National CyberSecurity Center International Congress

The 21st IEEE International Conference on Trust, Security and Privacy in Computing and Communications (TrustCom 2022)
The 16th IEEE International Conference on Big Data Science and Engineering (BigDataSE 2022)
The 25th IEEE International Conference on Computational Science and Engineering (CSE 2022)
The 20th IEEE International Conference on Embedded and Ubiquitous Computing (EUC 2022)
The 10th IEEE International Conference on Smart City and Informatization (iSCI 2022)

December 9-11, 2022, Wuhan, Hubei

http://www.ieee-hust-ncc.org/2022/TrustCom/
Conference Program and Information Booklet

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Presentation Guidelines

Conference Date
The conference is to be held in December 9-11, 2022. The time for conference program is based on CST, China Standard Time.

Language
The presentation language of the IEEE TrustCom/BigDataSE/CSE/EUC/iSCI-2022 and associated workshops is English.

For Session Chairs
Session Chairs are requested to join the physical room or online zoom at least 10 minutes before their sessions.

For Authors
You are strongly encouraged to join the physical room or online zoom during your presentation and Q&A. Please confirm your attendance with the Session Chair at least 10 minutes before the session.

Timing
Please 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-2022 presentations use **10-20 minutes presentation time plus 5 minutes question time**. However, 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.

Proceedings
If you are interested in reading papers during the presentations, here are the proceedings:
https://conferences.computer.org/trustcompub
The username and password will be sent to all fully registered participants separately.

Help
For any assistance, please contact:
ieee_trustcom_2022@googlegroups.com
liushenghao@hust.edu.cn
zhengwj@hust.edu.cn.

Conference Venue

Besides seven physical rooms, the following zoom/room links are for online conference presentation. You can enter any zoom/room that you are interested in via the links:

Keynote (Zoom URL): https://us06web.zoom.us/j/84709359248?pwd=M3VOakkxQW11T0ZiN0xHeWNSa3kwZz09
ID: 847 0935 9248; Password: 074896
地点：2022 年 12 月 10-11 日主会场在武汉华美达光谷大酒店

Online Presentation	Physical Presentation
Room 1: (Zoom) **ID: 898 5515 4186, Password: 768940** https://us06web.zoom.us/j/89855154186?pwd=WGdRZFlNRzJFd0NNdFJtYVZML2R3UT09	Room 1: 贵宾厅
Room 2: (Zoom) **ID: 815 6097 8781, Password: 379548** https://us06web.zoom.us/j/81560978781?pwd=SklZcnV2dzdtenA2KzdlVmhXYWVpdz09	Room 2: 贵宾厅
Room 3: (Zoom) **ID: 840 7798 4963, Password: 590048** https://us06web.zoom.us/j/84077984963?pwd=amNocUtDYk9OVEFSa2hoL2FxaUJtUT09	Room 3: 贵宾厅
Room 4: (Zoom) **ID: 871 3734 1716, Password: 756761** https://us06web.zoom.us/j/87137341716?pwd=VjhKU1B3aldyVURzRS90U0s1ZnVCdz09	Room 4: 贵宾厅
Room 5: (Zoom) **ID: 957 0929 6566, Password: 430393** https://zoom.us/j/95709296566?pwd=bXVLTFRqS1ByNkZFZWM1VC9qQ0o4dz09	Room 5: 贵宾厅
Room 6: (Zoom) **ID: 996 8831 8517, Password: 250314** https://zoom.us/j/99688318517?pwd=WmRzNEhiWDg3ZFFha0Mxcnd0ODVaZz09	Room 6: 贵宾厅
Room 7: (Zoom) **ID: 821 0427 2104, Password: 961152** https://us06web.zoom.us/j/82104272104?pwd=VGRhaXBSUHI2b0hxU1VhN0I4TlVuQT09	Room 7: 贵宾厅

Welcome Message from the Congress Chair

Welcome to the National CyberSecurity Center International Congress which includes the 21st IEEE International Conference on Trust, Security and Privacy in Computing and Communications (TrustCom 2022), the 16th IEEE International Conference on Big Data Science and Engineering (BigDataSE 2022), the 25th IEEE International Conference on Computational Science and Engineering (CSE 2022), the 20th IEEE International Conference on Embedded and Ubiquitous Computing (EUC 2022), the 10th IEEE International Conference on Smart City and Informatization (iSCI 2022).

The National CyberSecurity Center International Congress covers a multitude of application domains such as trusted computing and communications, computational big data science and engineering, embedded and ubiquitous computing, smart city, etc. The Congress will usher in a new age of trusted and computational cyber-physical-social-human interactions, revolutionizing the world as we know it.

Here we would like to sincerely thank all organizing committee members, program committee members and reviewers for their hard works and valuable contributions. Without your help, these conferences would not have been possible. We greatly appreciate the sponsorship from IEEE, IEEE Computer Society and IEEE Technical Committee on Scalable Computing (TCSC). We are very grateful to the keynote speakers for their authoritative speeches. We thank all authors and conference participants for using this forum to communicate their excellent works.

The conferences will be held in Wuhan, December 9-11, 2022. Given the COVID-19 pandemic and associated travel restrictions, as the safety of people is of the highest priority, the conferences are held physically and virtually, accordingly.

We hope you find the congress a stimulating and exciting forum.

Laurence T. Yang, Vice President and Dean
Hainan University, China
FCAE, FEIC, MAE, FIEEE, FIET, FAAIA
Chair, IEEE CS Technical Committee on Scalable Computing
Chair, IEEE SMC Technical Committee on Cybermatics
Chair, IEEE SC Hyper-Intelligence Technical Committee
Congress Steering Chair

Congress Keynotes

Keynote 1: Robert Deng, Singapore Management University, Singapore

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Sparse Network Monitoring: A Low Cost Network-Wide Monitoring Scheme

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Keynote 1: Privacy-Preserving Access, Search, and Computation of Encrypted Data in the Cloud

Robert Deng

About the Keynote Speaker

ABSTRACT: This talk will provide an overview on the design and implementation of a system for secure access control, search, and computation of encrypted data in the cloud for enterprise users. The system is designed following the “zero trust” paradigm to protect data security and privacy even if cloud storage servers or user accounts are compromised. This is achieved using end-to-end encryption in which encryption and decryption operations only take place at client devices. However, encryption must not hinder access, search and even computation of data by authorized users. There are numerous academic publications in this area and the choice of which cryptographic techniques to use could have a significant impact on the system’s scalability, efficiency, and usability. We will share our experience in the design of the system architecture and selection of cryptographic techniques with a consideration to balance security, performance, and usability.

