

# **National CyberSecurity Center International Congress**

IEEE HPCC/DSS/SmartCity/DependSys/ICESS/DIKW-2024

## **Presentation Program**

**Friday December 13, 2024 (China Standard Time CST, UTC+8)**

**09:00-21:00**

**National CyberSecurity Center International Congress Sign In**

<b>Saturday December 14, 2024 (China Standard Time CST, UTC+8)</b>	
<b>08:30-09:30</b>	<b>Opening Ceremony</b>
<b>09:30-09:50</b>	<b>Coffee Break</b>
<b>09:50-10:30</b>	<b>Keynote 1: Toward Scalable Generative AI via Mixture of Experts in Mobile Edge Networks</b> <b>Dusit Niyato</b> , Nanyang Technological University, Singapore
<b>10:30-11:10</b>	<b>Keynote 2: Cyberspace Security Situation Awareness: Techniques, Systems and Applications</b> <b>Yan Jia</b> , Peng Cheng Laboratory, China
<b>11:10-11:50</b>	<b>Keynote 3: Composite DP-unbias: Bounded and Unbiased Composite Differential Privacy</b> <b>Jinjun Chen</b> , Swinburne University of Technology, Australia

<b>Sunday December 15, 2024 (China Standard Time CST, UTC+8)</b>	
<b>09:30-10:10</b>	<b>Keynote 4: AIOT: From Digital-follow-up to Digital-Leadoff</b> <b>Yunhao Liu</b> , Tsinghua University, China
<b>10:10-10:50</b>	<b>Keynote 5: Adversarial Attacks Prevention for Deep Neural Networks</b> <b>Meikang Qiu</b> , Augusta University, USA
<b>10:50-11:10</b>	<b>Coffee Break</b>
<b>11:10-11:50</b>	<b>Keynote 6: Data and Resource Management Challenges for Digital Twins</b> <b>Rajiv Ranjan</b> , Newcastle University, United Kingdom

## Saturday December 14, 2024 (China Standard Time CST, UTC+8)

Room	Room 1	Room 2	Room 3
<b>11:50-13:30</b>	<b>Lunch Break</b>		
<b>14:30-15:10</b>	Sub-venue Expert Report-1: AI-enabled Cloud-Edge-End Collaborative Integration Technology Innovation (I)	Sub-venue Expert Report-3: AI and Industrial Internet of Things (I)	Sub-venue Expert Report-5: Key technologies of high performance Computing power Network(I)
<b>15:10-15:30</b>	<b>Coffee Break + Poster Session (I)</b>		
<b>15:30-17:30</b>	Sub-venue Expert Report-2: AI-enabled Cloud-Edge-End Collaborative Integration Technology Innovation (II)	Sub-venue Expert Report-4: AI and Industrial Internet of Things (II)	Sub-venue Expert Report-6: Key technologies of high performance Computing power Network (II)
<b>18:00-19:30</b>	<b>Banquet</b>		

## Saturday December 14, 2024 (China Standard Time CST, UTC+8)

Room	Room 4	Room 5	Room 6	Room 7	Room 8	Room 9	Room 10
<b>11:50-13:30</b>	<b>Lunch Break</b>						
<b>13:30-15:10</b>	HPCC-1: High Performance Computing and Applications Track (I)	HPCC-3: High Performance Computing and Applications Track (III)	HPCC-5: High Performance Computing and Applications Track (V)	HPCC-7: Parallel and Distributed Computing and Systems Track (II)	HPCC-9: Parallel and Distributed Computing and Systems Track (IV)	HPCC-11: Parallel and Distributed Computing and Systems Track (VI)	HPCC-13: Communications and Networking Track (I)
<b>15:10-15:30</b>	<b>Coffee Break + Poster Session (I)</b>						
<b>15:30-17:30</b>	HPCC-2: High Performance Computing and Applications Track (II)	HPCC-4: High Performance Computing and Applications Track (IV)	HPCC-6: Parallel and Distributed Computing and Systems Track (I)	HPCC-8: Parallel and Distributed Computing and Systems Track (III)	HPCC-10: Parallel and Distributed Computing and Systems Track (V)	HPCC-12: Parallel and Distributed Computing and Systems Track (VII)	HPCC-14: Communications and Networking Track (II)
<b>18:00-19:30</b>	<b>Banquet</b>						

## Sunday December 15, 2024 (China Standard Time CST, UTC+8)

Room	Room 4	Room 5	Room 6	Room 7	Room 8	Room 9	Room 10	Room 11	Room 12
<b>11:50-13:30</b>	<b>Lunch Break</b>								
<b>13:30-15:10</b>	HPCC-15: Communications and Networking Track (III)	HPCC-18: Communications and Networking Track (VI)	HPCC-21: Communications and Networking Track (IX)	HPCC-24: Computing Power Network (CPN) and Network for AI Computing (I)	HPCC Workshop-1	HPCC Workshop-4	DependSys-1	SmartCity-1: Smart City Systems Track (I)	DSS-1: Data Science and Data Applications Track (I)
<b>15:10-15:30</b>	<b>Coffee Break + Poster Session (II)</b>								
<b>15:30-17:10</b>	HPCC-16: Communications and Networking Track (IV)	HPCC-19: Communications and Networking Track (VII)	HPCC-22: Communications and Networking Track (X)	HPCC-25: Computing Power Network (CPN) and Network for AI Computing (II)	HPCC Workshop-2	HPCC Workshop-5	DIKW-1	SmartCity-2: Smart City Systems Track (II)	DSS-2: Data Processing Technology Track (II)
<b>17:10-18:10</b>	HPCC-17: Communications and Networking Track (V)	HPCC-20: Communications and Networking Track (VIII)	HPCC-23: Communications and Networking Track (XI)	ICESS-1	HPCC Workshop-3	HPCC Workshop-6	DIKW-2		

# The Sub-venue Expert Report Program

## Sub-venue Expert Report-1&2: AI-enabled Cloud-Edge-End Collaborative Integration Technology Innovation

Chaired by: Bingyi Liu, Wuhan University of Technology, China; Enshu Wang, Wuhan University, China

1. Zhengjun Zha, University of Science and Technology of China, China
2. Lixiang Li, Beijing University of Posts and Telecommunications, China
3. Haiming Jin, Shanghai Jiao Tong University, China
4. Haipeng Dai, Nanjing University, China
5. Huan Zhou, Northwestern Polytechnical University, China
6. Zhenhua Li, Tsinghua University, China
7. Feng Shen, China Eastern, China

## Sub-venue Expert Report-3&4: AI and Industrial Internet of Things

Chaired by: Lingzhi Yi, Zhongnan University of Economics and Law, China; Zhenkun Jin, Wuhan Business University, China

1. Shibo He, Zhejiang University, China
2. Juan Luo, Hunan University, China
3. Fang Dong, Southeast University, China
4. Zhiren Fu, China Telecom Research Institute, China
5. Jianbing Ni, Queen's University, Canada
6. Heng Wang, Chongqing University of Posts and Telecommunications, China
7. Shuai Wang, Southeast University, China

## Sub-venue Expert Report-5&6: Key Technologies of High Performance Computing Power Network

Chaired by: Liang Zhong, China University of Geosciences, China; Zhengmin Kong, Wuhan University, China

1. Wei Gong, University of Science and Technology of China, China

2. *Quan Chen, Shanghai Jiao Tong University, China*
3. *Wei Hui, Xi'an Jiaotong University, China*
4. *Chaocan Xiang, Chongqing University, China*
5. *Hongzi Zhu, Shanghai Jiao Tong University, China*
6. *Xuan Liu, Hunan University, China*
7. *Chaoyang Chen, Hunan University of Science and Technology, China*



# The HPCC 2024 Physical Presentation Program

## HPCC-1: High Performance Computing and Applications Track (I)

Session Chair: Jinhua Cui, Huazhong University of Science and Technology, China

8. *xCache: An Adaptive Compression Strategy for Metadata Cache*

Yan Chen; Yongwei Wu

9. *DTB: A Novel Reinforcement Learning-Assisted Data Management Strategy in Interlaced Magnetic Recording*

Fangxing Yu; Chi Zhang; Menghan Li; Zhike Li; Shiqiang Nie; Weiguo Wu

10. *Lightweight Autoencoder With Hierarchical Priors for Learned Image Compression*

Junwei Zhou; Huang Qiao; Lei Zhou; Yanchao Yang; Jianwen Xiang

11. *Efficient Distributed File System Offloading on SmartNIC*

Yuhan Yang; Xingda Wei

12. *Pseudo-Cache: Extending the Access Scope of Requests With Global Perspective in GPUs*

Bingchao Li; Jizeng Wei; Yuchen Zhu

13. *ELG: Emotion Recognition Convolutional Model Integrating Local and Global Facial Features*

Jianping Xu; Haiqing Si; Haibo Wang; Songquan Li; Hanming Wang; Song Wei; Rongbo Zhu

