Proceedings

2024 International Conference on Networking and Network Applications

NaNA 2024

August 9-12, 2024

Holiday Inn Express Yinchuan Downtown, Yinchuan, China

Technical Sponsors

North Minzu University, China

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Conference Schedule

Date	Time	Conference Program		
2024-8-9	9:00-21:00	Registration at Holiday Inn Express Yinchuan Downtown		
	19:00-20:30	Dinner		
2024-8-10	08:30-13:00	Registration at Holiday Inn Express Yinchuan Downtown		
	08:30-08:45	Welcome Speech (Norio Shiratori)		
	08:45-09:00	Opening Remarks (Wenxing Bao)		
	09:00-09:10	Group Photo Taken		
	09:10-10:00	Keynote Speech 1 (Prof. Achille Pattavina)		
	10:00-10:20	Coffee Break		
	10:20-11:10	Keynote Speech 2 (Prof. Jian Weng)		
	11:10-12:00	Keynote Speech 3 (Prof. Guoqiang Mao)		
	12:00-14:30	Lunch		
	14:30-16:10	Session A1(Hongshun Hall)	Session B1(Zhixuan Hall)	Session C1 (12th Floor Conference Room)
	16:10-16:30	Coffee Break		
	16:30-18:10	Session A2(Hongshun Hall)	Session B2(Zhixuan Hall)	Session C2 (12th Floor Conference Room)
	18:10-21:00	Gala		
2024-8-11	08:30-10:10	Session A3(Hongshun Hall)	Session B3(Zhixuan Hall)	Session C3 (12th Floor Conference Room)
	10:10-10:30	Coffee Break		
	10:30-12:10	Session A4(Hongshun Hall)	Session B4(Zhixuan Hall)	Session C4 (12th Floor Conference Room)
	12:10-14:00	Lunch		
	14:30-16:10	Session A5(Hongshun Hall)	Session B5(Zhixuan Hall)	Session C5 (12th Floor Conference Room)
	16:10-16:30	Coffee Break		
	16:30-18:10	Session A6(Hongshun Hall)	Session B6(Zhixuan Hall)	Session C6 (12th Floor Conference Room)
	18:10-20:00	Dinner		
2024-8-12	9:00-10:00	Closing Remarks		
	10:00-11:00	Free Discussion		
	11:00-12:00	TPC Meeting		
	12:10-14:00	Lunch		

Opening Remarks, Keynotes, Hongshun Hall, Zhixuan Hall&12th Floor Conference Room are all at the Holiday Inn Express Yinchuan Downtown.

Greeting Message from General Conference Chairs

It is our pleasure to welcome you all to the 2024 International Conference on Networking and Network Applications (NaNA2024) in Yinchuan, China! We also like to welcome all the eminent speakers and guests from within and outside China and from different walks of life who have come here to share with us their vast knowledge and expertise. We believe that the carefully planned programs of the conference and the amazing city of Yinchuan will offer you all irresistible attractions.

The NaNA2024 is technically sponsored by North Minzu University, China, Xidian University, China, Future University Hakodate, Japan, Chuzhou University, China, Ikueikan University, Japan. At this very moment, we would like to thank the program committees and the organizing staffs for their hard work. We would also like to deliver our appreciation to the keynote speakers for their great contributions to this conference.

This conference aims to gather researchers from different areas and disciplines to present results and participate in discussions under the common themes of Wireless Networks, Wired Networks and Data Center (DC) Networks, Network Management, Monitoring and Automation, Network Applications and AI/ML in Networks. It is expected that the interactions provided by the conference will facilitate a better understanding of the diversity of different approaches as well as of their similarities. In addition, it will open the way for the application of approaches that have been successful in one area to problem solving in other different areas.

Without taking too much of your time, we wish you all successful deliberations, stimulating discussions, and new friendships the conference can offer. We look forward to receiving your contributions to the conference in the future.

<div align="right">

NaNA2024 General Co-Chairs

Wenxing Bao, North Minzu University, China

Pin-Han Ho, University of Waterloo, Canada

August 10, 2024

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Committees

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Track Co-Chairs:
Track 1: Wireless Networks
Gabriel-Miro Muntean, Dublin City University, Ireland
Changqiao Xu, Beijing University of Posts and Telecommunications, China
Chi Zhang, University of Science and Technology of China, China
Haizheng Yu, Xinjiang University, China

Track 2: Wired Networks and Data Center (DC) Networks
János Tapolcai, Budapest University of Technology and Economics, Hungary
Massimo Tornatore, Politecnico di Milano, Italy
Wei Su, Beijing Jiaotong University, China

