IEEE TrustCom/BigDataSE/CSE/EUC/iSCI 2021

The 20th IEEE International Conference on Trust, Security and Privacy in Computing and Communications (IEEE TrustCom 2021)

The 15th IEEE International Conference on Big Data Science and Engineering (IEEE BigDataSE 2021)

The 24th IEEE International Conference on Computational Science and Engineering (IEEE CSE 2021)

The 19th IEEE International Conference on Embedded and Ubiquitous Computing (IEEE EUC 2021)

The 9th International Conference on Smart City and Informatization (IEEE iSCI 2021)

October 20 - 22, 2021

Shenyang, China

Conference Program and Information Booklet

Organized by

Shenyang Aerospace University

Sponsored by

IEEE, IEEE Computer Society, IEEE Technical Committee on Scalable Computing,

Shenyang Association for Science and Technology

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Registration Desk

The Registration Desk will be open to assist you at the following times:

• Tuesday, October 19, 2021, 15:00 – 21:00
• Wednesday, October 20, 2021, 8:30 – 17:00
• Thursday, October 21, 2021, 8:30 – 17:00
• Friday, October 22, 2021, 8:30 – 12:00

Name Badges and Meal Tickets

All delegates, sponsors and speakers of the IEEE TrustCom/BigDataSE/CSE/EUC/iSCI 2021 and associated workshops will be provided with a name badge, to be collected upon registration. This badge must be worn at all times as it is your official pass to all technical sessions of the conferences and morning and afternoon teas. There are 5 different meal tickets for 3 lunches on October 20, October 21 and 22, 1 banquet on October 20, and 1 dinner on October 21, respectively.

Conference Venue Map

Huaqiang Novlion Hotel (华强诺华廷酒店)
No.10-2 Daoyi South Street (Gate 8), Shenbei New District, Shenyang, Liaoning Province, China
地址：辽宁省沈阳市沈北新区道义南大街 10-2 号（8 门）

Presentation Guidelines

Language
The presentation language of the IEEE TrustCom/BigDataSE/CSE/EUC/iSCI 2021 and associated workshops is English.

Checking In
Session Chairs are requested to register at least 2 hours before their session, or as soon as the Registration Desk is open.

Setting Up
You are required to arrive at the room (in which you will deliver your talk) 20 minutes before the commencement of the session. Upon arrival, please confirm your attendance with the Session Chair and familiarize yourself with the venue.

Upon arrival, please copy your slides file to the presentation computer. If you plan to use your own equipment, please ensure it is ready to go prior to the session commencing, since there is very little time between presentations. If you have requested optional equipment, ensure that is in the room. In the larger conference rooms please, make sure you familiarize yourself with the audio system. For all assistance, please speak to the Session Chair.

Timing
Please ensure your check the program for the exact time of your session and where your paper falls within the session.

It is recommended that all IEEE TrustCom/BigDataSE/CSE/EUC/iSCI 2021 paper presentations use **15 minutes presentation time (12 minutes for workshop papers)** including **5 minutes question time**. The Session Chairs will determine the exact presentation time for each paper, based on the number of presentations in each session. The Session Chairs will ensure that you do not over-run the time allocated.

Please keep strictly to this time guideline.

Meeting Rooms
There are 6 meeting rooms provided for the conferences including 2 virtual rooms. To participate online, the Zoom APP is necessary. The room names with the corresponding Zoom IDs for online participants are shown as follows.

Room Name	Zoom ID
Room A (Dongshan)	362 472 4078
Room B (Beichen)	788 797 7904
Room C (Nansha)	246 429 3305
Room D (Xihai)	817 068 3014
Virtual Room E	910 592 4703
Virtual Room F	981 348 1998

Proceedings
You can download the proceedings from the following link by using the provided login name and password before the end of our conferences.

IEEE TrustCom/BigDataSE/CSE/EUC/iSCI 2021
Program Overview

Wednesday, October 20, 2021	
Meeting Room	Huaqiang/Zoom: 362 472 4078
08:30-17:00	Registration (Lobby)
08:30-08:45	Opening Ceremony
08:45-09:30	Keynote 1: Prof. Yan Zhang, "Digital Twin for Internet of Things" (Chair: Yuanguo Bi)
09:30-10:15	Keynote 2: Prof. Xingwei Wang, "Computation Migration Oriented Resource Allocation in Mobile Social Clouds" (Chair: Yuanguo Bi)
10:15-10:30	Coffee Break
10:30-11:15	Keynote 3: Prof. Keqiu Li, "Blockchain Technology and System" (Chair: Yun Lin)
11:15-12:00	Keynote 4: Prof. Xiaofang Zhou, "Utility and Privacy: A Study for Spatial Trajectory Data" (online) (Chair: Yun Lin)
12:00-13:30	Lunch Buffet (Room: Multi-Functional Room)
13:30-14:15	Invited Talk 5: Prof. Zhipeng Gao, "Internet of Vehicles Empowered by Blockchain and Federated Learning" (Chair: Yuan Liu)
14:15-15:00	Keynote 6: Prof. Jianwei Huang, "Incentive Mechanism Design for Crowd Systems" (online) (Chair: Yuan Liu)
15:00-15:30	Coffee Break
15:30-16:15	Keynote 7: Prof. Mohsen Guizani, "Security and Privacy of IoT Data using Machine Learning" (online) (Chair: Yiping Teng)
16:15-17:00	Invited Talk 8: Prof Zhangjie Fu, "Content-based Search over Encrypted Data in Cloud". (Chair: Yiping Teng)
18:00-20:00	Banquet (Room: Huaqiang) (Chair: Liang Zhao)

Thursday, October 21, 2021

Meeting Room	Room A (Dongshan)	Room B (Beichen)	Room C (Nansha)	Room D (Xihai)	Virtual Room E (Zoom)
8:30-17:30	Registration (Lobby)				
8:30-9:45	Security Track Session-1A-I (Session Chair: Su Peng)	Privacy Track Session-1B-I (Session Chair: Zhaoxuan Gong)	Forensics and Analytics Track Session-1C-I (Session Chair: Anzhen Zhang)	Emerging Tech Track Session-1D-I (Session Chair: Jiaxing Shang)	Online Track Session-1OL-I (Session Chair: Junling Shi)
9:45-10:00	Coffee Break				
10:00-11:15	Security Track Session-1A-II (Session Chair: Su Peng)	Privacy Track Session-1B-II (Session Chair: Zhaoxuan Gong)	Forensics and Analytics Track Session-1C-II (Session Chair: Anzhen Zhang)	Emerging Tech Track Session-1D-II (Session Chair: Jiaxing Shang)	Online Track Session-1OL-II (Session Chair: Junling Shi)
11:15-12:15	Trust Track Session-1A-III (Session Chair: Su Peng)	Privacy Track Session-1B-III (Session Chair: Zhaoxuan Gong)	Forensics and Analytics Track Session-1C-III (Session Chair: Anzhen Zhang)	Emerging Tech Track Session-1D-III (Session Chair: Jiaxing Shang)	Online Track Session-1OL-III (Session Chair: Junling Shi)
12:15-13:30	Lunch Buffet (Room: Multifunctional Room)				
13:30-15:00	Security Track Session-1A-IV (Session Chair: Chuanyun Wang)	Privacy Track Session-1B-IV (Session Chair: Cunqian Yu)	Forensics and Analytics Track Session-1C-IV (Session Chair: Yunchong Guan)	Emerging Tech Track Session-1D-IV (Session Chair: Wei Zhou)	Online Track Session-1OL-IV (Session Chair: Tao Qiu)
15:00-15:15	Coffee Break				
15:15-16:30	Trust Track Session-1A-V (Session Chair: Chuanyun Wang)	Forensics and Analytics Track Session-1B-V (Session Chair: Jizhao Zhu)	Forensics and Analytics Track Session-1C-V (Session Chair: Yunchong Guan)	Emerging Tech Track Session-1D-V (Session Chair: Wei Zhou)	Online Track Session-1OL-V (Session Chair: Tao Qiu)
16:30-17:30	Trust Track Session-1A-VI (Session Chair: Chuanyun Wang)	Forensics and Analytics Track Session-1B-VI (Session Chair: Jizhao Zhu)	Forensics and Analytics Track Session-1C-VI (Session Chair: Yunchong Guan)	Emerging Tech Track Session-1D-VI (Session Chair: Wei Zhou)	Online Track Session-1OL-VI (Session Chair: Tao Qiu)
17:30-19:30	Dinner Buffet (Room: Multifunctional Room)				

Friday, October 22, 2021

8:30-17:30	Registration (Lobby)					
Meeting Room	Room A (Dongshan)	Room B (Beichen)	Room C (Nansha)	Room D (Xihai)	Virtual Room E (Zoom)	Virtual Room F (Zoom)
8:30-9:45	CSE Session-2A-I (Session Chair: Hao Liu)	CSE/EUC Session-2B-I (Session Chair: Deyuan Zhang)	EUC Session-2C-I (Session Chair: Zhuo Yan)	iSCI/BigDataSE Session-2D-I (Session Chair: Zhuoqun Fang)	Online Session Session-2OL-I (Session Chair: Cunqian Yu)	Online Session Session-2OL-IV (Session Chair: Yunchong Guan)
9:45-10:00	Coffee Break					
10:00-11:15	CSE Session-2A-II (Session Chair: Hao Liu)	EUC Session-2B-II (Session Chair: Guohui Ding)	EUC/iSCI Session-2C-II (Session Chair: Zhuo Yan)	BigDataSE Session-2D-II (Session Chair: Zhuoqun Fang)	Online Session Session-2OL-II (Session Chair: Cunqian Yu)	Online Session Session-2OL-V (Session Chair: Junling Shi)
11:15-12:30	CSE Session-2A-III (Session Chair: Hao Wu)	EUC Session-2B-III (Session Chair: Guohui Ding)	iSCI Session-2C-III (Session Chair: Tao Qiu)	BigDataSE Session-2D-III (Session Chair: Zhuoqun Fang)	Online Session Session-2OL-III (Session Chair: Cunqian Yu)	Online Session Session-2OL-VI (Session Chair: Junling Shi)
12:30-13:30	Lunch Buffet (Room: Multifunctional Room)					

Meeting Room	Room A (Dongshan)	Room B (Nansha)	Room C (Beichen)	Room D (Xihai)	Virtual Room E (Zoom)
13:30-15:30	NGDN 2021 Session I (Session Chair: Hao Wu)	AEIT 2021 (Session Chair: Rui Zhu)	AINet/MLSys/BDRA 2021 Session I (Session Chair: Chaowei Wang)	AINet/MLSys/BDRA 2021 Session III (Session Chair: Gaofeng Cui)	Online Workshops Session (Session Chair: Tao Qiu)
15:30-15:45	Coffee Break				
15:45-18:30	NGDN 2021 Session II (Session Chair: Jiajia Li)	RFTI/MLTrustCom /BlockchainSys/EBTSRA 2021 (Session Chair: Rui Zhu)	AINet/MLSys/BDRA 2021 Session II (Session Chair: Xin Hu)	AINet/MLSys/BDRA 2021 Session IV (Session Chair: Cheng Wang)	

Welcome Message from the TrustCom 2021 General Chairs

Welcome to the 20th IEEE International Conference on Trust, Security and Privacy in Computing and Communications (IEEE TrustCom 2021), which is organized by Shenyang Aerospace University, Shenyang, China, 18-20 August 2021. Due to the Covid-19, the conference is held in a hybrid mode, both physically and online.

It is our great pleasure to organize IEEE TrustCom 2021. On behalf of the organizing committee of the conference, we would like to express to all participants who will attend the conference, our cordial welcome and great gratitude.

TrustCom 2021 aims at bringing together researchers and practitioners in the world working on trusted computing and communications, with regard to trust, security, privacy, reliability, dependability, survivability, availability, and fault tolerance aspects of computer systems and networks, and providing a forum to present and discuss emerging ideas and trends in this highly challenging research field.

TrustCom 2021 Conference consists of five tracks: Trust Track, Security Track, Privacy Track, Forensics & Analytics Track, and Emerging Tech Track. Many individuals have contributed to the success of the conference. We would like to express our special appreciation to Prof. Guojun Wang and Prof. Laurence T. Yang, and all other Steering Committee Chairs, for giving us the opportunity to host this prestigious conference and for their guidance on the conference organization. Special thanks to the Program Chairs, Prof. Liang Zhao, Prof. Neeraj Kumar, Prof. Robert C. Hsu, and Prof. Deqing Zou, for their outstanding work on the technical program. Thanks also go to Publicity Chairs, Prof. Houbing Song, Prof. Mingwei Lin, and Prof. Xianjun Deng, for their great job in publicizing this event widely. We would like to express our thanks to all the members of the Organizing Committee and Program Committee members and External Reviewers for their efforts and supports. We would also like to give our thanks to Keynote Speakers for offering insightful and enlightening talks. Last but not least, we want to thank all the authors who submitted their papers to the conference and hope you enjoy this spectacular event!

Albert Y. Zomaya, University of Sydney, Australia

TrustCom 2021 Executive General Chair

Prosanta Gope, University of Sheffield, UK

Xiaoping Sun, Shenyang Aerospace University, China

TrustCom 2021 General Chairs

Welcome Message from the BigDataSE 2021 General Chairs

Welcome to the 15th IEEE International Conference on Big data Science and Engineering (BigDataSE 2021) organized by Shenyang Aerospace University, China, 18-20 August 2021, on behalf of the organizing committee of BigDataSE 2021. Due to the Covid-19, the conference is organized in a hybrid mode, both physically and online.

Big data is an emerging paradigm applied to datasets whose size is beyond the ability of commonly used software tools to capture, manage, and process the data within a tolerable elapsed time. Such datasets are often from various sources (Variety) yet unstructured such as social media, sensors, scientific applications, surveillance, video and image archives, Internet texts and documents, Internet search indexing, medical records, business transactions and web logs; and are of large size (Volume) with fast data in/out (Velocity). More importantly, big data has to be of high value (Value) and establish trust in it for business decision making (Veracity). Various technologies are being discussed to support the handling of big data such as massively parallel processing databases, scalable storage systems, cloud computing platforms, and MapReduce. BigDataSE aims to bring a series of solidate work together in the above fields.

We would like to express our special appreciation to the Program Chairs, Prof. Jia Hu, Prof. Shahid Mumtaz, and Prof. Xinzhou Cheng, for their outstanding work and brilliant discussions on organizing the technical program. We also would like to thank Publicity Chair, Prof. Fei Hao for his great job in promoting this event broadly. We also would like to give our thanks to Keynote Speakers for offering insightful and enlightening talks.

We know that the success of the conference depends ultimately on the many people who have helped and endorsed us, therefore we would like to give our thanks to all the members of the Organizing Committee and Program Committee members and External Reviewers for their efforts and support. Finally, we would like to thank all the authors of the conference in which we hope that you will enjoy this wonderful event.

Ahmed Al-Dubai, Edinburgh Napier University, UK

BigDataSE 2021 Executive General Chair

Abdullah Gani, Malaysia University Sabah, Malaysia

Chunlong Fan, Shenyang Aerospace University, China

BigDataSE 2021 General Chairs

Welcome Message from the CSE 2021 General Chairs

On behalf of the organizing committee, we are honored and delighted to welcome all participants to the 24th IEEE International Conference on Computational Science and Engineering (CSE 2021) organized by Shenyang Aerospace University, China on 18-20 August 2021. Due to the Covid-19, the conference is organized in a hybrid mode, both physically and online.

CSE 2021 is devoted to a variety of topics in big data applications, intelligent and bio-inspired computing, mobile computing, computational social systems, and security, etc. CSE aims at bringing together researchers and practitioners in the world working on addressing these computing challenges on science and engineering, and providing a forum to present and discuss emerging ideas and trends in this highly challenging research field.

With individuals' contributions to the success of CSE 2021, we would like to express our great gratitude to the Steering Committee Chairs, for giving us the opportunity to organize this prestigious conference and for their advice on the organization of the conference. We also extend our sincere thanks to the Program Chairs, Prof. Ammar Hawbani, Prof. Zhaokui Li, and Prof. Ammar Muthanna, for their exceptional work on the technical program. We greatly appreciate all members of the Organizing Committee, the Program Committee and External Reviewers for their contributions and assistance. We would like to thank all the authors and reviewers for their great work to making our 24th annual conference another rousing success. At last, we hope that you have a wonderful time when attending this event in person in Shenyang China, or online.

Amir Hussain, Edinburgh Napier University, UK

CSE 2021 Executive General Chair

Mohsen Guizani, Qatar University, Qatar

Guangjie Han, Hohai University, China

CSE 2021 General Chairs

Welcome Message from the EUC 2021 General Chairs

Welcome to the 19th IEEE international conference on embedded and ubiquitous computing (EUC 2021) organized by Shenyang Aerospace University, 18-20 August 2021, on behalf of the organizing committee of EUC 2021. Due to the Covid-19, the conference is organized in a hybrid mode, both physically and online.

EUC 2021 provides a forum for engineers and scientists in academia, industry, and government to address all challenges including technical, safety, social, and legal issues related to embedded and ubiquitous computing and to present and discuss their ideas, results, work-in-progress and experience on all aspects of embedded and ubiquitous computing.

We would like to express our special appreciation to the Program Chairs, Prof. Shaohua Wan, Prof. Xiaochun Cheng, and Prof. Celimuge Wu, for their outstanding work and brilliant suggestion on organizing the technical program. We also would like to thank Publicity Chairs, Prof. Xianwei Li, Prof. Daniele Tarchi, and Prof. Yuan He, for his great job in promoting this event broadly. We also would like to express our thanks to Keynote Speakers for offering insightful and enlightening talks.

We know that the success of the conference depends ultimately on the many people who have helped and endorsed us, therefore we would like to give our thanks to all the members of the Organizing Committee and Program Committee members and External Reviewers for their efforts and support. Finally, we would like to thank all the authors of the conference in which we hope that you will enjoy this wonderful event.

Xingwei Wang, Northeastern University, China

EUC 2021 Executive General Chair

Mianxiong Dong, Muroran Institute of Technology, Japan

Feng Lin, Shenyang Aerospace University, China

EUC 2021 General Chairs

Welcome Message from the iSCI 2021 General Chairs

Welcome to the 9th International Conference on Smart City and Informatization (iSCI 2021) organized by Shenyang Aerospace University, China, 18-20 August 2021, on behalf of the organizing committee of iSCI 2021. Due to the Covid-19, the conference is organized in a hybrid mode, both physically in Shenyang China and online.

iSCI 2021 aims to provide a unique platform for multi-disciplinary researchers and teams, industry solution vendors, and government agencies from smart city and informatization, to exchange innovative ideas, challenges, research results and solutions, as well as project experience reports and successful stories.

We would like to express our special appreciation to the Program Chairs, Prof. Chunbo Luo, Prof. Fadi Al-Turjman, and Prof. Jiajia Li, for their outstanding work and brilliant suggestion on organizing the technical program. We also would like to thank Publicity Chair, Prof. Xianfu Chen, Prof. Hassan El Alami, and Xiaoming Li, for his great job in promoting this event broadly. We also would like to give our thanks to Keynote Speakers for offering insightful and enlightening talks.