BIO: Robert Deng is AXA Chair Professor of Cybersecurity, Director of the Secure Mobile Centre, and Deputy Dean for Faculty & Research, School of Computing and Information Systems, Singapore Management University (SMU). His research interests are in the areas of data security and privacy, network security, and applied cryptography. He received the Outstanding University Researcher Award from National University of Singapore, Lee Kuan Yew Fellowship for Research Excellence from SMU, and Asia-Pacific Information Security Leadership Achievements Community Service Star from International Information Systems Security Certification Consortium. He serves/served on the editorial boards of ACM Transactions on Privacy and Security, IEEE Security & Privacy, IEEE Transactions on Dependable and Secure Computing, IEEE Transactions on Information Forensics and Security, Journal of Computer Science and Technology, and Steering Committee Chair of the ACM Asia Conference on Computer and Communications Security. He is a Fellow of IEEE and Fellow of Academy of Engineering Singapore.

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Keynote 2: Security on Cross-Modality mmWave Sensing: Attack and Defense

Kui Ren

About the Keynote Speaker

ABSTRACT: Millimeter-wave (mmWave) sensing has shown a broad application prospect in the fields of unmanned driving and human body monitoring, due to its high resolution and long-distance sensing capability. This talk will introduce two state-of-the-art research in IoT security including speech privacy leakage and anti-counterfeit face recognition, based on the fine-grained perception of mmWave. These works expand the conventional sensing dimension and realizes the cross-modality transformation from wireless modality to speech and image modalities. Specifically, regarding speech privacy leakage, we investigate the remote speech recovery for mobile terminals by using earphone vibration perceived by wireless signal. Our work overcomes low signal-to-noise ratios problem originating from the light volume of mobile terminals and distortion problem caused by motion interference. Regarding anti-counterfeit face recognition, our work achieves non-visual imaging leveraging mmWave, and breaks through the limitations of traditional wireless sensing, i.e., extensive training data and black-box training. The proposed mmWave-based imaging system provides similar imaging effects close to visual imaging, which can be used in face recognition, even under occlusion and counterfeit attack.

BIO: Kui Ren is a Professor and the Associate Dean of the College of Computer Science and Technology, Zhejiang University, where he also directs the Institute of Cyber Science and Technology. Before that, he was the SUNY Empire Innovation Professor of The State University of New York at Buffalo. His H-index is 86 and his total publication citation exceeds 41000 according to Google Scholar. His current research interests include data security, the IoT security, AI security, and privacy. He has published extensively in peer-reviewed journals and conferences and received the Test-of-Time Paper Award from IEEE INFOCOM and many Best Paper Awards from IEEE and ACM, including MobiSys 2020, Globecom 2019, ASIACCS 2018, and ICDCS 2017. He received the NSF CAREER Award in 2011, the Sigma Xi Research Excellence Award in 2012, the IEEE CISTC Technical Recognition Award in 2017, the SUNY Chancellor's Research Excellence Award in 2017, and the Guohua Distinguished Scholar Award from ZJU in 2020. Kui is a Fellow of ACM, a Fellow of IEEE, and a Clarivate Highly-Cited Researcher. He is a frequent reviewer for funding agencies internationally and serves on the editorial boards of many IEEE and ACM journals. He also serves as the Chair for SIGSAC of ACM China.

Keynote 3: Some Recent Results on AI Security

Sheng Zhong

About the Keynote Speaker

ABSTRACT: AI security has been a hot research area recently. In this talk, we briefly review some results on AI security. In particular, we talk of data privacy, adversarial examples, and backdoors. While our review is by no means comprehensive, it provides a quick summary of some research efforts that interest us.

BIO: Sheng Zhong received his BS and MS from Nanjing University, and PhD from Yale University. Now he works at Nanjing University, as Professor of Computer Science and Dean of School of Software Engineering. He is interested in security, privacy, and economic incentives.

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Keynote 4: Introduction to Resource Allocation in Quantum Key Distribution Networks

Dusit Niyato

About the Keynote Speaker

ABSTRACT: Increasing privacy and security concerns in intelligence-native 6G networks require quantum key distribution (QKD) networks. In QKD networks, edge devices connected via quantum channels can efficiently encrypt information from the source, and securely transmit the encrypted information to the destination. In this presentation, we first give a gentle introduction to quantum computing. The basic concepts and fundamentals about QKD networks are presented. Then, we discuss the resource allocation issues in QKD networks. We present a use case of stochastic QKD network resource allocation. The use case to demonstrate a stochastic optimization considering QKD service providers offering QKD services with different options to the edge devices. The objective of the optimization is to reduce the cost for the edge devices in provisioning secret-key rates from the QKD services given uncertain demands from the applications, e.g., semantic information transfer. The benefits of the proposed QDK resource allocation are validated through numerical studies. Finally, we discuss future research directions toward optimizing quantum computing and QKD resource management.

BIO: Dusit Niyato is currently a professor in the School of Computer Science and Engineering, Nanyang Technological University, Singapore. Currently, Dusit is serving as editor-in-chief of IEEE Communications Surveys and Tutorials, an area editor of IEEE Transactions on Vehicular Technology, an editor of IEEE Transactions on Wireless Communications, an associate editor of IEEE Internet of Things Journal, IEEE Transactions on Mobile Computing, IEEE Wireless Communications, IEEE Network, and ACM Computing Surveys. He was a guest editor of IEEE Journal on Selected Areas on Communications. He was a Distinguished Lecturer of the IEEE Communications Society for 2016-2017. He was named the 2017-2021 highly cited researcher in computer science. He is a Fellow of IEEE.

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Keynote 5: Resource-Efficient and Secure Automated Vehicle Platoons

Qing-Long Han

About the Keynote Speaker

ABSTRACT: Vehicle platooning has been regarded as a promising intelligent transportation system technology for achieving cooperative automated driving systems and automated highway systems due to its promising benefits, including improved road safety, highway capacity and traffic congestion relief, and reduced fuel consumption. Two critical challenges of accomplishing automated vehicle platoons are: 1) to deal with the intermittent and sporadic vehicle-to-vehicle data transmissions caused by limited wireless communication resources; and 2) to tackle the malicious cyber-attacks on the vehicle-to-vehicle communication channels.