## HPCC-2: High Performance Computing and Applications Track (II)

Session Chair: Suning Chen, Huazhong University of Science and Technology, China

1. *LatVision: Modeling and Predicting Persisting Tail Latency in SSDs*

Linxiao Bai; Zhijie Jiang; Yuanliang Zhang; Haoran Liu; Xiangbing Huang; Wang Li; Bin Lin

2. *Adaptive Domain Disentanglement and Meta-Contrastive Learning for Knowledge Transfer in Multi-Domain Recommendation*

Shuxu Chen; Chengjie Zhou; Chao Che; Ziqi Wei; Zhaoqian Zhong

3. *End-To-End Dense Video Captioning Model Based on Multimodal Feature Fusion*

Shixin Peng; Ting Xiong; Jingying Chen

4. *VCNN: A Compiler of CNNs Based on MLIR for Multi-Core Vector Accelerators*

Xiaorong Chen; Cheng Li; Zhong Liu

5. *HSAMM: A Hybrid-Strassen Algorithm-Based Asynchronous Architecture for Sparse Matrix Multiplication*

Lingzhuang Zhang; Rongqing Hu; Hongrui Zhang; Yilong Jiang; Jun Ma; Anping He; Yinglong Li

6. *Accelerating Virtual Machine File Systems With TimeFS*

Jiaxuan Kang; Xiaojian Liao; Jiwu Shu

7. *A Window-Driven Compaction Mechanism in LSM-Tree-Based Key-Value Stores Through Near-Data Processing*

Hui Sun; Rui Jin; Jiaming Huang; Yinliang Yue; Xiao Qin

8. *Reinforcement Learning for Efficient Multi-Phase Resource Allocation*

Zhenfu Zhang; Yin Haiyan; Liudong Zuo; Xiao Zhang; Jianlin Zhu; Yuxuan Fan; Pan Lai

### **HPCC-3: High Performance Computing and Applications Track (III)**

**Session Chair: Weiwei Chen, Shanghai University, China**

1. *Solution to MSHR Contention in Multi-Core Real-Time Systems Based on Software Hardware Collaboration*  
Yuhan Teng; Chun Shi; Linlin Qin; Gang Wu

2. *Leveraging Resource-Aware Application-Level Checkpointing and RDMA for Fault Tolerance and Data Distribution in Malleable MPI Applications*

Jophin John; Michael Gerndt

3. *Computation Offloading Scheduling Using Game Abstraction in Ultra-Dense Networks*

Chun Wang; Ying Qiao; Luxiu Yin; Juan Luo

4. *Augur: Predictive and Adaptive Data Management in SSD-SMR Hybrid Storage System Using Reinforcement Learning*

Guanghui Zhou; Guohui Wang; Zhengang Chen; Zhiping Shi; Yong Guan

5. *UJPS: Urgent Job Priority Scheduling in Hadoop YARN*

Nana Du; Aiqin Hou; Chase Q. Wu; Weike Nie; Chang Zhang

6. *Optimizing the DF CPP Dataflow Runtime Library for Resource Utilization in NUMA Systems*

Tang LiXin; Qiuming Luo; Du Zheng

### **HPCC-4: High Performance Computing and Applications Track (IV)**

**Session Chair: Xiaoxuan Fan, Huazhong University of Science and Technology, China**

1. *HIDC: Heterogeneous-ISA Dynamic Core*

Nirmal Kumar Boran; Prakhar Diwan; Meet Udeshi; Shubhankit Rathore; Virendra Singh

2. *FIFO: Fuzzy Cluster Identification and High-Dimensional Feature Clustering Optimization Based CPU Power Sampling Optimization*

Shaojun Feng; Zihan Zhang; Mingyuan Zhang; Zhaoyang Ma; Yichang Zhou; Rongyu Deng; Xianyu Wu; Jiaqing Zhong; Juan Chen

3. *AWSSS: Adaptive Weighted Statistical Space Smoothing for Regression With Imbalance Data*

Xiaoquan Yi; Haozhao Wang; Zhenlong Zhu; Wei Liu; Wenchao Xu; Ruixuan Li

4. *FAGRE: A Fast Graph Neural Network Redundancy Elimination System*

ZiQi Wang; ZiFeng Zhang

5. *KNFS: A High-Performance, Security-Enhanced NFS Based on eBPF*

Qicong Lin; Shiyi Li; Zhenye Huang; Chuxuan Xiao; Ruobin Wu; Wen Xia

6. *A Deep Learning-Based Thermal Prediction Approach for Energy Management in Cloud Data Centers*  
Lijun Chen; Jie Li; Yuhui Deng; Hao Feng; Qinchun Ke

7. *StAR: Learning on Text-Attributed Graphs With Structure-Aware Rationales*  
Zheyuan Zhang; Song Wang; Jingguo Ge; Yiming Xu; Yulei Wu; Jifei Wen; Chang Liu

**HPCC-5: High Performance Computing and Applications Track (V)**  
**Session Chair: Ruonan Zhao, Zhengzhou University, China**

1. *CESS: A Cascade-Exit Semantic Segmentation Network for High Performance Inference*  
Zheng Luo; Shengxin Dai; Bing Guo; Siyi Wang

2. *Attention Based Multi-Scale Feature Fusion for Point Cloud Completion*  
Zesheng Yu; Nan Jiang; Zefeng Zou; Ziyi Li; Jing Zhang

3. *OBSD: On-The-Fly Block-Wise Sparse Distillation Accelerating SpGEMMs in DNN Applications*  
Yanhuan Liu; Wenming Li; Xuejun An; Xiaochun Ye; Dongrui Fan

4. *Energy-Aware Task Mapping for Multi-Core Processor: A Machine Learning Based Approach*  
Tao Xu; Yuhao Cao; Juan Chen; Yong Dong; Zhaoyang Ma

5. *OmniCache: An Unified Cache for Efficient Query Handling in LSM-Tree Based Key-Value Stores*  
Yiyang Geng; Huai Xu; Fuxin Zhang; Yanyong Zhang

**HPCC-6: Parallel and Distributed Computing and Systems Track (I)**  
**Session Chair: Ziteng Wang, Huazhong University of Science and Technology, China**

1. *AntFuzzer: A Grey-Box Fuzzing Framework for EOSIO Smart Contracts*  
Jiahao He; JianFei Zhou; Peicheng Miao; Yongjie Zhang; Ting Chen; Renkai Jiang; Shuwei Song; Tianxing Jiang

2. *An Adaptive Model Difference Clipping Method for Differentially Private Federated Learning*  
Yiming Zhou; Juan Luo; Peng Sun; Bojun Jiang

3. *Revisiting Diversity Metrics and Coverage Criteria for Deep Neural Networks Quality Assessment From the Perspective of Test Adequacy*  
Siyi Wang; Shengxin Dai; Bing Guo; Zheng Luo

4. *Adaptive Network Load Balancing at the End Host for Traffic Bursts in Data Centers*  
Qingyu Shi; Huang Huang; Xiaocui Li; Chuang Li; Wenzhi Cao; Limei Liu

5. *Federated Learning With Autonomous Clients on Non-IID Data: A Group Collaboration Approach*  
Yan Gong; Chuang Hu; Sihong Teng; Yili Gong; Dazhao Cheng

6. *Examining SSD-Correlated Failures Within Racks in Production Data Centers*  
Gang Xian; Yusong Tan; Wenxiang Yang; Jie Yu

7. *FIAless: Asynchronous Programming for Large-Scale Burst Requests in Serverless Computing*  
Chenyang Guan; Junjie Yin; Xiaofeng Wang

8. *HPFIA: A High-Performance Fuzzy Inference Accelerator for Situation Assessment on Airborne Equipment*  
Lei Gao; Jingfei Jiang; Jinwei Xu

**HPCC-7: Parallel and Distributed Computing and Systems (II)**  
**Session Chair: Weizhen Han, Wuhan University of Technology, China**

1. *DRCFL: Representation Driven Head Clustering for Federated Learning on Edge Devices*  
Liyu Wang; Zheyu Yang; Bin Luo; Wenfeng Xu; Xiaodong Yu; Linlin Zhu; Yang Yang

2. *Federated Multi-Objective Meta-Reinforcement Learning for Adaptive Edge Task Offloading*  
Xiaoyu Jia; Ting Wang; Xiao Du

3. *swYAKL: A Data Parallel Runtime on Manycore Architecture*  
Yanwei Ye; Junshi Chen; Hong Qian; Kunxian Lin; Yuanhang Li; Hong An

4. *Optimizing Inter-Stage Communication in Spark via Time-Varying Network Bandwidth Utilization*  
Changpeng Zhu; Wang Xi; Bo Han; Tian Zhou

5. *FAdagrad: Adaptive Federated Learning With Differential Privacy*  
Yuling Luo; Ziyang Pan; Qiang Fu; Sheng Qin