We know that the success of the conference depends ultimately on the many people who have helped and endorsed us, therefore we would like to give our thanks to all the members of the Organizing Committee and Program Committee members and External Reviewers for their efforts and support. Finally, we would like to thank all the authors of the conference in which we hope that you will enjoy this wonderful event.

Liangxiu Han, Manchester Metropolitan University, UK

iSCI 2021 Executive General Chair

Zheng Dou, Harbin Engineering University, China

Lu Liu, Leicester University, UK

iSCI 2021 General Chairs

Conference Keynote Overview

Keynote 1: Prof. Yan Zhang, University of Oslo, Norway, "Digital Twin for Internet of Things".

Keynote 2: Prof. Xingwei Wang, Northeastern University, China, "Computation Migration Oriented Resource Allocation in Mobile Social Clouds".

Keynote 3: Prof. Keqiu Li, Tianjin University, China, "Blockchain Technology and System".

Keynote 4: Prof. Xiaofang Zhou, Hong Kong University of Science and Technology, China, "Utility and Privacy: A Study for Spatial Trajectory Data" (online).

Invited Talk 5: Prof. Zhipeng Gao, Beijing University of Posts and Telecommunications, China, "Internet of Vehicles Empowered by Blockchain and Federated Learning".

Keynote 6: Prof. Jianwei Huang, the Chinese University of Hong Kong, Shenzhen, China, "Incentive Mechanism Design for Crowd Systems" (online).

Keynote 7: Prof. Mohsen Guizani, Qatar University, Qatar, "Security and Privacy of IoT Data using Machine Learning" (online).

Invited Talk 8: Prof. Zhangjie Fu, Nanjing University of Information Science and Technology, China, "Content-based Search over Encrypted Data in Cloud".

Keynote: Digital Twin for Internet of Things
Prof. Yan Zhang, University of Oslo, Norway

About the Keynote Speaker

Yan Zhang is currently a Full Professor with the Department of Informatics, University of Oslo, Norway. He received the Ph.D. degree from the School of Electrical and Electronics Engineering, Nanyang Technological University, Singapore. He received M.S. and B.S from Beihang University and Nanjing University of Post and Telecommunications, respectively. His research interests include next-generation wireless networks leading to 6G, green and secure cyber-physical systems (e.g., smart grid and transport). Dr. Zhang is an Editor (or Area Editor, Senior Editor, Associate Editor) for several IEEE transactions/magazine, including IEEE Network Magazine; IEEE Communications Surveys & Tutorials; IEEE Transactions on Industrial Informatics; IEEE Transactions on Vehicular Technology; IEEE Transactions on Sustainable Computing; IEEE Transactions on Green Communications and Networking; IEEE Transactions on Networks Science and Engineering; IEEE Internet of Things Journal; IEEE Systems Journal; IEEE Vehicular Technology Magazine; and IEEE Blockchain Technical Briefs. He is the Chair of IEEE Communications Society Technical Committee on Green Communications and Computing (TCGCC). He is an IEEE Communications Society Distinguished Lecturer and IEEE Vehicular Technology Society Distinguished Speaker. He was an IEEE Vehicular Technology Society Distinguished Lecturer during 2016-2020. Since 2018, Prof. Zhang was a recipient of the global "Highly Cited Researcher" Award (Web of Science top 1% most cited worldwide). He is Fellow of IEEE, Fellow of IET, elected member of Academia Europaea (MAE), elected member of the Royal Norwegian Society of Sciences and Letters (DKNVS), and elected member of Norwegian Academy of Technological Sciences (NTVA).

Summary:
In this talk, we mainly introduce our recent studies on Digital Twin (DT) for edge computing, 6G, Internet of Vehicles, and IoT. We will first introduce the main concepts and challenges related to Digital Twin. Then, we present a novel scenario DITEN (Digital Twin Edge Networks) and the research challenges. Throughout the talk, we join DT with machine learning to add intelligence (e.g., deep reinforcement learning, federated learning) for low-latency, privacy-preservation, and energy-efficiency.

Keynote: Computation Migration Oriented Resource Allocation in Mobile Social Clouds
Prof. Xingwei Wang, Northeastern University, China

About the Keynote Speaker

Xingwei Wang received the B.S., M.S., and Ph.D. degrees in computer science from the Northeastern University, Shenyang, China in 1989, 1992, and 1998 respectively. He is currently a Professor at the College of Computer Science and Engineering, Northeastern University, Shenyang, China. He is the winner of National Science Fund for Distinguished Young Scholars of China and the Fellow of China Institute of Communications. His research interests include cloud computing and future Internet, etc. He has published more than 100 journal articles, books and book chapters, and refereed conference papers. He has received several best paper awards.

Summary:

The rapid growth of mobile device (e.g., smart phone and bracelet) has spawned a lot of new applications, during which the requirements of applications are increasing, while the capacities of some mobile devices are still limited. Such contradiction drives the emergency of computation migration among mobile edge devices, which is a lack of research currently. In this work, we focus on addressing the computation migration oriented resource allocation problem among mobile edge devices. Specifically, we first construct a framework for Mobile Social Cloud(MSC), in which the mobile devices with rich resources are abstracted as resource suppliers and those resource-lacking devices are abstracted as resource demanders. Then, a mathematical model is formulated and an evolutionary algorithm is proposed to effectively solve this model based on decomposition, dominance and genetic operations. Moreover, the parallel computing is introduced to further improve the efficiency of the proposed algorithm. The experimental results indicate that the proposed algorithm outperforms the other state-of-the-art methods and it improves the calculation efficiency by about 178% (2 cores) and 262% (3 cores) by introducing the parallel computing.

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Keynote: Blockchain Technology and System
Prof. Keqiu Li, Tianjin University, China

About the Keynote Speaker

Keqiu Li is a professor and dean of the College of Intelligence and Computing, Tianjin University, China. He is the recipient of National Science Foundation for Distinguished Young Scholars of China. He received his bachelor's and master's degrees from the Department of Applied Mathematics at the Dalian University of Technology in 1994 and 1997, respectively. He received the Ph.D. degree from the Graduate School of Information Science, Japan Advanced Institute of Science and Technology in 2005. He keeps working on the topics of blockchain system, mobile computing, datacenter, and cloud computing. He has more than 150 papers published on prestigious journals or conferences such as TON, TPDS, TC, TMC, MobiCom, INFOCOM, ICNP, etc.

Summary:

Blockchain technology has promising prospects in various application fields including finance, supply chain, intelligent transportation due to its attractive characteristics of decentralization, non-tampering and traceability. This talk first introduces the evolution of the blockchain from 1.0 to 4.0. Then, we discuss the current hot issues and key challenges such as storage optimization, security defense, and vulnerability detection. Then, we introduce the blockchain system developed by the group, including its innovative technologies such as main-side chain index strategy, DPoS-based consensus mechanism, and transaction/chain parallel processing scheme. Finally, the open problems in blockchain area will be discussed.

Invited Talk: Internet of Vehicles Empowered by Blockchain and Federated Learning
Prof. Zhipeng Gao, Beijing University of Posts and Telecommunications, China

About the Keynote Speaker

Zhipeng Gao received his Ph.D in computer science from Beijing University of Posts and Telecommunications in 2007. He is currently a professor at the State Key Laboratory of Network and Switching Technology of Beijing University of Posts and Telecommunications. He also serves as a vice director of the National local joint engineering research center of big data intelligent management and analysis technology. He is a distinguished member of CCF, the vice president of YOCSEF, and an executive member of the Blockchain Committee. His research interests are in the area of blockchain, big data analysis, edge computing, edge intelligent and related fields. He has published more than 100 papers in leading venues, including IEEE Internet of Things Journal, Future Generation Computer Systems, IEEE Transactions on Vehicular Technology. His research results have won the First Prize of Beijing Science and Technology, and have formed more than 30 national invention patents, 4 international standards and multiple industry/enterprise standards.

Summary:

With the development of the IoV, data has become a valuable digital asset for enterprises and clients. On the one hand, it is impossible and reluctant for data owners to share data with others for free. They are afraid of others using data for profit. On the other hand, they are afraid of receiving fraud data. Moreover, it is difficult for regulatory authorities to determine the authenticity of incident data provided by data owners. Therefore, we will discuss how blockchain and federated learning can enable data sharing, collaboration and supervision in the IoV. The main idea includes vehicle data circulation architecture based on double-layer blockchain, blockchain-based vehicle identity authentication and authorization mechanism, vehicle data collaboration mechanism based on data oracle, vehicle computing coordination mechanism based on computing oracle, asynchronous federated learning vehicle model sharing mechanism and driving behavior analysis method based on federated learning.

Keynote: Incentive Mechanism Design for Crowd Systems
Prof. Jianwei Huang, the Chinese University of Hong Kong, Shenzhen, China

About the Keynote Speaker

Jianwei Huang received the Ph.D. degree in ECE from Northwestern University in 2005, and worked as a Postdoc Research Associate in Princeton University during 2005-2007. From 2007 until 2018, he was on the faculty of Department of Information Engineering, The Chinese University of Hong Kong. Since 2019, he has been on the faculty at The Chinese University of Hong Kong, Shenzhen, where he is currently a Presidential Chair Professor and an Associate Dean of the School of Science and Engineering. He also serves as a Vice President of Shenzhen Institute of Artificial Intelligence and Robotics for Society. His research interests are in the area of network optimization, network economics, and network science, with applications in communication networks, energy networks, data markets, crowd intelligence, and related fields. He has published more than 300 papers in leading venues, with a Google Scholar citation of 14000+ and an H-index of 59. He has co-authored 9 Best Paper Awards, including the 2011 IEEE Marconi Prize Paper Award in Wireless Communications. He has co-authored seven books, including the textbook on "Wireless Network Pricing." He is an IEEE Fellow, and was an IEEE ComSoc Distinguished Lecturer and a Clarivate Web of Science Highly Cited Researcher. He is the Editor-in-Chief of IEEE Transactions on Network Science and Engineering, and was the Associate Editor-in-Chief of IEEE Open Journal of the Communications Society.

Summary:

Crowd systems can help solve complicated problems through the coordinated behaviors of many non-expert agents. A key to success is to incentivize enough agents to participate and exert efforts. We will introduce the challenges and opportunities of incentive mechanism designs in diverse types of crowd systems.

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Keynote: Utility and Privacy: A Study for Spatial Trajectory Data
Prof. Xiaofang Zhou, Hong Kong University of Science and Technology, China

About the Keynote Speaker

Dr Xiaofang Zhou is the Otto Poon Professor of Engineering and Chair Professor of Computer Science and Engineering at the Hong Kong University of Science and Technology. From 2004 to 2020, he was a Professor of Computer Science at the University of Queensland, leading its Data and Knowledge Engineering (DKE) research group and Data Science Discipline. He has been working in the area of spatiotemporal databases, data mining and machine learning, data quality management, big data analytics, and data science. He was a Program Committee Chair of IEEE International Conference on Data Engineering (ICDE 2013), ACM International Conference on Information and Knowledge Management (CIKM 2016), and International Conference on Very Large Databases (PVLDB 2020). He was the Chair of IEEE Technical Committee on Data Engineering from 2015-2018. Professor Zhou is a Fellow of IEEE.

Summary:

Spatial trajectory data have been collected extensively from vehicles, mobile phones, various types of monitoring devices and social media applications. In this talk, we will discuss the two sides of a coin: how to link moving objects accurately and efficiently based on their historical trajectories to improve data utility, and how to protect user privacy by modifying data such that moving objects cannot be linked together. In addition to discussing different approaches to achieve utility and to protect privacy for spatial trajectories, we will also discuss possible trade-offs between these two objectives.

Keynote: Security and Privacy of IoT Data using Machine Learning
Prof. Mohsen Guizani, Qatar University, Qatar

About the Keynote Speaker
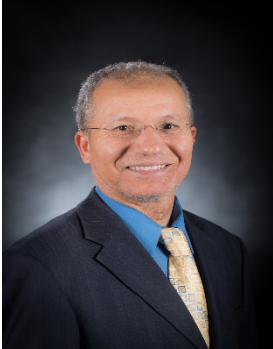
Mohsen Guizani (S'85–M'89–SM'99–F'09) received the B.S. (with distinction), M.S. and Ph.D. degrees in Electrical and Computer engineering from Syracuse University, Syracuse, NY, USA, in 1984, 1986, and 1990, respectively. He is currently a Professor at the Computer Science & Engineering Department in Qatar University, Qatar. Previously, he worked in different institutions: University of Idaho, Western Michigan University, University of West Florida, University of Missouri-Kansas City, University of Colorado-Boulder, and Syracuse University. His research interests include wireless communications and mobile computing, applied machine learning, cloud computing, security and its application to healthcare systems. He was elevated to the IEEE Fellow in 2009. He was listed as a Clarivate Analytics Highly Cited Researcher in Computer Science in 2019 and 2020. Dr. Guizani has won several research awards including the "2015 IEEE Communications Society Best Survey Paper Award" as well 4 Best Paper Awards from ICC and Globecom Conferences. He is the author of nine books and more than 800 publications. He is also the recipient of the 2017 IEEE Communications Society Wireless Technical Committee (WTC) Recognition Award, the 2018 AdHoc Technical Committee Recognition Award, and the 2019 IEEE Communications and Information Security Technical Recognition (CISTC) Award. He served as the Editor-in-Chief of IEEE Network and is currently serves on the Editorial Boards of many IEEE journals/Transactions. He was the Chair of the IEEE Communications Society Wireless Technical Committee and the Chair of the TAOS Technical Committee. He served as the IEEE Computer Society Distinguished Speaker and is currently the IEEE ComSoc Distinguished Lecturer.

Summary:

Artificial Intelligence (AI) is a great tool that can be used to reach the right decision for emerging applications. But adversarial AI is still a challenge that may slow AI adoptions in these applications. With the Internet of Things (IoT) transforming our society by connecting the world, anytime and anywhere, AI can be a great tool to achieve this ultimate objective. This is already adopted to transform the healthcare industry in many ways. However, the use of AI in ubiquitous connections bring with it many challenges that range from providing efficient security to healthcare data to securing complex systems. On the other hand, adversarial AI can slow the adoption of these systems and in turn block such advances. These smart services rely on computation and communication resources. Furthermore, being able to provide adequate services using these complex systems present enormous challenges.

In this talk, we review the current efforts in using AI to mitigate some of these challenges. Then, we discuss applications on how to alert researchers from taking care of adversarial AI. We showcase our research activities the we expect to contribute to these efforts and advocate possible solutions using AI and other tools. We provide ways on how to manage the available resources intelligently and efficiently in order to offer better living conditions and provide better services. Finally, we discuss some of our research results to support a variety of applications concentrating on the healthcare industry.

Invited Talk: Content-based Search over Encrypted Data in Cloud
Prof. Zhangjie Fu, Nanjing University of Information Science and Technology, China

About the Keynote Speaker

Zhangjie Fu received his PhD in computer science from the School of Computer, Hunan University, China, in 2012. He is currently a Professor at School of Computer, Nanjing University of Information Science and Technology, China. He was a visiting scholar of Computer Science and Engineering at State University of New York at Buffalo from March, 2015 to March, 2016. His research interests include Cloud Security, Digital Forensics, Network and Information Security. His research has been supported by NSFC, PAPD, and GYHY. Zhangjie is a member of IEEE and a member of ACM.

Summary:

Searchable encryption is an important research area in cloud computing. However, most existing efficient and reliable ciphertext search schemes are based on keywords or shallow semantic parsing which are not smart enough to meet with users' search intention. In this talk, I will present a content-aware search scheme, which can make semantic search smarter, and a real-world dataset (CNN dataset) are chosen to test the scheme. The experiment results show that the proposed schemes are efficient.

IEEE TrustCom/BigDataSE/CSE/EUC/iSCI 2021
Technical Program

Thursday, October 21, 2021

Security Track: Session-1A-I
Session Chair: Su Peng

1. MagikCube: Securing Cross-Domain Publish/Subscribe Systems with Enclave
Shuran Wang (Shanghai Jiao Tong University, China), Dahan Pan (Shanghai Jiao Tong University, China), Runhan Feng (Shanghai Jiao Tong University, China), and Yuanyuan Zhang (Shanghai Jiao Tong University, China)

2. Security on SM2 and GOST Signatures Against Related Key Attacks
Handong Cui (The University of Hong Kong, Hong Kong SAR), Xianrui Qin (The University of Hong Kong, Hong Kong SAR), Cailing Cai (The University of Hong Kong, Hong Kong SAR), and Tsz Hon Yuen (The University of Hong Kong, Hong Kong SAR)

3. Improved Machine Learning Assisted (Related-key) Differential Distinguishers For Lightweight Ciphers
Gao Wang (East China Normal University, China), Gaoli Wang (East China Normal University, China; Chinese Academy of Sciences, China), and Yu He (East China Normal University, China)

4. Remote Attestation of Large-Scale Virtual Machines in the Cloud Data Center
Jie Cheng (Chinese Academy of Sciences, China; University of Chinese Academy of Sciences, China), Kun Zhang (Chinese Academy of Sciences, China; University of Chinese Academy of Sciences, China), and Bibo Tu (Chinese Academy of Sciences, China; University of Chinese Academy of Sciences, China)

5. DeepTrace: A Secure Fingerprinting Framework for Intellectual Property Protection of Deep Neural Networks
Runhao Wang (East China Normal University, China), Jiexiang Kang (China Aeronautical Radio Electronics Research Institute, China), Wei Yin (China Aeronautical Radio Electronics Research Institute, China), Hui Wang (China Aeronautical Radio Electronics Research Institute, China), Haiying Sun (East China Normal University, China), Xiaohong Chen (East China Normal University, China), Zhongjie Gao (China Aeronautical Radio Electronics Research Institute, China), Shuning Wang (China Aeronautical Radio Electronics Research Institute, China), and Jing Liu (East China Normal University, China)

Security Track: Session-1A-II
Session Chair: Su Peng

1. Signature-Based Secure Trajectory Similarity Search
Yiping Teng (Shenyang Aerospace University, China), Zhan Shi (Shenyang Aerospace University, China), Fanyou Zhao (Shenyang Aerospace University, China), Guohui Ding

(Shenyang Aerospace University, China), Li Xu (Shenyang Aerospace University, China), and Chunlong Fan (Shenyang Aerospace University, China)

2. A Secure Deduplication Scheme Based on Data Popularity with Fully Random Tags

Guanxiong Ha (Nankai University, China), Hang Chen (Nankai University, China), Chunfu Jia (Nankai University, China; Tianjin Key Laboratory of Network and Data Security Technology, China), Ruiqi Li (Nankai University, China), and Qiaowen Jia (Chinese Academy of Sciences, China)

3. SecPT : Providing Efficient Page Table Protection Based on SMAP Feature in an Untrusted Commodity Kernel

Bingnan Zhong (Nanjing University, China) and Qingkai Zeng (Nanjing University, China)

