Defense Technology, China*)	**Research Session 8** Trusted and interpretable AI & Parallel and distributed data management & Query processing and optimization & Spatial and temporal databases (Chair: Prof. JiaJia Li, *Shenyang Aerospace University, China*)
10:30-10:45	Coffee Break			
10:45-12:45	**Invited Tutorial 2** Blockchain Storage Scalability: State of the Art and Challenges (Jiang Xiao, *Huazhong University of Science and Technology*) (Chair: Prof. Bohan Li, *Nanjing University of Aeronautics and Astronautics, China*)	**Research Session 2** Machine Learning I (Chair: Prof. Juan Zhao, *Pengcheng Lab, China*)	**Research Session 5** Advanced database and Web applications & Cloud computing and Crowdsourcing & Data and information quality & Data management on new hardware (Chair: Prof. Xiangyu Song, *Pengcheng Lab, China*)	**Research Session 9** Information Retrieval (Chair: Prof. Ningning Cui, *Chang'an University, China*)

12:45-14:00	Lunch (Location: Oriole Hall of **Tingtao Court**)			
14:00-15:30	**Invited Tutorial 3** Semantic Framework for Next-Generation Industrial Knowledge Graphs (Haofeng Wang, *Tongji University*) (Chair: Dr. Xuke Hu, *Data Science Institute of the Germany Aerospace Center, Germany*)	**Research Session 3** Machine Learning II (Chair: Prof. Xulong Zhang, *Ping An Technology, China*)	**Research Session 6** Data mining I (Chair: Prof. Lili Pei, *Chang'an University, China*)	**Research Session 10** Knowledge extraction and management (Chair: Prof. Xin Bi, *Northeastern University, China*)
15:30-15:45	Coffee Break			
15:45-17:15	**Research Session 1** Graph data management, RDF, social networks (Chair: Prof. Huabing Zhou, *Wuhan Institute of Technology, China*)	**Research Session 4** Machine Learning III (Chair: Prof. Wei Liu, *Wuhan Institute of Technology, China*)	**Research Session 7** Data mining II (Chair: Prof. Chang Tang, *China University of Geosciences, China*)	**Research Session 11** Knowledge extraction and management & Streams, complex event processing & Text database, keyword search & Web search and meta-search & Advances in spatial big data processing & Data engineering for big remote sensing data (Chair: Prof. Xianju Li, *China University of Geosciences, China*)
18:00-20:00	Dinner (Location: Oriole Hall of **Tingtao Court**)			

Keynote Speakers

Prof. Jie Lu

Distinguished Professor
AO (Officer of the Order of Australia)
IEEE Fellow, IFSA Fellow, Australian Laureate Fellow
Director of Australian Artificial Intelligence Institute
University of Technology Sydney, Australia

Title: Machine Learning for Decision Support in Complex Environments

Abstract: The talk will present how machine learning can innovatively and effectively learn from data to support data-driven decision-making in uncertain and dynamic situations. A set of new transfer learning theories, methodologies and algorithms will be presented that can transfer knowledge learnt in more source domains to a target domain by building latent space, mapping functions and self-training to overcome tremendous uncertainties in data, learning processes and decision outputs. Another set of concept drift theories, methodologies and algorithms will be discussed about how to handle ever-changing dynamic data stream environments with unpredictable stream pattern drifts by effectively and accurately detecting concept drift in an explanatory way, indicating when, where and how concept drift occurs and reacting accordingly. These new developments enable advanced machine learning and therefore enhance data-driven prediction and decision support systems in uncertain and dynamic real-world environments.

Short Bio: Distinguished Professor Jie Lu is a world-renowned scientist in the field of computational intelligence, primarily known for her work in fuzzy transfer learning, concept drift, recommender systems, and decision support systems. She is an IEEE Fellow, IFSA Fellow, and Australian Laureate Fellow. Prof Lu is the Director of the Australian Artificial Intelligence Institute (AAII) at University of Technology Sydney (UTS), Australia. She has published over 500 papers in leading journals and conferences; won 10 Australian Research Council (ARC) Discovery Projects as first chief investigator, and over 20 industry projects; and supervised 50 doctoral students to completion. Prof Lu serves as Editor-In-Chief for Knowledge-Based Systems and International Journal of Computational Intelligence Systems. She is a recognized keynote speaker, delivering over 40 keynote speeches at international conferences. She is the recipient of two IEEE Transactions on Fuzzy Systems Outstanding Paper Awards (2019 and 2022), NeurIPS2022 Outstanding Paper Award, Australia's Most Innovative Engineer Award (2019), Australasian Artificial Intelligence Distinguished Research Contribution Award (2022), and the Officer of the Order of Australia (AO) in the Australia Day 2023.

Prof. Qing-Long Han

Distinguished Professor
Member of the Academia Europaea (The Academy of Europe)
IEEE Fellow, IFAC Fellow, IEAust Fellow, CAA Fellow
Pro Vice-Chancellor (Research Quality)
Swinburne University of Technology, Australia

Title: Distributed Control and Optimization of Networked Microgrids

Abstract: With the widespread integration of renewable distributed energy sources such as wind generation, photovoltaic and solar panels, a traditional electrical network has been experiencing a huge revolution towards a smart grid in various terms of generation, transmission, distribution and usage, and so on. Such a revolution poses new theoretical and technical challenges in operation and management of smart grids. To address these challenges, a multi-agent system based strategy is developed to address control and optimization issues in smart grids, showcasing its strong ability in improving efficiency, reliability and scalability. In this keynote talk, some backgrounds on smart grids from the perspective of multi-agent systems are introduced. Second, a distributed secondary control scheme with an event-triggered communication mechanism is presented to ensure frequency regulation and active power sharing of AC islanded microgrids while significantly reducing the utilization of communication resources. Third, a multi-objective distributed optimization method is provided to address current sharing and voltage regulation in DC microgrids. Finally, some challenging issues are discussed for future investigation.

Short Bio: Professor Han is Pro Vice-Chancellor (Research Quality) and a Distinguished Professor at Swinburne University of Technology, Melbourne, Australia. He held various academic and management positions at Griffith University and Central Queensland University, Australia.

Professor Han was awarded The 2021 Norbert Wiener Award (the Highest Award in systems science and engineering, and cybernetics), The 2021 M. A. Sargent Medal (the Highest Award of the Electrical College Board of Engineers Australia), The IEEE Systems, Man, and Cybernetics Society Andrew P. Sage Best Transactions Paper Award in 2022, 2020, and 2019, respectively, The IEEE/CAA Journal of Automatica Sinica Norbert Wiener Review Award in 2021, and The IEEE Transactions on Industrial Informatics Outstanding Paper Award in 2020.

Professor Han is a Member of the Academia Europaea (The Academy of Europe). He is a Fellow of The Institute of Electrical and Electronics Engineers (FIEEE), a Fellow of The International Federation of Automatic Control (FIFAC), a Fellow of The Institution of Engineers Australia (FIEAust), and a Fellow of The Chinese Association

of Automation (FCAA). He is a Highly Cited Researcher in both Engineering and Computer Science (Clarivate). He has served as an AdCom Member of IEEE Industrial Electronics Society (IES), a Member of IEEE IES Fellows Committee, a Member of IEEE IES Publications Committee, and the Chair of IEEE IES Technical Committee on Networked Control Systems. He is currently the Editor-in-Chief of IEEE/CAA Journal of Automatica Sinica, the Co-Editor-in-Chief of IEEE Transactions on Industrial Informatics, and the Co-Editor of Australian Journal of Electrical and Electronic Engineering.

Prof. Hai Jin

Distinguished Professor
IEEE Fellow, CCF Fellow, life member of the ACM
Huazhong University of Science and Technology, China

Title: Dataflow based High Efficient Graph Processing

Abstract: With the rapid growth of big data, it is harder and harder to processing these ever-growing data with traditional computer architecture. Dataflow-based architecture provides a new way to tackle above challenge. This talk first briefly introduce the challenges in processing big data and also the difficulties in processing graph computing, then introduce some research results we have done during these years in using dataflow for graph computing. Finally, some future directions for dataflow architecture and also when used in graph computing are introduced.

Short Bio: Hai Jin is a Chair Professor of computer science and engineering at Huazhong University of Science and Technology (HUST) in China. Jin received his PhD in computer engineering from HUST in 1994. In 1996, he was awarded a German Academic Exchange Service fellowship to visit the Technical University of Chemnitz in Germany. Jin worked at The University of Hong Kong between 1998 and 2000, and as a visiting scholar at the University of Southern California between 1999 and 2000. He was awarded Excellent Youth Award from the National Science Foundation of China in 2001.

Jin is a Fellow of IEEE, Fellow of CCF, and a life member of the ACM. He has co-authored more than 20 books and published over 900 research papers. His research interests include computer architecture, parallel and distributed computing, big data processing, data storage, and system security.