6. *PTMGS: A Cost-Optimal LLM Training Tasks Migration Method*  
Gangyi Luo; Chu Xu; Hao Zheng; Siyu He; Genning Zhang; Zhuzhong Qian

**HPCC-8: Parallel and Distributed Computing and Systems (III)**  
**Session Chair: Haiyong Shi, Wuhan University of Technology, China**

1. *O2O Logistics Customer Value Prediction With Periodic Asynchronous Vertical Federated Learning*  
Ruize Li; Shuai Wang; Baoshen Guo; Shuai Wang; Xiaolei Zhou; Wei Xi

2. *Freshness-Aware Data Backup for Batteryless Sensing Systems*  
Hongyue Wang; Yunlong Yu; Wei Zhang; Songran Liu; Mingsong Lu; Nan Guan; Lei Ju

3. *Leveraging Partitioning to Mitigate Concurrent Conflicts in Disaggregated Memory Key-Value Stores*  
Pan Li; Hao Hu; Hao Huang; Wen Xia; Lisha Qin; Shiyi Li

4. *CPU Power Modeling Through Training Data Selection*  
Zekai Li; Jiaqing Zhong; Juan Chen

5. *Deep Reinforcement Learning Enabled UAVs Coverage Path Planning in Dam Inspection*  
Yi Rong; Yingchi Mao; Haibin Xiao; Haowen Xu; Peishuang Zhao; Xiang Li; Xiaoming He

6. *Incentive Mechanism for Mobile Crowdsensing With Social-Aware Users: A Two-Stage Stackelberg Game*

Hai Yu; Peng Li; Qin Xu; Lei Nie; Haizhou Bao; Qin Liu

7. *Fed-SCRIP: Federated Multi-View Learning for Seller Claim Risk Prediction in Logistics Scenarios*  
Yao Lu; Shuai Wang; Hai Wang; Xiaohui Zhao; Shuai Wang; Xiaolei Zhou; Wei Gong

**HPCC-9: Parallel and Distributed Computing and Systems (IV)**

**Session Chair: Yunzhi Xia, Huazhong University of Science and Technology, China**

1. *MO-DDPG: An Affinity and Anti-Affinity-Based Container Service Migration Strategy in MEC*  
Long Saiqin; Qingyong Deng; Zhang shenglin; Xu Yang; Qinghua Zuo; Zeping Wang
2. *High-Speed Implementation of Lattice Enumeration With Discrete Pruning for Solving the SVP*  
Tianyu Xu; Jiageng Chen; Pei Li
3. *rTPM: A Native Firmware-Based Trusted Platform Module for RISC-V*  
Xibin Wang; Jie Wang; Wang Juan
4. *CrowdEVON: A Decentralized Mobile Crowdsensing Framework Based on the Public EVONChain Architecture*  
Jing Li; Tao Xie; Wei Wei
5. *Diffindo: Accelerating Distributed GANs With Auxiliary Generators and Discriminators*  
Xiaoming Han; Liu BoAn; Dazhao Cheng
6. *Asynchronous Complete Secret Sharing With Linear Communication Cost*  
Yuhan Li; Xiulong Liu; Gaowei Shi; Zhiyuan Zheng; Liyuan Ma; Hao Xu; Keqiu Li

**HPCC-10: Parallel and Distributed Computing and Systems (V)**

**Session Chair: Xiao Tang, University of South China, China**

1. *XSema: A Novel Framework for Semantic Extraction of Cross-Chain Transactions*  
Ziye Zheng; Jiajing Wu; Dan Lin; Quanzhong Li; Na Ruan
2. *Strong Session Serializability for Serverless Computing*  
Yinghao Zhao; Zhaolin Duan; Shihao Wu; Yanan Yang; Guowei Liu; Laiping Zhao
3. *Picking Models for Heterogeneous Clients: A Server-Client Feature Contrastive Learning Design*  
Jialiang Wang; Chaoyue Niu; Fan Wu
4. *Integrated Multi-Dimensional Prioritization and Adaptive Transmission for Function Scheduling in Serverless Edge Computing*  
Jingqiu Tian; Haoquan Qi; Yi Li; Chao Fang; Junye Qiao; Pengwei Wang
5. *FedLOC: A Layer Output Based Compression Algorithm for Federated Learning Assessment*  
Peng Ouyang; Danyang Xiao; Jieying Zhou; Weigang Wu
6. *Survey on Privacy-Preserving Techniques for Graph Neural Networks in Federated Learning Paradigm*  
Zhe Sun; Zhenyu Zhao; Rundong Shao; Yufu Zou; Chao Li; Nan Wei

7. *Adaptive Configuration Selection for Multi-Model Inference Pipelines in Edge Computing*  
JinHao Sheng; Zhiqing Tang; Jianxiong Guo; Tian Wang

**HPCC-11: Parallel and Distributed Computing and Systems (VI)**  
**Session Chair: Zhenchang Xia, Wuhan University of Technology, China**

1. *Real-Time Surface Defect Detection With Compound Scaling Dynamic Neural Networks*  
Feixiang Han; Shanying Zhu; Yonghui Liang; Ruilin Jing
2. *SkewCache: Skewed Layer-Wise Caching for Function Chains in Serverless Edge Computing*  
Xiaolin Guo; Fang Dong; Dian Shen; Zhaowu Huang; Haodong Tian
3. *Joint Layer-Wise Caching and Request Routing for Serverless Inference Acceleration at the Edge*  
Zhaowu Huang; Fang Dong; Xiaolin Guo; Haodong Tian
4. *PRO-HotStuff: A Practical and Robust Blockchain Consensus Mechanism*  
Jiahao Gan; Feilong Lin; Zhongyu Chen; Riheng Jia; Zhonglong Zheng; Minglu Li
5. *A Profit-Driven Resource Management Scheme for Collaborative Edge-Cloud Computing*  
Jingyu Zhang; Zhennan Zhang; Shi Zhu; Fangliao Yang; Lailong Luo

**HPCC-12: Parallel and Distributed Computing and Systems (VII)**  
**Session Chair: Yunfei Zhen, Huazhong University of Science and Technology, China**

1. *CSFL: Enhancing Splitfed Learning With Clustering on Non-IID Data*  
GuangWei Xu; Jianbo Lu; Xinru Wang; Yang Lu; Mei Cao; Mengying Zhao
2. *EM2FL: An Embedding Multimodal Fusion Federated Learning Approach to Optimize Privacy and Performance*  
Zhe Sun; Jiwei Wu; Chao Li; Chonghua Wang; Zhi Yang; Yufu Zou; Shutong Yang; Yaowei Huang
3. *DoubleTrack: Fault-Tolerant Stateful Serverless Computing With Asynchronous Shared Logs*  
Shize Bian; Wei Wang; Yanan Yang; Laiping Zhao
4. *Photia: Cross-Layer Cache Optimization for Function Startup in Serverless Computing*  
Zhaolin Duan; Yanan Yang; Laiping Zhao
5. *Covert and Persistent Backdoor Attacks in Federated Learning-Powered Autonomous Driving*  
Zhaoyuan Wang; Fan Yang; Luyao Peng; Jun Song
6. *Provably Efficient Online Batch Scheduling for Deep Learning Inference*  
Bin Tang; Yulu Xie; Shi Chen; Siyuan Zhou; Baoliu Ye
7. *Rendering Super Resolution Video Streaming Efficiently With In-Network Computing*  
Xiaolin Guo; Fang Dong; Dian Shen; Zhaowu Huang; Baijun Chen; Daheng Yin

### **HPCC-13: Communications and Networking Track (I)**

**Session Chair: Jing Wang, Huazhong University of Science and Technology, China**

1. *A Gaussian Distribution-Based Truth Discovery Algorithm Under Local Differential Privacy*  
Pengfei Zhang; Yibo Zhu; Ximeng Liu; Bin Wu; Li Sun; Shoufei Han; Xianjin Fang; Ji Zhang
2. *Task Allocation With Profit Maximization Under Geo-Indistinguishability via Q-Learning*  
Pengfei Zhang; Yibo Zhu; Ximeng Liu; Bin Wu; Li Sun; Shoufei Han; Xianjin Fang; Ji Zhang
3. *Understanding and Optimizing Nonlinear Chirp Spread Spectrum Modulation in LoRa Networks*  
Haoran Shi; Yichuan Yang; Xiuzhen Guo; Wenchao Meng; Chaojie Gu; Shibo He
4. *Chinese Medical Continual Named Entity Recognition Based on Continual Learning and Knowledge Distillation*  
Yuxiang Chen; Zhiping Dan; Zhun Gao; Hongzhi Zhang; Zhiyuan Liu; Ji Lu
5. *DTN Routing Algorithm in Temporary Shelter Based on Mobility Social Attributes and Message Destination Prediction*  
Jianqun Cui; Mengnan Gao; Yanan Chang; Huiran Yan; Zhiyuan Ma
6. *Trajectory Planning of the Wireless-Powered UAV in Wireless Charging Network*  
Yaolan Tian; Xinghao Huang; Wenjie Shi; Xiaoyu Wang; He Huang; Haipeng Dai