4. The Design of Secure Coded Edge Computing for User-Edge Collaborative Computing

Mingyue Cui (Soochow University), Jin Wang (Soochow University, City University of Hong Kong), Jingya Zhou (Soochow University), Kejie Lu (University of Puerto Rico at Mayaguez), and Jianping Wang (City University of Hong Kong)

5. A Revocable Zone Encryption Scheme with Anonymous Authentication for C-ITS

Xiaohan Yue (Shenyang University of Technology, China), Shuaishuai Zeng (Shenyang University of Technology, China), Xibo Wang (Shenyang University of Technology, China), Lixin Yang (Shenyang University of Technology, China), Jian Xu (Northeastern University, China), Shi Bai (Shenyang University of Technology, China), and Yuan He (Shenyang University of Technology, China; Keio University, Yokohama, Japan)

Trust Track: Session-1A-III
Session Chair: Su Peng

1. Old Habits Die Hard: A Sober Look at TLS Client Certificates in the Real World

Wei Xia (Institute of Information Engineering, Chinese Academy of Sciences, Beijing, China; School of Cyber Security, University of Chinese Academy of Sciences, Beijing, China), Wei Wang (Institute of Information Engineering, Chinese Academy of Sciences, Beijing, China), Xin He (National Computer Network Emergency Response Technical Team/Coordination Center of China, Beijing, China), Gang Xiong (Institute of Information Engineering, Chinese Academy of Sciences, Beijing, China), Gaopeng Gou (Institute of Information Engineering, Chinese Academy of Sciences, Beijing, China), Zhenzhen Li (Institute of Information Engineering, Chinese Academy of Sciences, Beijing, China), and Zhen Li (Institute of Information Engineering, Chinese Academy of Sciences, Beijing, China)

2. Verifiable Conjunctive Keyword Search with Certificateless Searchable

LingHan Zhang (Guangxi Normal University, China), F. Jiang (Guangxi Normal University, China), and Xiaohu Tang (GNXU, China)

3. The Performance of Selfish Mining in GHOST

Qing Xia (Chinese Academy of Sciences, China), Wensheng Dou (Chinese Academy of Sciences, China), Fengjun Zhang (Chinese Academy of Sciences, China), and Geng Liang (Chinese Academy of Sciences, China)

4. Anti-Occlusion and Scale Adaptive Target Tracking Algorithm Based on Kernel Correlation Filter

Chuanyun Wang (Shenyang Aerospace University, China), Zhongrui Shi (Shenyang Aerospace University, China), Keyi Si (Shenyang Aerospace University, China), Yang Su (Shenyang Aerospace University, China), Zhaokui Li (Shenyang Aerospace University, China), and Ershen Wang (Shenyang Aerospace University, China)

Security Track: Session-1A-IV
Session Chair: Chuanyun Wang

1. LFETT2021: A Large-Scale Fine-Grained Encrypted Tunnel Traffic Dataset

Zheyuan Gu (Institute of Information Engineering, Chinese Academy of Sciences, Beijing, China; School of Cyber Security, University of Chinese Academy of Sciences, Beijing, China), Gaopeng Gou (Institute of Information Engineering, Chinese Academy of Sciences, Beijing, China; School of Cyber Security, University of Chinese Academy of Sciences, Beijing, China), Chengshang Hou (Institute of Information Engineering, Chinese Academy of Sciences, Beijing, China; School of Cyber Security, University of Chinese Academy of Sciences, Beijing, China), Gang Xiong (Institute of Information Engineering, Chinese Academy of Sciences, Beijing, China; School of Cyber Security, University of Chinese Academy of Sciences, Beijing, China), and Zhen
Li (Institute of Information Engineering, Chinese Academy of Sciences, Beijing, China; School of Cyber Security, University of Chinese Academy of Sciences, Beijing, China)

2. The Design and Implementation of Secure Distributed Image Classification Reasoning System for Heterogeneous Edge Computing

Cong Cheng (Soochow University; Collaborative Innovation Center of Novel Software Technology and Industrialization), Lingzhi Li (Soochow University; Collaborative Innovation Center of Novel Software Technology and Industrialization), Jin Wang (Soochow University; Collaborative Innovation Center of Novel Software Technology and Industrialization), and Fei Gu (Soochow University; Collaborative Innovation Center of Novel Software Technology and Industrialization)

3. Secure Data Transmission with Access Control for Smart Home Devices

Biwen Chen (Chongqing University, China; Key Laboratory of Aerospace Information Security and Trust Computing, China), Lei Yang (Chongqing University, China), Tao Xiang (Chongqing University, China), and Xiaoguo Li (Hong Kong Baptist University, China)

4. Secure Homomorphic Evaluation of Discrete Cosine Transform with High Precision

Zhiwei Cai (Sun Yat-Sen University, China), Huicong Zeng (Sun Yat-Sen University,

China), Peijia Zheng (Sun Yat-Sen University, China), Ziyan Cheng (Sun Yat-Sen University, China), Weiqi Luo (Sun Yat-Sen University, China), and Hongmei Liu (Sun Yat-Sen University, China)

5. Robust AN-Aided Secure Beamforming for Full-Duplex Relay System with Multiple Eavesdroppers

Jiaxing Cui (Wuhan University, China), Zhengmin Kong (Wuhan University, China), Jing Song (Wuhan University, China), Weijun Yin (Wuhan University, China), and Xianjun Deng (Huazhong University of Science and Technology, China)

6. Effective RFID Localization Based on Fuzzy Logic For Security

Licai Zhu (Yancheng Normal University, Nanjing University of Technology, China), Hao Yang (Yancheng Normal University, University of Science and Technology of China, China), Shi Chen (Nanjing University of Technology, Yancheng Normal University, China), and Zhipeng Yu (Nanjing University of Technology, Yancheng Normal University, China)

Trust Track: Session-1A-V
Session Chair: Chuanyun Wang

1. VEIN: High Scalability Routing Algorithm for Blockchain-Based Payment Channel Networks

Qianyun Gong (Nankai University, China; Tianjin Key Laboratory of Network and Data Security Technology, China), Chengjin Zhou (Nankai University, China; Tianjin Key Laboratory of Network and Data Security Technology, China), Le Qi (Shijiazhuang Huayan Traffic Technology Co., Ltd, China), Jianbin Li (Nankai University, China; Tianjin Key Laboratory of Network and Data Security Technology, China), Jianzhong Zhang (Nankai University, China; Tianjin Key Laboratory of Network and Data Security Technology, China), and Jingdong Xu (Nankai University, China; Tianjin Key Laboratory of Network and Data Security Technology, China)

2. Adaptive Clustering Ensemble Method Based on Uncertain Entropy Decision-Making

Xiaomin Zhu (National University of Defense Technology, China), Bowen Fei (National University of Defense Technology, China), Daqian Liu (National University of Defense Technology, China), and Weidong Bao (National University of Defense Technology, China)

3. Formal Verification of HPS-Based Master-Slave Scheme in MEC with Timed Automata

Jiaqi Yin (East China Normal University, China), Huibiao Zhu (East China Normal University, China), and Yuan Fei (East China Normal University, China)

4. Protecting the Ownership of Deep Learning Models with An End-to-End Watermarking Framework

Wei Zhang (Harbin Institute of Technology, China), Wenxue Cui (Harbin Institute of Technology, China), Feng Jiang (Harbin Institute of Technology, China), Chifu Yang

(Harbin Institute of Technology, China), and Ran Li (Harbin Institute of Technology, China)

Trust Track: Session-1A-VI
Session Chair: Chuanyun Wang

1. Invited Talk: Reputation Systems and Blockchain Technology

Yuan Liu, Northeastern University, China

2. RoBin: Facilitating the Reproduction of Configuration-Related Vulnerability

Ligeng Chen (Nanjing University, China), Jian Guo (Nanjing University, China), Zhongling He (Nanjing University, China), Dongliang Mu (Huazhong University of Science and Technology, China), and Bing Mao (Nanjing University, China)

3. Universal Website Fingerprinting Defense Based on Adversarial Examples

Chengshang Hou (Institute of Information Engineering, Chinese Academy of Sciences), Junzheng Shi (University of Chinese Academy of Sciences, China), Mingxin Cui (University of Chinese Academy of Sciences, China), Mengyan Liu (University of Chinese Academy of Sciences, China), and Jing Yu (University of Chinese Academy of Sciences, China)

4. Enhancing Trust-Based Medical Smartphone Networks via Blockchain-Based Traffic Sampling

Wenjuan Li (Guangzhou University, The Hong Kong Polytechnic University, China), Weizhi Meng (Technical University of Denmark, Denmark), and Laurence T. Yang (St Francis Xavier University, Canada)

Privacy Track: Session-1B-I
Session Chair: Zhaoxuan Gong

1. PCHEC: A Private Coded Computation Scheme For Heterogeneous Edge Computing

Jiqing Chang (Soochow University), Jin Wang (Soochow University), Fei Gu (Soochow University), Kejie Lu (University of Puerto Rico at Mayaguez), Lingzhi Li (Soochow University), and Jianping Wang (City University of Hong Kong)

2. A Differential Privacy Collaborative Deep Learning Algorithm in Pervasive Edge Computing Environment

Dayin Zhang (University of Chinese Academy of Sciences, China), Xiaojun Chen (Chinese Academy of Sciences, China), Jinqiao Shi (Beijing University of Posts and Telecommunications, China), Dakui Wang (Chinese Academy of Sciences, China), and Shuai Zeng (Chinese Academy of Sciences, China)

3. Achieving Efficient and Privacy-Preserving Biometric Identification in Cloud Computing

Chang Xu (Beijing Institute of Technology, China), Lvhan Zhang (Beijing Institute of Technology, China), Liehuang Zhu (Beijing Institute of Technology, China), Chuan Zhang (Beijing Institute of Technology, China), and Kashif Sharif (Beijing Institute of Technology, China)

4. Just Keep Your Concerns Private: Guaranteeing Heterogeneous Privacy and Achieving High Availability for ERM Algorithms

Yuzhe Li (Chinese Academy of Sciences, China), Yong Liu (Renmin University of China, China; Beijing Key Laboratory of Big Data Management and Analysis Methods, China), Bo Li (Chinese Academy of Sciences, China), Weiping Wang (Chinese Academy of Sciences, China), and Nan Liu (Chinese Academy of Sciences, China)

Privacy Track: Session-1B-II
Session Chair: Zhaoxuan Gong

1. Protecting Locations with Differential Privacy Against Location-Dependent Attacks in Continuous LBS Queries

Ruxue Wen (Huazhong University of Science and Technology, China), Rui Zhang (Wuhan University of Technology, China), Kai Peng (Huazhong University of Science and Technology, China), and Chen Wang (Huazhong University of Science and Technology, China)

2. A Privacy-Enhanced Mobile Crowdsensing Strategy for Blockchain Empowered Internet of Medical Things

Mengyao Peng (Fujian Normal University, China), Jia Hu (University of Exeter, UK), Hui Lin (Fujian Normal University, China), Xiaoding Wang (Fujian Normal University, China), and Wenzhong Lin (Minjiang University, China)

3. DP-gSpan: A Pattern Growth-based Differentially Private Frequent Subgraph Mining Algorithm

Jiangna Xing (Inner Mongolia University, China) and Xuebin Ma (Inner Mongolia University, China)

4. Differential Privacy Preservation in Adaptive K-Nets Clustering

Xiaohong Liu (Guangxi Normal University, China), Hanbo Cai (Guangxi Normal University, China), De Li (Guangxi Normal University, China), Xianxian Li (Guangxi Normal University, China), and Jinyan Wang (Guangxi Normal University, China)

5. A Fine-Grained Privacy-Preserving Profile Matching Scheme in Mobile Social Networks

Tao Peng (Guangzhou University, China), Wentao Zhong (Guangzhou University, China), Kejian Guan (Guangzhou University, China), Yipeng Zou (Guangzhou University, China), Jiawei Zhu (Guangzhou University, China), and Guojun Wang (Guangzhou University, China)

Privacy Track: Session-1B-III
Session Chair: Zhaoxuan Gong

1. Dynamic Searchable Symmetric Encryption with Forward and Backward Privacy

Yu Peng (Hunan University, P. R. China), Qin Liu (Hunan University, P. R. China), Yue Tian (Hunan University, P. R. China), Jie Wu (Temple University, USA), Tian Wang (Beijing Normal University & UIC, P. R. China), Tao Peng (Guangzhou University, P. R. China), and Guojun Wang (Guangzhou University, P. R. China)

2. Adaptive Clipping Bound of Deep Learning with Differential Privacy

Yuhang Hu (Guangxi Normal University, China), De Li (Guangxi Normal University, China), Zhou Tan (Guangxi Normal University, China), Xianxian Li (Guangxi Normal University, China), and Jinyan Wang (Guangxi Normal University, China)

3. Improving the Effect of Frequent Itemset Mining with Hadamard Response Under Local Differential Privacy

Xuebin Ma (Inner Mongolia University, China), Haijiang Liu (Inner Mongolia University, China), and Shengyi Guan (Inner Mongolia University, China)

4. A Privacy-Preserving Location Recommendation Scheme Without Trustworthy Entity

Changli Zhou (Huaqiao University, PR China; Fujian Province University, PR China), Jing Peng (Huaqiao University, PR China), Ying Ma (Fujian Province University, PR China), and Qingfeng Jiang (Changshu Institute of Technology, PR China)

Privacy Track: Session-1B-IV
Session Chair: Cunqian Yu

1. Invited Talk: Privacy-Preserving Trajectory Processing

Yiping Teng, Shenyang Aerospace University, China

2. An Aggregate Anonymous Credential Scheme in C-ITS for Multi-Service with Revocation

Xiaohan Yue (Shenyang University of Technology, China), Lixin Yang (Shenyang University of Technology, China), Xibo Wang (Shenyang University of Technology, China), Shuaishuai Zeng (Shenyang University of Technology, China), Jian Xu (Northeastern University, China), Shi Bai (Shenyang University of Technology, China), and Yuan He (Shenyang University of Technology, China; Keio University, Japan)

3. A Privacy-Preserving Framework for Smart Contracts Based on Stochastic Model Checking

Tingting Bao (Nanjing University of Finance and Economics, China) and Yang Liu (Nanjing University of Finance and Economics, China)

4. Answering Why-not Questions on Top-k Queries with Privacy Protection

Yiping Teng (Shenyang Aerospace University, China), Weiyu Zhao (Shenyang Aerospace University, China), Chuanyu Zong (Shenyang Aerospace University, China), Li Xu (Shenyang Aerospace University, China), Chunlong Fan (Shenyang Aerospace University, China), and Huan Wang (Shenyang Aerospace University, China)

5. Privacy-Preserving Hough Transform and Line Detection on Encrypted Cloud Images

Delin Chen (Sun Yat-Sen University, China), Peijia Zheng (Sun Yat-Sen University, State Key Laboratory of Information Security, China), Ziyang Chen (Sun Yat-Sen University, China), Ruopan Lai (Sun Yat-Sen University, China), Weiqi Luo (Sun Yat-Sen University, China), and Hongmei Liu (Sun Yat-Sen University, China)

Forensics and Analytics Track: Session-1B-V

Session Chair: Jizhao Zhu

1. Effective Deep Learning-Based Side-Channel Analyses Against ASCAD

Junkai Liu (Beijing University of Posts and Telecommunications, China), Shihui Zheng (Beijing University of Posts and Telecommunications, China), and Lize Gu (Beijing University of Posts and Telecommunications, China)

2. ML-Stealer: Stealing Prediction Functionality of Machine Learning Models with Mere Black-Box Access

Gaoyang Liu (Huazhong University of Science and Technology, China), Shijie Wang (Huazhong University of Science and Technology, China), Borui Wan (Huazhong University of Science and Technology, China), Zekun Wang (Huazhong University of Science and Technology, China), and Chen Wang (Huazhong University of Science and Technology, China)

3. Malware Classification by Learning Semantic and Structural Features of Control Flow Graphs

Bolun Wu (Shanghai Jiao Tong University, China), Yuanhang Xu (Shanghai Jiao Tong University, China), and Futai Zou (Shanghai Jiao Tong University, China)

4. A Fast-Detection and Fault-Correction Algorithm Against Persistent Fault Attack

Yukun Cheng (University of Science and Technology of China, China), Mengce Zheng (University of Science and Technology of China, China), Fan Huang (University of Science and Technology of China, China), Jiajia Zhang (University of Science and Technology of China, China), Honggang Hu (University of Science and Technology of China, China), and Nenghai Yu (University of Science and Technology of China, China)

Forensics and Analytics Track: Session-1B-VI

Session Chair: Jizhao Zhu

1. Multi-Level Directed Fuzzing for Detecting Use-After-Free Vulnerabilities

Yuntao Zhang (Beijing University of Posts and Telecommunications, China), Zhongru Wang (Chinese Academy of Cyberspace Studies,China), Weiqiang Yu (Beijing DigApis Technology Co., Ltd, China), and Binxing Fang (Beijing University of Posts and Telecommunications, China)

2. DePL: Detecting Privacy Leakage in DNS-over-HTTPS Traffic

Futai Zou (Shanghai Jiao Tong University, China), Dechao Meng (Shanghai Jiao Tong University, China), Wentao Gao (Shanghai Jiao Tong University, China), and Linsen Li (Shanghai Jiao Tong University, China)

3. DeepVuler: A Vulnerability Intelligence Mining System for Open-Source Communities

Susheng Wu (Sichuan University, China), Bin Chen (Sichuan University, China), MingXu Sun (Sichuan University, China), Renyu Duan (Sichuan University, China), Qixiang Zhang (Sichuan University, China), and Cheng Huang (Sichuan University, China)

4. Malicious Packages Lurking in User-Friendly Python Package Index

Genpei Liang (Sichuan University, China), Xiangyu Zhou (Sichuan University, China), Qingyu Wang (Sichuan University, China), Yutong Du (Sichuan University, China), and Cheng Huang (Sichuan University, China)

Forensics and Analytics Track: Session-1C-I
Session Chair: Anzhen Zhang

1. Log-Based Anomaly Detection from Multi-view by Associating Anomaly Scores with User Trust

Lin Wang (Chinese Academy of Sciences, China; University of Chinese Academy of Sciences, China), Kun Zhang (Chinese Academy of Sciences, China; University of Chinese Academy of Sciences, China), Chen Li (Chinese Academy of Sciences, China; University of Chinese Academy of Sciences, China), and Bibo Tu (Chinese Academy of Sciences, China; University of Chinese Academy of Sciences, China)

2. AndroCreme: Unseen Android Malware Detection Based on Inductive Conformal Learning

Gang Zhang (University of Jinan, China), Hao Li (University of Jinan, China), Zhenxiang Chen (University of Jinan, Shandong University, China), Lizhi Peng (University of Jinan, China), Yuhui Zhu (University of Jinan, China), and Chuan Zhao (University of Jinan, China)