The essentials of evolutionary platooning control technologies are first introduced for connected automated vehicles. After a brief historical background of connected automated vehicles and vehicle platooning, several key issues in the design and implementation of an automated vehicle platooning control system are elaborated. An emphasis is then placed on two emerging platooning control techniques: resource-efficient vehicle platooning and secure vehicle platooning. Furthermore, simulation and validation results under these two control techniques are presented. Finally, some challenging issues and concluding remarks are drawn.

BIO: Professor Han is Pro Vice-Chancellor (Research Quality) and a Distinguished Professor at Swinburne University of Technology, Melbourne, Australia. He held various academic and management positions at Griffith University and Central Queensland University, Australia. His research interests include networked control systems, multi-agent systems, time-delay systems, smart grids, unmanned surface vehicles, and neural networks.

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

Professor Han is a Member of the Academia Europaea (The Academy of Europe). He is a Fellow of The Institute of Electrical and Electronics Engineers (IEEE), a Fellow of The International Federation of Automatic Control (IFAC), and a Fellow of The Institution of Engineers Australia (IEAust). He is a Highly Cited Researcher in both Engineering and Computer Science (Clarivate Analytics). He has served as an AdCom Member of IEEE Industrial Electronics Society (IES), a Member of IEEE IES Fellows Committee, a Member of IEEE IES Publications Committee, and Chair of IEEE IES Technical Committee on Networked Control Systems. Currently, he is Co-Editor-in-Chief of IEEE Transactions on Industrial Informatics, Deputy Editor-in-Chief of IEEE/CAA Journal of Automatica Sinica, and Co-Editor of Australian Journal of Electrical and Electronic Engineering.

Keynote 6: Advanced Mitigation of Adversarial Attacks in Deep Neural Networks

Meikang Qiu

About the Keynote Speaker

ABSTRACT: Deep Neural Networks are well-known to be vulnerable to Adversarial Examples. A large amount of efforts have been spent to launch and heat the arms race between the attackers and defenders. Recently, advanced gradient-based attack techniques were proposed, which have defeated a considerable number of existing defense methods. Up to today, there are still no satisfactory solutions that can effectively and efficiently defend against those attacks. In this talk, we make a steady step towards mitigating those advanced gradient-based attacks with two major contributions. First, we perform an in-depth analysis about the root causes of those attacks, and propose four properties that can break the fundamental assumptions of those attacks. Second, we identify a set of operations that can meet those properties. By integrating these operations, we design two preprocessing functions that can invalidate these powerful attacks. Extensive evaluations indicate that our solutions can effectively mitigate all existing standard and advanced attack techniques.

BIO: Meikang Qiu received the BE and ME degrees from Shanghai Jiao Tong University and received Ph.D. degree of Computer Science from University of Texas at Dallas. Currently, He is a full professor and director of AI enhanced Cyber Security Lab of Dakota State University. He is an ACM Distinguished Member. He is also the Highly Cited Researcher in 2021 from Web of Science and IEEE Distinguished Visitor in 2021-2022. He is the Chair of IEEE Smart Computing Technical Committee. Till now his Google scholar citation is 19500+ and H-index 95. He is ranked within the top 1000 scientists in the world. He has won Navy Summer Faculty Award in 2012 and Air Force Summer Faculty Award in 2009. His research is supported by US government such as NSF, NSA, Air Force, Navy and companies such as GE, Nokia, TCL, and Cavium.

His research interests include Cyber Security, Big Data Analysis, Cloud Computing, Smarting Computing, Intelligent Data, Embedded systems, etc. A lot of novel results have been produced and most of them have already been reported to research community through high-quality journal and conference papers. He has published 20+ books, 600+ peer-reviewed journal and conference papers (including 300+ journal articles, 300+ conference papers, 100+ IEEE/ACM Transactions papers). His paper on Tele-health system has won IEEE System Journal 2018 Best Paper Award. His paper about data allocation for hybrid memory has been published in IEEE Transactions on Computers has been selected as IEEE TCSC 2016 Best Journal Paper and hot paper (1 in 1000 papers by Web of Science) in 2017. His paper published in IEEE Transactions on Computers about privacy protection for smart phones has been selected as a Highly Cited Paper in 2017-2020. He also won ACM Transactions on Design Automation of Electrical Systems 2011 Best Paper Award. He has won another 10+ Conference Best Paper Awards in recent years.

Currently he is/was an associate editor of 10+ international journals, including IEEE Transactions on Computers, IEEE Transactions on Cloud Computing, IEEE Transactions on Big Data, and IEEE Transactions on System, Man, and Cybernetics (A). He has served as leading guest editor for IEEE Transactions on Dependable and Secure Computing, special issue on Social Network Security. He is the General Chair/Program Chair of a dozen of IEEE/ACM international conferences, such as IEEE TrustCom, IEEE BigDataSecurity, IEEE CSCloud, and IEEE HPCC.

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Keynote 7: Security in the Edge Computing Environment: Challenges and Opportunities

Jaideep Vaidya

About the Keynote Speaker

ABSTRACT: The ubiquity of the Internet of Things brings with it new applications and infrastructural challenges. Edge computing is increasingly used to reduce latency and provide real time capabilities in this environment. However, IoTs and edge computing pose a unique challenge for security and privacy due to the sheer scale as well as the limited computational resources available. In this talk we discuss some of the research challenges and opportunities towards ensuring security and privacy in this environment.

BIO: Jaideep Vaidya is a Distinguished Professor of Computer Information Systems at Rutgers University. His primary research interests are in privacy, security, data mining, and data management. He has published over 200 papers in top-tier conferences and journals. His work has received numerous awards from the leading conferences in data mining, databases, security, informatics, and digital government. He is an IEEE Fellow and an ACM Distinguished Scientist. He is currently the editor-in-chief of the IEEE Transactions on Dependable and Secure Computing.