### **HPCC-14: Communications and Networking Track (II)**

**Session Chair: Qiankun Zhang, Huazhong University of Science and Technology, China**

1. *RSLoc: An Accuracy Indoor Localization System Based on KAN Convolution Network*  
Weixuan Yan; Can Tang; Fengrui Zhang; Licai Zhu; Yong Li; Hao Yang
2. *Cost-Efficient and Quality-Constrained Traffic Allocation in CDN: A Linear Programming Approach*  
Xingze Wu; Rongxiang Huo; Haoqi Yin; Yifei Zou; Yihong Ling; Guangzheng Lin; Ruomei Liu; Jian Tong; Dongxiao Yu
3. *Palos: Fair and Flexible Flow Scheduling on RNIC*  
Zhenlong Ma; Fan Yang; Ning Kang; Jing Xu; Guojun Yuan; Zhan Wang; Ninghui Sun
4. *GAA-BD: Graph Adversarial Augmentation-Based Social Bot Detection*  
Nan Hu; Le Cheng; Botao Wang; Jiwei Xu; Keke Tang; Peican Zhu
5. *An Improved WM Pattern Matching Algorithm Based on Cuckoo Filter*  
Zhiyong Zha; Jiangyi Liu; Bin Luo; Wenfeng Xu; Mingyuan Ren; Shusheng Li; Menglan Hu; Kai Peng
6. *A Novel Routing Strategy Based on Effective Energy Consumption Perception in DTNs*  
Tong Wang; Jianqun Cui; Yanan Chang; Feng Huang; Yi Yang
7. *Elastic Parameter Inversion Method of Pre-Stack Seismic Wave Based on Deep Learning*  
Qinghua Wu; Xuesong Yan



8. *Iterative Region-Based Probabilistic Forwarding Algorithm for Traffic Engineering in LEO Satellite Networks*  
Yan Dong; Biao Ouyang; Chenxin Wang; Menglan Hu; Kai Peng

**HPCC-15: Communications and Networking Track (III)**

**Session Chair: Jiaoyan Chen, Wuhan University of Science and Technology, China**

1. *CNN-Based Multivariate Time Series Classification for Health Monitoring in Wireless Body Area Networks*  
Jingchao Xie; Mingxin Yang; Wei Li; Rui Hou
2. *Interest-Aware Social Bot Detection With Contrastive Hard Sample Mining*  
Huailiang Peng; Yujun Zhang; Hao Sun; Wei Hao; Qiong Dai
3. *Dependent Task Offloading and Resource Allocation in Satellite Edge Computing Networks*  
Yuhang Liu; Liang Zhao; Ammar Hawbani; Yunhe Sun
4. *HeavyCuckoo: A Flexible and Fast Sketch for Heavy Hitter Dection in High-Speed Networks*  
Chao Cui; He Huang; Zhaojie Wang; Yu-e Sun; Hanwen Zhang
5. *Towards Seamless Single Receiver Backscatter With Uncontrolled Ambient OFDM WiFi*  
Chenhong Cao; Wei Xi; Shuai Wang; Wei Gong
6. *CAREFUL: A Secure and Privacy-Preserving Deletion Notification Distribution Protocol*  
Qipeng Song; Xin Deng; Yue Li; Zhihao Dong; Xingyue Zhu; Hui Li

**HPCC-16: Communications and Networking Track (IV)**

**Session Chair: Yongling Huang, Huazhong University of Science and Technology, China**

1. *dotPS: Disorder Tolerant Load Balancing Scheme for Datacenter Network*  
Chenzhao Huang; Xiaobin Tan; Shenzi Yuan; Ning Xu; Weifeng Wang; Shiyin Zhu
2. *Design and Optimization of Asymmetric Encryption Scheme Based on Blockchain and Its Application in Privacy Protection of Internet of Vehicles*  
Wei Liao; Lansheng Han; Peng Chen
3. *GenHMD: Enhancing Hateful Meme Detection With Generated Rationale From Multimodal Large Language Models*  
Haimei Qin; Chaodong Tong; Lei Jiang; Zhiwei Yang
4. *Data Synchronization Optimization Algorithm for the Digital Twin With Grouped Load Balance and Mask-Assisted Power Control*  
Junping Gao; Qihua Hu; Hongju Cheng
5. *Comparative Analysis and Reputation Improvement Mechanism of Blockchain in Social Networks*  
Zhu Zhu; Yuduo Liu; Zhaohong Guan; Fangfei Zhang; Dapeng Qu
6. *MFRD: A Novel Multi-Criteria Fusion Routing Decision Making Algorithm in Mobile Opportunistic Networks*  
Yanan Chang; Demin Peng; Xingzhuo Duan; Jianqun Cui; Xing Tang



#### **HPCC-17: Communications and Networking Track (V)**

**Session Chair: Xingshi Wan, Huazhong University of Science and Technology, China**

1. *Dynamic Task Offloading and Resource Allocation in Vehicle Edge Computing and Networks: A Graph Attention-Based Deep Reinforcement Learning Approach*  
Baolin Qin; Ang He; Heng Pan; Xueming Si; Yueyue Dai; Xiaoyan Huang; Yan Zhang
2. *Easy-Sharing: A Personalized Privacy Diffusion Strategy Generation Method Based on Risk-Return Trade-Off*  
Ben Niu; Qifan Yang; Likun Zhang; Jin Cao; Qian Yang
3. *An ABLRS-Based Mutual Authentication Scheme for IIoT*  
Hongrui Xue
4. *Speed is Not All You Need When Fuzzing Stateful Network Servers*  
Qian Liu; Lei Zhou; Xu Zhou; Yuan Wei; Danjun Liu

#### **HPCC-18: Communications and Networking Track (VI)**

**Session Chair: Wei Xiang, Central China Normal University, China**

1. *RSSI-Based Energy Efficient Underwater Localization Technique for AUVs*  
Hassan Raza Naqvi; Tahir Muhammad; Naeem Raza; Mohsin Raza Jafri; Muhammad Faizan Khan
2. *Range IP Oriented Fast Search Algorithm for IPSec Gateway Security Policies*  
Bo Jin; Xingwei Cai; Yuhao Liu; Nannan Xia; Zhiyong Zha; Yongchao Shen; Kai Peng
3. *On Improved Efficiency of Zero-Trust Tunnel for Inter-Microservices Communication*  
Lei Zhang; Jingguo Ge; Yulei Wu; Jifei Wen; Yuepeng E
4. *MultiQoE: Measuring QoE of DASH Video From Encrypted Traffic With Multimodal Features*  
Peng Xie; Xiaobin Tan; Hao Wang; Mingyu Sun; Quan Zheng; Feng Yang
5. *Multi-View Tri-Alignment Multi-Expert for Multi-Domain Fake News Detection*  
Jin Zhenkun; Ruolei Yi; Kai Cui; Xinlei Zhou; Jiaqi Ma
6. *CombNE: A Combined Network Emulator Based Programmable Switch*  
Xinhang Wang; Lizhuang Tan; Huiling Shi; Wei Zhang

#### **HPCC-19: Communications and Networking Track (VII)**

**Session Chair: Yixuan Geng, Huazhong University of Science and Technology, China**

1. *TMGAN: A GAN-Based Traffic Morphing Defense Against Website Fingerprinting*  
Shukan Huang; Junchao Xiao; Gaopeng Gou; Gang Xiong; Zhen Li; Wei Xia
2. *A Privacy-Preserving Navigation Scheme With Malicious Data Detection in VANETs*  
DongLiang Fei
3. *Learning to Hash With Long-Short-Term Graph Neural Networks for Efficient Social Recommendation*  
Lin Liu; Boyang Liu; Chenxu Wang

4. *MHFuzz: Advancing Heap Vulnerability Detection Through Phased Fuzzing Strategies*  
Zeng Yuxiang; MA Nan; Zhongyuan Qin

5. *Towards Alarm Reduction in Intrusion Detection: A Recurrent Neural Network Approach*  
Alexander Gödeke; Weizhi Meng; Yu Wang

6. *Tunnel User Behavior Identification Based on Self-Supervised Pre-Training*  
Lingyun Ye; Zhishen Zhu; Gaopeng Gou; Gang Xiong; Mingxin Cui

#### **HPCC-20: Communications and Networking Track (VIII)**

**Session Chair: Cannian Zou, Huazhong University of Science and Technology, China**

1. *Joint Multi-Modal Graph Structure and Representation Learning for Fake News Detection*  
Hao Jin; Jiahuan Lu; Fei Wu; Ji Yimu; Xiaoyuan Jing

2. *Blending Interest Flooding Attacks Detection in Named Data Networking*  
Danni Wang; Wei Li; Rui Hou