Track 3: Network Management, Monitoring and Automation

Shihyu Chang, San Jose State University, USA

Guilin Chen, Chuzhou University, China

Masaru Fukushi, Yamaguchi University, Japan

Dan Luo, Tianjin Ren'ai College, China

Track 4: Network Applications

Vajirasak Vanijja, King Mongkut's University of Technology Thonburi, Thailand

Xiaojiang Chen, Northwest University, China

Limei Peng, Kyungpook National University, South Korea

Ayong Ye, Fujian Normal University, China

Track 5: AI/ML in Networks

Zhuo Ma, Xidian University, China

Bin Yang, Chuzhou University, China

Krishna Bhattarai, Ikueikan University, Japan

Steering Chairs:

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Keynote Speech 1:

The Data Centers from Cloudscale Networking to Hyperscale Computing: the AI Race
Prof. Achille Pattavina
Politecnico di Milano, Italy

Abstract: Cloud computing has become a reality by the power of distributed data centers (DCs); the bandwidth capacity in these DCs has grown steadily over the past decade driven by new developments in the silicon photonics industry. Progresses achieved in particular in the design and development of optical transmitters and receivers have made it possible an unprecedented growth of the overall DC bandwidth capacity, both intra-DC in a single site and inter-DC on a regional scale. Interest in Artificial Intelligence and Machine Learning (AI/ML) applications has exploded in the past few years and their widespread usage promise to revolutionize the entire society. AI/ML requires a massive usage of processing capacity, thus pushing for the design of new processors with accelerated capabilities (GPU/TPU) aggregated in clusters of ten/hundred thousands of GPUs/TPUs. The limiting factors in these clusters is the network interconnecting the GPUs/TPUs that has pushed the search for innovative solutions for the DC overall system architecture. The unprecedented power requirements of the hyperscale processing capacity has stressed the importance of the power efficiency in the interconnection network design inside the DC and between DCs. Innovative interconnection solutions relying on copper and/or fibers are selected carefully based on their cost, power, density requirements and reach capability.

CV: Prof. Achille Pattavina received the Dr. Eng. degree in Electronic Engineering from University La Sapienza of Rome (Italy) in 1977. He was with the same University until 1991, when he moved to "Politecnico di Milano", Milano (Italy), where he has been Full Professor since 1995. He has been author/co-author of more than 300 papers in the area of communications networks published in leading international journals/conferences and of three books: Switching Theory, Architectures and Performance in Broadband ATM Networks (New York: Wiley, 1998), Communication Networks (McGraw-Hill, 2nd ed., 2007, in Italian), Internet and Networks, third edition (Pearson, 2022, in Italian), Internet and Computer Networks (2020). He has been Editor for Switching Architecture Performance of the Transactions on Communications (IEEE) from 1994 to 2011, Editor for Optical Switching and Networking (Elsevier) from 2004 to 2015, and also Editor-in-Chief of the European Transactions on Telecommunications (AEIT) from 2001 to 2010. He has been coordinator of national projects (PRIN projects) and local coordinator of international research activities, including European Union funded projects in the FP7 and H2020 framework programs. His current research interests are in the areas of Software Defined Networking, cloud computing and data centers, green ICT, optical networks, switching theory.

Keynote Speech 2:

Building Trust in Collaborative Machine Learning: Privacy and Security

Prof. Jian Weng

Jinan University, China

Abstract: Many organizations are interested in collaborating to train machine learning models using their combined data. However, starting such collaborations is challenging due to privacy concerns, distrustful computing environments, and a lack of incentives. In this talk, we will present our efforts to address these issues by designing advanced cryptographic schemes for various stages of machine learning. We begin by introducing a secure collaborative learning framework that features an incentive-compatible mechanism, customized encryption for protecting model parameters, and an accountability scheme for auditing computational correctness. Next, we focus on the post-training stage, enabling trustworthy model sharing and truthful ensemble predictions in a distrustful multi-stakeholder environment. Furthermore, with the rise of cloud-based inference services, we devise a secure two-party model inference protocol with fast verifiability, and a zero-knowledge proof scheme for batch convolution operations. These techniques ensure the accuracy and integrity of predictions against potentially malicious cloud servers. Additionally, to address data privacy concerns that may lead to data deletion requests, we provide an auditing method to verify whether data has been removed from a trained model in a distrustful cloud environment..

CV: Prof. Jian Weng is a professor and the vice president of Jinan University. He received Ph.D. degree at Shanghai Jiao Tong University in 2008. His research areas include public key cryptography, machine learning security, blockchain, etc. He has published more than 150 papers in international conferences and journals, such as CRYPTO, EUROCRYPT, ASIACRYPT, IEEE TPAMI, IEEE TDSC, IEEE TIFS, which have been cited more than 14,000 times. He has held prominent roles in various conferences, serving as general chair of ASIACRYPT 2023, as well as serving on the Program Committees of over 80 international conferences. He received the Ding Ying Science and Technology award from Guangdong Province in 2023, the first prize of Guangdong Science and Technology Progress award in 2023, and the first prize of Guangdong Natural Science award in 2021. He was granted the Young Scientists Fund of the National Natural Science Foundation of China in 2018.