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Keynote 8: Sparse Network Monitoring: A Low Cost Network-Wide Monitoring Scheme

Kun Xie

About the Keynote Speaker

ABSTRACT: Network-wide monitoring is important for many network functions, including network anomaly detection, network troubleshooting, and network service level agreement tracking. However, there exists a fundamental dilemma: how to reduce the measurement overhead and the impact to the network while obtaining fine-grade accurate network-wide performance monitoring data? For a network consisting of n nodes, the cost of one time network-wide monitoring will be $O(n^2)$. Inspired by sparse representation technique, a breakthrough in signal processing, a novel network monitoring scheme, called sparse network monitoring, is proposed recently. It obtains the complete network-wide monitoring data by carefully selecting a subset of node pairs to take probe measurements and inferring the un-measurement data through sparse reconstruction algorithm. Under sparse network monitoring, only a small set of node pairs need to take probe measurements, thus the measurement overhead can be largely reduced. In this talk, I will illustrate the basic idea of sparse network monitoring, the challenge issues, and our recent progresses.

BIO: Kun Xie received the Ph.D. degree in computer application from Hunan University, Changsha, China, in 2007. She is currently a Professor with Hunan University. She has published over 100 articles in major journals and conference proceedings, including journals such as the IEEE/ACM Transactions on Networking, the IEEE Transactions on Mobile Computing, the IEEE Transactions on Computers, the IEEE Transactions on Parallel and Distributed Systems, the IEEE Transactions on Wireless Communications, and the IEEE Transactions on Services Computing, and conferences, including SIGMOD, INFOCOM, ICDCS, SECON, DSN, and IWQoS. Her research interests include network measurement, network security, big data, and AI.

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IEEE TrustCom/BigdataSE/CSE/EUC/iSCI-2022

Presentation Program

Saturday December 10, 2022 (China Standard Time CST, UTC+8)	
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09:30-09:50	**Coffee Break**
09:50-10:30	**Keynote 1:** Privacy-Preserving Access, Search, and Computation of Encrypted Data in the Cloud **Robert Deng**, Singapore Management University, Singapore **Chaired by** Bin Yuan, Huazhong University of Science and Technology, China
10:30-11:10	**Keynote 2:** Security on Cross-Modality mmWave Sensing: Attack and Defense **Kui Ren**, Zhejiang University, China **Chaired by** Yuanyuan He, Huazhong University of Science and Technology, China
11:10-11:50	**Keynote 3:** Some Recent Results on AI Security **Sheng Zhong**, Nanjing University, China **Chaired by** Shenghao Liu, Huazhong University of Science and Technology, China
11:50-12:30	**Keynote 4:** Introduction to Resource Allocation in Quantum Key Distribution Networks **Dusit Niyato**, Nanyang Technological University, Singapore **Chaired by** Jun Feng, Huazhong University of Science and Technology, China

Sunday December 11, 2022 (China Standard Time CST, UTC+8)	
09:00-09:40	**Keynote 5:** Resource-Efficient and Secure Automated Vehicle Platoons **Qing-Long Han**, Swinburne University of Technology, Australia **Chaired by** Xiaojing Ma, Huazhong University of Science and Technology, China
09:40-10:20	**Keynote 6:** Advanced Mitigation of Adversarial Attacks in Deep Neural Networks **Meikang Qiu,** Dakota State University, USA **Chaired by** Ming Wen, Huazhong University of Science and Technology, China
10:20-10:40	**Coffee Break**
10:40-11:20	**Keynote 7:** Security in the Edge Computing Environment: Challenges and Opportunities **Jaideep Vaidya,** Rutgers University, USA **Chaired by** Zhengmin Kong, Wuhan University, China
11:20-12:00	**Keynote 8:** Sparse Network Monitoring: A Low Cost Network-Wide Monitoring Scheme **Kun Xie,** Hunan University, China **Chaired by** Liang Zhong, China University of Geosciences, China

Saturday December 10, 2022 (China Standard Time CST, UTC+8)							
Room	**Room 1**	**Room 2**	**Room 3**	**Room 4**	**Room 5**	**Room 6**	**Room 7**
12:30-13:30	**Lunch Break**						
13:30-15:10	TrustCom-1: Trust Track (I)	TrustCom-3: Security Track (I)	TrustCom-7: Security Track (V)	TrustCom-10: Security Track (VIII)	CSE-1: Embedded and Ubiquitous Computing & Intelligent and Bio-inspired Computing	EUC-1: Data Analysis and Data Management for Embedded and Ubiquitous Computing	iSCI-1: Urban Computing and Big Data & Sustainable Industry 4.0 & Smart Society Informatization Technologies
15:10-15:30	**Coffee Break**						
15:30-17:10	TrustCom-2: Trust Track (II)	TrustCom-5: Security Track (III)	TrustCom-8: Security Track (VI)	TrustCom-11: Security Track (IX)	CSE-2: Big Data Applications and Analytics & Service and Internet Computing	CSE-3: Scientific and Engineering Computing & Security, Privacy and Trust & CSE Education	iSCI-2: Applications for Smart City Informatization
17:10-18:10	TrustCom-4: Security Track (II)	TrustCom-6: Security Track (IV)	TrustCom-9: Security Track (VII)	TrustCom-14: Privacy Track (II)	TrustCom-16: Privacy Track (IV)	TrustCom-18: Privacy Track (VI)	EUC-2: Mobile Systems and Applications for Embedded and Ubiquitous Computing
18:30-20:00	**Banquet**						

Sunday December 11, 2022 (China Standard Time CST, UTC+8)							
Room	**Room 1**	**Room 2**	**Room 3**	**Room 4**	**Room 5**	**Room 6**	**Room 7**
08:30-10:10	TrustCom-17: Privacy Track (V)	TrustCom-21: Emerging Tech Track (I)	TrustCom-22: Emerging Tech Track (II)	TrustCom-23: Emerging Tech Track (III)	TrustCom-39: Cyberspace Security and Artificial Intelligence (IV)	BigDataSE-1: Big Data Science and Engineering	CSE-4: Big Data Applications and Analytics
10:10-10:30	**Coffee Break**						
10:30-12:10	TrustCom-12: Security Track (X)	TrustCom-13: Privacy Track (I)	TrustCom-25: Emerging Tech Track (V)	TrustCom-30: Big Data Research and Application (I)	TrustCom-32: Machine Learning assisted Smart System 2022 (I)	TrustCom-40: Assistive Engineering and Information Technology (I)	
12:10-13:30	**Lunch Break**						
13:30-15:10	EUC-4: Security, Safety and Reliability/Dependability	TrustCom-15: Privacy Track (III)	TrustCom-26: Emerging Tech Track (VI)	TrustCom-31: Big Data Research and Application (II)	TrustCom-33: Machine Learning assisted Smart System 2022 (II)	TrustCom-42: Machine Learning for Trust, Security and Privacy in Computing and Communications (I)	
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15:30-17:10	EUC-3: Applications for Embedded and Ubiquitous Domputing	TrustCom-19: Forensics and Analytics Track (I)	TrustCom-28: AI-driven Network 2022 (I)	TrustCom-34: Next Generation Data-driven Networks	TrustCom-35: Sensing and Communications 2022	TrustCom-37: Cyberspace Security and Artificial Intelligence (II)	TrustCom-41: Assistive Engineering and Information Technology (II)
17:10-18:10	TrustCom-20: Forensics and Analytics Track (II)	TrustCom-24: Emerging Tech Track (IV)	TrustCom-27: Safety, Security & Privacy in Intelligent Transportation Systems	TrustCom-29: AI-driven Network 2022 (II)	TrustCom-36: Cyberspace Security and Artificial Intelligence (I)	TrustCom-38: Cyberspace Security and Artificial Intelligence (III)	TrustCom-43: Machine Learning for Trust, Security and Privacy in Computing and Communications (II)