3. *WCL\_SFR: Window-Based Contrastive Learning for Signal Feature Reconstruction*  
Yangyang Wang; Xing Yang; Hua Mu; Zhen yu Liang; Lei Zuo; Zhen Hong; Zhenyu Wen

4. *A Privacy-Preserving Federated Learning Framework With Byzantine Robustness*  
Xibo Zhang; Gang Shen

#### **HPCC-21: Communications and Networking Track (IX)**

**Session Chair: Zhi Li, Huazhong University of Science and Technology, China**

1. *Recommendation Unlearning With Dynamic Sampling and Interest Boundary Perception*  
Jianfang Wang; Menghao Liang; Guangwen Chai

2. *UM-Explainer: An Explainability Method for Unsupervised Models Based on Factual and Counterfactual Reasoning*  
Jing Tan; Qiyu Li; Linlin Su; Huijiang Wang; Jinyan Wang

3. *Energy-Aware Computation Offloading and Routing Strategy for Multi-UAV-Assisted Mobile Edge Computing*  
Jinjiao Huang; Linpo Lu; Na Lin; Tianxiong Wu; Zhijiang Wang

4. *Incremental Label Distribution Learning With Scalable Graph Convolutional Networks*  
Ziqi Jia; Xiaoyang Qu; Chenghao Liu; Jianzong Wang

5. *6DoubleTree: IPv6 Address Prediction Algorithm Based on Double Space Tree*  
Mingyue Ren; Liancheng Zhang; Haojie Zhu; Shunlong Hao; Yi Guo; Hongtao Zhang

6. *DP-CAKA: Defending Local Model Poisoning Attacks Based on Differential Privacy and Complex Acc-Based Multi-Krum Algorithm in Distributed Federated Learning*

Lijuan Huo; Libing Wu; Jiaqi Feng; Xing Fan; Enshu Wang; Xinchen Li

**HPCC-22: Communications and Networking Track (X)**

**Session Chair: Zecan Yang, Huazhong University of Science and Technology, China**

1. *BioWarp: An SDN Failure Recovery Scheme Based on Bio-Mimetic Optimization and Weighted-Cost Multi-Path Routing*  
Zhongyuan Qin; Shiyuan Feng; Zhao; Tao Li; Hu Aiqun
2. *FedBA: A Traffic Prediction Approach Based on Bi-LSTM and Federated Learning*  
ZiHang Dong; Yuning Zuo
3. *Custominer: Mining Customized Access Control Policies Under User-Defined Constraints*  
Xiao Wang; Yunchuan Guo; Mingjie Yu; Ziyang Zhou; Liang Fang; Fenghua Li
4. *High- and Low-Order Transaction Aggregation Graph Network for Ethereum Phishing Detection*  
Jianrong Wang; Mingyu Li; Dengcheng Hu; Xiulong Liu; Qi Li; Xuewei Li; Keqiu Li
5. *Stochastic Game for Collaborative Defense in Multi-Domain Networks: A MAPPO Approach*  
Yaobing Xu; Yunchuan Guo; Wenlong Kou; Ziyang Zhou; Huimei Liao; Fenghua Li
6. *ADCC: Aol-Aware Decentralized Congestion Control in Cooperative Perception System*  
Ke Li; Zhiyuan Zhao; Haojun Huang; Shouxi Luo; Huanlai Xing; Qiang Yang

**HPCC-23: Communications and Networking Track (XI)**

**Session Chair: Honglu Zhao, Huazhong University of Science and Technology, China**

1. *ScCGKA: Continuous Group Key Agreement With Smart Contract*  
Zhiqian Cai; Changsong Jiang; ChunXiang Xu; Xinfeng Dong
2. *A High-Performance IPv6 Fragment Evasion Threat Detection Method Based on eBPF and XDP*  
Bin Lin; Liancheng Zhang; Yi Guo; Hongtao Zhang; Haojie Zhu; Qingtao Wang
3. *Dynamic Cost Intelligent Routing Algorithm for Heterogeneous Communication Networks*  
Yuqian Chen; Licheng Zhang; Jingwen Wang; Hairui Lin; Wenhao Ma; Xingang Liu
4. *UWB Weak Signal Detection and Recovery Algorithm Based on Power Spectrum Entropy and Improved Stochastic Resonance*  
Ding Ding; Yanyun Xu
5. *Efficient Disaggregated Memory Eviction With Glitter*  
Linxuan Zhong, Wenxin Li, Yulong Li, Jiawen Shen, Song Zhang, Wenyu Qu, Yitao Hu

**HPCC-24: Computing Power Network (CPN) and Network for AI Computing Track (I)**

**Session Chair: Chunfen Fu, Huazhong University of Science and Technology, China**

1. *Efficient Secure Inference Scheme for Large Neural Networks*  
Lin Chen; Yiwei Yang; Xin Wang; Yinbin Miao; Zhihong Liang; Chao Hong

2. *Dynamic Resource Management for Microservices Based on Deep Reinforcement Learning*  
Huanxing Zhu; Boyi Tang; Yijun Mo; Zhengyu Chen
3. *CRAE: Blockchain-Based Computing Resource Authenticity Evaluation in Computing Aware Network*  
Zixuan Lei; Bo Lei; Shuai Gao; Cheng Chi; Xindi Hou; Minghui Xi
4. *Profit-Aware Computing Server Clustering and Task Scheduling in the Computing Power Network*  
Xiaoyao Huang; Remington R. Liu; Jie Wu; Baoxian Zhang
5. *Efficient Tensor-Based Fine-Tuning for Subject-Driven Image Editing on Diffusion Models*  
Huazhong Liu; Jiawen Luo; Jihong Ding; Pengxu Chen; Ren Lei
6. *WQEFC: A Scalable and Low-Latency RDMA Messages Scheduler for Mixed Messages*  
Yaozhen Li, Yuxuan Du, Lide Suo, Xiancheng Meng, Yiren Pang, Wenxin Li, Keqiu Li, Yitao Hu

**HPCC-25: Computing Power Network (CPN) and Network for AI Computing Track (II)**  
**Session Chair: Junjie Su, Huazhong University of Science and Technology, China**

1. *FedReverse: Multiparty Reversible Deep Neural Network Watermarking*  
Junlong Mao; Huiyi Tang; Yi Zhang; Fengxia Liu; Hongliang He; Shanxiang Lyu
2. *MBDC: Low Latency and Cost-Effective Data Center Network Architecture*  
Qian Yu; Jiguo Yu; Guijuan Wang; Anming Dong; Li Zhang; Mengjie Lv
3. *MG2GS: Optimizing Resource Efficiency for AI Training With Cross-MEC Job Scheduling*  
Zeming Gao; Ye Tian; Yannan Hu; Jiahui Hu; Gong Xiangyang; Wendong Wang
4. *Enabling Source Hosts to Precisely Select Paths via ECMP Hash Linearity in Data Center Networks*  
Boyang Zhou; Chunming Wu; Qiang Yang
5. *AdaptPerf: Adaptive Measurement for Computing Power of Heterogeneous Devices Based on NAS*  
Chengxu Han; Zhuo Li

# The HPCC Workshop 2024 Physical Presentation Program

## HPCC Workshop-1: AI Enabled Intelligent Transportation Systems (I)

Session Chair: Debin Liu, Zhengzhou University, China

1. *Research on On-Ramp Merging Decision-Making for Autonomous Vehicles Based on the Dueling-DQN Algorithm*  
Xinyu Liu; Kai Gao; Hongfei Hu; Linhong Liu; Ronghua Du
2. *Battery Pack SOC Estimation Based on Representative Cells and Support Vector Regression*  
Yanzhong Liu; Yuan Chen
3. *Resilient Mitigation Strategy for Networked DC Microgrids Under Uncertainties*  
Jieqi Rong; Weirong Liu; Fu Jiang; Jian Chen; Yingze Yang
4. *An Optimized Ensemble Model With Feature Selection for Network Intrusion Detection in the Internet of Vehicles (IoV)*  
Afaq Ahmed; Irshad Ullah; Tahir Hussain
5. *Distributed Data-Enabled Predictive Control for Vehicle Platoon With Model Uncertainties*  
Bin Chen; Wei Liu; Rui Zhang; Guo He; Haoyang Yan; Kai Gao
6. *Core Temperature-Aware Optimal Preheating Strategy for Lithium-Ion Battery*  
Zhiwu Huang; Xi Yan; Yongjie Liu; Kaifu Guan; Lisen Yan; Fei Li