Keynote Speech 3:

Road-vehicle Collaboration - on the way to Smart Transportation and Autonomous Driving

Prof. Guoqiang Mao

Xidian University, China

Abstract: Road-vehicle collaboration and smart road technologies are hot topics attracting significant research interest and industry investment. In this talk, we first introduce our work on intelligent transportation systems and vehicular networks, and then review the historical development of roads and vehicles. From this review, we try to argue the view that there is strong cause-effect relation between vehicles and roads. Vehicles represent cause and demand; roads represent the effect and means to meet the demand. Therefore, so-called road-vehicle collaboration is simply a reflection of this causal relationship, and that the development of roads must suit the current vehicular technology, NOT predating it. Then, we present our plausible view about the phased and spiral evolution of smart roads and connected and autonomous vehicles (CAVs). A particular focus is on the development of an Internet of Things (IoT)-based system for smart roads to enable construction of a digital twin of the traffic and road system and various applications that can be built on that basis to improve the traffic safety and efficiency of current transportation systems, and the evolution of the IoT system to support the future mass deployment of CAVs.

CV: Prof. Guoqiang Mao is a Leading Professor, Founding Director of the Research Institute of Smart Transportation, and Vice-Director of the ISN State Key Lab at Xidian University. Before that he was with University of Technology Sydney and the University of Sydney. He has published ~ 300 papers in international conferences and journals that have been cited more than 14,000 times. His H-index is 55 and is in the list of Top 2% most-cited Scientists Worldwide 2022 by Stanford University. He serves as a Vice-Director of Smart Transportation Information Engineering Society, Chinese Institute of Electronics (2022-), and was a co-chair IEEE ITS Technical Committee on Communication Networks (2014-2017). He is an editor of the IEEE Transactions on Intelligent Transportation Systems (since 2018), IEEE Transactions on Wireless Communications (2014-2019), IEEE Transactions on Vehicular Technology (2010-2020) and received "Top Editor" award for outstanding contributions to the IEEE Transactions on Vehicular Technology in 2011, 2014 and 2015. He has served as a chair, co-chair and TPC member in a number of international conferences. His research interest includes intelligent transport systems, Internet of Things, wireless localization techniques, wireless sensor networks, and applied graph theory and its applications in telecommunications. He is a Fellow of IEEE, AAIA and IET and a National Distinguished Overseas Expert.

Opening Remarks and Keynotes

2024-8-10 8:30-12:00			
Time	**Conference Program**	**Spokesman**	**Chairman**
08:30-08:45	Welcome Speech	Norio Shiratori	Xiaofeng Wang
08:45-09:00	Opening Remarks	Wenxing Bao	Xiaofeng Wang
09:00-09:10	Group Photo Taken		Weijun Li
09:10-10:00	Keynote Speech 1	Achille Pattavina	Xiaohong Jiang
10:00-10:20	Coffee Break		
10:20-11:10	Keynote Speech 2	Jian Weng	Wenxing Bao
11:10-12:00	Keynote Speech 3	Guoqiang Mao	Yuanyu Zhang

Track 1:Wireless Networks

	2024-8-10	14:30-16:10	Hongshun Hall		

	Session A1	Chair: Pin-Han Ho	Vice-chair:Hongbin Zhang		

ID	Time	Author	Title	Type
540	14:30-14:50	Qiaoyang Li, Yanan Sun and Ning Xi	LFL-COBC:Lightweight Federated Learning on Blockchain-based Device Contribution Allocation	Regular
609	14:50-15:10	Zheng Yuan, Youliang Tian, Jinbo Xiong and Linjie Wang	Enhancing Privacy-Preserving Federated Learning: A Robust and Resilient Approach	Regular
734	15:10-15:30	Jin Liu, Zan Li, Qiguang Miao, Li Yang, Peihan Qi and Danyang Wang	Analog Circuit Design of Normalized Bistable Stochastic Resonance Model and Its Application in Weak Signal Processing	Regular
6557	15:30-15:50	Hongbin Zhang, Qingqing Ren, Bin Liu, Dongmei Zhao, Ying Li and Mingyue Qi	System Security Assessment Method Integrating Risk Relationships of Open Source Software	Best Paper Candidate
6813	15:50-16:10	Jian Mu, Xiaoyu Zhang, Renmin Zhao, Qiong Wang, Pujie Jing and Xia Feng	CAKA: Certificateless Authenticated Key Agreement Scheme for Satellite-assisted Unmanned-aerial-vehicle Network	Best Paper Candidate