Invited Tutorials

Prof. Haofen Wang

Tongji University

Title: Semantic Framework for Next-Generation Industrial Knowledge Graphs

Abstract: In the process of digitalization of enterprises, massive amounts of data have been accumulated. Enterprises need to continuously create value for users, while achieving efficient business management and risk control. This puts high demands on the digital infrastructure of enterprises, and also provides diverse application scenarios for AI technologies such as Knowledge Graph (KG) and Large Language Model (LLM). This talk takes merchant management and risk control as examples to introduce the application of KGs in enterprise digitization. In particular, it emphasizes the requirements for deep context awareness due to the portrait coverage and risk insight of thin data customer groups such as small and medium merchants, new users, and sleeping users. Enterprise-level knowledge management is realizing the transition from binary static to multi-dynamic model. Combined with current industrial applications and research progress, we summarized the possible applications of LLM and KG in enterprise digitalization. We point out that LLM has limited application due to the hallucination problem, while KG has wide applications in reasoning, mining, clue insights, analytical querying, etc. because of its expressive ability, interpretability and high computational efficiency of structured knowledge. At the same time, the dual drive of LLM and KG has huge space due to their complementary capabilities, and it is also predicted to be the key path for the industrialization of LLM in language understanding and interactive applications. On this basis, we further introduce the current challenges of KG technology. Finally, combined with the practice of Ant Group's KG platform, we introduced the industrial-level semantic-enhanced programmable Graph SPG and KG engine co-built by OpenKG.

Short Bio: Haofen Wang is a professor at College of Design & Innovation, Tongji University. Prior to that, He served as CTOs for two well-known AI startups (i.e., Leyan and Gowild). He is also one of the co-founders of OpenKG, the world-largest Chinese open knowledge graph community. He has taken charge of several national AI projects and published more than 100 related papers on top-tier conferences and journals. He developed the first interactive emotional virtual idol in the world. The intelligent assistant he built has answered questions from more than one billion users when they did online shopping. He has also served as deputy directors or chairs for

several NGOs like CCF, CIPS and SCS.

Prof. Jiawei Jiang

Wuhan University

Title: Graph Learning for Fraud Detection

Abstract: Fraud detection has become one of the most prominent research topics for e-commerce companies. In this tutorial, I will summarize the efforts we have made to design explainable fraud detection systems using graph neural networks (GNNs). These systems are designed according to various deployment requirements in the fraud detection ecosystem. We have also reviewed our efforts on deploying GNNs in a dynamic graph setting and a real-time fraud detection environment. Through this tutorial, we aim to provide a holistic understanding of the current state and future prospects of our efforts in various stages of fraud detection.

Short Bio: Jiawei Jiang is a professor in School of Computer Science, Wuhan University. He obtained his B.Sc. from University of Science and Technology of China in 2011, and Ph.D from Peking University in 2018, respectively. From 2019 to 2022, he worked as a postdoc researcher at ETH Zürich. His research interests include, but are not limited to, machine learning systems, large-scale data analytics, graph processing, and federated learning. He has published more than 40 papers in top venues, e.g., SIGMOD, VLDB, ICDE, ICML, and NeurIPS. He has served in the Technical Program Committee of various international conferences including VLDB, ICDE and KDD. He was awarded CCF Outstanding Doctoral Dissertation Award (2019) and ACM SIGMOD Doctoral Dissertation Award (2018).

Prof. Jiang Xiao

Huazhong University of Science and Technology

Title: Blockchain Storage Scalability: State of the Art and Challenges

Abstract: The realization of trustworthiness Web 3.0 era requires accessing the unprecedented benefits -- auditability, transparency, automation, effectiveness -- from the disruptive blockchain technology. However, as the amount of data is exploding at unprecedented scale, blockchain systems existing today are becoming inefficient in storing and processing the enormous data. In this talk, we will uncover many unexplored challenging issues of blockchain storage scalability. We will also discuss about the initial studies leaving tremendous potential for further innovation.

Short Bio: Jiang xiao, currently a full professor at Huazhong University of Science and Technology. Her research interests include blockchain, distributed systems, etc. She has hosted the National Key R&D Program Young Scientist Project, National Natural Science Foundation Project, Hubei Provincial Key R&D Program Project, etc. She published more than 70 papers in international journals and academic conferences such as IEEE TPDS, IEEE TKDE, IEEE JSAC, INFOCOM, SRDS, ICDCS, and ACSAC. She served on the editorial board of several international blockchain academic journals and as the chairman of several international blockchain academic seminars. Her awards include CCF-Intel Young Faculty Research Program 2017, Hubei Downlight Program 2018, ACM Wuhan Rising Star Award 2019, Knowledge Innovation Program of Wuhan-Shuguang 2022, and Best Paper Awards from IEEE ICPADS/GLOBECOM/ BLOCKCHAIN /GPC.

Research Sessions

Research Session 1: Graph data management, RDF, social networks

Time: 15:45-17:15, October 8th
Location: East Lake International Conference Center
Room: Xiantao Hall
Chair: Prof. Huabing Zhou, Wuhan Institute of Technology, China

Time	Event
15:45-15:55	**Graph-Enforced Neural Network for Attributed Graph Clustering** *Zeang Sheng (Peking University); Wentao Zhang (Peking University); Wen Ouyang (Tencent); Yangyu Tao (Tencent); Zhi Yang (Peking University); Bin Cui (Peking University)*
15:55-16:05	**Multi-modal Graph Convolutional Network for Knowledge Graph Entity Alignment** *Yinghui You (School Of Computer Science And Technology, Soochow University); Yuyang Wei (School Of Computer Science And Technology, Soochow University); Yanlong Zhang (Soochow University); Wei Chen (Soochow University); Lei Zhao (Soochow University)*
16:05-16:15	**Subgraph Federated Learning with Global Graph Reconstruction** *Zhi Liu (Zhejiang University Of Technology); Hanlin Zhou (Zhejiang University Of Technology); Feng Xia (Rmit University); Guojiang Shen (Zhejiang University Of Technology); Vidya Saikrishna (Federation University); Xiaohua He (Zhejiang University Of Technology); Jiaxin Du (Zhejiang University Of Technology); Xiangjie Kong (Zhejiang University Of Technology)*
16:15-16:25	**SEGCN: Structural Enhancement Graph Clustering Network** *Yuwen Chen (Nanjing University Of Aeronautics And Astronautics); Xuefeng Yan (Nanjing University Of Aeronautics And Astronautics); Peng Cui (Dalian Naval Academy); Lina Gong (Nanjing University Of Aeronautics And Astronautics)*
16:25-16:35	**Designing a Knowledge Graph System for Digital Twins to Assess Urban Flood Risk** *Yu Wang (Hhu); Feng Ye (College Of Computer And Information, Hohai University); Dong Xu (College Of Water Conservancy & Hydropower Engineering, Hohai University); Xuejie Zhang (College Of Computer And Information, Hohai University); Gaoyang Jing (China Water Resources Pearl River Planning, Surveying & Designing Co., Ltd)*
16:35-16:45	**Epidemic Source Identification based on Infection Graph Learning** *Xingyun Hong (Zhejiang Lab); Ting Yu (Zhejiang Lab); Zhao Li (Hangzhou Yugu Technology); Ji Zhang (The University Of Southern Queensland)*

16:45-16:55	**MHNA: Multi-Hop Neighbors Aware Index for Accelerating Subgraph Matching** *Yuzhou Qin (Tianjin University); Xin Wang (Tianjin University); Wenqi Hao (Tianjin University)*
16:55-17:05	**Multi-level Distillation for Temporal Knowledge Graph Completion** *Haoyu Yan (Tianjin University); Xin Wang (Tianjin University); Zhao Li (Tianjin University); Zirui Chen (Tianjin University); Wenbin Guo (Tianjin University)*
17:05-17:15	*SSCAN:Structural Graph Clustering on Signed Networks* *Zheng Zhao (Harbin Engineering University); Wei Li (Harbin Engineering University); Xiangxu Meng (Harbin Engineering University); Xiao Wang (Harbin Engineering University); Hongwu Lv (Harbin Engineering University)*
17:15-17:25	**Answering Property Path Queries over Federated RDF Systems** *Ningchao Ge (National University Of Defense Technology); Peng Peng (Hunan University); Jibing Wu (National University Of Defense Technology); Lihua Liu (National University Of Defense Technology); Haiwen Chen (National University Of Defense Technology); Tengyun Wang (National University Of Defense Technology)*
17:25-17:35	**Distributed Knowledge Graph Query Acceleration Algorithm** *Peifan Shi (Hunan University); Youhuan Li (Hunan University); Wenjie Li (Peking University Chongqing Research Institute Of Big Data); Xinhuan Chen (Tencent Inc.)*
17:35-17:45	**Hypergraph-Enhanced Self-supervised Heterogeneous Graph Representation Learning** *Yuanhao Zhang (Sichuan University); Chengxin He (Sichuan University); Longhai Li (Sichuan University); Bingzhe Zhang (Sichuan University); Lei Duan (Sichuan University); Jie Zuo (Sichuan University)*
17:45-17:55	**Detecting Critical Nodes in Hypergraphs via Hypergraph Convolution Network** *Zhuang Miao (Beijing Institute Of Technology); Fuhui Sun (The Director Of Information Technology Service Center Of People'S Court); Xiaoyan Wang (The Director Of Information Technology Service Center Of People'S Court); Pengpeng Qiao (Beijing Institute Of Technology); Kangfei Zhao (Beijing Insitute Of Technology); Yadong Wang (Beijing Institute Of Tecnology); Zhiwei Zhang (Beijing Institute Of Technology); George Y. Yuan (Thinvent Digital Technology Co.,Ltd)*
17:55-18:05	**Heterogeneous Graph Contrastive Learning with Dual Aggregation Scheme and Adaptive Augmentation** *Yingjie Xie (Nanjing University Of Science And Technology); Qi Yan (Nanjing Turing Wudao Information Technology Ltd.); Cangqi Zhou (Nanjing University Of Science And Technology); Jing Zhang (Southeast University); Dianming Hu (Sensedeal.Ai)*
18:05-18:15	**Influence Maximization in Attributed Social Network Based on Susceptibility Cascade Model** *Jinyi Chen (Northeastern University); Junchang Xin (Northeastern*