## HPCC Workshop-2: AI Enabled Intelligent Transportation Systems (II)

Session Chair: Shengjie Ye, China State Shipbuilding Corporation Limited, China

1. *Shift Window Transformer for CSI Feedback in Massive MIMO*  
Zhengfa Zhu; Heng Li; Shuo Li; Feng Zhou; Shouqing Liu
2. *State-Of-Charge Estimation of Li-Ion Battery Packs in Electric Vehicles: An Inverse Design*  
I-Ju Chiu
3. *Twin Delayed Deep Deterministic Policy Gradient-Based Battery Cooling Strategy for Electric Vehicles*  
Weirong Liu; Pengfei Yao; Lijun Duan; Yue Wu; Heng Li
4. *Lightweight Multi-Scale Convolution Neural Networks for CSI Feedback in Massive MIMO*  
Zhengfa Zhu; Shouqing Liu; Heng Li
5. *Enhanced Spatio-Temporal Autoencoder With Multi-Head Attention for Voltage Anomaly Detection in Electric Vehicle Battery*  
Muaaz Bin Kaleem; Heng Li; Muhammad Usman Saeed; Zhijun Liu
6. *Cooperative Cell Balancing for Super Capacitors With Reinforcement Learning*  
Zhiwu Huang; Yundong Song; Yulin Zhang; Yunsheng Fan; Shilong Zhuo; Taozhen Chang; Heng Li

**HPCC Workshop-3: AI Enabled Intelligent Transportation Systems (III)**  
**Session Chair: Jiuzhen Zeng, Huazhong University of Science and Technology, China**

1. *Reinforcement Learning-Driven Relay Selection for Enhanced V2V Communication in Vehicle Platoons*  
Xiaoyong Zhang; Meng Liu; Xin Gu; Jun Peng; Heng Li; Zhiwu Huang; Weirong Liu; Fu Jiang
2. *A Framework for Evaluating the Resilience of Transportation Networks: An Optimization Perspective*  
Kun Li; Chen Mu
3. *Low-Carbon Energy Sharing for Multi-Energy Microgrid Using Cooperative Reinforcement Learning*  
Ziling Tang; Jun Peng; Fu Jiang; Jie Chen; Heng Li; Weirong Liu; Yue Wu
4. *A Novel Lithium-Ion Battery State of Health Estimation Model: Integrating Transfer Learning With Retentive Network*  
Yunhao Wang; Xiaoyong Zhang; Heng Li; Weirong Liu; Yu Guo Gu

**HPCC Workshop-4: AI Enabled Intelligent Transportation Systems (IV)**  
**Session Chair: Minmin Cheng, China Nuclear Power Operation Technology Corporation, LTD., China**

1. *Fine-Grained and Multi-Stage Fast Charging Optimization of Lithium-Ion Batteries Based on TD3 Algorithm*  
Jun Peng; Yongting Liu; Yue Wu; Yongcai Ma; Hongjiang He; Fu Jiang
2. *GAN Based Resilience Recovery for False Data Injection Attack in Smart Grids*  
Yihan Tang; Yingze Yang; Rui Zhang; Wanwan Ren; Jieqi Rong; Heng Li; Hui Wu
3. *Cell Voltage Estimation for Supercapacitor Systems With Terminal Voltage Measurement*  
Heng Li; Yi Zhan; Su Kelong; Yue Wu
4. *A Foundation Model for State of Health Prediction of Lithium-Ion Battery in Electric Vehicles*  
Chenyuan Liu; Xiaoyang Chen; Zeyu Zhu; Yunhao Wang; Yunsheng Fan; Heng Li
5. *State-Of-Charge Estimation of Reconfigurable Lithium-Ion Batteries Based on Nonlinear Switched System*  
Yingze Yang; Yifei Sun; Yiquan Zhou; Yunsheng Fan; Heng Li
6. *Optimal Feature Extraction and State of Health Estimation for Incremental Capacity Curves Based on Bayesian Optimization*  
Heng Li; Huihui Yang; Yunsheng Fan; XiaoLong Chen; Yue Wu

**HPCC Workshop-5: AI Enabled Intelligent Transportation Systems (V)**  
**Session Chair: Jing Han, Wuhan Business University, China**

1. *An Energy Management Approach for Distributed Control Systems: Implementing Predictive Set-Point Modulation With Supercapacitors and Parallel DC-DC Converters*  
Dilinaizhaer Maimaitiyusufu; Heng Li; Yue Wu; Jiali Deng
2. *RVF3D: ROI-Driven Vision Transformer Fusion for Multi-Modal 3D Object Detection in Autonomous Vehicles*  
Husnain Mushtaq; Xiaoheng Deng; Mubashir Ali; Irshad Ullah; Adeel Ahmed Abbasi
3. *Cooperative Control for Modular DC-DC Converters of Supercapacitor Energy Storage Systems*  
Jiali Deng; Dilinaizhaer Maimaitiyusufu; Heng Li

4. *Efficient Multimodal 3D Object Detection via Dynamic Feature Fusion of LiDAR and Camera Data*  
Muhammad Uzair; Jian Dong; Ronghua Shi; Chengwang Xiao; Husnain Mushtaq

5. *Comprehensive Analysis of Computer Network Threats and Security Measures*  
Muhammad Uzair; Zafran Waheed; Irshad Ullah; Adeel Ahmed Abbasi; Husnain Mushtaq

6. *Spatially-Guided Chunk-Wise Reweighting Transformer for 3D Object Detection in Autonomous Vehicles*  
Husnain Mushtaq; Muhammad Uzair; Irshad Ullah; Adeel Ahmed Abbasi

**HPCC Workshop-6: AI Enabled Intelligent Transportation Systems (VI)**

**Session Chair: Ning Zhang, Huazhong University of Science and Technology, China**

1. *Efficient-MobileNet: A Feature Fusion Approach for Vehicle Driver Behavior Detection and Classification*  
Muhammad Irfan Saeed; Jinfang Sheng; Muhammad Usman Saeed

2. *Imitation Reinforcement Learning Attitude Controller for Fixed-Wing UAVs*  
Ziyang Yue

3. *Lateral Control of Autonomous Vehicles Using Barrier Lyapunov Function*  
Zhiwu Huang; Liuye Shao; Bin Chen; Yue Wu; Boyu Shu; Heng Li

4. *Battery Fault Detection Using Enhanced Spatial-Temporal Features for Electric Vehicles*  
Weirong Liu; Lijun Duan; Rui Zhang; Pengfei Yao; Heng Li

# The DSS 2024 Physical Presentation Program

## **DSS-1: Data Science / Data Applications (I)**

**Session Chair: Shuilong Wang, Huazhong University of Science and Technology, China**

1. *Secure Transmission Over Wireless Multiple Access Wiretap Channels by Constellation Rotation and Superposition*

Jiawei Zhao; Hongliang He

2. *A Mobile Terminal Position Protection Method Based on Hilbert Curve*

Chundong Wang; BoYu Zhang; Yong-xin Zhao; Liyang Zhao

3. *A Taxonomy for Evaluating Data Quality in Data Integration - Towards a Standardized Data Quality Management*

Jan-Philipp Awick; Lars Steffens; Michael Karl; Jorge Marx-Gomez

4. *A Certificate-Based Data Integrity Batch Auditing Scheme in Cloud Storage*

Ting Zhu; Chenxu Gao; Limin Shen

5. *Towards Sensor Level Secured Agriculture 4.0 Using Light-Weight Block Cipher*

Khadija Fareed; Muhammad Faizan Khan; Ateeq Ur Rehman

## **DSS-2: Data Processing Technology (I)**

**Session Chair: Jiayang Sun, Huazhong University of Science and Technology, China**

1. *Multi-Modal Image Reflection Removal With Prior Knowledge of Reflection Structure Inconsistency*

Yifan Liu; Ke Luo; Jincai Chen

2. *AR-Assisted In-Situ Thermomechanical Testing System for Superalloys*

Zixin Li; Xuecheng Zhang; Bin Zhang; Wenchao Meng; Shibo He; Chaojie Gu

3. *A Novel Transformer Architecture for Time Series Forecasting: Integrating DP Block and Sequence Slicing Attention*

Jilong Lan; Chunna Zhao

4. *Multi-Stage Evolutionary Model Merging With Meta Data Driven Curriculum Learning for Sentiment-Specialized Large Language Modeling*

Keito Inoshita; Xiaokang Zhou; Akira Kawai



# The SmartCity 2024 Physical Presentation Program

## SmartCity-1: Smart City Systems (I)

**Session Chair: Jinru Wu, Wuhan Business University, China**

1. *MBSE Net: Addressing Data Scarcity and Model Interpretability in Predicting UHPC Performance for Bridge Infrastructure*  
Zefeng Zou; Nan Jiang; Zesheng Yu; Ziyi Li; Jing Zhang; Yufei Wang
2. *Multi-Step Prioritized Deep Reinforcement Learning Method for Home Energy Management*  
Xiaoqian Wu; Yiwen Zhang; Lulu Chen; Xiaofeng Luo; Huaiguang Jiang; Jun-Hui Ou
3. *CHASM: Cooperative MARL-Based Approach for Efficient V2V Communication in CDSs*  
Bingyi Liu; Haoxiang Zhao; Enshu Wang; Weizhen Han; Zhuangzhuang Zhang; Libing Wu
4. *GraphKAN: An Efficient Graph Kolmogorov Arnold Networks for Traffic Forecasting*  
Wenzhu Zhao; Guan Yuan; Rui Bing; Xiao Liu; Guixian Zhang
5. *Optimizing Operation of Automated Waste Collection Systems in Smart Communities*  
Zaki Masood; Carmen Cheh; Zhen Wei Ng; Binbin Chen; Xin Lou; David Yau
6. *MetaCo-Distillation: A Robust Collaborative Distillation Framework for Multivariate Knowledge*  
JiaNing Wang; Jiqiang Liu; Tao Zhang; Jian Wang; Xiangyun Tang; Geng Sun; Zhaohui Yang; Zhu Han; Dusit Niyato