	16:10-16:30	Coffee Break		

	2024-8-10	16:30-18:10	Hongshun Hall		

	Session A2	Chair: Limei Peng	Vice-chair:Shikai Shen		

ID	Time	Author	Title	Type
1187	16:30-16:50	Junbo Huang, Youliang Tian, Kedi Yang and Linjie Wang	A Service-Oriented Anonymous Authentication Scheme with Partial-Disclosure in C-ITS	Best Paper Candidate
1657	16:50-17:10	Meiyun Xie, Xin Liu, Shuangrui Zhao, Yeqiu Xiao and Xiaohong Jiang	A New Secrecy Metric for Relay-Eavesdropper Channel	Regular
1667	17:10-17:30	Jiaqi Li, Ruoxia Yao, Yiping Tan, Jingwei Xuan and Yan Li	An HIV/AIDS Model with Gender Differences and Awareness Differences	Regular
6884	17:30-17:50	Zijian Chen, Limei Peng and Pin-Han Ho	A Novel GNN-based Decoding Scheme for Sparse Code Multiple Access (SCMA)	Best Paper Candidate
8646	17:50-18:10	Yiwen Zhang, Shikai Shen, Bin Yang, Fei Deng, Yumei She, Kaiguo Qian, Riyu Wang and Kai Yang	Average AoI Minimization in UAV-Enabled Covert Communication Systems	Regular

		2024-8-10 14:30-16:10 Zhixuan Hall		
		Session B1 Chair: Achille Pattavina Vice-chair:Wu Wang		
ID	**Time**	**Author**	**Title**	**Type**
3476	14:30-14:50	Abdelkader Mekkaoui, Omar Smail and Mohammed Rebbah	Energy Aware and Link-Stability Routing Protocol Based on Differential Evolution for MANETs	Regular
3540	14:50-15:10	Xiaoxue Liu, Xinwei Duan, Xinhong Hei, Yichuan Wang and Xin Song	Compiler Differentiation Detection Method for Binary Similarity	Regular
4367	15:10-15:30	Yueyue Zhu, Huiru Wang, Hanjuan Cai, Xin Zhang, Guozhu Zhao, Ying Sun, Leilei Zhu and Huanhuan Zhao	A Schizophrenia Screening Method Based on Fine-grained Facial Features and Network Isolation Privacy Protection	Regular
4565	15:30-15:50	Kai Yang, Shikai Shen, Bin Yang, Fei Deng, Yumei She, Kaiguo Qian, Yiwen Zhang and Riyu Wang	Covert and Secure Communications in UAV-Aided Untrusted Relay Systems	Regular
5707	15:50-16:10	Yuliang Wang, Mingwei Xu, Cuiyun Hua, Jiafu Zhang, Kang Li, Zongpeng Li and Bo Yang	RPKI Sentinel: An Efficient RPKI-based Routing Emergency Control Platform	Best Paper Candidate
		16:10-16:30 Coffee Break		
		2024-8-10 16:30-18:10 Zhixuan Hall		
		Session B2 Chair:Wu Wang Vice-chair: Yue Zhao		
ID	**Time**	**Author**	**Title**	**Type**
3790	16:30-16:50	Yichuan Wang, Peipei Li, Xin Song, Yeqiu Xiao and Xiaoxue Liu	Probability Analysis of System Vulnerability Distribution Based on the Matroid Theory	Best Paper Candidate
5299	16:50-17:10	Guiliang Cai, Qiang Wu and Wei Su	Enabling Service Continuity Support for Low-Latency Services over Mobile Edge with Ubiquitous Mobility	Best Paper Candidate
6585	17:10-17:30	Keshuang Han，Huangwenqing Shi，Runqing Wang and Pinchang Zhang	Utilizing Space-Time Coding Metasurface for FMCW Radar Spoofing in RIS-Assisted Communication Systems	Regular
7048	17:30-17:50	Changjun Ren, Lin Yan, Shujie Yang, Zan Zhou and Yi Sun	Unveiling the Power of Collaboration: Detect DDoS Attacks on Proxies through Moving Target Defense with Multi-Proxy	Regular
7125	17:50-18:10	Fangzhe Zhang, Donglan Liu, Fuhui Zhao, Xin Liu, Yingxian Chang, Rui Wang, Hao Zhang, Lili Sun and Shanjie Xu	Security Enhancement Method for MQTT Based on TEE	Regular