	*University); Shengnan Lei (Northeastern University); Keqi Zhou (Northeastern University); Baoting Li (Northeastern University); Zhiqiong Wang (***Northeastern** *University)*

Research Session 2: Machine Learning I

Time: 10:45-12:45, October 8th
Location: East Lake International Conference Center
Room: Qianjiang Hall
Chair: Prof. Juan Zhao, Pengcheng Lab, China

Time	Event
10:45-10:55	**A BERT-based Semantic Enhanced Model for COVID-19 Fake News Detection** *Hui Yin (Swinburne University Of Technology); Xiao Liu (School Of Information Technology, Deakin University); Yutao Wu (Deakin University); Hilya Mudrika Arini (Universitas Gadjah Mada); Rami Mohawesh (Al Ain University)*
10:55-11:05	**TASML: Two-stage Adaptive Semi-supervised Meta-Learning for Few-shot Learning** *Zixin Ren (Central South University); Tao Ze (Central South University); Jian Zhang (Central South University); Guilin Jiang (Hunan Chasing Financial Holdings Co., Ltd.); Liang Xu (Hunan Chasing Financial Holdings Co., Ltd.)*
11:05-11:15	**An Empirical Study of Attention Networks for Semantic Segmentation** *Hao Guo (Hunan Chasing Securities Co.,Ltd.); Hongbiao Si (Hunan Chasing Financial Holdings Co., Ltd.); Guilin Jiang (Hunan Chasing Financial Holdings Co., Ltd.); Wei Zhang (Hunan Chasing Digital Technology Co., Ltd.); Zhiyan Liu (Hunan Chasing Trust Co.,Ltd.); Xuanyi Zhu (Hunan Chasing Financial Holdings Co., Ltd.); Xulong Zhang (Ping An Technology (Shenzhen) Co., Ltd.); Yang Liu (Hunan Chasing Securities Co., Ltd.)*
11:15-11:25	**Joint Training Graph Neural Network for the Bidding Project Title Short Text Classification** *Shengnan Li (Qilu University Of Technology (Shandong Academy Of Sciences), Shandong Computer Science Center(National Supercomputer Center In Jinan)); Xiaoming Wu (Shandong Computer Science Center); Xiangzhi Liu (Qilu University Of Technology (Shandong Academy Of Sciences), Shandong Computer Science Center(National Supercomputer Center In Jinan)); Xuqiang Xue (Qilu University Of Technology (Shandong Academy Of Sciences), Shandong Computer Science Center(National Supercomputer Center In Jinan)); Yang Yu (Qilu University Of Technology (Shandong Academy Of Sciences), Shandong Computer Science Center(National Supercomputer Center In Jinan))*
11:25-11:35	**Multi-Branch Residual Fusion Network for Imbalanced Visual Regression** *Zhirong Huang (Guangxi Normal University); Shichao Zhang (Guangxi Normal University); Debo Cheng (University Of South Australia); Rongjiao Liang (Guangxi Normal University); Mengqi Jiang (Guangxi Normal University)*

11:35-11:45	**Face Super-Resolution via Progressive-Scale Boosting Network** *Yiyi Wang (Wuhan Institute Of Technology); Tao Lu (Wuhan Institute Of Technology); Jiaming Wang (Wuhan Institute Of Technology); Aibo Xu (Wuhan Fiberhome Technical Servicesco.,Ltd)*
11:45-11:55	**An Investigation of the Effectiveness of Template Protection Methods on Protecting Privacy During Iris Spoof Detection** *Baogang Song (Wuhan University Of Technology); Jian Suo (Wuhan University Of Technology); Hucheng Liao (Wuhan University Of Technology); Huanhuan Li (China University Of Geosciences); Dongdong Zhao (Wuhan University Of Technology)*
11:55-12:05	**Stock Volatility Prediction Based on Transformer Model Using Mixed-Frequency Data** *Wenting Liu (Chasing Jixiang Life Insurance Co., Ltd.); Zhaozhong Gui (Hunan Chasing Digital Technology Co., Itd.); Guilin Jiang (Hunan Chasing Financial Holdings Co., Ltd.); Lihua Tang (Hunan Chasing Digital Technology Co., Ltd.); Lichun Zhou (Chasing Jixiang Life Insurance Co., Ltd.); Wan Leng (Hunan Chasing Digital Technology Co., Ltd.); Xulong Zhang (Ping An Technology (Shenzhen) Co., Ltd.); Yujiang Liu (The University Of Melbourne)*
12:05-12:15	**A Hierarchy-based Analysis Approach for Blended Learning: A Case Study with Chinese Students** *Yu Ye (Chasing Jixiang Life Insurance Co., Ltd.); Gongjin Zhang (Hunan Chasing Digital Technology Co., Ltd.); Hongbiao Si (Hunan Chasing Financial Holdings Co., Ltd.); Liang Xu (Hunan Chasing Financial Holdings Co., Ltd.); Shenghua Hu (Chasing Jixiang Life Insurance Co., Ltd.); Yong Li (Hunan Chasing Digital Technology Co., Ltd.); Xulong Zhang (Ping An Technology (Shenzhen) Co., Ltd.); Kaiyu Hu (Stony Brook University); Fangzhou Ye (China Soft International (China) Technology Co., Ltd.)*
12:15-12:25	**PAEE: Parameter-Efficient and Data-Effective Image Captioning Model with Knowledge Prompter and Cross-Modal Representation Aligner** *Yunji Tian (College Of Computer And Information Science, Southwest University, Chongqing, China); Zhiming Liu (Southwest University); Quan Zou (Southwest University); Geng Chen (Southwest University)*

Research Session 3: Machine Learning II

Time: 14:00-15:30, October 8th
Location: East Lake International Conference Center
Room: Qianjiang Hall
Chair: Prof. Xulong Zhang, Ping An Technology, China

Time	Event
14:00-14:10	**HV-Net: Coarse-to-Fine Feature Guidance for Object Detection in Rainy Weather** *Kaiwen Zhang (Nanjing University Of Aeronautics And Astronautic); Xuefeng Yan (Nanjing University Of Aeronautics And Astronautics)*
14:10-14:15	**Local-Global Cross-Fusion Transformer Network for Facial Expression Recognition** *Yicheng Liu (Harbin Institute Of Technology, Shenzhen); Zecheng Li (Harbin Institute Of Technology, Shenzhen); Yanbo Zhang (Harbin Institute Of Technology, Shenzhen); Jie Wen (Harbin Institute Of Technology, Shenzhen)*
14:15-14:25	**Benefit from AMR: Image Captioning with Explicit Relations and Endogenous Knowledge** *Feng Chen (China Academy Of Engineering Physics); Xinyi Li (National University Of Defense Technology); Jintao Tang (National University Of Defense Technology); Shasha Li (National University Of Defence Technology); Ting Wang (National University Of Defense Technology)*
14:25-14:35	**Identifying Backdoor Attacks in Federated Learning via Anomaly Detection** *Yuxi Mi (Fudan University); Yiheng Sun (Tencent Weixin Group); Jihong Guan (Tongji University); Shuigeng Zhou (Fudan University)*
14:35-14:45	**Coordinate Descent for k-means with Differential Privacy** *Yuchen Xie (Xi'An Jiaotong University); Yijun Yang (Xi'An Jiaotong University)*
14:45-14:55	**Multi-pair Contrastive Learning Based on Same-timestamp Data Augmentation for Sequential Recommendation** *Shun Zheng (Shandong University Of Technology); Shaoqing Wang (Shandong University Of Technology); Zhang Lijie (Shandong University Of Technology); Yao Zhang (School Of Computer Science And Technology, Shandong University Of Technology); Fuzhen Sun (Shandong University Of Technology)*
14:55-15:05	**PageCNNs: Convolutional Neural Networks for Multi-label Chinese Webpage Classification with Multi-information Fusion** *Jiawei Zheng (South China University Of Technology); Junying Chen (South China University Of Technology); Yi Cai (School Of Software Engineering, South China University Of Technology)*
15:05-15:15	**MFF-Trans: Multi-level Feature Fusion Transformer for Fine-Grained Visual Classification** *Qi Hang (Nanjing University Of Aeronautics And Astronautics); Lina Gong (Nanjing University Of Aeronautics And Astronautics); Xuefeng*