Sessions of TrustCom 2022

TrustCom-1: Trust Track (I)
Session Chair: Xiao Tang, University of South China, China

1. **Booting IoT Terminal Device Securely with eMMC**
Ma Siyuan; Yuewu Wang; Lingguang Lei; Yingjiao Niu; Shi Haotian; Wang Jie

2. **Malicious Family Identify Combining Multi-Channel Mapping Feature Image and Fine-Tuned CNN**
Chenghua Tang; Chen Zhou; Min Hu; Mengmeng Yang; Baohua Qiang

3. **Truthfully Negotiating Usage Policy for Data Sovereignty**
Chunlei Yang; Yunchuan Guo; Mingjie Yu; Lingcui Zhang

4. **GTMS: A Gated Linear Unit Based Trust Management System for Internet of Vehicles Using Blockchain Technology**
Yong Kuang; Hongyun Xu; Rui Jiang; Zhikang Liu

TrustCom-2: Trust Track (II)
Session Chair: Xiao Tang, University of South China, China

1. **Efficiently Constructing Topology of Dynamic Networks**
Fenghua Li; Cao Chen; Yunchuan Guo; Liang Fang; Chao Guo; Zifu Li

2. **Hash Proof System with Auxiliary Inputs and Its Application**
Cailing Cai; Tsz Hon Yuen; Siu Ming Yiu

3. **HashDroid: Extraction of Malicious Features of Android Applications Based on Function Call Graph pruning**
Pengfei Liu; Weiping Wang; Hong Song; Shigeng Zhang; Yulu Hong

4. **TECS: A Trust Model for VANETs Using Eigenvector Centrality and Social Metrics**
Yu'ang Zhang; Yujie Song; Yu Wang; Yue Cao; Xuefeng Ren; Fei Yan

TrustCom-3: Security Track (I)
Session Chair: Xiaojing Ma, Huazhong University of Science and Technology, China

1. **Graph Encryption for Shortest Path Queries with k Unsorted Nodes**
Meng Li; Jianbo Gao; Zijian Zhang; Chaoping Fu; Chhagan Lal; Mauro Conti

2. **Differential Game Approach for Modelling and Defense of False Data Injection Attacks Targeting Energy Metering Systems**
Jichao Bi; Shibo He; Fengji Luo; Jiming Chen; Da-wen Huang; Mingyang Sun

3. **SecretHunter: A Large-Scale Secret Scanner for Public Git Repositories**
Elliott Wen; Jia Wang; Jens Dietrich

4. **Challenges and Approaches for Mitigating Byzantine Attacks in Federated Learning**
Junyu Shi; Wei Wan; Jianrong Lu; Shengshan Hu; Leo Yu Zhang

4. **AutoSlicer: Automatic Program Partitioning for Securing Sensitive Data Based-On Data Dependency Analysis and Code Refactoring**
Weizhong Qiang; Hao Luo

5. **You Cannot Fully Trust Your Device: An Empirical Study of Client-Side Certificate Validation in WPA2-Enterprise Networks**
Li Song; Qiongxiao Wang; Shijie Jia; Jingqiang Lin; Linli Lu; Yanduo Fu

TrustCom-4: Security Track (II)
Session Chair: Xiaojing Ma, Huazhong University of Science and Technology, China

1. **HAXSS: Hierarchical Reinforcement Learning for XSS Payload Generation**

Myles Foley; Sergio Maffeis

2. **From Passive to Active: Near-Optimal DNS-Based Data Exfiltration Defense Method Based on Sticky Mechanism**
Jiawen Diao; Binxing Fang; Xiang Cui; Zhongru Wang; Tian Wang; Shouyou Song

3. **IDROP: Intelligently Detecting Return-Oriented Programming Using Real-Time Execution Flow and LSTM**
Li Jie; Weina Niu; Yan Ran; Duan Zhiqin; Beibei Li; Xiaosong Zhang

4. **Mal-Bert-GCN: Malware Detection by Combining Bert and GCN**
Zhenquan Ding; Hui Xu; Yonghe Guo; Longchuan Yan; Lei Cui; Zhiyu Hao

5. **Towards Adversarial Robustness with Multidimensional Perturbations via Contrastive Learning**
Chuanxi Chen; Dengpan Ye; Hao Wang; Long Tang; Yue Xu

6. **DCC-Find: DNS Covert Channel Detection by Features Concatenation-Based LSTM**
Dongxu Han; Ning Li; Pu Dong; Xiang Cui; Yuling Liu; Jiawen Diao

TrustCom-5: Security Track (III)
Session Chair: Junjie Su, Huazhong University of Science and Technology, China

1. **DRSN With Simple Parameter-Free Attention Module for Specific Emitter Identification**
Xiuhua Wen; Chunjie Cao; Yifan Li; Yang Sun

2. **Secure Access Control for eHealth Data in Emergency Rescue Case Based on Traceable Attribute-Based Encryption**
Yuan Shen; Wei Song; Changsheng Zhao; Zhiyong Peng

3. **Deceiving Learning-Based Sketches to Cause Inaccurate Frequency Estimation**
Xuyang Jing; Xiaojun Cheng; Zheng Yan; Xian Li

4. **AVMiner: Expansible and Semantic-Preserving Anti-Virus Labels Mining Method**
Ligeng Chen; Zhongling He; Hao Wu; Yuhang Gong; Bing Mao