Track 2: Wired Networks and Data Center (DC) Networks

<table>
<tr><td colspan="5">2024-8-10　　14:30-16:10　　12th Floor Conference Room</td></tr>
<tr><td colspan="5">Session C1　　Chair: Huihui Wu　　Vice-chair:Jun Yan</td></tr>
<tr><td>ID</td><td>Time</td><td>Author</td><td>Title</td><td>Type</td></tr>
<tr><td>890</td><td>14:30-14:50</td><td>Yanfei Cao, Naijie Gu, Xinyue Shen, Daiyuan Yang and Xingmin Zhang</td><td>Defending Large Language Models Against Jailbreak Attacks Through Chain of Thought Prompting</td><td>Best Paper Candidate</td></tr>
<tr><td>977</td><td>14:50-15:10</td><td>Shuhui Fang, Xuejun Wan, Jun Wang, Lin Chai , Wenlin Pan and Wu Wang</td><td>HiDS Data Clustering Algorithm Based on Differential Privacy</td><td>Regular</td></tr>
<tr><td>3720</td><td>15:10-15:30</td><td>Cheng Wu, Hong Zhong, Guilin Chen, Naji Alhusaini, Shenghui Zhao and Yuchen Zhang</td><td>Optimizing Multimodal Federated Learning: Novel Approaches for Efficient Model Aggregation and Client Sampling</td><td>Best Paper Candidate</td></tr>
<tr><td>8389</td><td>15:30-15:50</td><td>Phavithra Manoharan, Jiao Yin, Hua Wang, Yanchun Zhang and Wenjie Ye</td><td>Insider Threat Detection: A Review</td><td>Regular</td></tr>
<tr><td>9480</td><td>15:50-16:10</td><td>Lu Qiaoling, Tian Feng and Ren Jie and Li Mengdi</td><td>Defense Against Membership Inference Attacks on Imbalanced Dataset Using Generated Data</td><td>Regular</td></tr>
<tr><td colspan="5">16:10-16:30　　Coffee Break</td></tr>
<tr><td colspan="5">2024-8-10　　16:30-18:10　　12th Floor Conference Room</td></tr>
<tr><td colspan="5">Session C2　　Chair:Jun Yan　　Vice-chair: Xin Liu</td></tr>
<tr><td>ID</td><td>Time</td><td>Author</td><td>Title</td><td>Type</td></tr>
<tr><td>2215</td><td>16:30-16:50</td><td>Zhiyin Chen, Feng Zhou, Youliang Tian and Shuai Wang</td><td>A Blockchain-Based Dynamic Incentive Model in Mobile Edge Computing</td><td>Regular</td></tr>
<tr><td>2799</td><td>16:50-17:10</td><td>Ziqing Zhang, Jie Ma, Shuoyu Mao, Peng Liang and Qi liu</td><td>A Low-Overhead and Real-Time Service Recovery Mechanism for Data Center Networks with SDN</td><td>Regular</td></tr>
<tr><td>8871</td><td>17:10-17:30</td><td>Riyu Wang, Shikai Shen, Bin Yang, Kaiguo Qian, Fei Deng, Yumei She, Kai Yang and Yiwen Zhang</td><td>Trajectory Optimization for UAV-Enabled Covert Communications</td><td>Regular</td></tr>
<tr><td>9041</td><td>17:30-17:50</td><td>Yuanyu Zhang, Jianing Wang, Zhumeng Zheng, Yulong Shen, Yunsong Jiang and Mengfei Yang</td><td>Variational AutoEncoder-Based Radio Frequency Fingerprinting for GPS Anti-spoofing</td><td>Best Paper Candidate</td></tr>
<tr><td>9394</td><td>17:50-18:10</td><td>Kaijun Wu, Bo Tian and Xue Wang</td><td>A Secure Routing Method by Neural Combination Optimization Decision Algorithm Based on Overlay Network</td><td>Regular</td></tr>
</table>