3. A Novel Android Malware Detection Method Based on Visible User Interface

Shuaishuai Tan (Peng Cheng Laboratory, China), Zhiyi Tian (University of Technology Sydney, Australia), Xiaoxiong Zhong (Peng Cheng Laboratory, China), Shui Yu (University of Technology Sydney, Australia), Weizhe Zhang (Peng Cheng Laboratory, China), and Guozhong Dong (Peng Cheng Laboratory, China)

4. EnvFaker: A Method to Reinforce Linux Sandbox Based on Tracer, Filter and Emulator Against Environmental-Sensitive Malware

Chenglin Xie (Peking University, China), Yujie Guo (Peking University, China), Shaosen Shi (Peking University, China), Yu Sheng (Peking University, China), Xiarun Chen (Peking University, China), Chengyang Li (Peking University, China), and Weiping Wen (Peking University, China)

5. TS-SVM: Detect LDoS Attack in SDN Based on Two-Step Self-Adjusting SVM

Boru Liu (Hunan University, China), Dan Tang (Hunan University, China), Yudong Yan (Hunan University, China), Zhiqing Zheng (Hunan University, China), Shihan Zhang (Hunan University, China), and Jiangmeng Zhou (Central South University, China)

Forensics and Analytics Track: Session-1C-II
Session Chair: Anzhen Zhang

1. Sensing Error Handling Bugs in SSL Library Usages

Chi Li (Tsinghua University, China), Min Zhou (Tsinghua University, China), Xinrong Han (Tsinghua University, China), and Ming Gu (Tsinghua University, China)

2. MAAC: Novel Alert Correlation Method To Detect Multi-Step Attack

Xiaoyu Wang (School of Cyber Security, University of Chinese Academy of Sciences,

Beijing, China; Institute of Information Engineering, Chinese Academy of Sciences, Beijing, China), Xiaorui Gong (School of Cyber Security, University of Chinese Academy of Sciences, Beijing, China; Institute of Information Engineering, Chinese Academy of Sciences, Beijing, China), Lei Yu (School of Cyber Security, University of Chinese Academy of Sciences, Beijing, China; Institute of Information Engineering, Chinese Academy of Sciences, Beijing, China), and Jian Liu (School of Cyber Security, University of Chinese Academy of Sciences, Beijing, China; Institute of Information Engineering, Chinese Academy of Sciences, Beijing, China)

3. PGAN:A Generative Adversarial Network Based Anomaly Detection Method for Network Intrusion Detection System

Zeyi Li (Nanjing University of Posts & Telecommunications, China), Yun Wang (Nanjing University of Posts & Telecommunications, China), Pan Wang (Nanjing University of Posts & Telecommunications, China), and Haorui Su (Xi'an jiaotong-Liverpool University, China)

4. LP-UIT: A Multimodal Framework for Link Prediction in Social Networks

Huizi Wu (Shanghai University of Finance and Economics, China), Shiyi Wang (Shanghai University of Finance and Economics, China), and Hui Fang (Shanghai University of Finance and Economics, China)

5. Cost-Sensitive Heterogeneous Integration for Credit Card Fraud Detection

Yuhua Ling (GNXU, China), Ran Zhang (Deakin University, Australia), Mingcan Cen (GNXU, China), Xunao Wang (Bevercapital and BCU world Pty Ltd), and M. Jiang (GNXU, China)

Forensics and Analytics Track: Session-1C-III
Session Chair: Anzhen Zhang

1. Depression Detection Using Asynchronous Federated Optimization

Jinli Li (GNXU, China), Ran Zhang (Deakin University, Australia), Mingcan Cen (GNXU, China), Xunao Wang (Bevercapital and BCU world Pty Ltd), and M. Jiang (GXNU, China)

2. Attack Versus Attack: Toward Adversarial Example Defend Website Fingerprinting Attack

Chengshang Hou (Institute of Information Engineering, Chinese Academy of Sciences), Junzheng Shi (University of Chinese Academy of Sciences, China), Mingxin Cui (University of Chinese Academy of Sciences, China), and Qingya Yang (University of Chinese Academy of Sciences, China)

3. VulChecker: Achieving More Effective Taint Analysis by Identifying Sanitizers Automatically

Xiarun Chen (Peking University, China), Qien Li (Digital Star Technology Co., China), Zhou Yang (Peking University, China), Yongzhi Liu (Peking University, China), Shaosen Shi (Peking University, China), Chenglin Xie (Peking University, China), and Weiping Wen (Peking University, China)

4. Peek Inside the Encrypted World: Autoencoder-Based Detection of DoH

Resolvers

Jiating Wu (Chinese Academy of Sciences; University of Chinese Academy of Sciences; National Engineering Laboratory for Information Security Technologies), Yujia Zhu (Chinese Academy of Sciences; University of Chinese Academy of Sciences; National Engineering Laboratory for Information Security Technologies), Baiyang Li (Chinese Academy of Sciences; University of Chinese Academy of Sciences; National Engineering Laboratory for Information Security Technologies), Qingyun Liu (Chinese Academy of Sciences; University of Chinese Academy of Sciences; National Engineering Laboratory for Information Security Technologies), and Binxing Fang (Institute of Electronic and Information Engineering of UESTC)

Forensics and Analytics Track: Session-1C-IV
Session Chair: Yunchong Guan

1. Invited Talk: Influence Maximization in Large-Scale Social Networks: Algorithms and Research Trends

Jiaxing Shang, Chongqing University, China

2. A Semi-Supervised Deep Learning-Based Solver for Breaking Text-Based CAPTCHAs

Xianwen Deng (Shanghai Jiao Tong University, China), Ruijie Zhao (Shanghai Jiao Tong University, China), Zhi Xue (Shanghai Jiao Tong University, China), Ming Liu (Shanghai Jiao Tong University, China), Libo Chen (Shanghai Jiao Tong University, China), and Yijun Wang (Shanghai Jiao Tong University, China)

3. Robust Backdoor Attacks Against Deep Neural Networks in Real Physical World

Mingfu Xue (Nanjing University of Aeronautics and Astronautics, China), Can He (Nanjing University of Aeronautics and Astronautics, China), Shichang Sun (Nanjing University of Aeronautics and Astronautics, China), Jian Wang (Nanjing University of Aeronautics and Astronautics, China), and Weiqiang Liu (Nanjing University of Aeronautics and Astronautics, China)

4. MALUP: A Malware Classification Framework using Convolutional Neural Network with Deep Unsupervised Pre-Training

Qian Qiang (University of Chinese Academy of Sciences, China; China National Computer Network Emergency Response Technical Team, China), Mian Cheng (China National Computer Network Emergency Response Technical Team, China), Yuan Zhou (University of Chinese Academy of Sciences, China; China National Computer Network Emergency Response Technical Team, China), Yu Ding (University of Chinese Academy of Sciences, China), and Zisen Qi (University of Chinese Academy of Sciences, China)

5. FLDDoS: DDoS Attack Detection Model Based on Federated Learning

Jiachao Zhang (Nankai University, China; Tianjin Key Laboratory of Network and Data Security Technology, China), Peiran Yu (Nankai University, China; Tianjin Key Laboratory of Network and Data Security Technology, China), Le Qi (Shijiazhuang Huayan Traffic Technology Co., Ltd., China), Song Liu (Nankai University, China; Tianjin

Key Laboratory of Network and Data Security Technology, China), Haiyu Zhang (Nankai University, China; Tianjin Key Laboratory of Network and Data Security Technology, China), and Jianzhong Zhang (Nankai University, China; Tianjin Key Laboratory of Network and Data Security Technology, China)

Forensics and Analytics Track: Session-1C-V
Session Chair: Yunchong Guan

1. Towards Strengthening Deep Learning-Based Side Channel Attacks with Mixup

Zhimin Luo (University of Science and Technology of China, China), Mengce Zheng (University of Science and Technology of China, China), Ping Wang (University of Science and Technology of China, China), Minhui Jin (University of Science and Technology of China, China), Jiajia Zhang (University of Science and Technology of China, China), and Honggang Hu (University of Science and Technology of China, China)

2. DroidRadar: Android Malware Detection Based on Global Sensitive Graph Embedding

Qige Song (Chinese Academy of Sciences, University of Chinese Academy of Sciences, China), Yongzheng Zhang (Chinese Academy of Sciences, University of Chinese Academy of Sciences, China), and Junliang Yao (Chinese Academy of Sciences, University of Chinese Academy of Sciences, China)

3. Frequency Domain Fusion Algorithm of Infrared and Visible Image Based on Compressed Sensing for Video Surveillance Forensics

Chuanyun Wang (Shenyang Aerospace University, China), Guowei Yang (Shenyang Aerospace University, China), Dongdong Sun (Shenyang Aerospace University, China), Jiankai Zuo (Tongji University, China), Ershen Wang (Shenyang Aerospace University, China), and Linlin Wang (Shenyang Aerospace University, China)

3. Social Spammer Detection Based on Semi-Supervised Learning

Xulong Zhang (Wuhan University of Technology, China), Frank Jiang (University of Technology Sydney, Australia), Ran Zhang (Deakin University, Australia), Shupeng Li (Guangxi Normal University, China), and Yang Zhou (Guangxi Normal University, China)

4. FIDS: Detecting DDoS Through Federated Learning Based Method

Jingyi Li (Beijing Jiaotong University, China), Zikai Zhang (Beijing Jiaotong University, China), Yidong Li (Beijing Jiaotong University, China), Xinyue Guo (Beijing Jiaotong University, China), and Huifang Li (Beijing Jiaotong University, China)

Forensics and Analytics Track: Session-1C-VI
Session Chair: Yunchong Guan

1. Gray Adversarial Attack Algorithm Based on Multi-Scale Grid Search

Chunlong Fan (Northeastern University, China), Jici Zhang (Shenyang Aerospace University, China), Cailong Li (Shenyang Aerospace University, China), Zhenxin Zhang (Shenyang Aerospace University, China), Yiping Teng (Shenyang Aerospace University,

China), and Jianzhong Qiao (Northeastern University, China)

2. An Interactive System for Unfair Rating Detection Models in a Customized Perspective

Ke Lv (Northeastern University, China), Yuan Liu (Northeastern University, China), Jienan Chen (Northeastern University, China), Dongxia Wang (Zhejiang University, China), and Zhihong Tian (Guangzhou University, China)

3. PDAAA: Progressive Defense Against Adversarial Attacks for Deep Learning-as-a-Service in Internet of Things

Ling Wang (Harbin Insititute of Technology), Cheng Zhang (Harbin Insititute of Technology), Zejian Luo (Harbin Insititute of Technology), Chenguang Liu (University of Texas at Austin), Jie Liu (Harbin Institute of Technology), and Xi Zheng (Macquarie University)

Emerging Tech Track: Session-1D-I
Session Chair: Jiaxing Shang

1. ESS: An Efficient Storage Scheme for Improving the Scalability of Bitcoin System

Xiaoqing Wang (Zhejiang University of Technology, China), Chunping Wang (Zhejiang University of Technology, China), Kun Zhou (Zhejiang University of Technology, China), and Hongbing Cheng (Zhejiang University of Technology, China)

2. Complementary Context-Enhanced Concept Lattice Aware Personalized Recommendation

Wenqing Huang (Shaanxi Normal University, China), Fei Hao (Shaanxi Normal University, China; University of Exeter, U.K.), Guangyao Pang (Shaanxi Normal University, China), and Yifei Sun (Shaanxi Normal University, China)

3. A Blockchain Scheme Based on DAG Structure Security Solution for IIoT

Pengjie Zeng (Hunan University of Science and Technology, China), Xiaoliang Wang (Hunan University of Science and Technology, China), Liangzuo Dong (Hunan University of Science and Technology, China), Xinhui She (Hunan University of Science and Technology, China), and Frank Jiang (Deakin University, Australia)

4. IdiffGrad: An Improved Gradient Descent Algorithm Based on DiffGrad

Weifeng Sun （Dalian University of Technology, China）, Jianqiao Ding （Dalian University of Technology, China）, Kangkang Chang （Dalian University of Technology, China）, Kelong Meng （Dalian University of Technology, China）

Emerging Tech Track: Session-1D-II
Session Chair: Jiaxing Shang

1. Automatically Derived Stateful Network Functions Including non-Field Attributes

Bin Yuan (Huazhong University of Science and Technology, China; National Engineering Research Center for Big Data Technology and System; Services Computing Technology and System Lab; Hubei Engineering Research Center on Big Data Security; Huazhong University of Science and Technology, China), Shengyao Sun

(Huazhong University of Science and Technology, China; National Engineering Research Center for Big Data Technology and System; Services Computing Technology and System Lab; Hubei Engineering Research Center on Big Data Security), Xianjun Deng (Huazhong University of Science and Technology, China), Deqing Zou (Huazhong University of Science and Technology, China; National Engineering Research Center for Big Data Technology and System; Services Computing Technology and System Lab; Hubei Engineering Research Center on Big Data Security), Haoyu Chen (Huazhong University of Science and Technology, China; National Engineering Research Center for Big Data Technology and System; Services Computing Technology and System Lab; Cluster and Grid Computing Lab), Shenghui Li (Huazhong University of Science and Technology, China), and Hai Jin (Huazhong University of Science and Technology, China; National Engineering Research Center for Big Data Technology and System; Services Computing Technology and System Lab; Cluster and Grid Computing Lab)

2. Phishing Web Page Detection with HTML-Level Graph Neural Network

Linshu Ouyang (Chinese Academy of Sciences, China) and Yongzheng Zhang (University of Chinese Academy of Sciences, China)

3. A Feature-Flux Traffic Camouflage Method Based on Twin Gaussian Process

Changbo Tian (Chinese Academy of Science, China; University of Chinese Academy of Sciences, China), Yongzheng Zhang (Chinese Academy of Science, China; University of Chinese Academy of Sciences, China), and Tao Yin (Chinese Academy of Science, China; University of Chinese Academy of Sciences, China)

4. A HEVC Video Steganography Algorithm Based on DCT/DST Coefficients with Improved VRCNN

Aijun Zhou (Shanghai Jiao Tong University, China), Xinghao Jiang (Shanghai Jiao Tong University, China), Zhaohong Li (Beijing Jiao Tong University, China), and Zhenzhen Zhang (Beijing Institute of Graphic Communication, China)

Emerging Tech Track: Session-1D-III
Session Chair: Jiaxing Shang

1. MEChain: A Multi-Layer Blockchain Structure with Hierarchical Consensus for Secure HER System

Huan Yu Wu (China Construction Bank, China), Lun Jie Li (China), Hye-Young Paik (UNSW Sydney, Australia), and Salil S. Kanhere (UNSW Sydney, Australia)

2. An Adaptive Multi-Pairwise Ranking with Implicit Feedback for Recommendation

Jianfang Wang (Henan Polytechnic University, China), Zhiqiang Wu (Henan Polytechnic University, China), Guang Chen (Henan Polytechnic University, China), Detao Liu (Henan Polytechnic University, China), and Qiuling Zhang (Henan Polytechnic University, China)

3. Multi-UAV Cooperative Obstacle Avoidance and Surveillance in Intelligent

Transportation

Daqian Liu (National University of Defense Technology, China), Weidong Bao (National University of Defense Technology, China), Bowen Fei (National University of Defense Technology, China), Xiaomin Zhu (National University of Defense Technology, China), Zhenliang Xiao (National University of Defense Technology, China), and Tong Men (National University of Defense Technology, China)

4. Another Look at the Connection Between CAN Signal Ringing & In-Vehicle ECU Identification

Yucheng Liu (East China Normal University, China), Hao Wu (CNCERT/CC, China), and Xiangxue Li (East China Normal University, China; Shanghai Key Laboratory of Trustworthy Computing, China; Westone Cryptologic Research Center, China)

Emerging Tech Track: Session-1D-IV
Session Chair: Wei Zhou

1. Quantum Ciphertext Dimension Reduction Scheme for Homomorphic Encrypted Data

Changqing Gong (Shenyang Aerospace University, China), Zhaoyang Dong (Shenyang Aerospace University, China), Abdullah Gani (University of Malaya, Malaysia), and Han Qi (Shenyang Aerospace University, China)

2. A Novel Security Framework for Edge Computing Based UAV Delivery System

Aiting Yao (Anhui University, Hefei, China), Frank Jiang (Deakin University, Australia), Xuejun Li (Anhui University, Hefei, China), Chengzu Dong (Deakin University, Australia), Jia Xu (Anhui University, Hefei, China), Yi Xu (Anhui University, China), Gang Li (Deakin University, Australia), and Xiao Liu (Deakin University, Australia)

3. LVRT: Low Variances of Solo Mining Reward & Inter-Block Time in Collaborative PoW

Jiangfeng Ma (East China Normal University, China), Xiangxue Li (East China Normal University, China; Shanghai Key Laboratory of Trustworthy Computing, China; Westone Cryptologic Research Center, China), and Haifeng Qian (East China Normal University, China)

4. BSA: Enabling Biometric-Based Storage and Authorization on Blockchain

Jie Ma (University of Chinese Academy of Sciences, China; Chinese Academy of Sciences, China), Bin Qi (University of Chinese Academy of Sciences, China; Chinese Academy of Sciences, China), and Kewei Lv (University of Chinese Academy of Sciences, China; Chinese Academy of Sciences, China)

Emerging Tech Track: Session-1D-V
Session Chair: Wei Zhou

1. QuickLogS: A Quick Log Parsing Algorithm Based on Template Similarity*

Luyue Fang (Changchun University of Science and Technology, China), Xiaoqiang Di (Changchun University of Science and Technology, China), Xu Liu (Changchun University of Science and Technology, China), Yiping Qin (Changchun University of

Science and Technology, China), Weiwu Ren (Changchun University of Science and Technology, China), and Qiang Ding (Changchun University of Science and Technology, China)

2. Efficient k Nearest Neighbor Query Processing on Public Transportation Network

Jiajia Li (Shenyang Aerospace University, China), Lingyun Zhang (Shenyang Aerospace University, China), Cancan Ni (Shenyang Aerospace University, China), Yunzhe An (Shenyang Aerospace University, China), Chuanyu Zong (Shenyang Aerospace University, China), and Anzhen Zhang (Shenyang Aerospace University, China)

3. Dynamic Edge Association in Hierarchical Federated Learning Networks

Wei Yang Bryan Lim (Alibaba-NTU JRI), Jer Shyuan Ng (Alibaba-NTU JRI), Zehui Xiong (Singapore University of Technology and Design), Sahil Garg (Universite du Quebec), Yang Zhang (Nanjing University of Aeronautics and Astronautics), Dusit Niyato (Nanyang Technological University, Singapore), and Chunyan Miao (Nanyang Technological University, Singapore)

4. Policy Network Assisted Monte Carlo Tree Search for Intelligent Service Function Chain Deployment

Zhihan Fu (Chongqing University, China), Qilin Fan (Chongqing University, China), Xu Zhang (University of Exeter, China), Xiuhua Li (Chongqing University, China), Sen Wang (Chongqing University, China), and Yueyang Wang (Chongqing University, China)