	Yan (Nanjing University Of Aeronautics And Astronautics)
15:15-15:25	**HSA: Hyperbolic Self-Attention for Sequential Recommendation** *Peizhong Hou (Shanghai Jiao Tong University); Haiyang Wang (Ant Group); Tianming Li (Ant Group); Junchi Yan (Shanghai Jiao Tong University)*
15:25-15:35	**Hardware and software Co-optimization of convolutional and self-attention combined model based on FPGA** *Heyuan Li (Wuhan University Of Science And Technology); Wei Hu (Wuhan University Of Science And Technology); Fang Liu (Wuhan University); Zhiyv Zhong (Wuhan University Of Science And Technology)*

Research Session 4: Machine Learning III

Time: 15:45-17:15, October 8th
Location: East Lake International Conference Center
Room: Qianjiang Hall
Chair: Prof. Wei Liu, Wuhan Institute of Technology, China

Time	Event
15:45-15:55	**FBCA: FPGA-based Balanced Convolutional Attention Module** *Zhiyv Zhong (Wuhan University Of Science And Technology); Wei Hu (Wuhan University Of Science And Technology); Fang Liu (Wuhan University); Heyuan Li (Wuhan University Of Science And Technology)*
15:55-16:05	**DYGL: an unfied benchmark and library for dynamic graph** *Teng Ma (Xi'An Jiaotong University); Bin Shi (Xi'An Jiaotong University); Yiming Xu (Xi'An Jiaotong University); Zihan Zhao (Xi'An Jiaotong University); Siqi Liang (Pricewaterhousecoopers); Bo Dong (Xi'An Jiaotong University)*
16:05-16:15	**A High-Performance Hybrid Index Framework Supporting Inserts for Static Learned Indexes** *Yuquan Ding (Southwest University Of Science And Technology); Xujian Zhao (Southwest University Of Science And Technology)*
16:15-16:25	**A Study on Historical Behaviour Enabled Insider Threat Prediction** *Fan Xiao (Harbin Engineering University); Wei Hong (Chongqing University Of Arts And Sciences); Jiao Yin (Victoria University); Hua Wang (Victoria University, Melbourne); Jinli Cao (La Trobe University); Yanchun Zhang (Victoria University)*
16:25-16:35	**PV-PATE: An Improved PATE for Deep Learning with Differential Privacy in Trusted Industrial Data Matrix** *Hongyu Hu (Harbin Engineering University); Qilong Han (Harbin Engineering University); Zhiqiang Ma (Harbin Engineering University); Yukun Yan (Harbin Engineering University); Zuobin Xiong (Georgia State University); Linyu Jiang (Harbin Engineering University); Yuemin Zhang (Harbin Engineering University)*
16:35-16:45	**YOLO-SA: An Efficient Object Detection Model Based On Self-Attention Mechanism** *Ang Li (Chang'An University); Xiangyu Song (Swinburne University Of Technology); Shijie Sun (Chang'An University); Zhaoyang Zhang (Chang'An University); Taotao Cai (Macquarie University); Huansheng Song (Chang'An University)*
16:45-16:55	**Efficient Multi-Object Detection for Complexity Spatio-Temporal Scenes** *Kai Wang (Chang'An University); Xiangyu Song (Swinburne University Of Technology); Shijie Sun (Chang'An University); Juan Zhao (Deakin University); Cai Xu (Xidian University); Huansheng Song (Chang'An University)*

16:55-17:05	**STTR-3D: Stereo Transformer 3D Network for Video-Based Disparity Change Estimation** *Qitong Yang (Chang'An University); Lionel Rakai (Chang'An University); Shijie Sun (Chang'An University); Huansheng Song (Chang'An University); Xiangyu Song (Swinburne University Of Technology); Naveed Akhtar (The University Of Western Australia)*
17:05-17:15	**HM-Transformer: Hierarchical Multi-modal Transformer for Long Document Image Understanding** *Xi Deng (National University Of Defense Technology); Shasha Li (National University Of Defense Technology); Jie Yu (National University Of Defense Technology); Jun Ma (National University Of Defense Technology)*
17:15-17:25	**ECS-STPM: An Efficient Model for Tunnel Fire Abnormal Detection** *Huansheng Song (Chang'An University); Ya Wen (Chang'An University); Xiangyu Song (Swinburne University Of Technology); Shijie Sun (Chang'An University); Taotao Cai (Macquarie University); Jianxin Li (Deakin University)*

Research Session 5: Advanced database and Web applications & Cloud computing and Crowdsourcing & Data and information quality & Data management on new hardware

Time: 10:45-12:45, October 8th
Location: East Lake International Conference Center
Room: Dingxiang Hall
Chair: Prof. Xiangyu Song, Pengcheng Lab, China

Time	Event
10:45-10:55	**TrieKV: Managing Values after KV Separation to Optimize Scan Performance in LSM-tree** *Yang Song (Chinese Academy Of Sciences); Zekun Yao (Chinese Academy Of Sciences); Yinliang Yue (Zhongguancun Laboratory); Zhixin Fan (Chinese Academy Of Sciences); Jinzhou Liu (Chinese Academy Of Sciences)*
10:55-11:05	**LayerBF: A Space Allocation Policy for Bloom Filter in LSM-Tree** *Jiaoyang Li (Chinese Academy Of Sciences); Zhixin Fan (Chinese Academy Of Sciences); Yinliang Yue (Zhongguancun Laboratory); Zekun Yao (Chinese Academy Of Sciences); Jinzhou Liu (Chinese Academy Of Sciences); Jiang Zhou (Chinese Academy Of Sciences)*
11:05-11:15	**HTStore: A High-Performance Mixed Index based Key-Value Store for Update-Intensive Workloads** *Jinzhou Liu (Chinese Academy Of Sciences); Yinliang Yue (Zhongguancun Laboratory); Jiang Zhou (Chinese Academy Of Sciences); Zhixin Fan (Chinese Academy Of Sciences); Zekun Yao (Chinese Academy Of Sciences)*
11:15-11:25	**A Dual-Population Strategy Based Multi-Objective Yin-Yang-Pair Optimization for Cloud Computing** *Hui Xu (Hubei University Of Technology); Mingchao Ding (Hubei University Of Technology)*
11:25-11:35	**SeCPlat: A Secure Computation Platform Based on Homomorphic Encryption in Cloud** *Fanyou Zhao (Shenyang Aerospace University); Yiping Teng (Shenyang Aerospace University)*; Zheng Yang (Shenyang Aerospace University); Yuyang Xie (Shenyang Aerospace University); Jiayv Liu (Shenyang Aerospace University); Jiawei Qi (Shenyang Aerospace University)*
11:35-11:45	**Computing Maximal Likelihood Subset Repair for Inconsistent Data** *Zhang Anzhen (Shenyang Aerospace University); Shengji Hu (Shenyang Aerospace University); Chuanyu Zong (Shenyang Aerospace University); Li Jiajia (Shenyang Aerospace University); Xia Xiufeng (Shenyang Aerospace University)*
11:45-11:55	**Research on the Impact of Executive Shareholding on New**

	Investment in Enterprises Based on Multivariable Linear Regression Model *Shanyi Zhou (Hunan Chasing Securities Co.,Ltd); Ning Yan (Hunan Chasing Digital Technology Co., Ltd.); Zhijun Li (Hunan University Of Technology And Business); Mo Geng (Hunan University Of Technology And Business); Xulong Zhang (Ping An Technology (Shenzhen) Co., Ltd.); Hongbiao Si (Hunan Chasing Financial Holdings Co., Ltd.); Lihua Tang (Hunan Chasing Financial Holdings Co., Ltd.); Wenyuan Sun (Hunan Chasing Securities Co.,Ltd); Longda Zhang (Hunan Chasing Digital Technology Co., Ltd.); Yi Cao (Hunan Chasing Digital Technology Co., Ltd.)*
11:55-12:05	**Truth Discovery against Disguised Attack Mechanism in Crowdsourcing** *Xiu Fang (Donghua University); 雅婷 唐 (东华大学); Guohao Sun (Donghua University); Chenling Shen (Donghua University); Hao Chen (Donghua University)*
12:05-12:15	**Reliability Scheduling Algorithm for Heterogeneous Multi-verified Time Systems** *Fang Liu (Wuhan University); Xing Gao (Wuhan City College); Cheng Di (Wuhan University Of Science And Technology); Yanxiang He (Wuhan University)*
12:15-12:25	**An Improved Method of Side Channel Leak Assessment for Cryptographic Algorithm** *Fuxiang Lu (China Quality Certification Centre)*

Research Session 6: Data mining I

Time: 14:00-15:30, October 8th
Location: East Lake International Conference Center
Room: Dingxiang Hall
Chair: Prof. Lili Pei, Chang'an University, China