## SmartCity-2: Data Processing Technology (I)

**Session Chair: Qing Shen, Wuhan Business University, China**

1. *A Rotating Object Detection Method for Greenhouses in Remote Sensing Images*  
Can Wang; Kun Liu; Benli Zou; Meishu Li; Hao Yuan; Qinghao Peng
2. *LYN: Leveraging Pyramid Structures and Aggregating Attention for General Time Series Classification Tasks*  
Guanlin Chen; Shijie Li; Haoqin Li; Huaiguang Jiang; Yahui Jia; Ye Liu
3. *Dual-Branch Teacher Assistant-Based Network for Heterogeneous Knowledge Distillation*  
Lulu Chen; Shijie Li; Xiaoqian Wu; Xiaofeng Luo; Huaiguang Jiang; Yahui Jia
4. *INVNET Inverted TimesNet for Multivariate Time Series Forecasting*  
J. Hu; Shijie Li
5. *Semantically Encoding Enhancements for Unsupervised Color Feature Separation*  
Weijian Li; Shijie Li; Huaiguang Jiang

# The DependSys 2024 Physical Presentation Program

**DependSys-1: Dependability and Security Fundamentals and Technologies (I)**  
**Session Chair: Yuanyuan He, Huazhong University of Science and Technology, China**

1. *Node Reputation Value Optimization Method Combining Recommendation Codes and Quantum Random Numbers in Blockchain*

Yan Wang

2. *VulnSlicer: A Java Vulnerability Analysis Tool Based on Vulnerability Slice*  
ChaoHao Liao; Shihe Zhang; RenHua Liu

3. *Unsupervised Point Cloud Segmentation for Power Corridor Line Inspection*  
Bo Peng; Xueping Xie; Yonghua Wu

4. *The Optimal Design of a Rotor System With Elastic Ring Environments*  
Yihang Shi; Zhongyu Yang; Yinli Feng; Di Liu

5. *Leak-Detector: An Improved Route Leak Detection Method*  
Haoyang Gao; Ning Li; Yuancheng Xie

# The ICESS 2024 Physical Presentation Program

**ICESS-1: Design Methodology & Tools / Emerging Embedded Applications & Interdisciplinary (I)**  
**Session Chair: Zhen Li, Huazhong University of Science and Technology, China**

1. *Sleptsov Net Based Reliable Embedded System Design on Microcontrollers and FPGAs*  
Ruiyao XU; Si Zhang; Dmitry A. Zaitsev; Ding Liu

2. *GPMAPPO: Collaborative SAR Optimization of Human-UAV in Post-Disaster Scenarios*  
Na Lin; Yue Jin; Wenjia Zhang

3. *A Soft-Hard Collaborative CNN Inference Acceleration System Based on NP Cores of DPU*  
Li Shicheng; Xin Yao; Renhai Chen; Wenjie Feng; Gong Zhang

# The DIKW 2024 Physical Presentation Program

**DIKW-1: 2024 IEEE International Conference on Data, Information, Knowledge and Wisdom (DIKW) (I)**  
**Session Chair: Zaiwen Feng, Huazhong Agricultural University, China**

1. *The Convergence of Dynamic Routing Between Capsules*  
Daoyuan Ye
2. *Few-Shot Named Entity Recognition Based on Self-Descriptive Network and Knowledge Graph Enhancer*  
Yongze Hou; Zili Zhou; Yanna Wang; Zhenchao Liu
3. *Multi-Level and Multi-Dimensional Assessment for High-Value Data Elements*  
Gao Qiang
4. *Blockchain Access Control Based on Continuous Trust Evaluation*  
Jia Liu; Chu Li; Jieping Shen; Wenxiao Sun; Jianjun Chen; Yucong Duan
5. *Blockchain Transaction Monitoring and Anomaly Analysis System*  
Lin Xu; Da Ning; Yong Deng; Furong Yu; Yifan Wang; Yucong Duan
6. *LAFU-Net: Lightweight Left Atrium Segmentation Network Based on U-Shaped Network*  
Xu Zhang; Zhao Qiu

**DIKW-2: 2024 IEEE International Conference on Data, Information, Knowledge and Wisdom (DIKW) (II)**  
**Session Chair: Qiang Gao, Academy of Military Science, China**

1. *Revolution on Traditional TRIZ Towards DIKWP-TRIZ for Artificial Consciousness Innovation*  
Shiming Gong; Yucong Duan; Zaiwen Feng
2. *Spike Frequency Adaptation for A Novel Logistic Spiking Neuron Model*  
Lei Zhang
3. *Education Reform Based on DIKWP Artificial Consciousness Theory*  
Shuaishuai Huang; Yucong Duan; Zaiwen Feng
4. *Knowledge Graph-Driven Organizational Planning for Shipboard Communications*  
Fang Wentao; Zaiwen Feng; Wolfgang Mayer; Da Ning; Yucong Duan; Xiaoxia Li; Yuling Fan

# National CyberSecurity Center International Congress

## IEEE HPCC/DSS/SmartCity/DependSys/ICSS/DIKW-2024

### Poster Session

#### Poster Session (I)

1. *Spine Image Reconstruction and Lesion Classification Based on Transfer Learning and Quantum Convolutional Neural Network*  
Aqsa Dastgir; Bin Wang; Jinfang Sheng; Muhammad Usman Saeed
2. *Unsupervised Pre-Trained Social Networks for E-Commerce Community Detection*  
Ting Li; Chunqi Wu; Yang Liu; Zhao Li; Chuan Zhou; Chenhao Qiu; Hongyang Chen; Yongchao Liu; Peng Du; Chuntao Hong
3. *DCKD: Bridging DETR and CNN-Based Detectors With Decomposed Knowledge Distillation*  
Yongtai Wei; Dingwen Wang; Tao Qu
4. *LazyCAT: Efficient Fine-Grained Cache Partitioning With Two Boundaries*  
Chuanqi Zhang; Xueqi Li; Ninghui Sun; Yungang Bao; Sa Wang
5. *SRFL-DP: A Rapid and Efficient Solution for Single-Row Facility Layout Optimization*  
Baixuan Wu; Yufeng Zhang; Zheng Xiao; Kenli Li
6. *Performance Analysis on the Applications of Large Language Models: A Case for Elderly Care*  
Shijian Wang; Junjie Deng; Qinyong Li; Yiji Wu; Zhiwei Zhao
7. *TraceGen: A Block-Level Storage System Performance Evaluation Tool for Analyzing and Generating I/O Traces*  
Cheng Li; Jiahe Wei; Huiru Xie; Jinjiang Wang; Xiaonan Zhao; Shujie Han; Xiao Zhang
8. *Enabling Heavy Flow Detection on Resource-Constrained Data Plane*  
Deyu Zhao; Guang Cheng; Zhu Ruixing; Zhao Yuyu; Yuyang Zhou; Wei Zhang
9. *Accelerating Ultrasound Wave Propagation Simulations Using Pruned FFT*  
Ondrej Olsak; Jiri Jaros
10. *Dual-Track Aspect-Level Sentiment Analysis for Alleviating Cold Start in MOOC Course Reviews*  
Bangqi Li; Qing Sun; Haochun Xia; Qinghua Cao; Wenge Rong; Chen Chen
11. *ESDRS: Efficient Spatial Dataset Range Search Processing*  
Zhangchen Li; Hua Dai; Jie Sun; Hao Zhou; Pengyue Li; Geng Yang
12. *PSqueue: An Enhanced Memory Scheduling Queue Architecture for Multi-Threaded Streaming Memory Access Optimization*

*Han Xu; Weitong Wang; Yuyangheng Wang; Huandong Wang*

13. *Grid-Tagging-Based Chinese Threat Intelligence Entity Recognition Technology*  
*Chai Ziheng; Junshan Pan*

14. *A Multi-Agent Cooperative Attention Framework for Joint Control of Traffic Signal and Vehicles*  
*Zuoxiu Yang; Kai Liu; Weizhen Han; Bingyi Liu*

15. *SUMF: Efficient, Stable, and Reliable SPDK Userspace IO Multipathing Framework*  
*Xiaobo Zheng; Duo Sun; Haojun Hu; Wenguang Hu; Shiyi Li; Wen Xia*

16. *FedTA: Unsupervised Federated Prototype Learning With Temperature Adaptation*  
*Zhao Juan; Xiaoquan Yi; Ruixuan Li; Yuhua Li; Haozhao Wang; Yichen Li; Zhiying Deng; Zijun Xu*