Emerging Tech Track: Session-1D-VI
Session Chair: Wei Zhou

1. Invited Talk: An Edge Computing-Enabled Computation Offloading Method with Privacy Preservation for Internet of Vehicles

Shaohua Wan, Zhongnan University of Economics and Law, China

2. Towards Multi-Source Extension: A Multi-Classification Method Based on Sampled NetFlow Records

Peipei Fu (Institute of Information Engineering, Chinese Academy of Sciences, Beijing, China; School of Cyber Security, University of Chinese Academy of Sciences, Beijing, China), Qingya Yang (Institute of Information Engineering, Chinese Academy of Sciences, Beijing, China; School of Cyber Security, University of Chinese Academy of Sciences, Beijing, China), Yangyang Guan (Institute of Information Engineering, Chinese Academy of Sciences, Beijing, China; School of Cyber Security, University of Chinese Academy of Sciences, Beijing, China), Bingxu Wang (Institute of Information Engineering, Chinese Academy of Sciences, Beijing, China; School of Cyber Security, University of Chinese Academy of Sciences, Beijing, China), Gaopeng Gou (Institute of Information Engineering, Chinese Academy of Sciences, Beijing, China; School of Cyber Security, University of Chinese Academy of Sciences, Beijing, China), Zhen Li (Institute of Information Engineering, Chinese Academy of Sciences, Beijing, China; School of Cyber Security, University of Chinese Academy of Sciences, Beijing, China), Gang Xiong

(Institute of Information Engineering, Chinese Academy of Sciences, Beijing, China; School of Cyber Security, University of Chinese Academy of Sciences, Beijing, China), and Zhenzhen Li (Institute of Information Engineering, Chinese Academy of Sciences, Beijing, China; School of Cyber Security, University of Chinese Academy of Sciences, Beijing, China)

3. Constant-Time Loading: Modifying CPU Pipeline to Defeat Cache Side-Channel Attacks

Yusi Feng (Chinese Academy of Sciences, China; University of Chinese Academy of Sciences, China), Ziyuan Zhu (Chinese Academy of Sciences, China; University of Chinese Academy of Sciences, China), Shuan Li (Chinese Academy of Sciences, China; University of Chinese Academy of Sciences, China), Ben Liu (Chinese Academy of Sciences, China; University of Chinese Academy of Sciences, China), Huozhu Wang (Chinese Academy of Sciences, China; University of Chinese Academy of Sciences, China), and Dan Meng (Chinese Academy of Sciences, China)

4. Accepted Influence Maximization Under Linear Threshold Model on Large-Scale Social Networks

Xiaojuan Yang (Chongqing University, China), Jiaxing Shang (Chongqing University, China), Linjiang Zheng (Chongqing University, China), Dajiang Liu (Chongqing University, China), Shu Fu (Chongqing University, China), and Baohua Qiang (Guilin University of Electronic Technology, China)

Online Track: Session-1OL-I
Session Chair: Junling Shi

1. A Time-Aware Trust Management Heuristic for the Internet of Vehicles
Sarah Ali Siddiqui (Macquarie University, Australia), Adnan Mahmood (Macquarie University, Australia), Quan Z. Sheng (Macquarie University, Australia), Hajime Suzuki (CSIRO Data61, Australia), and Wei Ni (CSIRO Data61, Australia)

2. Reliable Logging in Wireless IoT Networks in thePresence of Byzantine Faults
Sara Alhajaili (University of Warwick, United Kingdom) and Arshad Jhumka (University of Warwick, United Kingdom)

3. Bidder Scalable M+1st-Price Auction with Public Verifiability
Po-Chu Hsu (Osaka University, Japan) and Atsuko Miyaji (Osaka University, Japan)

4. TrustMod: A Trust Management Module For NS-3 Simulator
Muhammad Shadi Hajar (Robert Gordon University, United Kingdom), Harsha Kalutarage (Robert Gordon University, United Kingdom), and M. Omar Al-Kadri (Birmingham City University, United Kingdom)

5. Rando: A General-Purpose True Random Number Generator for Conventional Computers
Ripon Patgiri (National Institute of Technology Silchar, India)

6. You Are (not) Who Your Peers Are: Identification of Potentially Excessive Permission Requests in Android Apps

Prashanthi Mallojula (University of Kansas, USA), Javaria Ahmad (University of Kansas, USA), Fengjun Li (University of Kansas, USA), and Bo Luo (University of Kansas, USA)

Online Track: Session-1OL-II
Session Chair: Junling Shi

1. Secure Ranked Choice Online Voting System via Intel SGX and Blockchain

Xuechao Yang (RMIT University, Australia), Xun Yi (RMIT University, Australia), and Andrei Kelarev (RMIT University, Australia)

2. Cryptanalysis of Deterministic and Probabilistic Multi-Copy PDP Schemes For Cloud Storage - Attacks and Countermeasures

Bartosz Drzazga (Wrocław University of Science and Technology, Poland), Łukasz Krzywiecki (Wrocław University of Science and Technology, Poland), and Hannes Salin (Swedish Transport Administration, Sweden)

3. Techniques for Securing 5G Network Services from Attacks

Vijay Varadharajan (University of Newcastle, Australia), Uday Tupakula (University of Newcastle, Australia), and Kallol Krishna Karmakar (University of Newcastle, Australia)

4. Techniques for Securing Control Systems from Attacks

Uday Tupakula (University of Newcastle, Australia), Vijay Varadharajan (University of Newcastle, Australia), and Kallol Krishna Karmakar (University of Newcastle, Australia)

5. Overcoming Security Limitations of Secret Share Techniques: the Nested Secret Share

Antonino Galletta (University of Messina, Italy; University of Karlstad, Sweden), Javid Taheri (University of Karlstad, Sweden), Maria Fazio (University of Messina, Italy), Antonio Celesti (University of Messina, Italy), and Massimo Villari (University of Messina, Italy)

6. A Deep Learning-Based Penetration Testing Framework for Vulnerability Identification in Internet of Things Environments

Nickolaos Koroniotis (Cyber Security Cooperative Research Centre, Australia; University of New South Wales at ADFA, Australia), Nour Moustafa (Cyber Security Cooperative Research Centre, Australia; University of New South Wales at ADFA, Australia), Benjamin Turnbull (Cyber Security Cooperative Research Centre, Australia; University of New South Wales at ADFA, Australia), Francesco Schiliro (Cyber Security Cooperative Research Centre, Australia; Australian Federal Police, Australia), Praveen Gauravaram (Cyber Security Cooperative Research Centre, Australia; Tata Consultancy Services Ltd., Australia), and Helge Janicke (Cyber Security Cooperative ResearchCentre, Australia)

7. Sybil Attacks and Defense on Differential Privacy Based Federated Learning

Yupeng Jiang (Macquarie University, Australia), Yong Li (Changchun University of Technology, China), Yipeng Zhou (Macquarie University, Australia), and Xi Zheng (Macquarie University, Australia)

Online Track: Session-1OL-III

Session Chair: Junling Shi

1. Enhancing Privacy Through DMMA: Decision-Making Method for Authentication

Maksym Slavnenko (Deakin University, Australia), Yevhen Zolotavkin (Deakin University, Australia), Jay Jeong (Deakin University, Australia), Veronika Kuchta (The University of Queensland, Australia), and Robin Doss (Deakin University, Australia)

2. Security Library for Safe Data Storage on Android Platform

Aneta Poniszewska-Marańda (Lodz University of Technology, Poland), Łukasz Rogoziński (Lodz University of Technology, Poland), and Witold Marańda (Lodz University of Technology, Poland)

3. White-Box Traceable Attribute-Based Encryption with Hidden Policies and Outsourced Decryption

Dominik Ziegler (Know-Center GmbH, Austria), Alexander Marsalek (Graz University of Technology, Austria), and Gerald Palfinger (A-SIT, Austria)

4. Towards Protecting Sensitive Text with Differential Privacy

Sam Fletcher (Kira Systems, Canada), Adam Roegiest (Kira Systems, Canada), and Alexander K. Hudek (Kira Systems, Canada)

5. Privacy-Preserving Biometric Matching Using Homomorphic Encryption

Gaetan Pradel (Royal Holloway University of London, Great Britain) and Chris Mitchell (Royal Holloway University of London, Great Britain)

6. ReLF: Scalable Remote Live Forensics for Android

Ruipeng Zhang (University of Tennessee at Chattanooga, USA), Mengjun Xie (University of Tennessee at Chattanooga, USA), and Jiang Bian (University of Florida, USA)

Online Track: Session-1OL-IV

Session Chair: Tao Qiu

1. Privacy-Preserving eID Derivation to Self-Sovereign Identity Systems with Offline Revocation

Andreas Abraham (Graz University of Technology, Austria), Karl Koch (Graz University of Technology, Austria), Stefan More (Graz University of Technology, Austria), Sebastian Ramacher (AIT Austrian Institute of Technology, Austria), and Miha Stopar (XLAB d.o.o., Slovenia)

2. Robust Sensor Fusion Algorithms Against Voice Command Attacks in Autonomous Vehicles

Jiwei Guan (Macquarie University, Australia), Xi Zheng (Macquarie University, Australia), Chen Wang (CSIRO Data61, Australia), Yipeng Zhou (Macquarie University, Australia), and Alireza Jolfaei (Macquarie University, Australia)

3. BERTDeep-Ware: A Cross-Architecture Malware Detection Solution for IoT Systems

Salma Abdalla Hamad (Macquarie University, Australia), Dai Hoang Tran (Macquarie

University, Australia), Quan Z. Sheng (Macquarie University, Australia), and Wei Emma Zhang (University of Adelaide, Australia)

4. Multi-Label Positive and Unlabeled Learning and its Application to Common Vulnerabilities and Exposure Categorization

Masaki Aota (Waseda University, Japan), Tao Ban (National Institute of Information and Communications Technology, Japan), Takeshi Takahashi (National Institute of Information and Communications Technology, Japan), and Noboru Murata (Waseda University, Japan)

5. How to Increase Smart Home Security and Privacy Risk Perception

Reyhan Duezguen (Karlsruhe Institute of Technology, Germany), Peter Mayer (Karlsruhe Institute of Technology, Germany), Benjamin Berens (Karlsruhe Institute of Technology, Germany), Christopher Beckmann (Karlsruhe Institute of Technology, Germany), Lukas Aldag (Karlsruhe Institute of Technology, Germany), Mattia Mossano (Karlsruhe Institute of Technology, Germany), Melanie Volkamer (Karlsruhe Institute of Technology, Germany), and Thorsten Strufe (Karlsruhe Institute of Technology, Germany)

6. Reinforcement-Learning-Based IDS for 6LoWPAN

Aryan Mohammadi Pasikhani (The University of Sheffield, UK), John A. Clark (The University of Sheffield, UK), and Prosanta Gope (The University of Sheffield, UK)

7. Energy Efficient Merkle Trees for Blockchains

Cesar Castellon (University of North Florida, USA), Swapnoneel Roy (University of North Florida, USA), Patrick Kreidl (University of North Florida, USA), Ayan Dutta (University of North Florida, USA), and Ladislau Boloni (University of Central Florida, USA)

8. Too Expensive to Attack: Enlarge the Attack Expense through Joint Defense at the Edge

Jianhua Li (Deakin University, Australia), Ximeng Liu (Fuzhou University, China), Jiong Jin (Swinburne University of Technology, Australia), and Shui Yu (University of Technology Sydney, Australia)

Online Track: Session-1OL-V
Session Chair: Tao Qiu

1. BinDeep: Binary to Source Code Matching Using Deep Learning

Saed Alrabaee (United Arab Emirates University, UAE), Kim-Kwang Raymond Choo (University of Texas at San Antonio, USA), Mohammad Qbea'h (United Arab Emirates University, UAE), and Mahmoud Khasawneh (Al Ain University, UAE)

2. Hop-by-hop Accounting and Rewards for Packet Dispatching

Caciano Machado (Federal University of Santa Catarina, Brazil), Renan R. S. dos Santos (Federal University of Santa Catarina, Brazil), and Carla Merkle Westphall (Federal University of Santa Catarina, Brazil)

3. TradeChain: Decoupling Traceability and Identity in Blockchain Enabled Supply Chains

Sidra Malik (UNSW, Australia), Naman Gupta (IIT, Delhi), Volkan Dedeoglu (CSIRO, Australia), Salil S. Kanhere (UNSW, Australia), and Raja Jurdak (QUT, Australia)

4. Wait or Reset Gas Price?: A Machine Learning-Based Prediction Model for Ethereum Transactions' Waiting Time

Akshay M. Fajge (Indian Institute of Technology Patna, India), Subhasish Goswami (Tezpur University, India), Arpit Srivastava (Indian Institute of Information Technology Vadodara, India), and Raju Halder (Indian Institute of Technology Patna, India)

5. Compressing the Bitcoin Blockchain Using Incremental Snapshots

Alexander Marsalek (Graz University of Technology, Austria) and Thomas Zefferer (ASIT Plus GmbH, Austria)

6. Virtual Static Security Analyzer for Web Applications

Mihail Brinza (Universidade de Lisboa, Portugal), Miguel Correia (Universidade de Lisboa, Portugal), and João Pereira (Universidade de Lisboa, Portugal)

Online Track: Session-1OL-VI
Session Chair: Tao Qiu

1. DeepTaskAPT: Insider APT Detection Using Task-Tree Based Deep Learning

Mohammad Mamun (National Research Council Canada, Canada) and Kevin Shi (National Research Council Canada, Canada)

2. Git Leaks: Boosting Detection Effectiveness Through Endpoint Visibility

Carlo Farinella (University of Liverpool, United Kingdom), Ali Ahmed (Victoria University of Wellington, New Zealand), and Craig Watterson (Victoria University of Wellington, New Zealand)

3. A Digital Forensics Investigation of a Smart Scale IoT Ecosystem

George Grispos (University of Nebraska–Omaha, USA), Frank Tursi (University of Nebraska–Omaha, USA), Kim-Kwang Raymond Choo (University of Texas at San Antonio, USA), William Mahoney (University of Nebraska–Omaha, USA), and William Bradley Glisson (Sam Houston State University, USA)

4. Anomaly Detection for Scenario-Based Insider Activities Using CGAN Augmented Data

R G Gayathri (Deakin University, Australia), Atul Sajjanhar (Deakin University, Australia), Yong Xiang (Deakin University, Australia), and Xingjun Ma (Deakin University, Australia)

5. MazeRunner: Evaluating the Attack Surface of Control-Flow Integrity Policies

Dongrui Zeng (Pennsylvania State University, USA), Ben Niu (Microsoft, USA), and Gang Tan (Pennsylvania State University, USA)

6. Automated Detection of Malware Activities Using Nonnegative Matrix Factorization

Chansu Han (National Institute of Information and Communications Technology, Japan; Kyushu University, Japan), Jun'ichi Takeuchi (Kyushu University, Japan), Takeshi Takahashi (National Institute of Information and Communications Technology, Japan), and Daisuke Inoue (National Institute of Information and Communications Technology,

Japan)

7. Analyzing Interoperability and Portability Concepts for Self-Sovereign Identity

Andreas Grüner (University of Potsdam, Germany), Alexander Mühle (University of Potsdam, Germany), and Christoph Meinel (University of Potsdam, Germany)

Friday, October 22, 2021

CSE: Session-2A-I
Session Chair: Hao Liu

1. Invited Talk: Spatial Keyword Aware Route Planning in Urban Road Network

Jiajia Li, Shenyang Aerospace University, China

2. A Method of Surface Defect Detection of Bluetooth Headset Based on Machine Vision

Xin Lu (Shenyang Fengchi Software Co. LTD, China), Junying Jia (Shenyang Fengchi Software Co. LTD, China), Zhiwei Pei (Shenyang Fengchi Software Co. LTD, China), Daolin Wang (Shenyang Fengchi Software Co. LTD, China), Jialin Wang (Shenyang Fengchi Software Co. LTD, China), and Bo Sun (Shenyang Fengchi Software Co. LTD, China)

3. Human Brain Hippocampus Segmentation Based on Improved U-net Model

ChuLan Ren (Shenyang University of Chemical Technology, China), Ning Wang (Shenyang University of Chemical Technology, China), and Yang Zhang (University of Traditional Chinese, China)

4. Fault Diagnosis Method Based on CWGAN-GP-1DCNN

Hang Yin (Shenyang Aerospace University, China; Zhongkai University of Agriculture and Engineering, China; Smart Agriculture Engineering Research Center of Guangdong Higher Education Institutes, China ;Guangdong Provincial Agricultural Products Safety Big Data Engineering Technology Research Center, China), Yacui Gao (Shenyang Aerospace University, China), Chuanyun Liu (Shenyang Aerospace University, China), and Shuangyin Liu (Zhongkai University of Agriculture and Engineering, China; Smart Agriculture Engineering Research Center of Guangdong Higher Education Institutes, China; Guangdong Provincial Agricultural Products Safety Big Data Engineering Technology Research Center, China)

5. A New Image Encryption Scheme Based on 3D Sine-Adjusted-Logistic map and DNA Coding

Zhenzhou Guo (Shenyang Aerospace University, China), Ding Feng (Shenyang Aerospace University, China), Changqing Gong (Shenyang Aerospace University, China), Han Qi (Shenyang Aerospace University, China), Na Lin (Shenyang Aerospace University, China), and Xintong Li (Shenyang Aerospace University, China)

CSE: Session-2A-II
Session Chair: Hao Liu

1. Invited Talk: Efficient Complex Pattern Matching on Text with Regular Expressions

Tao Qiu, Shenyang Aerospace University, China

2. Multimodal Aesthetic Analysis Assisted by Styles Through a Multimodal co-Transformer Model

Haotian Miao (Northeastern University, P.R.China), Yifei Zhang (Northeastern University, P.R.China), Daling Wang (Northeastern University, P.R.China), and Shi Feng (Northeastern University, P.R.China)

3. A Novel Sentiment Classification Based on "word-Phrase" Attention Mechanism

Guangyao Pang (Wuzhou University, China), Guobei Peng (Guangxi University, China), Zizhen Peng (WuZhou Vocational College, China), Jie He (Wuzhou University, China), Yan Yang (Wuzhou University, China), and Zhiyi Mo (Wuzhou University, China)

4. Near-Duplicate Video Retrieval Based on Deep Unsupervised Key Frame Hashing

Wenhao Zhao (Northeastern University, China), Shijiao Yang (Northeastern University, China), and Mengqun Jin (Northeastern University, China)

5. Multi-Robot Coverage Path Planning Based on Deep Reinforcement Learning

Xiaolin Zhou (Northeastern University, China), Xiaojie Liu (Northeastern University, China), Xingwei Wang (Northeastern University, China), Shiguang Wu (Northeastern University, China), and Mingyang Sun (Northeastern University, China)

CSE: Session-2A-III
Session Chair: Hao Wu

1. MineDetector: JavaScript Browser-Side Cryptomining Detection using Static Methods

Peiran Wang (Sichuan University, China), Yuqiang Sun (Sichuan University, China), Cheng Huang (Sichuan University, China; Guangxi Key Laboratory of Cryptography and Information Security, China), Yutong Du (Sichuan University, China), Genpei Liang (Sichuan University, China), and Gang Long (Harbin Institute of Technology, China)