Time	Event
14:00-14:10	**DUTD: A Deeper Understanding of Trajectory Data for User Identity Linkage** *Qian Li (Soochow University); Qian Zhou (Soochow University); Wei Chen (Soochow University); Lei Zhao (Soochow University)*
14:10-14:20	**The Way to Success: A Multi-level Attentive Embedding Framework for Proposal Teamwork Analysis in Voting-oriented System** *Rui Zha (University Of Science And Technology Of China); Ding Zhou (Xiaohongshu Inc.); Le Zhang (Baidu Research); Tong Xu (University Of Science And Technology Of China)*
14:20-14:30	**SCS: A Structural Similarity Measure for Graph Clustering Based on Cycles and Paths** *Jiayi Li (Nanjing University Of Aeronautics And Astronautics); Lisong Wang (Nanjing University Of Aeronautics And Astronautics); Zirui Zhang (Nanjing University Of Aeronautics And Astronautics); Xiaolin Qin (Nanjing University Of Aeronautics And Astronautics)*
14:30-14:40	**Learning Temporal Graph Representation via Memory-Aware Autoencoder** *Jingyu Chen (Sichuan University); Lei Duan (Sichuan University); Chengxin He (Sichuan University); Yuening Qu (Sichuan University); Zhenyang Yu (Sichuan University); Yuanhao Zhang (Sichuan University)*
14:40-14:50	**Efficient Log Anomaly Detection Based on Dimension Reduction and Attention Aware TCN** *Zhihao Xu (Shandong University); Yuliang Shi (Shandong University); Zhiyuan Su (Jinan Inspur Data Technology Co., Ltd.); Li Song (Shandong Agricultural Machinery Research Lnstitute); Jianjun Zhang (Shandong Agricultural Machinery Research Lnstitute); Xinjun Wang (Shandong University); Hui Li (Shandong University)*
14:50-15:00	**Global and Local Structure Discrimination for Effective and Robust Outlier Detection** *Canmei Huang (National University Of Defense Technology); Li Cheng (National University Of Defense Technology); Yao Feng (National University Of Defense Technology); Renjie He (National University Of Defense Technology)*
15:00-15:10	**A Social Bot Detection Method Using Multi-features Fusion and Model Optimization Strategy** *Xiaohui Huang (Guangzhou University); Shudong Li (Guangzhou University); Weihong Han (Peng Cheng Laboratory); Shumei Li*

	(Computer College, Jilin Normal University Siping); Yanchen Xu (School Of Educational Science, Shandong Ludong University); Liu Zikang (Southeast University)
15:10-15:20	**Generative Adversarial Networks Based on Contrastive Learning for Sequential Recommendation** *Jianhong Li (Anhui University Of Science And Technology)*
15:20-15:30	**Multimodal Stock Price Forecasting Using Attention Mechanism Based on Multi-Task Learning** *Haoyan Yang (Beijing Normal University – Hong Kong Baptist University United International College)*
15:30-15:40	**Summarizing Doctor's Diagnoses and Suggestions from Medical Dialogues** *Tianbao Zhang (Northeastern University); Yuan Cui (Jeonbuk National University); Zhenfei Yang (Northeastern University); Shi Feng (Northeastern University); Daling Wang (Northeastern University)*

Research Session 7: Data mining II

Time: 15:45-17:15, October 8th
Location: East Lake International Conference Center
Room: Dingxiang Hall
Chair: Prof. Chang Tang, China University of Geosciences, China

Time	Event
15:45-15:55	**MGCN-CT:Multi-Type Vehicle Fuel Consumption Prediction based on Module-GCN and Config-Transfer** *Hao Li (Shandong University); Qianwen Cheng (Shandong University); Zhaohui Peng (Shandong University); Yashu Tan (Shandong University); Zengzhe Chen (Shandong University)*
15:55-16:05	**Bit Splicing Frequent Itemset Mining Algorithm Based on Dynamic Grouping** *Jun Lu (College Of Computer Science And Technology, Heilongjiang University; Jiaxiang Industrial Technology Research Institute Of Hlju); Wenhe Xu (College Of Computer Science And Technology, Heilongjiang University; Jiaxiang Industrial Technology Research Institute Of Hlju)*
16:05-16:15	**MICA: Multi-channel Representation Refinement Contrastive Learning for Graph Fraud Detection** *Guifeng Wang (Huawei Technologies Co., Ltd.); Disheng Tang (Tsinghua University); Anatoli Shatsila (Jagiellonian University); Xuecang Zhang (Huawei)*
16:15-16:25	**Adaptive Label Cleaning for Error Detection on Tabular Data** *Yaru Zhang (Shenzhen University); Jianbin Qin (Shenzhen University); Rui Mao (Shenzhen University); Yan Ji (Shenzhen University); Yaoshu Wang (Shenzhen University); Muhammad Asif Ali (King Abdullah University Of Science And Technology)*
16:25-16:35	**Ultra-DPC: Ultra-scalable and Index-free Density Peak Clustering** *Luyao Ma (Guangdong Universty Of Technology); Geping Yang (University Of Macau); Xiang Chen (Sun Yat-Sen University); Yiyang Yang (Guangdong Universty Of Technology); Zhiguo Gong (University Of Macau); Zhifeng Hao (Shantou University)*
16:35-16:45	**Lifelong Hierarchical Topic Modeling via Non-negative Matrix Factorization** *Zhicheng Lin (Sun Yat-Sen University); Jiaxing Yan (Sun Yat-Sen University); Zhiqi Lei (Sun Yat-Sen University); Yanghui Rao (Sun Yat-Sen University)*
16:45-16:55	**Time-aware Preference Recommendation based on Behavior Sequence** *Jiaqi Wu (Nanjing University Of Aeronautics And Astronautics); Yi Liu (Nanjing University Of Aeronautics And Astronautics); Yidan Xu (Nanjing University Of Aeronautics And Astronautics); Yalei Zang (Nanjing University Of Aeronautics And Astronautics); Wenlong Wu (Nanjing University Of Aeronautics And Astronautics); Wei Zhou*

	(Nanjing University Of Aeronautics And Astronautics); Shidong Xu (Nanjing University Of Aeronautics And Astronautics); Bohan Li (Nanjing University Of Aeronautics And Astronautics)
16:55-17:05	**PERTAD: Towards Pseudo Verification for Anomaly Detection in Partially Labeled Graphs** *Wenjing Chang (University Of Chinese Academy Of Sciences, Beijing, China); Jianjun Yu (University Of Chinese Academy Of Sciences, Beijing, China); Zhou Xiaojun (University Of Chinese Academy Of Sciences, Beijing, China)*
17:05-17:15	**A Novel Causal Discovery Model for Recommendation System** *Huirong Hua (Donghua University); Guohao Sun (Donghua University); Xiu Fang (Donghua University); Jinhu Lu (Donghua University)*
17:15-17:25	**Fusing Global and Local Interests with Contrastive Learning in Session-based Recommendation** *Su Zhang (Peking University); Ye Tao (Peking University); Ying Li (Peking University); Zhonghai Wu (Peking University)*
17:25-17:35	**Exploring the Effectiveness of Student Behavior in Prerequisite Relation Discovery for Concepts** *Jifan Yu (Tsinghua University); Hanming Li (Tsinghua University); Gan Luo (Tsinghua University); Yankai Lin (Tsinghua); Peng Li (Tsinghua University); Jianjun Xu (Tsinghua University); Lei Hou (Tsinghua University); Bin Xu (Tsinghua University)*
17:35-17:45	**CoTE: A Flexible Method for Joint Learning of Topic and Embedding Models** *Bo Zhao (Nanjing University); Chunfeng Yuan (Nanjing University); Yihua Huang (Nanjing University)*
17:45-17:55	**Density Ratio Peak Clustering** *Shuliang Wang (Beijing Institute Of Technology); Xiaojia Liu (Beijing Institute Of Technology); Qi Li (Beijing Institute Of Technology); Hanning Yuan (Beijing Institute Of Technology); Ye Yuan (Beijing Institute Of Technology)*

Research Session 8: Trusted and interpretable AI & Parallel and distributed data management & Query processing and optimization & Spatial and temporal databases

Time: 09:00-10:50, October 8th
Location: East Lake International Conference Center
Room: Moli Hall
Chair: Prof. JiaJia Li, Shenyang Aerospace University, China