17. *A Task Dependency-Aware Scheduling Strategy for Cross-Domain Stream Computing Environments*  
*Dawei Sun; Zhongyuan Zhao; Yueru Wang; Shang Gao; Rajkumar Buyya*

18. *Efficient Serverless Stream Processing Based on High-Level Programming and Parallelism AutoTunig*  
*Xiaozheng Zhang; Wang Xu; Jing Shang; Zhiwen Xiao; Rong Gu*

19. *FedMHC: Overcoming Dimensionality and Communication Challenges for Personalized Federated Learning Using Model Head Clustering*  
*Haotian Zheng; Yingchi Mao; Haowen Xu; Xiaoming He; Benteng Zhang; Feng Mao; Jie Wu*

20. *A Practical and Accurate Battery Emulator for Android Smartphones*  
*Yikun Wu; Ningjian Zhang; Senbin Xu; Baisong Dai; Maoxin Ye; Suzhen Wu; Qihang Hu; Caiqiang He; Zhipeng Zhong; Bo Mao*

21. *Joint Optimization of Scheduling Length and Cost Based on White Shark Optimization in Heterogeneous Clouds*  
*Longxin Zhang; Minghui Ai; Yanfen Zhang; Buqing Cao; Jianguo Chen; Lihua Ai*

22. *SCRaft: Achieving Fast and Stable Elections in Raft Consensus Algorithm*  
*Yiqi Wang; Haoxiang Luo; Gang Sun; Hongfang Yu*

23. *SoTimer: A Software-Based Timekeeper for Energy Harvesting Systems*  
*Yunlong Yu; Hongyue Wang; Wei Zhang; Lei Ju*

24. *An Improved Mixed-Precision FEAST Algorithm for Solving Symmetric Eigenvalue Problems*  
*Yi Xie; Shengguo Li; Tiejun Li; Meiyue Shao; Ruixuan Ren*

25. *A Multi-AUV Cooperative Search Scheme Based on Acoustic-Optical Communication and Deep Reinforcement Learning*

Xiang Li; Peijun Dong; Hang Tao; Pengyan Dong; Zhijie Feng; Hanjiang Luo

26. *Adaptive Gain-Based Quick-Measurement BBR Algorithm in High BDP Network Environments*

Jiawei Wang; Quan Zheng; Feng Yang; ZhengHuan Xu; Qianbao Shi; Xiaobin Tan

27. *CMAIR: Cooperative Multi-Agent Intrinsic Reward Framework for Enhancing Efficiency in Automated Warehouses*

Bingyi Liu; Chengrui Wan; Weizhen Han; Enshu Wang; Shihong Cui

28. *MDTM: A Multi-Dimensional Trust Management Scheme for Enhancing Security and Stability in SDN*

Tianrui Bai; Yuan Liu; Yiwen Gao; Yongbin Zhou

29. *Cost-Driven Auction Mechanism for SFC Allocation in Space-Air-Ground Integrated Network*

Yali Lyu; Yaping Sun; Xiaoxi Zhang; Jingpu Duan; Xiong Li; Xu Chen

## Poster Session (II)

1. *On an Approximation Algorithm for HDFS Data Block Placement in Heterogeneous Hadoop Clusters*

Yijie Zhang; Chase Q. Wu; Aiqin Hou

2. *Achieving High Energy Efficiency for Network Slicing-Enabled 5G O-RAN Base Stations*

Yuehan Liu; Leyu Zhao; Jingtong Wu; Di Liu; Xiaojun Hei

3. *SEOE: A Sleeper Effect Based Opinion Evolution Model in Social Networks*

Han Xu; Si Cheng

4. *Automatic Modulation Classification via Data and Knowledge Dual-Driven Scheme*

Yi Fang; Xuanpeng LI; Chaoqun Liu; Chen Gong; Siqiang Ma; Guangyu Li

5. *MKPL: Multi-Dimensional Knowledge-Embedded Prompt Learning for Few-Shot Malware Family Recognition*

Yuxin Zhang; Shuilin Li; Gaolei Li; XiaoYu Yi; Jianhua Li; Mianxiong Dong; Kaoru Ota

6. *Adaptive Edge-Device Collaborative Framework for Image Classification*

Lu Zheng; Bincheng Zhu; Kaikai Chi

7. *Cyber Security Risk Assessment of Intelligent Ships Under Multi-Source Attacks*

Wei Gao; Kaiyuan Huang; Xiaoya Hu

8. *SSD-GNN: Fraud Detection Based on Spectral and Spatial Dual Graph Neural Networks*  
Boyi He; Jianzhe Zhao; Xuan Wang; Wei Ai; Tao Meng
9. *Gemma: Robust and Path-Aware Loading Balancing in RDMA Networks*  
Jiuyi Liu; Zhen Zhao; Dongzhan Zhang
10. *Anomaly Localization in Industrial Cyber-Physical Systems via a Digital Twin-Driven Multi-Task Network*  
Xin Du; Chunjie Zhou; Kunkun Wang
11. *An Efficient Attribute Attention-Based Vehicle Routing Algorithm With Adaptive Training Strategy*  
Jinming Li; Siqiang Ma; Chen Gong; Guangyu Li
12. *Optimizing Steganographic Fidelity: Content-Aware Syndrome Trellis Code*  
Junlong Mao; Huiyi Tang; Shanxiang Lyu; Ling Liu; Hongliang He
13. *A Learning-Based POMDP Approach for Adaptive Cyber Defense Against Multi-Stage Attacks*  
Yuantian Zhang; Weixia Cai; Huashan Chen; Zhenyu Qi; Hong Chen; Feng Liu; Sen He
14. *AlterCell Attack: Exploiting a Logic Vulnerability in Tor Cell Integrity Validation*  
Can Zhao; Qingfeng Zhang; Baiwei Duan; Xuebin Wang; Qingyun Liu; Jinqiao Shi
15. *Dependent Task Offloading for End-Edge-Cloud Collaborative Computing Based on Deep Reinforcement Learning*  
Shiyao Liu; Zongshuai Zhang; Nina Wang; Wenhao Zou; Lin Tian
16. *EtherEditor: Bytecode Defense Framework for Unleashing Proactive Smart Contract Security*  
Yuxuan Liu; Yadong Shi; Zhongyuan Qin; Yubo Song
17. *Deep Learning-Based Synthetic Trajectory Generation for Enhanced Privacy and Utility*  
Yinghui Zhang; Juanru Zhang; Hao Li; Weichao Yang
18. *A Communication Gating Control Scheme for Multi-UAV Cooperative Maritime Search Based on Deep Reinforcement Learning*  
Haoran Wang; Yang Zhao; Hang Tao; Jiahong Liu; Gongxiang Li; Hanjiang Luo
19. *Ensuring Data Integrity and Freshness in GPU-CXL Transfers With Tamper-Resistant Metadata*  
Shaofeng Lin; Mingshu Li; Yeping He; Qiming Zhou; Hengtai Ma; Xiaohui Wu
20. *ATA: Task-Oriented Adaptive Video Streaming for Cloud-Based Autonomous Driving*  
Zelin Song; Huanhuan Zhang; Long Zhang; Liang Liu; Huadong Ma
21. *BK-Index: A Multi-Attribute Index Algorithm for Network Traffic*  
Linghao Zhao; Tao Zhao; Fei Wang; Shuhui Chen



22. *Improving Forest Management Efficiency: A New Metric for IoT Node Deployment*  
Pengju Si; Yuhao Zhang; Yixiu Liu; Huan Wang; Zheng Zhigao; Wei Wang
23. *6Diffusion-LM: IPv6 Address Generation Method Based on Diffusion-LM*  
Xinyi Zhao; Huahu Xu; Ruiping Xing; Yiqin Gao; Jingkun Xu
24. *CPDN: Computing Power Dedicated Network for 6G Services*  
Min Wei; Qianying Zhao; Bo Lei
25. *A Routing Algorithm for Computing Power Network Based on Deep Reinforcement Learning and Graph Neural Networks*  
Guoyuan Ma; Yongmao Ren; Xu Zhou; Chong Li; Pengfei Fan; Shuangyin Ren; Jingchao Wang
26. *Accelerating Collaborative Perception via Cooperative Inference in Vehicular Edge Computing*  
Tao Zhang; Chunhui Liu; Guozhi Yan; Jiantao Wang; Kai Liu
27. *Switching Kalman Filter for State-Of-Charge Estimation of Li-Ion Battery Balancing Systems*  
Heng Li; Yiquan Zhou; Yifei Sun; Xiaoyang Chen; Fu Jiang
28. *State-Of-Charge Estimation of Reconfigurable Lithium-Ion Batteries: A Nonlinear Switched Approach*  
Fu Jiang; Xiang Zhao; Yunsheng Fan; Xiaoyang Chen; Heng Li