5. **CPGBERT: An Effective Model for Defect Detection by Learning Program Semantics via Code Property Graph**
Jingqiang Liu; Xiaoxi Zhu; Chaoge Liu; Xiang Cui; Qixu Liu

6. **A Lightweight Graph-based Method to Detect Pornographic and Gambling Websites with Imperfect Datasets**
Xiaoqing Ma; Chao Zheng; Zhao Li; Jiangyi Yin; Qingyun Liu; Xunxun Chen

TrustCom-6: Security Track (IV)
Session Chair: Junjie Su, Huazhong University of Science and Technology, China

1. **A Terminal Security Authentication Protocol for Zero-Trust Satellite IoT**
Minqiu Tian; Zifu Li; Fenghua Li; Jin Cao; Chao Guo

2. **To Fix or Not to Fix: A Critical Study of Crypto-Misuses in the Wild**
Anna-Katharina Wickert; Lars Baumgärtner; Michael Schlichtig; Krishna Narasimhan; Mira Mezini

3. **Bidirectional LSTM-Based Attention Mechanism for CNN Power Theft Detection**
Zhuoqun Xia; Kaixin Zhou; Jingjing Tan; Hongmei Zhou

4. **An Efficient Certificateless Authentication Scheme for Satellite Internet**
Tongwei Liu; Baokang Zhao; Wei Peng

5. **Action-Manipulation Attack and Defense to *X*-Armed Bandits**
Zhi Luo; Youqi Li; Lixing Chen; Zichuan Xu; Pan Zhou

6. **Eye-based Keystroke Prediction for Natural Texts -- A Feasibility Analysis**
José Reverte Cazorla; José María de Fuentes; Lorena González-Manzano

TrustCom-7: Security Track (V)
Session Chair: Jiuzhen Zeng, Huazhong University of Science and Technology, China

1. **DRICP: Defect Risk Identification Using Sample Category Perception**
Lixia Xie; Siyu Liu; Hongyu Yang; Liang Zhang

2. **Zero Trust-NIDS: Extended Multi-View Approach for Network Trace Anonymization and Auto-Encoder Convolutional Neural Network for Network Intrusion Detection**
Abeer Zaher Alalmaie; Priyadarsi Nanda; Xiangjian He

3. **CDGA: A GAN-based Controllable Domain Generation Algorithm**
You Zhai; Jian Yang; Zixiang Wang; He Longtao; Liqun Yang; Zhoujun Li

4. **WBA: A Warping-Based Approach to Generating Imperceptible Adversarial Examples**
Chengyao Hua; Shigeng Zhang; Weiping Wang; Zhankai Li; Jian Zhang

5. **Optimal Block Propagation and Incentive Mechanism for Blockchain Networks in 6G**
Jinbo Wen; Xiaojun Liu; Zehui Xiong; Meng Shen; Siming Wang; Yutao Jiao; Jiawen Kang; He Li

TrustCom-8: Security Track (VI)
Session Chair: Jiuzhen Zeng, Huazhong University of Science and Technology, China

1. **"Comments Matter and the More the Better!": Improving Rumor Detection with User Comments**
Yang Xu; Jie Guo; Weidong Qiu; Zheng Huang; Enes Altuncu; Shujun Li

2. **MFFAN: Multiple Features Fusion with Attention Networks for Malicious Traffic Detection**
Weiqing Huang; Xinbo Han; Meng Zhang; Min Li; Haitian Yang

3. **A Comparative Study on the Security of Cryptocurrency Wallets in Android System**
Minfeng Qi; Zhiyu Xu; Tengyun Jiao; Sheng Wen; Yang Xiang; Gary Nan

4. **TFCFI: Transparent Forward Fine-grained Control-Flow Integrity Protection**
Cairui She; Liwei Chen; Gang Shi

5. **Improved Zero-Knowledge Proofs for Commitments from Learning Parity with Noise**
Mengfan Wang; Guifang Huang; Hongmin Gao; Lei Hu

TrustCom-9: Security Track (VII)
Session Chair: Dongyu Xin, Huazhong University of Science and Technology, China

1. **Source Code Vulnerability Detection Using Vulnerability Dependency Representation Graph**
Hongyu Yang; Haiyun Yang; Liang Zhang; Xiang Cheng

2. **Code-based Encryption Algorithms for Generating and Verifying Digital Signature**
Aneta Poniszewska-Maranda; Kacper Pradzynski

3. **An Efficient and Secure Scheme of Verifiable Computation for Intel SGX**
Wenxiu Ding; Wei Sun; Zheng Yan; Robert Deng; Zhiguo Wan

4. **Intelligent Recognition Method of Web Application Categories Based on Multi-layer Simhash Algorithm**
Fuji Han; Dongjun Zhu

5. **AIR-NFC: Near Field Air-Gap Covert Channel Attack**
Mordechai Guri

TrustCom-10: Security Track (VIII)
Session Chair: Dongyu Xin, Huazhong University of Science and Technology, China

1. **The Power Allocation for SWIPT-Based Cognitive Two-Way Relay Networks with Rate Fairness Consideration**
Guozhong Wang; Chunling Peng; Yi Huang

2. **A Lightweight Honeynet Design Based on the Internet of Things**
Xiaoyu Du; Guanying Zhou; Yujing Wang; Song Tao

3. **TPIPD: A Robust Model for Online VPN Traffic Classification**
Yongwei Meng; Haonian Wang; Tao Qin; Zhouguo Chen

4. **MATTER: A Multi-Level Attention-Enhanced Representation Learning Model for Network Intrusion Detection**
Jinghong Lan; Yanan Li; Bo Li; Xudong Liu

5. **A longitudinal Measurement and Analysis Study of Mozi, an Evolving P2P IoT Botnet**
Binglai Wang; Yafei Sang; Yongzheng Zhang; Shuhao Li; Xiaolin XU

TrustCom-11: Security Track (IX)
Session Chair: Ming Wen, Huazhong University of Science and Technology, China

1. ***SEEKER: A Root Cause Analysis Method Based on Deterministic Replay for Multi-Type Network Protocol Vulnerabilities***
Runhao Liu; Bo Yu; Baosheng Wang; Jianbin Ye; Jianxin Huang; Xiangdong Kong

2. **EnShare: Sharing Files Securely and Efficiently in the Cloud Using Enclave**
Yun He; Xiaoqi Jia; Shenzhi Zhang; Lou Chitkushev