Time	Event
09:00-09:10	**Time Series Model Interpretation via Temporal Feature Sampling** *Zhaoyang Liu (Hohai University); Xiaodong Li (); Yanping Cui (Jiangsu Province Hydrology And Water Resources Investigation Bureau)*
09:10-09:20	**An Effective Privacy-Preserving and Enhanced Dummy Location Scheme for Semi-Trusted Third Parties** *Meijing Zuo (Department Of Computer Science, University Of Reading); Luyao Peng (School Of Computer Science, China University Of Geosciences(Wuhan)); Jun Song (School Of Computer Science, China University Of Geosciences(Wuhan))*
09:20-09:30	**Locality Sensitive Hashing for Data Placement to Optimize Parallel Subgraph Query Evaluation** *Mingdao Li (Hunan University); Bo Zhai (Beijing Institute Of Astronautical Systems Engineering); Yuntao Jiang (Hunan University); Yunjian Li (Institute Of Land Aviation); Zheng Qin (Hunan University); Peng Peng (Hunan University)*
09:30-09:40	**P-QALSH+: Exploiting Multiple Cores to Parallelize Query-Aware Locality-Sensitive Hashing on Big Data** *Yikai Huang (Sun Yat-Sen University); Zezhao Hu (Sun Yat-Sen University); Jianlin Feng (Sun Yat-Sen University)*
09:40-09:50	**BoundEst: Estimating Join Cardinalities with Tight Upper Bounds** *Jia Yang (Northeastern University); Yujie Zhang (Northeastern University); Bin Wang (Northeastern University); Xiaochun Yang (Northeastern University)*
09:50-10:00	**Continuous Group Nearest Group Search over Streaming Data** *Rui Zhu (Shenyang Aerospace University); Chunhong Li (Shenyang Aerospace University); Zhang Anzhen (Shenyang Aerospace University); Chuanyu Zong (Shenyang Aerospace University); Xia Xiufeng (Shenyang Aerospace University)*
10:00-10:10	**LAF: A Local Depth Autoregressive Framework for Cardinality Estimation of Multi-attribute Queries**

	Qianwen Cheng (Shandong University); Hao Li (Shandong University); Dawang Wang (Shandong University); Yue Zhang (Shandong University); Zhaohui Peng (Shandong University)
10:10-10:20	**Keywords and Stops aware Optimal Routes on Road Networks.** *Li Jiajia (Shenyang Aerospace University); Qiulin An (Shenyang Aerospace University); Ying Zhao (Shenyang Aerospace University); Rui Zhu (Shenyang Aerospace University); Na Guo (Shenyang Aerospace University)*
10:20-10:30	**Federated Trajectory Search via a Lightweight Similarity Computation Framework** *Chen Wu (Whu); Zhiyong Peng (" Wuhan University, China")*
10:30-10:40	**PaTraS: A Path-Preserving Trajectory Simplification Method for Low-loss Map Matching** *Ruoyu Leng (Soochow University); Chunhui Feng (Soochow University); Chenxi Hao (Soochow University); Pingfu Chao (Soochow University); Junhua Fang (Soochow University)*

Research Session 9: Information Retrieval

Time: 10:45-12:45, October 8th
Location: East Lake International Conference Center
Room: Moli Hall
Chair: Prof. Ningning Cui, Chang'an University, China

Time	Event
10:45-10:55	**Hierarchical Retrieval of Ancient Chinese Character Images Based on Regional Salience and Skeleton Matching** *Ruijuan Cai (Hebei University); Xuedong Tian (Hebei University)*
10:55-11:05	**A Multi-level Network With Multi-feature Clause Pair Graph For Emotion Cause Pair Extraction** *Kai Kang (Tianjin University); Guozheng Rao (Tianjin University); Li Zhang (Tianjin University Of Science And Technology); Qing Cong (Tianjin University); Xin Wang (Tianjin University)*
11:05-11:15	**Multi-Token Fusion Framework for Multimodal Sentiment Analysis** *Zhihui Long (Guangdong University Of Technology); Huan Deng (Guangdong University Of Technology); Zhenguo Yang (Guangdong University Of Technology); Wenyin Liu (Guangdong University Of Technology)*
11:15-11:25	**Central Similarity Multi-View Hashing for Multimedia Retrieval** *Jian Zhu (Zhejiang Lab); Wen Cheng (Zhejianglab); Yu Cui (Zhejiang Lab); Chang Tang (China University Of Geosciences); Yuyang Dai (Zhejiang Lab); Yong Li (Zhejiang Lab); Lingfang Zeng (Zhejiang Lab)*
11:25-11:35	**Adaptive Graph Attention Hashing for Unsupervised Cross-modal Retrieval via Multimodal Transformers** *Yewen Li (Chongqing Normal University); Mingyuan Ge (Chongqing Normal University); Yucheng Ji (Chongqing Normal University); Mingyong Li (Chongqing Normal University)*
11:35-11:45	**DADR: A Denoising Approach for Dense Retrieval Model Training** *Mengxue Du (National University Of Defense Technology); Shasha Li (National University Of Defense Technology); Jie Yu (National University Of Defense Technology); Jun Ma (National University Of Defense Technology); Huijun Liu (National University Of Defense Technology); Miaomiao Li (National University Of Defense Technology); Bin Ji (Institute Of Data Science, National University Of Singapore)*
11:45-11:55	**Multi-level Matching of Natural Language-based Vehicle Retrieval** *Ying Liu (Beijing Institute Of Technology); Zhongshuai Zhang (Beijing Institute Of Technology); Xiaochun Yang (Northeastern University)*
11:55-12:05	**Retrieval-Enhanced Event Temporal Relation Extraction by Prompt Tuning** *Rong Luo (Central China Normal University); Po Hu (Central China*

	Normal University)
12:05-12:15	**ACE-BERT: Adversarial Cross-modal Enhanced BERT for E-commerce Retrieval** *Boxuan Zhang (Alibaba Group); Chao Wei (Alibaba Group); Yan Jin (Alibaba); Cai Xu (Xidian University); Weiru Zhang (Alibaba Group); Haihong Tang (Alibaba Group); Ziyu Guan (Xidian University)*
12:15-12:25	**Wasserstein Adversarial Autoencoder for Sequential Recommendation** *Wenbiao Liu (Heilongjiang University); Jinghua Zhu (Heilongjiang University)*

Research Session 10: Knowledge extraction and management

Time: 14:00-15:30, October 8th
Location: East Lake International Conference Center
Room: Moli Hall
Chair: Prof. Xin Bi, Northeastern University, China

Time	Event
14:00-14:10	**Mining Frequent Geo-Subgraphs in a Knowledge Graph** *Yixin Wu (Shenzhen University); Jingyan Huang (Shenzhen University); Dingming Wu (Shenzhen University); Christian S. Jensen (Aalborg University); Kezhong Lu (Shenzhen University)*
14:10:14:20	**A Multi-Teacher Knowledge Distillation Framework for Distantly Supervised Relation Extraction with Flexible Temperature** *Hongxiao Fei (Central South University); Yangying Tan (Central South University); Wenti Huang (Hunan University Of Science And Technology); Jun Long (Central South University); Jincai Huang (Central South University); Liu Yang (School Of Computer Science And Engineering, Central South University)*
14:20-14:30	**TSKE: Two-Stream Knowledge Embedding for Cyberspace Security** *Angxiao Zhao (Uestc); Haiyan Wang (Peng Cheng Laboratory); Zhang Junjian (Guangzhou University); Yunhui Liu (Guangzhou University); Changchang Ma (Guangzhou University); Zhaoquan Gu (Harbin Institute Of Technology (Shenzhen))*
14:30-14:40	**WikiCPRL: A Weakly Supervised Approach for Wikipedia Concept Prerequisite Relation Learning** *Kui Xiao (Hubei University); Kun Li (Hubei University); Wenying Zeng (Hubei University); Yan Zhang (Hubei University); Xiaohui Tao (The University Of Southern Queensland)*
14:40-14:50	**Answering Spatial Commonsense Questions by Learning Domain-Invariant Generalization Knowledge** *Miaopei Lin (Sun Yat-Sen University); Jianxing Yu (Sun Yat-Sen University); Shiqi Wang (Sun Yat-Sen University); Hanjiang Lai (Sun Yat-Sen University); Wei Liu (Sun Yat-Sen University); Jian Yin (Sun Yat-Sen University)*
14:50-15:00	**A Situation Knowledge Graph Construction Mechanism with Context-Aware Services for Smart Cockpit** *Xinyi Sheng (Wuhan University Of Science And Technology); Xiaoyu Yang (Wuhan University Of Science And Technology); Jinguang Gu (Wuhan University Of Science And Technology)*
15:00-15:10	**A Task-oriented Multi-turn Dialogue Mechanism for the Smart Cockpit** *Xiaoyu Yang (Wuhan University Of Science And Technology)*
15:10-15:20	**ANSWER: Automatic Index Selector for Knowledge Graphs** *Zhixin Qi (Harbin Institute Of Technology); Haoran Zhang (Harbin Institute Of Technology); Zemin Chao (Harbin Institute Of Technology); Hongzhi Wang (Harbin Institute Of Technology)*

15:20-15:30	**A Long-Tail Relation Extraction Model Based on Dependency Path and Relation Graph Embedding** *Yifan Li (Xiamen University); Yanxiang Zong (Xiamen University); Wen Sun (Xiamen University); Qingqiang Wu (Xiamen University); Qingqi Hong (Xiamen University)*
15:30-15:40	**Entity Alignment Based on Multi-view Interaction Model in Vulnerability Knowledge Graphs** *Jin Jiang (Guangzhou University); Mohan Li (Guangzhou University)*

Research Session 11: Knowledge extraction and management & Streams, complex event processing & Text database, keyword search & Web search and meta-search & Advances in spatial big data processing & Data engineering for big remote sensing data