2. An Improvement for Value-Based Reinforcement Learning Method Through Increasing Discount Factor Substitution

Linjian Hou (National University of Defense Technology, China), Zhengming Wang (National University of Defense Technology, China), and Han Long (National University of Defense Technology, China)

3. A K-Nearest Neighbor Classifier Based on Homomorphic Encryption Scheme

Zhenzhou Guo (Shenyang Aerospace University, China), Weifeng Jin (Shenyang Aerospace University, China), Xintong Li (Shenyang Aerospace University, China), Han Qi (Shenyang Aerospace University, China), and Changqing Gong (Shenyang

Aerospace University, China)

4. Blockchain-Based Crowdsourcing Task Management and Solution Verification Method

Shasha Li (Nanjing University of Science and Technology, China), Xiaodong Bai (Nanjing University of Science and Technology, China), and Songjie Wei (Nanjing University of Science and Technology, China)

5. A Large-Scale Detection Algorithm and Application Based on YOLOv4

Xiangbin Shi (Shenyang Aerospace University, China) and Jinwen Peng (Shenyang Aerospace University, China)

CSE/EUC: Session-2B-I
Session Chair: Deyuan Zhang

1. Loop Closure Detection for Visual SLAM Systems Based on Convolutional Netural Network

Xiangbin Shi (Shenyang Aerospace University, China) and Lin Li (Shenyang Aerospace University, China)

2. A Semantic-Based Replacement for Event Image Privacy

Zhenfei Chen (China University of Geosciences, P.R. China), Zhu Tianqing (China University of Geosciences, P.R. China), Bing Tian (China University of Geosciences, P.R. China), Yu Wang (Guangzhou University, P.R. China), and Wei Ren (China University of Geosciences, P.R. China)

3. Extracting Discriminative Features for Cross-View Gait Recognition Based on the Attention Mechanism

Ruicheng Sun (University of Electronic Science and Technology of China, China), Shuo Han (University of Electronic Science and Technology of China, China), Weihang Peng (University of Electronic Science and Technology of China, China), Hanxiang Zhuang (University of Electronic Science and Technology of China, China), Xin Zeng (University of Electronic Science and Technology of China, China), and Xingang Liu (University of Electronic Science and Technology of China, China)

4. Exploring Investment Strategies for Federated Learning Infrastructure in Medical Care

Ju Xing (Tsinghua University), Xu Zhang (University of Exeter), Zexun Jiang (Tsinghua University), Ruilin Zhang (Tsinghua University), Cong Zha (Tsinghua University), and Hao Yin (Tsinghua University)

5. ScList: A PCRAM-Based Hybrid Memory Management Scheme

Hongyu Wang (Wiscom System Co., LTD, China), Xiaolei Tang (Southeast University, China), Liming Sheng (Southeast University, China), Wenqiang Li (Southeast University, China), Jun Shen (Wiscom System Co., LTD, China), and Jun Tao (Southeast University, China)

EUC: Session-2B-II
Session Chair: Guohui Ding

1. Invited Talk: Social-based Routing Schemes in Ubiquitous Networks

Junling Shi, Shenyang Aerospace University, China

2. Forecasting the Track Irregularity of High-Speed Railway Based on a WT-GA-GRU Model

Haining Meng (Xi'an University of Technology; Shaanxi Key Lab Network Computer and Security Technology, China), Wei Li (Xi'an University of Technology, China), Wenjiang Ji (Xi'an University of Technology, China), Yi Zheng (Xi'an University of Technology, China), Xinyu Tong (Xi'an University of Technology, China), and Xinhong Hei (Xi'an University of Technology, China)

3. A Blockchain-Based Fast Authentication and Collaborative Video Data Forwarding Scheme for Vehicular Networks

Weihui Qiu (China University of Geosciences, P.R. China), Xin Yang (Wuhan Institute of Marine Electric Propulsion, CSSC, P.R. China), Ming Wei (China University of Geosciences, P.R. China), Wei Ren (China University of Geosciences, P.R. China; Chinese Academy of Sciences, P.R. China; Guizhou University, P.R. China), and Tianqing Zhu (China University of Geosciences, P.R. China)

4. Private Estimation of Symptom Distribution for Infectious Disease Analysis in Edge Computing

Xiaotong Wu (Nanjing University, P.R. China; Nanjing Normal University, P.R. China), Xiaolong Xu (Nanjing University of Information Science & Technology, P.R. China), Shaohua Wan (Zhongnan University of Economics and Law, P.R. China), and Lianyong Qi (Qufu Normal University, P.R. China)

EUC: Session-2B-III
Session Chair: Guohui Ding

1. PSSBP: A Privacy-Preserving Scope-Query Searchable Encryption Scheme Based on Blockchain for Parking Lots Sharing in Vehicular Networks

Qi Tang (East China Normal University, China), Jiachen Shen (East China Normal University, China), Zhenfu Cao (East China Normal University, China; Peng Cheng Laboratory), and Xiaolei Dong (East China Normal University, China)

2. Verified CSAC-Based CP-ABE Access Control of Cloud Storage in SWIM

Zhijun Wu (Civil Aviation University of China, China), Jia Nie (Civil Aviation University of China, China), Yue Yin (Civil Aviation University of China, China), and Hui Wang (Civil Aviation University of China, China)

3. METER: An Ensemble DWT-Based Method for Identifying Low-Rate DDoS Attack in SDN

Cong Wang (Guizhou University, China), Yunhe Cui (Guizhou University, China), Qing Qian (GuiZhou University of Finance and Economics, China), Guowei Shen (Guizhou University, China), Hongfeng Gao (Guizhou University, China), and Saifei Li (Southwest Jiaotong University, China)

4. New Dynamic Switch Migration Technique Based on Deep Q-Learning

Lin Yao (Dalian University of Technology, China), Jia Li (Dalian University of Technology, China), Guowei Wu (Dalian University of Technology, China), and Bin Wu (Chinese Academy of Sciences, China)

5. Modification and Performance Improvement of Paillier Homomorphic Cryptosystem

Yunting Tao (Shandong University, China), Fanyu Kong (Shandong University, China), Jia Yu (Qingdao University, China), and Qiuliang Xu (Shandong University, China)

EUC: Session-2C-I
Session Chair: Zhuo Yan

1. A Q-Learning Based Routing Optimization Model in a Software Defined Network

Yupeng Wang (Liaoning General Aviation Academy, China; Shenyang Aerospace University, China), Xin Zhou (Shenyang Aerospace University, China), and Xinyue Fan (Liaoning General Aviation Academy, China)

2. PolarText: Single-Stage Scene Text Detection with Polar Representation

Qiran Kong (Hohai University, China), Yirui Wu (Hohai University, China), and Shaohua Wan (Zhongnan University of Economics and Law, China)

3. An Image Enhancement Method for Few-Shot Classification

Benze Wu (Hohai University, China), Yirui Wu (Hohai University, China), and Shaohua Wan (Zhongnan University of Economics and Law, China)

4. Dealing with the Domain Name Abuse: Issues and Approaches

Xuebiao Yuchi (China Internet Network Information Center, China), Zhiwei Yan (China Internet Network Information Center, China), Kejun Dong (China Internet Network Information Center, China), Hongtao Li (China Internet Network Information Center, China), Guanggang Geng (Jinan University, Guangzhou, China), and Sachin Shetty (Old Dominion University, USA)

5. An Energy-Aware Approach with Spectrum Detection in Wireless Sensor Networks

Chengyi Yang (Shanghai University of International Business and Economics, China), Feng Liu (East China Normal University, China), Siyuan Shen (East China Normal University, China), and Jiayin Qi (Shanghai University of International Business and Economics, China)

EUC/iSCI: Session-2C-II
Session Chair: Zhuo Yan

1. Invited Talk: Opportunities and Challenges of Telecom Operator Big Data
Lexi Xu, China Unicom

2. Detecting Privacy Leaks in Android Hybrid Applications Based on Dynamic Taint Tracking
Junwei Tang (Wuhan Textile University; Huazhong University of Science and Technology), Ruixuan Li (Huazhong University of Science and Technology), Zhiqiang

Xiong (Huazhong University of Science and Technology), Hongmu Han (Hubei University of Technology), and Xiwu Gu (Huazhong University of Science and Technology)

3. A Image Enhancement Method for Few-shot Classification

Benze Wu (Hohai University, China), Yirui Wu (Hohai University, China), and Shaohua Wan (Zhongnan University of Economics and Law, China)

4. PCRAM-Based Data Management Method for Storage and Computation Integration

Wang Hongyu (Wiscom System Co., LTD, China), Sheng Liming (Southeast University, China), Tang Xiaolei (Southeast University, China), Li Wenqiang (Southeast University, China), Shen Jun (Wiscom System Co., LTD, China), and Tao Jun (Southeast University, China)

5. Cooperative Target Search for UAVs in Urban Environment

Tong Men (National University of Defense Technology, China), Daqian Liu (National University of Defense Technology, China), Xiaomin Zhu (National University of Defense Technology, China), Bowen Fei (National University of Defense Technology, China), Zhijian Zhou (National University of Defense Technology, China), and Weidong Bao (National University of Defense Technology, China)

iSCI: Session-2C-III
Session Chair: Tao Qiu

1. A Blockchain-Based Online Transaction System for Physical Products Trading with Fairness, Privacy Preservation, and Auditability

Yicong Du (University of Electronic Science and Technology of China, China), Chunxiang Xu (University of Electronic Science and Technology of China, China), and Yuan Zhang (University of Electronic Science and Technology of China, China)

2. HOPE-L: A Lossless Database Watermarking Method in Homomorphic Encryption Domain

Xueqi Zhang (University of Science and Technology of China, China), Haiyong Xie (University of Science and Technology of China, China), and Hui Lin (National Engineering Laboratory for Public Safety Risk Perception and Control by Big Data, China)

3. A Traceable Scheme for Consortium Blockchain

Tianjun Ma (Institute of Information Engineering, CAS, China; University of Chinese Academy of Sciences, China), Haixia Xu (Institute of Information Engineering, CAS, China; University of Chinese Academy of Sciences, China), and Peili Li (Institute of Information Engineering, CAS, China)

4. Verifiable Receipt-Free Electronic Voting System Based on Mask Ballot

Zhang Zhaoju (University of International Relations Beijing, China), Luo Hanbo (University of International Relations Beijing, China), and Di Hong (University of International Relations Beijing, China)

5. EPSTO-ARIMA: Electric Power Stochastic Optimization Predicting Based on ARIMA

Yuqing Xu (Chongqing University of Posts and Telecommunications, China), Guangxia Xu (Chongqing University of Posts and Telecommunications, China), Zeliang An (Chongqing University of Posts and Telecommunications, China), and Yanbin Liu (Chongqing University of Posts and Telecommunications, China)

iSCI/BigdataSE: Session-2D-I
Session Chair: Zhuoqun Fang

1. A Model for Predicting Silica Concentrate Concertration Based on Bayesian-LGC

Quanjiang Zhang (University of Electronic Science and Technology of China, China), Xin Su (University of Electronic Science and Technology of China, China), Zhiqiang Ouyang (University of Electronic Science and Technology of China, China), Wenyi Nie (University of Electronic Science and Technology of China, China), and Xingang Liu (University of Electronic Science and Technology of China, China)

2. Dual Attention-Based Interest Network for Personalized Recommendation System

Xuan Zhou (Shaanxi Normal University, China), Xiaoming Wang (Shaanxi Normal University, China), Guangyao Pang (Shaanxi Normal University, China), Yaguang Lin (Shaanxi Normal University, China), Pengfei Wan (Shaanxi Normal University, China), and Meiling Ge (Shaanxi Normal University, China)

3. An Incentive Mechanism for Resource Allocation in Coded Distributed Computing

Jer Shyuan Ng (Alibaba Group; Alibaba-NTU JRI), Wei Yang Bryan Lim (Alibaba Group; Alibaba-NTU JRI), Zehui Xiong (SUTD, Singapore), Sahil Garg (École de Technologie Supérieure), Dusit Niyato (SCSE, NTU, Singapore), and Cyril Leung (Alibaba-NTU JRI; LILY Research Center, NTU, Singapore; ECE, UBC, Canada)

4. Two-Stream Graph Attention Convolutional for Video Action Recognition

Deyuan Zhang (Shenyang Aerospace University, China), Hongwei Gao (Shenyang Aerospace University, China), Hailong Dai (Liaoning Planning and Designing Institute of Post and Telecommunication Company, China), and Xiangbin Shi (Shenyang Aerospace University, China)

5. A Chinese Medical Question Answering System Based on Knowledge Graph

Chengyang Zhou (Jilin University, China), Renchu Guan (Jilin University, China), Chuntao Zhao (Jilin University, China), Gonglei Chai (Jilin University, China), Leigang Wang (Jilin University, China), and Xiaosong Han (Jilin University, China)

BigDataSE: Session-2D-II
Session Chair: Zhuoqun Fang

1. UEIN: A User Evolving Interests Network for Click-Through Rate Prediction

Jianxiong Xu (China West Normal University, China; Chinese Academy of Sciences,

China), Xiaoyu Shi (Chinese Academy of Sciences, China), Hezhe Qiao (Chinese Academy of Sciences, China), Mingsheng Shang (Chinese Academy of Sciences, China), Xianbo He (China West Normal University, China), and Qingyu He (China West Normal University, China)

2. A STL-GALSTM Model to Predict the Track Irregularity of High-Speed Railway

Xinyu Tong (Xi'an University of Technology, China), Haining Meng (Xi'an University of Technology, China; Shaanxi Key Lab Network Computer and Security Technology, China), Kai Feng (Xi'an University of Technology, China), Wenjiang Ji (Xi'an University of Technology, China), Yi Zheng (Xi'an University of Technology, China), and Xinhong Hei (Xi'an University of Technology, China)

3. An Efficient Redundancy Control and Load Balancing Scheme for Cloud Storage

Fan Yang (China University of Geosciences, P. R. China), Zhao Ma (China University of Geosciences, P. R. China), and Heng Xu (China University of Geosciences, P. R. China)

4. HRSE: a Novel High-Speed Random Sampling Encryption Scheme on Big Data

Junru Peng (Xidian University, P. R. China), Heng Xu (China University of Geosciences, P. R. China), and Jun Song (China University of Geosciences, P. R. China)

5. Improving the Number of Queries Supported by Differentially Private Mechanisms

Wen Huang (University of Electronic Science and Technology of China, China), Shijie Zhou (University of Electronic Science and Technology of China, China), and Yongjian Liao (University of Electronic Science and Technology of China, China)

6. Partnership-Based Collaborative Learning Approach from Decentralized Data

Ye Chen (Denali System Co., Ltd., USA), Jingguo Dai (GRGBanking Equipment Co., Ltd., China), Xinduo Su (GRGBanking Equipment Co., Ltd., China), Yaorong Fan (Denali System Co., Ltd., China; Guangzhou University, China), Wendong Bian (Denali System Co., Ltd., China; Guangzhou University, China), Peng Ye (GRGBanking Equipment Co., Ltd., China), Guang Chen (GRGBanking Equipment Co., Ltd., China), and Yuezhen Huang (GRGBanking Equipment Co., Ltd., China)

BigDataSE: Session-2D-III
Session Chair: Zhuoqun Fang

1. PKMark: A Robust Zero-Distortion Blind Reversible Schema for Watermarking Relational Databases

Xiao Tang (East China Normal University, China), Zhenfu Cao (East China Normal University, China; Tongji University, China), Xiaolei Dong (East China Normal University, China), and Jiachen Shen (East China Normal University, China)

2. BV-CEI: A Compact Implementation of Interval Query Indexing Algorithm

Yuhai Lu (Chinese Academy of Sciences, China), Chunyan Zhang (Chinese Academy of Sciences, China), Cong Cao (Chinese Academy of Sciences, China), Yanbing Liu (Chinese Academy of Sciences, China), and Jianlong Tan (Chinese Academy of

Sciences, China)

3. Verifiable and Privacy-Preserving Ranked Multi-Keyword Search over Outsourced Data in Clouds

Meng Zhao (Guilin University of Electronic Technology, China), Lin-Gang Liu (Guilin University of Electronic Technology, China), Yong Ding (Guilin University of Electronic Technology, China; Pengcheng Laboratory, China), Yujue Wang (Beihang University, China), Hai Liang (Guilin University of Electronic Technology, China), Shijie Tang (Guilin University of Electronic Technology, China), Baodong Wen (Guilin University of Electronic Technology, China), and Weiyou Liang (Guilin University of Electronic Technology, China)

4. KMUL: A User Identity Linkage Method Across Social Networks Based on Spatiotemporal Data

Hui Xue (Institute of Information Engineering Chinese Academy of Sciences, China), Bo Sun (National Internet Emergency Center, China), Chengxiang Si (National Internet Emergency Center, China), Wei Zhang (National Internet Emergency Center, China), and Jing Fang (National Internet Emergency Center, China)

5. SDCCD: Spatiotemporal Data Cleaning Based on Collision Detection

Hui Xue (Chinese Academy of Sciences, China), Bo Sun (National Internet Emergency Center, China), Chengxiang Si (National Internet Emergency Center, China), Wei Zhang (National Internet Emergency Center, China), and Jing Fang (National Internet Emergency Center, China)

6. Design of Big Data Integration Platform Based on Hybrid Hierarchy Architecture

Wenyi Nie (University of Electronic Science and Technology of China Chengdu, China), Quanjiang Zhang (University of Electronic Science and Technology of China Chengdu, China), Zhiqiang Ouyang (University of Electronic Science and Technology of China Chengdu, China), and Xingang Liu (University of Electronic Science and Technology of China Chengdu, China)

Online Session: Session-2OL-I
Session Chair: Cunqian Yu

1. CFP- A New Approach to Predicting Fantasy Points of NFL Quarterbacks
Dienul Paramarta (North Dakota State University, USA) and Juan Li (North Dakota State University, USA)

2. Energy-Efficient D2D Communications Based on Centralised Reinforcement Learning Techniques
Sami Alenezi (University of Exeter, United Kingdom), Chunbo Luo (University of Exeter, United Kingdom), and Geyong Min (University of Exeter, United Kingdom)

3. Analytical Modelling of Content Transfer in Information Centric Networks
Han Xu (University of Exeter, UK), Haozhe Wang (University of Exeter,UK), Jia Hu (University of Exeter, UK), and Geyong Min (University of Exeter, UK)

4. A Real-Time Intrusion Detection System Based on OC-SVM for Containerized Applications

Lu Zhang (University of Amsterdam, The Netherlands), Reginald Cushing (University of Amsterdam, The Netherlands), Cees de Laat (University of Amsterdam, The Netherlands), and Paola Grosso (University of Amsterdam, The Netherlands)