3. **Steganalysis for Small-Scale Training Image Pairs with Cover-Stego Feature Difference Model**
Chao Xia; Yaqi Liu; Qingxiao Guan; Sai Ma; Yu Nan; Jiahui Fu

4. **Security Support on Memory Controller for Heap Memory Safety**
Chaochao Zhang; Rui Hou

5. **CGDF-GNN: Cascaded GNN Fraud Detector with Dual Features Facing Imbalanced Graphs With Camouflaged Fraudsters**
Qichang Wan; Peisen Wang; Xiaobing Pei

6. **Detecting Unknown Network Attacks with Attention Encoding and Deep Metric Learning**
Chunlan Fu; Shirong Han; Gang Shen

TrustCom-12: Security Track (X)
Session Chair: Jiaoyan Chen, Wuhan University of Science and Technology, China

1. **tTree+: A Threat Tree Model for Representing Complex Semantics**
Zhitao Wu; Jingjing Hu; Xiaowei Zhang; Wei Ren

2. **Data Poisoning Attack to X-Armed Bandits**
Zhi Luo; Youqi Li; Lixing Chen; Zichuan Xu; Pan Zhou

3. **An Optimized Isomorphic Design for the SM4 Block Cipher Over the Tower Field**
Chuang Wang; Yan Ding; Chenlin Huang; Liantao Song

4. **A Cloud-Edge Collaboration Authentication Scheme Based on V2G Short Randomizable Signature**
Zhuoqun Xia; Hongrui Li; Ke Gu

5. **Neural-FacTOR: Neural Representation Learning for Website Fingerprinting Attack over TOR Anonymity**
Haili Sun; Yan Huang; Han Lansheng; Xiang Long; Hongle Liu

TrustCom-13: Privacy Track (I)
Session Chair: Zhenkun Jin, Wuhan Business University, China

1. **T2DM Data Sharing System Based on Blockchain and Attribute-Encryption**
Weiqi Dai; Zhenhui Lu; Duoqiang Wang; Hai Jin; Xia Xie

2. **Shared Incentive System for Clinical Pathway**
Weiqi Dai; Wenhao Zhao; Song Wu; Hai Jin; Xia Xie

3. **Dynamically Selected Mixup Machine Unlearning**
Zhiwen Zhou; Ximeng Liu; Jiayin Li; Junxi Ruan; MingYuan Fan

4. **Efficient and Highly Accurate Differentially Private Statistical Genomic Analysis Using Discrete Fourier Transform**
Akito Yamamoto; Tetsuo Shibuya

5. **An Efficient Epsilon Selection Method for DP-ERM with Expected Accuracy Constraints**
Yuzhe Li; Bo Li; Weiping Wang; Nan Liu

TrustCom-14: Privacy Track (II)
Session Chair: Ming Wen, Huazhong University of Science and Technology, China

1. **Marking Based Obfuscation Strategy to Resist Side Channel Attack in Cross-User Deduplication for Cloud Storage**
Xin Tang; Xiong Chen; Ran Zhou; Linchi Sui; Tian'e Zhou

2. **Privacy-Preserving and Verifiable Outsourcing Message Transmission and Authentication Protocol in IoT**
Hongjun Li; Fanyu Kong; Jia Yu; Hanlin Zhang; Luhong Diao; Yunting Tao

3. **An Enhanced MinHash Encryption Scheme for Encrypted Deduplication**
Qiaowen Jia; Guanxiong Ha; Hanwei Wang; Haoyu Ma; Hang Chen

4. **Extending Expressive Access Policies with Privacy Features**
Stefan More; Sebastian Ramacher; Lukas Alber; Marco Herzl

5. **Privacy-Preserving Top-k Spatio-Textual Similarity Join**
Yiping Teng; Dongyue Jiang; Mengmeng Sun; Liang Zhao; Li Xu; Chunlong Fan

TrustCom-15: Privacy Track (III)
Session Chair: Liangbin Gao, Huazhong University of Science and Technology, China

1. **Robust Secure Aggregation with Lightweight Verification for Federated Learning**
Chao Huang; Yanqing Yao; Xiaojun Zhang; Da Teng; Yingdong Wang; Lei Zhou

2. **Privacy-Preserving Recommendation with Debiased Obfuscaiton**
Chennan Lin; Xueyuan Zhang

3. **Privacy-Preserving Robust Federated Learning with Distributed Differential Privacy**
Fayao Wang; Peizhi Li; Xinyu Wei; Yunchuan Guo

4. **A Green Neural Network with Privacy Preservation and Interpretability**
De Li; Jinyan Wang

TrustCom-16: Privacy Track (IV)
Session Chair: Liangbin Gao, Huazhong University of Science and Technology, China

1. **HyperMean: Effective Multidimensional Mean Estimation with Local Differential Privacy**
Tao Zhang; Bowen Deng; Lele Zheng; Ze Tong; Qi Li

2. **VoiceSketch: A Privacy-Preserving Voiceprint Authentication System**
Baochen Yan; Rui Zhang; Zheng Yan

3. **LLDP: A Layer-wise Local Differential Privacy in Federated Learning**
Qian Chen; Hongbo Wang; Zilong Wang; Jiawei Chen; Haonan Yan; Xiaodong Lin

4. **Towards Automated Detection and Prevention of Regrettable (Self-)Disclosures on Social Media**
Hervais Simo; Michael Kreutzer

5. **Enabling Anonymous Authenticated Encryption with a Novel Anonymous Authenticated Credential Key Agreement (AACKA)**
Raphael Schermann; Rainer Urian; Ronald Toegl; Holger Bock; Christian Steger

6. **Kgastor: A Privacy by Design Knowledge Graph Anonymized Store**
Maxime Thouvenot; Olivier Curé

TrustCom-17: Privacy Track (V)
Session Chair: Jiaoyan Chen, Wuhan University of Science and Technology, China

1. **Adap DP-FL: Differentially Private Federated Learning with Adaptive Noise**
Jie Fu; Zhili Chen; Xiao Han

2. **Utility-Aware Privacy-Preserving Federated Learning through Information Bottleneck**
Shaolong Guo; Zhou Su; Zhiyi Tian; Shui Yu

3. **FLightNER: A Federated Learning Approach to Lightweight Named-Entity Recognition**
Macarious Abadeer; Wei Shi; Jean-Pierre Corriveau