Time: 15:45-17:15, October 8th
Location: East Lake International Conference Center
Room: Moli Hall
Chair: Prof. Xianju Li, China University of Geosciences, China

Time	Event
15:45-15:55	**Enhancing Collaborative Features with Knowledge Graph for Recommendation** *Lingang Zhu (Tju)*
15:55-16:05	**Improving the Consistency of Semantic Parsing in KBQA through Knowledge Distillation** *Jun Zou (Beijing University Of Chemical Technology); Shulin Cao (Tsinghua University); Jing Wan (Beijing University Of Chemical Technology); Lei Hou (Tsinghua University); Jianjun Xu (Beijing Caizhi Technology)*
16:05-16:15	**Entity Resolution Based on Pre-trained Language Models with Two Attentions** *Liang Zhu (Hebei University); Hao Liu (Hebei University); Xin Song (Hebei University); Yonggang Wei (Hebei University); Yu Wang (Hebei University)*
16:15-16:25	**Multi-Relational Heterogeneous Graph Attention Networks for Knowledge-aware Recommendation** *Youxuan Wang (Nanjing University Of Science And Technology); Shunmei Meng (Nanjing University Of Science And Technology); Qi Yan (Nanjing Turing Wudao Information Technology Ltd); Jing Zhang (Southeast University)*
16:25-16:35	**Continual Few-shot Relation Extraction with Prompt-based Contrastive Learning** *Fei Wu (National University Of Defense Technology); Chong Zhang (National University Of Defense Technology); Zhen Tan (Nudt); Hao Xu (National University Of Defense Technology); Bin Ge (National University Of Defense Technology)*
16:35-16:45	**Fine-grained Category Generation for Sets of Entities** *Yexing Du (Beijing University Of Chemical Technology); Jifan Yu (Tsinghua University); Jing Wan (Beijing University Of Chemical Technology); Jianjun Xu (Beijing Caizhi Technology Co.,Ltd.); Lei Hou (Tsinghua University)*
16:45-16:55	**Construction of Multimodal Dialog System via Knowledge Graph in Travel Domain**

	Jing Wan (Beijing University Of Chemical Technology); Minghui Yuan (Beijing University Of Chemical Technology); Zhenhao Dong (Beijing University Of Chemical Technology); Lei Hou (Tsinghua University); Jiawang Xie (Tsinghua University); Hongyin Zhu (Tsinghua University); Qinghua Wen (Tsinghua University)
16:55-17:05	**DCNS: A Double-Cache Negative Sampling Method For Improving Knowledge Graph Embedding** *Zheng Hao (Nuaa); Donghai Guan (Nanjing University Of Aeronautics And Astronautics); Shuai Xu (Nanjing University Of Aeronautics And Astronautics); Weiwei Yuan (Nanjing University Of Aeronautics And Astronautics)*
17:05-17:15	**Approximate Continuous Skyline Queries over Memory Limitation-based Streaming Data** *Yunzhe An (Shenyang Aerospace University); Zhu Zhen (Shenyang Aerospace University); Rui Zhu (Shenyang Aerospace University); Tao Qiu (Shenyang Aerospace University); Xia Xiufeng (Shenyang Aerospace University)*
17:15-17:25	**Design of Data Management System for Sustainable Development of Urban Agglomerations' Ecological Environment Based on Data Lake Architecture** *Jiabao Li (China University Of Geosciences); Wei Han (China University Of Geosciences); Xiaohui Huang (China University Of Geosciences); Ao Long (China University Of Geoscience, Wuhan); Rongrong Duan (China University Of Geosciences); Xiaohua Tian (China University Of Geosciences); Yuqin Li (China University Of Geosciences); Yuewei Wang (China University Of Geosciences (Wuhan))*
17:25-17:35	**Distributed Deep Learning for Big Remote Sensing Data Processing on Apache Spark: Geological Remote Sensing Interpretation as a Case Study** *Ao Long (China University Of Geoscience, Wuhan); Wei Han (China University Of Geosciences); Xiaohui Huang (China University Of Geosciences); Jiabao Li (China University Of Geosciences); Yuewei Wang (China University Of Geosciences (Wuhan)); Jia Chen (China University Of Geosciences)*
17:35-17:45	**Multi-Patch Adversarial Attack for Remote Sensing Image Classification** *Ziyue Wang (National University Of Defense Technology); Jun-Jie Huang (National University Of Defense Technology); Tianrui Liu (National University Of Defense Technology); Zihan Chen (National University Of Defense Technology); Wentao Zhao (National University Of Defense Technology); Xiao Liu (National University Of Defense Technology); Yi Pan (National University Of Defense Technology); Lin Liu (National University Of Defense Technology)*
17:45-17:55	**MCNet：A Multi-scale And Cascade Network for Semantic Segmentation of Remote Sensing Images** *Yin Zhou (China University Of Geosciences,Wuhan); Tianyi Li (China University Of Geosciences); Xianju Li (China University Of Geosciences, Wuhan); Ruyi Feng (China University Of Geosciences (Wuhan))*

17:55-18:05	**W-MRI: A Multi-output Residual Integration Model for Global Weather Forecasting** *Lihao Gan (University Of Electronic Science And Technology Of China); Xin Man (University Of Electronic Science And Technology Of China); Changyu Li (University Of Electronic Science And Technology Of China); Lei She (Sichuan Artificial Intelligence Research Institute(Yibin)); Jie Shao (University Of Electronic Science And Technology Of China)*
18:05-18:15	**Multiview Subspace Clustering of Hyperspectral Images based on Graph Convolutional Networks** *Xianju Li (China University Of Geosciences, Wuhan); Renxiang Guan (China University Of Geosciences, Wuhan); Zihao Li (China University Of Geosciences, Wuhan)*

Workshops

SemiBDMA2023

The Fifth International Workshop on Semi-structured Big Data Management and Applications

Workshop Introduction: In conjunction with the 5th International Conference on Web-Age Information Management (APWeb-WAIM 2023), Oct 6-8, 2023, Wuhan, China.

Semi-structured data arises under a variety of forms for a wide range of applications such as genome databases, scientific databases, libraries of programs and more generally, digital libraries, on-line documentations, electronic commerce, personalized tutoring. With the rapid development of computer and the Internet techniques, especially the coming of big data era, the amount of semi-structured data in the Internet is increasing sharply. Semi-structured big data management and applications have received a lot of attention from the research community in recent years and become the research hots of database and Web information management, e.g., RDF4KG. Considering the features of web and big data, it is promising to develop efficient and effective semi-structured big data management techniques in such environments.

The Fifth International APWeb-WAIM Workshop on Semi-structured Big Data Management and Applications (SemiBDMA2023) will take place on Oct 6-8, 2023, Wuhan, China, in conjunction with APWeb-WAIM which is an annual international conference on Web and Big Data. The objective of SemiBDMA 2023 is to provide a dedicated forum to bring together researchers, practitioners and others to share and exchange ideas, practical development experiences and the latest research results on semi-structured big data management and applications. SemiBDMA 2023 will provide an excellent opportunity for the researchers from academia and industry as well as practitioners to showcase the latest advances in this area and to discuss future research directions and challenges on semi-structured big data management and applications. The workshop's scope includes all important aspects of information technology including storage, query processing, analytics and quality of semi-structured big data, especially for applications in fields.

Workshop Organization:

- **Workshop Co-Chairs**
  Baoyan Song, Liaoning University, China
  Xiaoguang Li, Liaoning University, China
  Linlin Ding, Liaoning University, China
  Yuefeng Du, Liaoning University, China

- **Program Committee Members:**

Ye Yuan, Northeastern University, China
Xiangmin Zhou, RMIT University, Melbourne VIC Australia
Jianxin Li, Swinburne University of Technology, Melbourne, Australia
Bo Ning, Dalian Maritime University, China
Yongjiao Sun, Northeastern University, China
Yulei Fan, Zhejiang University of Technology, China
Guohui Ding, Shenyang Aerospace University, China
Bo Lu, Dalian Nationalities University, China
Linlin Ding, Liaoning University, China
Xiaohuan Shan, Liaoning University, China
Yuefeng Du, Liaoning University, China
Tingting Liu, Liaoning University, China

Workshop Website: http://www.apweb-waim2023.com/workshops/semibdma2023/

Accepted Papers

Diversified Group Recommendation Model for Social Network
Dong Li(Liaoning University) , Zhenshuo Liu(Liaoning University) , Zhanghui Wang (Liaoning University), Jin Liu(Liaoning University) , Yue Kou(Liaoning University), L ingling Zhang(Liaoning University)

PSL-based Interpretable Generation Model for Recommendation
Dong Li(Liaoning University), Binghao Han(Liaoning University),Ming Wan(Liaonin g University), Yuqian Gong(Liaoning University) , Yue Kou(Liaoning University) , Ha irong Liao(Liaoning University)

Personal Credit Data Sharing Scheme Based on Blockchain and Access Control
Jie Feng(Liaoning University), Xiaoguang Li(Liaoning University),Xiaoli Li(Liaoning University)

OR-SPESC： Design of an Advanced Smart Contract Language for Data Ownership
Yuefeng Du(Liaoning University) , Chang Lin1(Weihai Ocean Vocational College), Ti ngting Liu(Weihai Ocean Big Data Intelligent Application Engineering Technology Research Center), Xiaoguang Li(Liaoning Province military region data information office)

KGMA 2023

The 6th International Workshop on Knowledge Graph Management and Applications

Workshop Introduction: In recent years, an increasing number of large-scale knowledge graphs have been constructed and published on the Web, by both academic and industrial communities, such as DBpedia, YAGO, Freebase, Wikidata, Google Knowledge Graph, Microsoft Satori, Facebook Entity Graph, and others. In fact, a knowledge graph is essentially a large network of entities, their properties, and semantic relationships between entities. Such kind of graph-based knowledge data has been posing a great challenge to the traditional data management theories and technologies. On the other hand, the database community has been putting a lot of effort into graph databases for nearly two decades to make the storage, query processing, mining, and analysis of large graph data more efficient and scalable. However, there are still gaps between the requirements of knowledge graph applications from various domains and the current state of techniques in graph databases. Therefore, this workshop aims to bring together researchers, practitioners, developers, and users from knowledge graph research and application, graph database, social network, and other relevant communities to address the challenges, present state-of-the-art solutions, exchange ideas and results, and discuss future research directions in management, analysis, and application of knowledge graphs in different domains.