Track 3: Network Management, Monitoring and Automation

		2024-8-11	8:30-10:10 Hongshun Hall		
		Session A3 Chair:Laifeng Lu	Vice-chair:Yihui Zhou		
ID	Time	Author	Title		Type
1908	8:30-8:50	Yeqiu Xiao, Yibin Ma, Yichuan Wang, Kun Jiang and Lanlan Cui	A Novel Auralization Model for Network Security Situation Assessment		Regular
2505	8:50-9:10	Yihua Peng, Wei Su, Jie Ma, Zhuojia Yang, Yuan Yuan, Lisheng Ma, Qi Liu and Peng Liang	Sudden Traffic Prediction Based on Gated Recurrent Unit in Low Earth Orbit Satellite Networks		Regular
5061	9:10-9:30	Xin Cao, Yu Han, Liumei Zhang and Yuanjiao Hu	Research on Malicious Attack Detection and Evaluation Methods Based on Entropy Increase Analysis		Regular
7558	9:30-9:50	Yijun Zhang, Jun Yan, Yihui Zhou, Wenli Wang	The Preservation of Weighted Graphs Based on Shuffle Differential Privacy in Social Networks		Regular
8720	9:50-10:10	Qifeng Miao, Yizhi Cao, Ranran Sun, Ji He, Xiaochen Li and Huihui Wu	On Mobile Covert Communication in Wireless Networks with a Full-Duplex Receiver		Regular
		10:10-10:30 Coffee Break			
		2024-8-11	10:30-12:10 Hongshun Hall		
		Session A4 Chair:Yihui Zhou	Vice-chair:Yeqiu Xiao		
ID	Time	Author	Title		Type
6013	10:30-10:50	Linying Tian, Chan Gao, Dong Zheng, Qiuxia Zhao and Yu Shi	Covert Communication for UAV-Assisted Wireless Systems with Probabilistic Jamming		Regular
7663	10:50-11:10	Zhuojia Yang, Bin Yang, Wei Su, Yudong Ma, Yihua Peng, Qi Liu and Peng Liang	Dynamic Resource Allocation for Differentiated Service Adaptation in FANET		Regular
8382	11:10-11:30	Huizhu Yang, Chao Yang, Qihang Wu and Weidong Yang	Reputation based Privacy-preserving in Location-dependent Crowdsensing for Vehicles		Regular
9479	11:30-11:50	Yizhi Cao, Zewei Guo, Qifeng Miao, Ranran Sun, Ji He and Xiaochen Li	Minimization of Age of Information for Satellite-Terrestrial Covert Communication with a Full-Duplex Receiver		Regular
9679	11:50-12:10	Huangwenqing Shi, Mu Niu, Yulin Teng and Pinchang Zhang	Privacy-Preserving Physical Layer Authentication Exploiting Carrier Frequency Offset in UAV-aided Communication Systems		Regular

Track 4: Network Applications

	2024-8-11	8:30-10:10	Zhixuan Hall		

	Session B3	Chair: Kaijun Wu	Vice-chair:Shuangrui Zhao		
ID	**Time**	**Author**	**Title**		**Type**
101	8:30-8:50	Ruinan Peng, Xinhong Hei, Yichuan Wang, Xiaoxue Liu and Yeqiu Xiao	Crucial Interaction Elements Detection for 5G Core Network Based on the Complex Network Model		Regular
472	8:50-9:10	Qiutong Zheng, Jie Ma, Qi Liu and Peng Liang	A Service Customize Routing Method Based on Software Defined Network Using Deep Q-Network		Regular
924	9:10-9:30	Xiaopu Wang, Jianing Sun and Chao Qi	CEDA-TQA: Context Enhancement and Domain Adaptation method for Textbook QA Based on LLM and RAG		Regular
1583	9:30-9:50	Jianing Sun, Zhichao Zhang and Xueli He	LLM4EduKG: LLM for Automatic Construction of Educational Knowledge Graph		Regular
2259	9:50-10:10	Hui Tian, Haibao Chen, Yuyan Zhao, Pinchang Zhang, Yan Xu and Yangyang Liu	Source Camera Device Identification with Privacy-Preserving Combining Sensor Intrinsic Features and Tag		Regular

		10:10-10:30 Coffee Break			

	2024-8-11	10:30-12:10	Zhixuan Hall		

	Session B4	Chair:Shuangrui Zhao	Vice-chair:Dan Luo		
ID	**Time**	**Author**	**Title**		**Type**
3040	10:30-10:50	Ruiqi Zeng and Yuxiang Chen	A Novel Automatic Horizontal Extension Technology for Multi-instance Microservice System		Regular
4042	10:50-11:10	Zhoukai Wang, Zuoyan Xu, Yaling Zhang, Xin Song and Yichuan Wang	Research on Code Virtualization Methods for Cloud Applications		Regular
4754	11:10-11:30	Xinhong Hei, Jianfeng Chen, Yichuan Wang, Xin Song and Lei Zhu	A Novel Multipath Data Transmission Method with Traffic Obfuscation		Regular
5419	11:30-11:50	Zhao Huang, Xin Gao, Xiao Liu, Lu Fan, Junjun Wang and Quan Wang	A Dynamic Evolutionary Game-based Defense Method for Mining Pools against DDoS Attacks		Regular
5422	11:50-12:10	Yunwang Xu, Jiangong Yang, Dingyang Liang and Huan Chen	MQTT Third-party Library Porting Method and Application Based on the OpenHarmony Standard System		Regular