5. Towards Vulnerability Types Classification using Pure Self-Attention: A Common Weakness Enumeration Based Approach

Tianyi Wang (The University of Hong Kong, China), Shengzhi Qin (The University of Hong Kong, China), and Kam Pui Chow (The University of Hong Kong, China)

Online Session: Session-2OL-II

Session Chair: Cunqian Yu

1. Effect of Environmental Conditions on PRNU

Pucha Rohan (Indian Institute of Technology, Jammu, India), Priyanka Singh (Dhirubhai Ambani Institute of Information and Communication Technology, India), and Manoranjan Mohanty (University of Technology, Sydney, Australia)

2. FlowGAN - Synthetic Network Flow Generation using Generative Adversarial Networks

Liam Daly Manocchio (University of Queensland, Australia), Siamak Layeghy (University of Queensland, Australia), and Marius Portmann (University of Queensland, Australia)

3. Dynamically Interchangeable Framework for Component Behavior of Embedded Component Systems

Ryota Shimomura (Saitama University), Hiroshi Oyama (OKUMA corporation), and Takuya Azumi (Saitama University)

4. Open Portable Trusted Execution Environment Framework for RISC-V

Marouene Boubakri (NXP, France; University of Carthage, Tunisia), Fausto Chiatante (NXP, France), and Belhassen Zouari (University of Carthage, Tunisia)

5. Multi-Agent Multi-Armed Bandit Learning for Offloading Delay Minimization in V2X Networks

Nang Hung Nguyen (Hanoi University of Science and Technology, Vietnam), Phi Le Nguyen (Hanoi University of Science and Technology, Vietnam), Hieu Dinh (Hanoi University of Science and Technology, Vietnam), Thanh Hung Nguyen (Hanoi University of Science and Technology, Vietnam), and Kien Nguyen (Chiba University, Japan)

Online Session: Session-2OL-III

Session Chair: Cunqian Yu

1. Coding Observer Nodes for Sybil Attacks Detection in Mobile Wireless Sensor Networks

Bahman A. Sassani (Sarrafpour) (Engineering & Applied Technology Unitec, New

Zealand), Abdulaziz Alomirah (Engineering & Applied Technology Unitec, New Zealand), Shaning Pang (Federation University, Australia), and Soshian Sarrafpour (Yale University, USA)

2. A Framework to Optimize Deep Learning Based Web Attack Detection using Attacker Categorization

Waleed Bin Shahid (National University of Sciences and Technology, Pakistan), Haider Abbas (National University of Sciences and Technology, Pakistan), Baber Aslam (National University of Sciences and Technology, Pakistan), Hammad Afzal (National University of Sciences and Technology, Pakistan), and Saad Bin Khalid (National University of Sciences and Technology, Pakistan)

3. Securing Remote Policy Enforcement by a Multi-Enclave Based Attestation Architecture

Hendrik Meyer zum Felde (Fraunhofer Institute for Applied and Integrated Security, Germany), Mathias Morbitzer (Fraunhofer Institute for Applied and Integrated Security, Germany), and Julian Schütte (Fraunhofer Institute for Applied and Integrated Security, Germany)

4. An Adaptive Edge-Based Steganography Algorithm for Hiding Text into Images

Bahman A. Sassani (Sarrafpour) (Unitec Institute of Technology, New Zealand), Reem A. Alomirah (Unitec Institute of Technology, New Zealand), Soshian Sarrafpour (Yale University, New Zealand), and Hamid Sharifzadeh (Unitec Institute of Technology, New Zealand)

Online Session: Session-2OL-IV
Session Chair: Yunchong Guan

1. Designing the Elements of a Fuzzy Hashing Scheme
Jonathan Oliver (TrendMicro Research, Australia) and Josiah Hagen (TrendMicro Research, USA)

2. Multi-Objective Optimization of Water Distribution Networks via NSGA-II and Pseudo-Weights

Samar Ben Ammar (National Institute of Agronomy of Tunisia, Tunisia), Mario G.C.A. Cimino (University of Pisa, Italy), Pierfrancesco Foglia (University of Pisa, Italy), Federico A. Galatolo (University of Pisa, Italy), and Issam Nouiri (National Institute of Agronomy of Tunisia, Tunisia)

3. Is Blockchain Overrated?
Asif Raza Kazmi (National University of Sciences and Technology, Pakistan), Mehreen Afzal (National University of Sciences and Technology, Pakistan), Haider Abbas (National University of Sciences and Technology, Pakistan), Shahzaib Tahir (National University of Sciences and Technology, Pakistan), and Abdul Rauf (National University of Sciences and Technology, Pakistan)

4. RiskISM: A Risk Assessment Tool for Substations

Kwasi Boakye-Boateng (University of New Brunswick, Canada), Ali A. Ghorbani (University of New Brunswick, Canada), and Arash Habibi Lashkari (University of New Brunswick, Canada)

Online Session: Session-2OL-V
Session Chair: Junling Shi

1. Distributing On-Demand Analytics Processing on Heterogeneous Industrial Internet of Things Edge Hardware

Phil Lane (University of Huddersfield, United Kingdom), Richard Hill (University of Huddersfield, United Kingdom), and Stuart Berry (University of Derby, United Kingdom)

2. Spatial-Temporal Data Science of COVID-19 Data

Deyu Deng (University of Manitoba, Canada), Carson K. Leung (University of Manitoba, Canada), Chenru Zhao (University of Manitoba, Canada), Yan Wen (University of Manitoba, Canada), and Hao Zheng (University of Manitoba, Canada)

3. MSD-Kmeans: A Hybrid Algorithm for Efficient Detection of Global and Local Outliers

Yuanyuan Wei (Massey University, New Zealand), Julian Jang-Jaccard (Massey University, New Zealand), Fariza Sabrina (Central Queensland University, Australia), and Timothy McIntosh (Massey University, New Zealand)

4. VFAT: A Personalized HAR Scheme Through Exploiting Virtual Feature Adaptation Based on Transfer Learning

Xiao Li (Nanjing University of Posts and Telecomm, China), Yufeng Wang (Nanjing University of Posts and Telecomm, China), Jianhua Ma (Hosei University, Japan), and Qun Jin (Waseda University, Japan)

Online Session: Session-2OL-VI
Session Chair: Junling Shi

1. A Validated Privacy-Utility Preserving Recommendation System with Local Differential Privacy

Seryne Rahali (Institut Polytechnique de Paris, France), Maryline Laurent (Institut Polytechnique de Paris, France), Souha Masmoudi (Institut Polytechnique de Paris, France), Charles Roux (Institut Polytechnique de Paris, France), and Brice Mazeau (Institut Polytechnique de Paris, France)

2. UAV-Empowered Vehicular Networking Scheme for Federated Learning in Delay Tolerant Environments

Zhaoyang Du (The University of Electro-Communications, Japan), Ganggui Wang (The University of Electro-Communications, Japan), Narisu Cha (The University of Electro-Communications, Japan), Celimuge Wu (The University of Electro-Communications, Japan), Tsutomu Yoshinaga (The University of Electro-Communications, Japan), and Rui Yin (Zhejiang University City College, China)

3. DIEF: An Autopsy Module for Distributed Identification of E-Mail Files from

Disk Images

Selim Ozcan (Sam Houston State University, USA), Merve Astekin (Simula Research Laboratory, Norway), William Bradley Glisson (Sam Houston State University, USA), and Kim-Kwang Raymond Choo (The University of Texas at San Antonio, USA)

4. A Systematic Evaluation of Android Anti-Malware Tools for Detection of Contemporary Malware

Zia Muhammad (National University of Sciences and Technology, Pakistan), Muhammad Faisal Amjad (National University of Sciences and Technology, Pakistan), Haider Abbas (National University of Sciences and Technology, Pakistan), Zafar Iqbal (National University of Sciences and Technology, Pakistan), Anique Azhar (National University of Sciences and Technology, Pakistan), Ahsan Yasin (National University of Sciences and Technology, Pakistan), and Hasan Iesar (National University of Sciences and Technology, Pakistan)

NGDN 2021: Session I
Session Chair: Hao Wu

1. Redactable Blockchain Based on Unforgeable Signatures for Supporting Fast Verification

Xiaocong Li (South China Normal University, China) and Changshe Ma (South China Normal University, China)

2. A Blind Watermarking System Based on Deep Learning Model

Lichao Zhang (Inossem Software Technology Co., Ltd, China), Wangbin Li (Inossem Software Technology Co., Ltd, China), and Hailiang Ye (Inossem Software Technology Co., Ltd, China)

3. Application of Bayesian Network Reasoning Algorithm in Emotion Classification

Zhiyi Mo (Wuzhou University, China), Yutong Xing (Wuzhou University, China), and Zizhen Peng (WuZhou Vocational College, China)

4. An Measurement Method of Oblique Wedge Rubbing Surface Abrasion Based on Point Cloud

HuanLong Liu (Southwest Jiaotong University, China), Bin Jiang (Southwest Jiaotong University, China), ZhengJie Wang (Southwest Jiaotong University, China), and HongYu Peng (TangShan College, China)

5. Simple Online Unmanned Aerial Vehicle Tracking with Transformer

Yang Liu (Zhejiang Key laboratory of General Aviation Operation Technology, China), Ershen Wang (Shenyang Aerospace University, China), Song Xu (Shenyang Aerospace University, China), Zhi Wang (Civil Aviation Management Institute of China, China), Meizhi Liu (Shenyang Aerospace University, China), and Wansen Shu (Shenyang Aerospace University, China)

6. Detection of Anomaly User Behaviors Based on Deep Neural Networks

Zhaoyun Ding (National University of Defense Technology, China), Lina Liu (Soochow

University, China), Donghua Yu (Shaoxing University, China), Songping Huang (National University of Defense Technology, China), Hang Zhang (National University of Defense Technology, China), and Kai Liu (National University of Defense Technology, China)

7. Release of Trajectory Data Based on Space Segmentation Using Differential Privacy

Yongxin Zhao (Hebei University, China), Wanqing Wu (Hebei University, China), and Chaofan Di (Hebei University, China)

8. An Implementation and Optimization Method of RTLS Based on UWB for Underground Mine

Zerui Fang (University of Jinan, China), Shiyao Cui (University of Jinan, China), Qing Su (University of Jinan, China), and Suzhen Wang (University of Jinan, China)

9. Random Forest Algorithm Based on Differential Privacy Protection

Yaling Zhang (Xi'an University of Technology, China), Pengfei Feng (Xi'an University of Technology, China), and Yao Ning (Xi'an University of Technology, China)

NGDN 2021: Session II
Session Chair: Jiajia Li

1. An Axis Extracting Method for Rotational Parts Based on Point Cloud Normal Lines

Liu Huanlong (Southwest Jiaotong University, China), Wang Zhengjie (Southwest Jiaotong University, China), Chen Yao (Southwest Jiaotong University, China), and Peng Hongyu (Tangshan College, China)

2. Human Trajectory Prediction Using Stacked Temporal Convolutional Network

Yajie Wang (Shaanxi Xueqian Normal University, China), Jinli Ma (Shaanxi Normal University, China), Zhao Pei (Key Laboratory of Modern Teaching Technology, China; Shaanxi Normal University, China), and Jun Li (Nanjing Normal University, China)

3. Revisiting Anonymity and Privacy of Bitcoin

Tianyu Zhao (Griffith University, Australia) and Tao Zhang (Guilin University of Electronic Technology, China)

4. An Inertia Wheel Pendulum Control Method Based on Actor-Critic Learning Algorithm

Liu Huanlong (Southwest Jiaotong University, China), Wang Zhengjie (Southwest Jiaotong University, China), Jiang Bin (Southwest Jiaotong University, China), and Peng Hongyu (Tangshan College, China)

5. GEA-net: Global Embedded Attention Neural Network for Image Classification

Yajie Wang (Shaanxi Xueqian Normal University, China), Zhiyang Wan (Shaanxi Normal University, China), Zhao Pei (Key Laboratory of Modern Teaching Technology, China; Shaanxi Normal University, China), Chengcai Leng (Northwest University, China), and Yuli Chen (Key aboratory of Modern Teaching Technology, China; Shaanxi Normal University, China)

6. Design of Lightweight Intelligent Vehicle System Based on Hybrid Depth Model

Zhuo Yan (Shenyang Aerospace University, China), Bin Lan (Shenyang Aerospace University, China), Shaohao Chen (Shenyang Aerospace University, China), Senyu Yu (Shenyang Aerospace University, China), Xingwei Wang (Shenyang Aerospace University, China), Zhuoqun Fang (Shenyang Aerospace University, China), Wei Chen (MassVision Technology Co., Ltd., China), Chuanyun Wang (Shenyang Aerospace University, China), and Xiangbin Shi (Shenyang Aerospace University, China)

7. Improved NS Cellular Automaton Model for Simulating Traffic Flows of Two-Lane

Zhuo Yan (Shenyang Aerospace University, China), Xingwei Wang (Shenyang Aerospace University, China), Bin Lan (Shenyang Aerospace University, China), Senyu Yu (Shenyang Aerospace University, China), Shaohao Chen (Shenyang Aerospace University, China), Zhuoqun Fang (Shenyang Aerospace University, China), Chuanyun Wang (Shenyang Aerospace University, China), Wei Chen (MassVision Technology Co., Ltd., China), and Xiangbin Shi (Shenyang Aerospace University, China)

AEIT 2021
Session Chair: Rui Zhu

1. Construction of Knowledge Graph Based on Discipline Inspection and Supervision

Yuefeng Liu (Inner Mongolia University of Science and Technology, China), Wei Guo (Inner Mongolia University of Science and Technology, China), Hanyu Zhang (Inner Mongolia University of Science and Technology, China), Haodong Bian (Inner Mongolia University of Science and Technology, China), Yingjie He (Inner Mongolia University of Science and Technology, China), Xiaoyan Zhang (Inner Mongolia University of Science and Technology, China), Yanzhang Gong (Inner Mongolia Discipline Inspection and Supervision Big Data Laboratory, China), Jianmin Dong (Inner Mongolia Discipline Inspection and Supervision Big Data Laboratory, China), and Zhen Liu (Nagasaki Institue of Applied Science, Japan)

2. Prediction of Remaining Useful Life of Turbofan Engine Based on Optimized Model

Yuefeng Liu (Inner Mongolia University of Science and Technology, China), Xiaoyan Zhang (Inner Mongolia University of Science and Technology, China), Wei Guo (Inner Mongolia University of Science and Technology, China), Haodong Bian (Inner Mongolia University of Science and Technology, China), Yingjie He (Inner Mongolia University of Science and Technology, China), and Zhen Liu (Nagasaki Institue of Applied Science, Japan)

3. Design and Implementation of Scanning Electron Microscope Image Acquisition Software System

Wei Shi (Schoow University, China), Mixue Deng (Schoow University, China), Dong Wang (Schoow University, China), Yuyun Yang (Schoow University, China), Deyin Li

(Schoow University, China), and Lirong Wang (Schoow University, China)

4. Research on Droplet Digital PCR Amplification System

Jie Zhang (Chinese Academy of Science, China), Jiaqi Yan (Chinese Academy of Science, China), Jinxian Wang (Chinese Academy of Science, China), Jie Xu (Chinese Academy of Science, China), Yilong Zhao (Chinese Academy of Science, China), and Gangyin Luo (Chinese Academy of Science, China)

5. A Multi-Scale Convolutional Neural Network for Heartbeat Classification

Lesong Zheng (Soochow University, China), Miao Zhang (Suzhou GK Medtech Science and Technology Development Co., Ltd., China), Lishen Qiu (University of Science and Technology of China, China), Gang Ma (University of Science and Technology of China, China), Wenliang Zhu (University of Science and Technology of China, China), and Lirong Wang (Soochow University, China)

6. An Automatic Algorithm for P/T-Wave Detection Based on Auxiliary Waveform

Duoduo Wang (Soochow University, China), Lishen Qiu (Chinese Academy of Science, China), Wanyue Li (Soochow University, China), Wenliang Zhu (Chinese Academy of Science, China), and Lirong Wang (Soochow University, China)

7. Automated Classification of Atrial Fibrillation and Atrial Flutter in ECG Signals Based on Deep Learning

Huimin Zhang (Soochow University, China), Lishen Qiu (Chinese Academy of Science, China), Wenliang Zhu (Chinese Academy of Science, China), Wenqiang Cai (Soochow University, China), and Lirong Wang (Soochow University, China)

8. Beat-to-Beat Heart Rate Detection Based on Seismocardiogram Using BiLSTM Network

Yuhang Chen (University of Science and Technology of China, China), WenChang Xu (Suzhou Institute of Biomedical Engineering and Technology, China), Wenliang Zhu (University of Science and Technology of China, China), Gang Ma (University of Science and Technology of China, China), Xiaohe Chen (Suzhou Institute of Biomedical Engineering and Technology, China), and Lirong Wang (Soochow University, China)

9. A Novel Method for Detecting Noise Segments in ECG Signals

Wenliang Zhu (University of Science and Technology of China; Suzhou Institute of Biomedical Engineering and Technology, China), Gang Ma (Suzhou Institute of Biomedical Engineering and Technology; University of Science and Technology of China, China), Yuhang Chen (Suzhou Institute of Biomedical Engineering and Technology; University of Science and Technology of China, China), Lishen Qiu (Suzhou Institute of Biomedical Engineering and Technology; University of Science and Technology of China, China), Lesong Zheng (Soochow University, China), and Lirong Wang (Soochow University, China)

RFTI/MLTrustCom/BlockchainSys/EBTSRA 2021
Session Chair: Rui Zhu

1. FedIM: An Anti-Attack Federated Learning Based on Agent Importance

Aggregation

Zhipeng Gao (Beijing University of Posts and Telecommunications, China), Chenhao Qiu (Beijing University of Posts and Telecommunications, China), Chen Zhao (Beijing University of Posts and Telecommunications, China), Yang Yang (Beijing University of Posts and Telecommunications, China), Zijia Mo (Beijing University of Posts and Telecommunications, China), and Yijing Lin (Beijing University of Posts and Telecommunications, China)

2. Trusted Artificial Intelligence: Technique Requirements and Best Practices

Tao Zhang (Guilin University of Electronic Technology, Guangxi University for Nationalities, China), Yi Qin (Guilin University of Electronic Technology, China), and Qiang Li (Henan Key Laboratory of Network Cryptography Technology, PLA Information Engineering University, China)

3. Multidimensional Observation of Blockchain Security

Mengjian Cai (Guangdong University of Finance & Economics, China), Zhanli Sun (Guangdong University of Finance & Economics, China), and Xin Deng (Guangdong University of Finance & Guangzhou, China)

4. Select-Storage: A New Oracle Design Pattern on Blockchain

Zhipeng Gao (Beijing University of Posts and Telecommonications, China), Zijian Zhuang (Beijing University of Posts and Telecommonications, China), Yijing Lin (Beijing University of Posts and Telecommonications, China), Lanlan Rui (Beijing University of Posts and Telecommonications, China), Yang Yang (Beijing University of Posts and Telecommonications, China), Chen Zhao (Beijing University of Posts and Telecommonications, China), and Zijia Mo (Beijing University of Posts and Telecommonications, China)

5. A Deep Learning Model for Threat Hunting in Ethereum Blockchain

Elnaz Rabieinejad (K.N.Toosi University of Technology, Iran), Abbas Yazdinejad (University of Guelph, Canada), and Reza M. Parizi (Kennesaw State University, USA)

6. EDKSAP : Efficient Double-Key Stealth Address Protocol in Blockchain

Cong Feng (Wuhan University, China; Shenzhen New Generation Information Technology Institute Co.), Liang Tan (Sichuan Normal University, China; Chinese Academy of Sciences, China), Huan Xiao (Sichuan Normal University, China), Xin Qi (Waseda University, Japan), Zheng Wen (Waseda University, Japan), and Yang Liu (Stony Brook University, USA; Shenzhen New Generation Information Technology Institute Co.)