Workshop Organization:

- **Workshop Co-Chairs**
  Xiang Zhao, National University of Defense Technology, China
  Xin Wang, Tianjin University, China

- **Program Committee Members:**
  Huajun Chen, Zhejiang University, China
  Wei Hu, Nanjing University, China
  Saiful Islam, Griffith University, Australia
  Jiaheng Lu, University of Helsinki, Finland
  Jianxin Li, Deakin University, Australia
  Ronghua Li, Beijing Institute of Technology, China
  Jeff Z. Pan, University of Aberdeen, UK
  Jijun Tang, University of South Carolina, USA
  Haofen Wang, Tongji University, China
  Hongzhi Wang, Harbin Institute of Technology, China
  Junhu Wang, Griffith University, Australia
  Meng Wang, Southeast University, China
  Xiaoling Wang, East China Normal University, China
  Xuguang Ren, G42 Inception Institute of Artificial Intelligence, UAE

Guohui Xiao, Free University of Bozen-Bolzano, Italy
Zhuoming Xu, Hohai University, China
Qingpeng Zhang, City University of Hong Kong, China
Xiaowang Zhang, Tianjin University, China
Weiren Yu, University of Warwick, UK

Workshop Website: https://kgma-conf.github.io/2023/

Accepted Papers

A Bidirectional Question-Answering System using Large Language Models and Kno wledge Graphs
Lifan Han (Tianjin University), Xin Wang , Zhao Li (Tianjin University), Heyi Zhang (Tianjin University), Zirui Chen (Tianjin University)

A Comprehensive Review of Relation Prediction Techniques in Knowledge Graph
Yuxuan Lu (Guangzhou University), Shiyu Yang (Guangzhou University) , Benzhao Ta ng (Guangzhou University)

Negation: An Effective Method to Generate Hard Negatives
Yaqing Sheng (Laboratory for Big Data and Decision, National University of Defense Technology), Weixin Zeng (Laboratory for Big Data and Decision, National Universit y of Defense Technology), Jiuyang Tang (Laboratory for Big Data and Decision, Nati onal University of Defense Technology)

Organization Committee

Local Co-chairs

Chengyu Hu, China University of Geosciences, China
Tao Lu, Wuhan Institute of Technology, China
Jianga Shang, China University of Geosciences, China

Publicity Co-chairs

Bohan Li, Nanjing University of Aeronautics and Astronautics, China
Chang Tang, China University of Geosciences, China
Xin Bi, Northeastern University, China

Proceeding Co-chairs

David A. Yuen, Columbia University, USA
Ruyi Feng, China University of Geosciences, China
Xiangyu Song, Swinburne University of Technology, Australia

Tutorial Co-chairs

Ye Yuan, Beijing Institute of Technology, China
Rajiv Ranjan, Newcastle University, UK
Yuewei Wang, China University of Geosciences, China

CCF TCIS Liaison

Xin Wang, Tianjin University, China.

CCF TCDB Liaison

Yueguo Chen, Renmin University of China, China.

Ph.D. Consortium Co-chairs

Pablo Casaseca, University of Valladolid, Spain
Xiaohui Huang, China University of Geosciences, China
Yanan Li, Wuhan Institute of Technology, China

Web Co-chairs

Wei Han, China University of Geosciences, China.
Huabing Zhou, Wuhan Institute of Technology, China.
Wei Liu, Wuhan Institute of Technology, China.

Industry Track Co-chairs

Jun Song, China University of Geosciences, China
Wenjian Qin, Shenzhen Institute of advanced Technology CAS, China
Tao Yu, Tsinghua University, China

Sponsor

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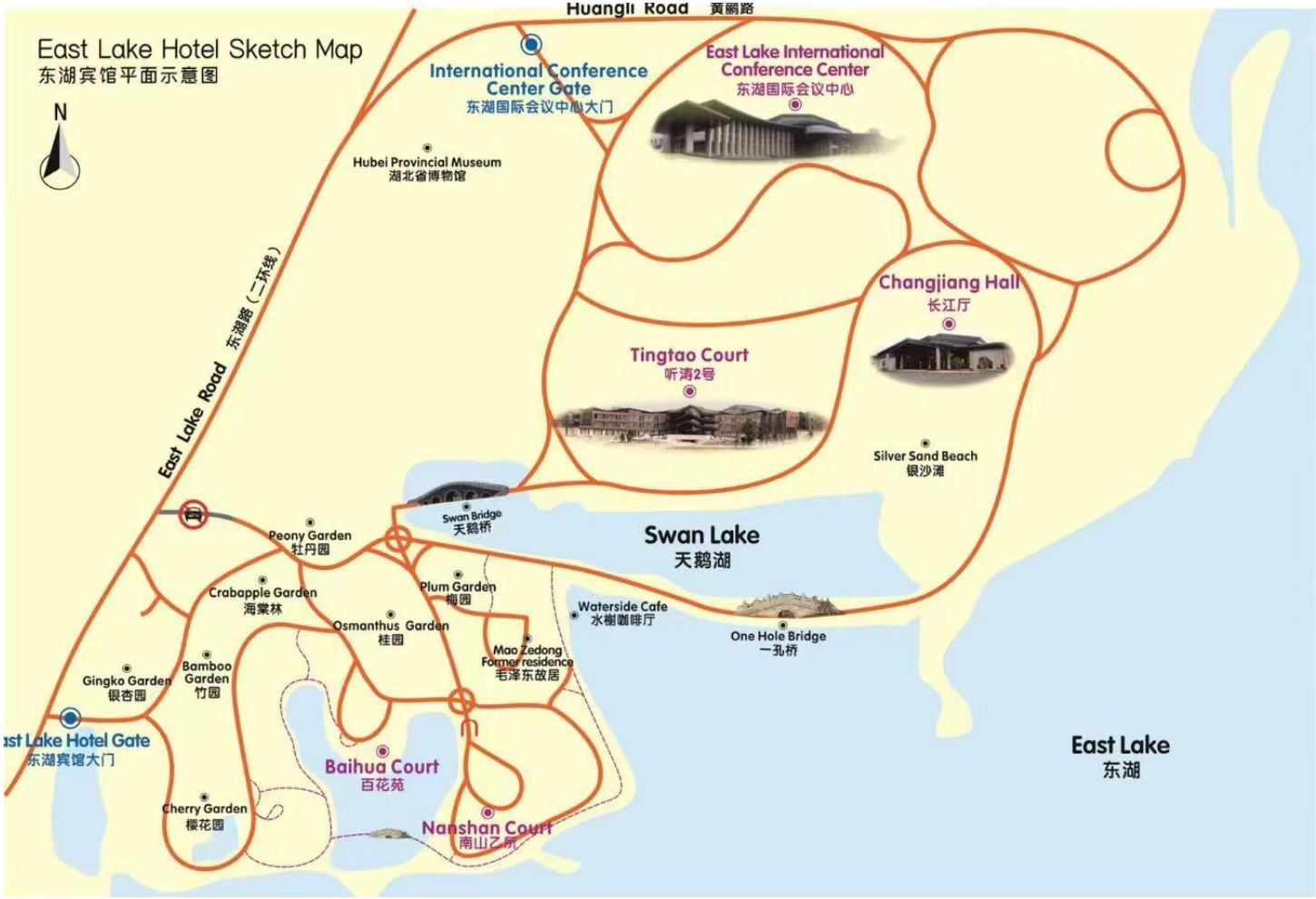
SITONHOLY is an AI and HPC infrastructure solution provider. It has its own brand GPU server and general-purpose X86 server. It is suitable for deep learning training and inference and other scenarios. It covers various product forms such as servers and silent workstations, and can meet the needs of customers in all scenarios. The company has been deeply involved in the field of HPC for many years, and has created a set of completely independent product ecosystems combining software and hardware.

Venue Location



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