	2024-8-11 8:30-10:10 12th Floor Conference Room			
	Session C3 Chair: Yuanyu Zhang Vice-chair:Wei Tong			
ID	**Time**	**Author**	**Title**	**Type**
891	8:30-8:50	Yuliang Wang, Mingwei Xu, Kang Li, Cuiyun Hua, Jiafu Zhang, Zongpeng Li and Yang Bo	Route Origin Authorization Emergency Synchronization Based on RPKI Relying Party Cache	Regular
941	8:50-9:10	Runqing Wang, Huangwenqing Shi, Keshuang Han and Pinchang Zhang	Physical Layer Authentication with Cascade Channel Characteristics in IRS-Assisted UAV Communication System	Regular
5971	9:10-9:30	Jiarun Ma, Shiling Feng, Jiahao Zeng, Jia Lu and Jie Chen	Smart Contract Vulnerability Detection Based on Prompt-guided ChatGPT	Regular
6068	9:30-9:50	Xin Song, Haonan Wang, Yichuan Wang, Xinhong Hei and Wenjiang Ji	Code Obfuscation Protection Strategies for Program Running States	Regular
6375	9:50-10:10	Jian Li, Wei Tong, Lingxiao Yang, Xiangshang Gao, Zesong Dong and Chen Wang	Blockchain and Oracle-Driven Web3 Architecture for Data Interaction	Regular
	10:10-10:30 Coffee Break			
	2024-8-11 10:30-12:10 12th Floor Conference Room			
	Session C4 Chair: Wei Tong Vice-chair:Lina Zhang			
ID	**Time**	**Author**	**Title**	**Type**
7087	10:30-10:50	Zhijie Hu, Qing Kou, Ruibing Shen and Peiqiao Yang	Smart Garbage Design Based on Voice Recognition	Regular
7110	10:50-11:10	Chang Wang, Yuan Yuan, Haoru Li, Zijian Wang and Qi Liu	State Update Control Based on Deep Reinforcement Learning: Balancing AoI-Update Counts	Regular
7273	11:10-11:30	Liming Xu, Zhibo Zhao and Dingyang Liang	PreKGAT: Using Course Prerequisite Relation and Knowledge Graph Attention Network for Course Recommendation	Regular
7576	11:30-11:50	Yuan Zhou and Yaling Zhang	Blockchain-based Data Security Sharing and Fair Payment Scheme in Smart Cities	Regular
8044	11:50-12:10	Lina Zhang, Xueya Zhang, Xinjie Li and Kangrui Ma	Research on Big Data Analysis of Online Learning Behavior and Predictive of Learning Effectiveness	Regular

Track 5: AI/ML in Networks

		2024-8-11　14:30-16:10　Hongshun Hall		
		Session A5　Chair: Guozhu Zhao　Vice-chair: Ji He		
ID	**Time**	**Author**	**Title**	**Type**
8798	14:30-14:50	Zijian Wang, Yuan Yuan, Chang Wang, Qi Liu and Peng Liang	MEC-assisted Vertical Handover Based on Improved DQN in Heterogeneous Internet of Vehicles	Regular
9034	14:50-15:10	Wanying Suo, Bello Ahmad Muhammad and Bo Liu	LightGCN-LSC: Lightweight Graph Convolution Network for Learning Style Classification in Online Education	Regular
9433	15:10-15:30	Congrui Wang, Li Li and Fei Hao	Deep Attention Fusion Network for Attributed Graph Clustering	Regular
9784	15:30-15:50	Xiaoli Ma, Guangsen Chen, Haoxuan Zhang and Tao Qin	Towards Hierarchically Extracting Network Topologies	Regular
6197	15:50-16:10	Hong Xia, Jing Xu, Bo Xiao, Hui Jia, Cong Gao and Yanping Chen	Multi-Source KPIs' Root Cause Localization in Online Service Systems	Regular
		16:10-16:30　Coffee Break		
		2024-8-11　16:30-18:10　Hongshun Hall		
		Session A6　Chair: Ji He　Vice-chair:Bello Ahmad Muhammad		
ID	**Time**	**Author**	**Title**	**Type**
720	16:30-16:50	Yanni Liu, Ayong Ye, Yuanhuang Liu and Wenting Lu	Few-Shot Malware Classification using Malware Variant and Model Augmentation	Regular
766	16:50-17:10	Tianying Chen, Jianfeng Chen and Xiao Li	Research on Intelligent Big Data Collaborative Supervision System on Quality and Security Properties	Regular
896	17:10-17:30	Jiale Quan, Yu Han, Liumei Zhang and Yuanjiao Hu	ElNnGA: An Artificial Intelligence Empowered Scheme for Unknown Attack Recognition and Defense Strategy Recommendation	Regular
1833	17:30-17:50	Zhen Wan, Sugang Ma, Zixian Zhang and Siwei Sun	SiamDTA: Dual-Template Siamese Network Visual Object Tracking Algorithm Based on Attention Mechanism	Regular
7962	17:50-18:10	Jia Cao, Jiayue Zhou and Jianan Hong	UE-detectable Authentication and Key Agreement Method Resisting Serving Network Forging	Regular