AINet/MLSys/BDRA 2021: Session I
Session Chair: Chaowei Wang

1. A Filter Rank Based Pruning Method for Convolutional Neural Networks

Hao Liu (Beihang University, China), Zhenyu Guan (Beihang University, China), and Peng Lei (Beihang University, China)

2. A Non-Cooperative Data Center Energy Consumption Optimization Strategy

Based on SDN Structure

Peng HongYu (TangShan University, China), Sun FuJian (Liulin Automation Equipment Co., Ltd., China), Wang Kan (National Energy Conservation Center, China), Hao Tianlu (Computation Center. TangShan University, China), Xiao DeQuan (Southwest Jiaotong University, China), and Xu LeXi (Research Institute, China United Network Communications Corporation, China)

3. A Renewable Energy Certificate Trading System Based on Blockchain Ming Gao (State Grid Zhejiang Ninghai Power Supply Co., Ltd., China), Xiaokun Yu (State Grid Blockchain Technology Co., Ltd., China), Lei Ren (State Grid Zhejiang Ninghai Power Supply Co., Ltd., China), Hongxiang Cai (State Grid Zhejiang Ninghai Power Supply Co., Ltd., China), Zhiyong Wang (State Grid Blockchain Technology Co., Ltd., China), and Yuyang Zhou (Beijing University of Posts and Telecommunications, China)

4. A TDOA-Assisted Direct Position Determination for Efficient Geolocalization Using LEO Satellites

Qianyun Zhang (Beihang University, China), Shijie Li (Beihang University, China), Jiting Shi (Beihang University, China), and Zhenyu Guan (Beihang University, China)

5. Analysis of the Application of Big Data in Banking Sector

Binqi Cheng (Peking University, China) and Weijie Feng (Guizhou Education University, China)

6. Research and Implementation of an Analytical Database Testing Platform in Telecommunication Industry

Chaolun Wang (China Academy of Information and Communications Technology, China), Yuan Liu (China Academy of Information and Communications Technology, China), Pengwei Ma (China Academy of Information and Communications Technology, China), Jiafeng Tian (China Academy of Information and Communications Technology, China), Siyuan Liu (China Academy of Information and Communications Technology, China), Minjing Zhong (China Academy of Information and Communications Technology, China), and Chunyu Jiang (China Academy of Information and Communications Technology, China)

7. Automated Performance Benchmarking Platform of IaaS Cloud

Xu Liu (China Academy of Industrial Internet, China), Dongxu Fang (Beijing University of Posts and Telecommunications, China), and Peng Xu (Beijing University of Posts and Telecommunications, China)

8. BRLR: A Routing Strategy for MANET Based on Reinforcement Learning

Yinghe Wang (Shanghai Dianji University, China) and Yu Tang (East China University of Political Science and Law, China)

9. C-V2X Large-Scale Test Network Transmission Performance Data Analysis Method

Ke Xu (Jilin University, China), Miaoqiong Wang (China Academy of Information and

Communications Technology Cloud Computing and Big Data Research Institute, China), Yuming Ge (China Academy of Information Communications Technology Technology and Standards Research Institute, China), Rundong Yu (China Academy of Information Communications Technology Technology and Standards Research Institute, China), Jian Wang (Jilin University, China), and Jiachen Zhang (Jilin University, China)

AINet/MLSys/BDRA 2021: Session II
Session Chair: Xin Hu

1. Databench-T: A Transaction Database Benchmark for Financial Scenarios

Chunyu Jiang (China Academy of Information and Communication Technology, China), Jiafeng Tian (China Academy of Information and Communication Technology, China), and Pengwei Ma (China Academy of Information and Communication Technology, China)

2. Investigation on Multi-Antenna Technologies Evolution from FDD LTE to NR FDD

Jinge Guo (Beijing Institute of Technology, China), Yang Zhang (China Mobile Group Co., Ltd., China), Zhongsheng Fan (Network Performance Officer Huawei Technologies Pakistan Ltd., Pakistan), Wei Wei (Taiyuan University of Technology, China), Bao Guo (ZONG, CMPak Ltd., Pakistan), and Huangtao Song (Network Performance Officer Huawei Technologies Pakistan Ltd., Pakistan)

3. Overview of Beam Hopping Algorithms in Large Scale LEO Satellite Constellation

Yuanpeng Li (Space Engineering University, China), Yile Fan (Space Engineering University, China), Shuaijun Liu (Chinese Academy of Sciences, China), LiXiang Liu (Chinese Academy of Sciences, China), and Wenge Yang (Space Engineering University, China)

4. Joint Power and Bandwidth Allocation for Internet of Vehicles Based on Proximal Policy Optimization Algorithm

Sujie Xu (Beijing University of Posts and Telecommunications Beijing, China), Xin Hu (Beijing University of Posts and Telecommunications Beijing, China), Libing Wang (Beijing University of Posts and Telecommunications Beijing, China), Yin Wang (Beijing University of Posts and Telecommunications Beijing, China), and Weidong Wang (Beijing University of Posts and Telecommunications Beijing, China)

5. NR Shared Spectrum Efficiency and Utilization Analysis Based on Big Data

Wei Wei (Taiyuan University of Technology, China), Yang Zhang (China Mobile Group Co., Ltd., China), Zhongsheng Fan (Network Performance Officer Huawei Technologies Pakistan Ltd., Pakistan), Jinge Guo (Beijing Institute of Technology, China), Bao Guo (ZONG, CMPak Ltd., Pakistan), and Huangtao Song (Network Performance Officer Huawei Technologies Pakistan Ltd., Pakistan)

6. Privacy-Preserving Neural Architecture Search Across Federated IoT Devices

Chunhui Zhang (Shenzhen Research Institute of Big Data, Shenzhen, China), Xiaoming Yuan (Northeastern University at Qinhuangdao, China), Qianyun Zhang (Beihang University, Beijing, China), Guangxu Zhu (Shenzhen Research Institute of Big Data, Shenzhen, China), Lei Cheng (Zhejiang University, Hangzhou, China), and Ning Zhang (The University of Windsor, Windsor, Canada)

7. Research on Evaluation System of Relational Cloud Database

Ma Pengwei (China Academy of Information and Communications Technology, China), Wei Kai (China Academy of Information and Communications Technology, China), Jiang Chunyu (China Academy of Information and Communications Technology, China), Li Junyi (China Academy of Information and Communications Technology, China), Tian Jiafeng (China Academy of Information and Communications Technology, China), Liu Siyuan (China Academy of Information and Communications Technology, China), and Zhong Minjing (China Academy of Information and Communications Technology, China)

8. Research on Productization and Development Trend of Data Masking Technology

Wang Zhuo (China Academy of Information and Communications Technology, China), Wei Kai (China Academy of Information and Communications Technology, China), Jiang Chunyu (China Academy of Information and Communications Technology, China), Tian Jiafeng (China Academy of Information and Communications Technology, China), Zhong Minjing (China Academy of Information and Communications Technology, China), Liu Yuan (China Academy of Information and Communications Technology, China), and Liu Yanmei (China Academy of Information and Communications Technology, China)

9. Design and Implementation of Intelligent Operation and Maintenance System for Big Data Platform

Xu Liu (China Academy of Industrial Internet, China), Ruoyu Li (Beijing University of Posts and Telecommunications, China), and Penghao Yue (Beijing University of Posts and Telecommunications, China)

10. Base Station Prediction Analysis Scheme Based on Lasso Regression Machine Learning Algorithm

Dong Wang (University of Jinan, China), Yue Che (China Mobile Group Shandong Co., ltd, China), Chao Li (University of Jinan, China), Yahui Chen (China Mobile Group Shandong Co., ltd, China), Hui Yin (China Mobile Group Shandong Co., ltd, China), and Chunlian Zhang (China Mobile Group Shandong Co., ltd, China)

AINet/MLSys/BDRA 2021: Session III
Session Chair: Gaofeng Cui

1. A New Algorithm for Demographic Expansion Based on Multi-Scene Differentiated Communication Data

Yuhui Han (China United Network Communications Corporation, China), Chen Cheng

(China United Network Communications Corporation, China), Xinzhou Cheng (China United Network Communications Corporation, China), Lexi Xu (China United Network Communications Corporation, China), Yuchao Jin (China United Network Communications Corporation, China), Yuwei Jia (China United Network Communications Corporation, China), and Jie Gao (China United Network Communications Corporation, China)

2. A Novel Architecture and Algorithm for Prediction of Students Psychological Health Based on Big Data

Chen Cheng (China United Network Communications Corporation, China), Xinzhou Cheng (China United Network Communications Corporation, China), Yuting Zheng (China United Network Communications Corporation, China), Lijuan Cao (China United Network Communications Corporation, China), Yuhui Han (China United Network Communications Corporation, China), Yuwei Jia (China United Network Communications Corporation, China), Qingqing Zhang (China United Network Communications Corporation, China), Yi Zhang (China United Network Communications Corporation, China), Ya'nan Zhang (China United Network Communications Corporation, China), and Lexi Xu (China United Network Communications Corporation, China)

3. A Hybrid User Recommendation Scheme Based on Collaborative Filtering and Association Rules

Yuwei Jia (China United Network Communications Corporation, Beijing, China), Kun Chao (China United Network Communications Corporation, Beijing, China), Xinzhou Cheng (China United Network Communications Corporation, Beijing, China), Jian Guan (China United Network Communications Corporation, Beijing, China), Lijuan Cao (China United Network Communications Corporation, Beijing, China), Yi Li (China United Network Communications Corporation, Beijing, China), Chen Cheng (China United Network Communications Corporation, Beijing, China), Yuchao Jin (China United Network Communications Corporation, Beijing, China), and Lexi Xu (China United Network Communications Corporation, Beijing, China)

4. Preference Recommendation Scheme Based on Social Networks of Mobile Users

Lijuan Cao (China United Network Communications Corporation, China), Xinzhou Cheng (China United Network Communications Corporation, China), Lexi Xu (China United Network Communications Corporation, China), Chen Cheng (China United Network Communications Corporation, China), Yi Li (China United Network Communications Corporation, China), Yuwei Jia (China United Network Communications Corporation, China), Chuntao Song (China United Network Communications Corporation, China), and Heng Zhang (China United Network Communications Corporation, China)

5. Cell Coverage Boundary Prediction and Base Station Location Verification

Based on Machine Learning

Yuchao Jin (Researsh Institute of China United Network Communications Corporation, P.R.China), Yi Li (Researsh Institute of China United Network Communications Corporation, P.R.China), Deyi Li (Researsh Institute of China United Network Communications Corporation, P.R.China), Xinzhou Cheng (Researsh Institute of China United Network Communications Corporation, P.R.China), Lexi Xu (Researsh Institute of China United Network Communications Corporation, P.R.China), and Yuhui Han (Researsh Institute of China United Network Communications Corporation, P.R.China)

6. Design of Digital Maincenter Platform For Smart Home Based on Big Data

Yuhan Liu (China United Network Communications Corporation, China), Yutao Zhang (China United Network Communications Corporation, China), Heng Zhang (China United Network Communications Corporation, China), Yongfeng Wang (China United Network Communications Corporation, China), and Lianbo Song (China Academy of Information and Communications Technology, China)

7. Evaluation and Application of News Transmission Speed in New Media Environment

Heng Zhang (China United Network Communications Corporation, China), Yuhan Liu (China United Network Communications Group Corporation, China), Lexi Xu (China United Network Communications Corporation, China), Xinzhou Cheng (China United Network Communications Corporation, China), Lijuan Cao (China United Network Communications Corporation, China), Wei Xia (Global Tone Communication Technology Co., Ltd, China), and Ciguang Yang (Global Tone Communication Technology Co., Ltd, China)

8. Joint Offloading Decision and Resource Allocation of 5G Edge Intelligent Computing for Complex Industrial Application

Mingxin Li (China United Network Communications Corporation, China), Mingde Huo (China United Network Communications Corporation, China), Xinzhou Cheng (China United Network Communications Corporation, China), Lexi Xu (China United Network Communications Corporation, China), Xiaojing Liu (China United Network Communications Group Corporation, China), and Rui Yang (China United Network Communications Group Corporation, China)

AINet/MLSys/BDRA 2021: Session IV
Session Chair: Cheng Wang

1. Study on TDD Unsynchronized Interference from Outdoor to Indoor Scenario of NR Network in 3.3-3.6GHz

Yiying Niu (China Unicom Research Institue, China), Yao Zhou (China Unicom Research Institue, China), Tao Zhang (China Unicom Research Institue, China), and Fuchang Li (China Unicom Research Institue, China)

2. Online Automatic Service Composition for Mobile and Pervasive Computing

Zhaoning Wang (China United Network Communications Research Institute, China),

Bo Cheng (Beijing University of Posts and Telecommunications, China), and Junliang Chen (Beijing University of Posts and Telecommunications, China)

3. Research and Application of Intelligent Antenna Feeder Optimization System Based on Big Data

Mingxin Li (China United Network Communications Corporation, China), Mingde Huo (China United Network Communications Corporation, China), Lexi Xu (China United Network Communications Corporation, China), Xinzhou Cheng (China United Network Communications Corporation, China), and Xin Zhao (China United Network Communications Group Corporation, China)

4. Fault Diagnosis of 5G Voice Service Based on Multi-sources Data

Shiyu Zhou (China Unicom Research Institute, China), Jie Miao (China United Network Communications Group Corporation, China), Xiqing Liu (China Unicom Research Institute, China), Xinzhou Cheng (China Unicom Research Institute, China), Zhenqiao Zhao (China Unicom Research Institute, China), and Xin Zhao (China United Network Communications Group Corporation, China)

5. Key Technologies for 5G Co-Construction and Shared Base Station Data Automatic Configuration

Xiqing Liu (China Unicom Research Institute, China), Hongshui Jing (China Unicom Group Corporation, China), Shiyu Zhou (China Unicom Research Institute, China), Zhenqiao Zhao (China Unicom Research Institute, China), Xinzhou Cheng (China Unicom Research Institute, China), and Lexi Xu (China Unicom Research Institute, China)

6. Sharing and Compatibility Studies of EESS(active) and IMT System in 10-10.5GHz

Jifeng Liu (China United Network Communications Corporation Limited, China), Yao Zhou (China United Network Communications Corporation Limited, China), Yiying Niu (China United Network Communications Corporation Limited, China), Tingting Wang (China United Network Communications Corporation Limited, China), Tao Zhang (China United Network Communications Corporation Limited, China), and Fuchang Li (China United Network Communications Corporation Limited, China)

7. Research of Sharing and Compatibility for HIBS and Terrestrial Network in 900MHz

Tingting Wang (China Unicom Reasearch Institue, China), Yao Zhou (China Unicom Reasearch Institue, China), Yushan Pei (China Unicom Reasearch Institue, China), and Fuchang Li (China Unicom Reasearch Institue, China)

Online Workshop Session
Session Chair: Tao Qiu

1. On Application of Blockchain to Enhance Single Sign-On (SSO) Systems

Swapnoneel Roy (University of North Florida, USA), Sam Matloob (University of North Florida, USA), and Debajyoti Mukhopadhyay (Bennett University, India)

2. A Secured Real-Time IoMT Application for Monitoring Isolated COVID-19 Patients Using Edge Computing

Venki Balasubramanian (Federation University, Australia), Teena Arora (Federation University, Australia), Rehena Sulthana (Victoria Institute of Technology, Australia), Ram Srinivasan (Central Queensland University, Australia), Andrew Stranieri (Federation University, Australia), Mahalakshmi K (Kalaignar Karunanidhi Institute of Technology, India), Manoharan G (G. Kuppuswamy Naidu Memorial Hospital, India), and Varun G Menon (SCMS School of Engineering and Technology, India)

3. Decentralized Policy Information Points for Multi-Domain Environments

M Ridwanur Rahman (Monash University, Australia), Ahmad Salehi S. (Monash University, Australia), and Carsten Rudolph (Monash University, Australia)

4. Secure Development Strategy Model Framework for Security of Mobile Applications

Aneta Poniszewska-Marańda (Lodz University of Technology, Poland), Łukasz Chomatek (Lodz University of Technology, Poland), and Joanna Ochelska-Mierzejewska (Lodz University of Technology, Poland)

5. Authentication and Access Control in 5G Device-to-Device Communication

Jithu Geevargheese Panicker (Monash University, Australia), Ahmad Salehi S. (Monash University, Australia), and Carsten Rudolph (Monash University, Australia)

6. Matching Sensor Ontologies With Neural Network

Xingsi Xue (Fujian University of Technology, China), Haolin Wang (Fujian University of Technology, China), Yunmeng Zhao (Fujian University of Technology, China), Yikun Huang (Fujian Normal University, China), and Hai Zhu (Zhoukou Normal University, China)

Travel Guide

About Shenyang

-Introduction

As the largest city in Northeast China, Shenyang (Chinese: 沈阳) is the political, economic, and cultural center of Liaoning Province. It is also an important industrial base and a famous historical city. As the host city of the 2006 International Horticultural Exposition and venue for the football (soccer) matches of the 2008 Beijing Olympic Games, Shenyang will soon be the focus of worldwide attention. Shenyang is located in the central part of Liaoning Province. Its climate is relatively dry most of the year with spikes in precipitation during the summer months due to the influence of monsoons. Temperatures vary as much as 10 degrees Celsius from daytime to night, and in winter they can drop below 0 degrees Celsius.

- History

Shenyang is a celebrated old city with more than 2,000 years of history which can be traced back to Warring States Period (476 BC - 221 BC). It is the birthplace of the Qing Dynasty (1644-1911) and has many cultural relics which symbolize the prosperity and subsequent decline of China's last feudal dynasty. The most famous of these is the Shenyang Imperial Palace, which is of great historic and artistic significance and second only to the Forbidden City in Beijing.

-Origin of the name

Shenyang is also known as Shengjing (盛京) and Fengtian (奉天), which are its previous names. It gained its present name because it lies in the north of Hunhe River. Being one of the origins of the Chinese nation, the area of Shenyang has accumulated the early culture of the Liaohe River basin.

Landscapes :

- Shenyang Imperial Palace

- Chessboard Mesa

- Guaipo

- Commander Zhangs Mansion

-Zhao Mausoleum

- Shenyang EXPO Park