	2024-8-11 14:30-16:10 Zhixuan Hall			
	Session B5 Chair: Bin Yang Vice-chair:Zhao Huang			
ID	**Time**	**Author**	**Title**	**Type**
2724	14:30-14:50	Yuyan Zhao, Haibao Chen, Boyu Li, Mengyuan Li, Siqing Tao and Hui Tian	Hierarchical Policy Learning with Noisy Networks based Multi-round Conversational Recommendation	Regular
3493	14:50-15:10	Xianyu Mu, Youliang Tian, Zhou Zhou and Jinbo Xiong	Lightweight Federated Learning Secure Aggregation Protocols	Regular
3989	15:10-15:30	Huifeng Hao, Shenghui Zhao, Guilin Chen, Shu Zhao, and Yong Ge	Segmentation of Multi-Residential Activities Based on Spatial Correlation and FWC-CPD	Regular
4197	15:30-15:50	Yong Zhao, Liumei Zhang, Ximeng Liu and Yuanjiao Hu	AAM-Sinc-MV1D: A Model of Short-Term Speaker Recognition Based on the Raw Waveform	Regular
8800	15:50-16:10	Wenhao Zhang, Ji He and Xiaohong Jiang	Transmit Power and Flying Location Optimization for Time-Efficient Covert Multicast in UAV-Enabled Wireless Communication Systems	Regular
	16:10-16:30 Coffee Break			
	2024-8-11 16:30-17:50 Zhixuan Hall			
	Session B6 Chair: Zhao Huang Vice-chair:Hong Xia			
ID	**Time**	**Author**	**Title**	**Type**
4401	16:30-16:50	Yu Chen, Guozhu Zhao, Xu Han, Yichen Li, Fang Chun, Chongjie Wang and Yueyue Zhu	Two-Factor Authentication for IIoT Systems Utilizing Environmental Background Features	Regular
4423	16:50-17:10	Yang Yang, Bo Tian, Fei Yu and Yuanhang He	An Anomaly Detection Model Training Method Based on LLM Knowledge Distillation	Regular
4713	17:10-17:30	Yuanjun Liu, Zhihong Liu and Yong Zeng	Divide-and-Conquer Based Traffic Classification: Towards A Cascaded Classifier	Regular
4793	17:30-17:50	Hong Xia, Jing Xu, Qingyi Dong, Hui Jia and Yanping Chen	Efficient QoS Data Prediction Based on Tensor Kernel Paradigm-Tensor Decomposition	Regular

	2024-8-11	14:30-16:10	12th Floor Conference Room	

	Session C5	Chair:Lisheng Ma	Vice-chair: Xiaolan Liu	

ID	Time	Author	Title	Type
5556	14:30-14:50	Han Li, Chuanwei Yang, Baitong Zha, Lifan Liu, Zhiwei Zhang and Shuo Zhong	A Real-time APT Attack Detection Scheme Based on Fusion Provenance Graph in Private Clouds	Regular
5578	14:50-15:10	Yuchen Zhang, Hong Zhong, Guilin Chen, Naji Alhusaini, Shenghui Zhao and Cheng Wu	Multimodal Sentiment Analysis Network Based on Distributional Transformation and Gated Cross-Modal Fusion	Regular
5967	15:10-15:30	Changan Wang, Zhihong Liu and Yong Zeng	Detecting Phishing URLs with GNN-based Network Inference	Regular
5991	15:30-15:50	Liu Na, Shao Guanghui, Yang Yanbo, Zhang Jiawei and Li Teng	Review on the Research Progress of Machine Learning in Network Coding	Regular
6202	15:50-16:10	Guiyuan Tang, Junqi Zhao, Zhijian Xu, Yuzi Wang, Hanzi Yang and Zhiwei Zhang	Continuous Smartphone User Authentication Based on Gesture-Sensor Fusion	Regular

	16:10-16:30	Coffee Break	

	2024-8-11	16:30-17:50	12th Floor Conference Room	

	Session C6	Chair: Xiaolan Liu	Vice-chair:Meiyun Xie	

ID	Time	Author	Title	Type
6230	16:30-16:50	Huan Chen, Li Li and Yunwang Xu	Reducing Redundancy of Data Samples Method Based on Data-Importance Analysis	Regular
6705	16:50-17:10	Qiangyi Wu and Yiyu Xiang	Improving the Accuracy of Anomaly Detection from System Audit Logs via Heterogeneous Provenance Graphs	Regular
7325	17:10-17:30	Jie Wang, Mengru Xu and Hao Chen	Detecting Source Code Vulnerabilities using High-Precision Code Representation and Bimodal Contrastive Learning	Regular
9322	17:30-17:50	Xiaodong Zhang, Jie Bao and Yulong Shen	Testing Object Detection Models for Autonomous Vehicles Against Hazards	Regular

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