4. **Federated Learning Scheme with Dual Security of Identity Authentication and Verification**
Yuting Xu; Mang Su; JinPeng Hou; Chong Nie

5. **Data Analysis with Local Differential Privacy**
Atsuko Miyaji; Tomoka Takahashi; Ping-Lun Wang; Tomoaki Mimoto; Tastuhiro Yamatsuki

6. **Coverage Reliability of IoT Intrusion Detection System based on Attack-Defense Game Design**
Siyu Sun; Xiaoxuan Fan; Yunzhi Xia; Chenlu Zhu; Shenghao Liu; Lingzhi Yi

TrustCom-18: Privacy Track (VI)
Session Chair: Jun Feng, Huazhong University of Science and Technology, China

1. **Energy-Efficient Privacy-Preserving Time-Series Forecasting on User Health Data Streams**
Muhammad Arsalan; Davide Di Matteo; Sana Imtiaz; Zainab Abbas; Vladimir Vlassov; Vadim Issakov

2. **Privacy-Preserving Smart Lock System for IoT-enabled Rental House Markets**
Bo Wang; Lingling Wang; Hongliang Guo; Xueqin Zhao

3. **Secure and Efficient Publicly Verifiable Ridge Regression Outsourcing Scheme**
Ou Ruan

4. **Privacy-Preserving Decision Making Based on Q-Learning in Cloud Computing**
Zhipeng Zhou; Dong Chenyu; Donger Mo; Peijia Zheng

TrustCom-19: Forensics and Analytics Track (I)
Session Chair: Xiaoxuan Fan, Huazhong University of Science and Technology, China

1. **Pyramid Copy-Move Forgery Detection Using Adversarial Optimized Self Deep Matching Network**
Yaqi Liu; Chao Xia; Qiang Cai; Xin Jin

2. **DEEPRO: Provenance-Based APT Campaigns Detection via GNN**
Na Yan; Yu Wen; Luyao Chen; Yanna Wu; Boyang Zhang; Zhaoyang Wang; Dan Meng

3. **A General Backdoor Attack to Graph Neural Networks Based on Explanation Method**
Luyao Chen; Na Yan; Boyang Zhang; Zhaoyang Wang; Yu Wen; Yanfei Hu

4. **APT Attribution for Malware Based on Time Series Shapelets**
Qinqin Wang; Hanbing Yan; Rui Mei; Zhihui Han

TrustCom-20: Forensics and Analytics Track (II)
Session Chair: Yunzhi Xia, Huazhong University of Science and Technology, China

1. **ProcGuard: Process Injection Behaviours Detection Using Fine-grained Analysis of API Call Chain with Deep Learning**
Wang Juan; Chenjun Ma; Ziang Li; Huanyu Yuan; Jie Wang

2. **SpecRNet: Towards Faster and More Accessible Audio DeepFake Detection**
Piotr Kawa; Marcin Plata; Piotr Syga

3. **Software Side Channel Vulnerability Detection Based on Similarity Calculation and Deep Learning**
Wei Sun; Zheng Yan; Xi Xu; Wenxiu Ding; Lijun Gao

4. **Robust Document Image Forgery Localization Against Image Blending**
Liang Weipeng; Li Dong; Rang-ding Wang; Diqun Yan; Yuanman Li

5. **A Dynamic Transaction Pattern Aggregation Neural Network for Money Laundering Detection**
Xuejiao Luo; Xiaohui Han; Wenbo Zuo; Zhengyuan Xu; Zhiwen Wang; Xiaoming Wu

TrustCom-21: Emerging Tech Track (I)
Session Chair: Xiaoxuan Fan, Huazhong University of Science and Technology, China

1. **Leveraging Model Poisoning Attacks on License Plate Recognition Systems**
Jian Chen; Yuan Gao; Yang Liu; Chen Wang; Kai Peng

2. **Smarkchain: An Amendable and Correctable Blockchain Based on Smart Markers**
Chin-Tser Huang; Laurent Njilla; Tieming Geng

3. **CNN-Based Autonomous Traffic Detection on Unknown Home Security Cameras**
Shuhe Liu; Xiaolin Xu; Zhefeng Nan

4. **Implementation of One-Time Editable Blockchain Chameleon Hash Function Construction Scheme**
Yixuan Qiao; Minghui Zheng; Jingyi Yang

5. **Data Integrity Verification Scheme Based on Blockchain Smart Contract**
Kai Zhang; He Xiao

TrustCom-22: Emerging Tech Track (II)
Session Chair: Yongling Huang, Huazhong University of Science and Technology, China

1. **A Flow Attack Strategy Based on Critical Links for Cyber-Attack**
Jiming Qi; Jiazheng Zhang; Qingxia Liu; Bang Wang

2. **A Quantum Inspired Differential Evolution Algorithm with Multiple Mutation Strategies**
Jie Liu; Xingsheng Qin

3. **A Multidimensional Blockchain Framework for Mobile Internet of Things**
Hussein Zangoti; Alex Pissinou Makki; Niki Pissinou; Abdur Rahman Bin Shahid; Omar Guerra; Joel Rodriguez

4. **Squeezing Network Performance for Secure and Efficient PoW with Better Difficulty Adjustment**
Yuhang Ding; Zihan Yang; Bo Qin; Qin Wang; Yanran Zhang; Qianhong Wu

TrustCom-23: Emerging Tech Track (III)
Session Chair: Shixin Peng, Central China Normal University, China

1. **CDEdit: Redactable Blockchain with Cross-audit and Diversity Editing**
Xiaofeng Chen; Ying Gao

2. **BieVote: A Biometric Identification Enabled Blockchain-Based Secure and Transparent Voting Framework**
Md Jobair Hossain Faruk; Mazharul Islam; Fazlul Alam; Hossain Shahriar; Akond Rahman; Fan Wu; Md Zakirul Alam Bhuiyan

3. **Dynamic and Diverse Transformations for Defending Against Adversarial Examples**
Yongkang Chen; Ming Zhang; Jin Li; Xiaohui Kuang; Xuhong Zhang; Han Zhang

4. **MCFM: Discover Sensitive Behavior from Encrypted Traffic in Industrial Control System**
Zhishen Zhu; Junzheng Shi; Chonghua Wang; Gang Xiong; Zhiqiang Hao; Gaopeng Gou

TrustCom-24: Emerging Tech Track (IV)
Session Chair: Xingshi Wan, Wuhan Research Institute of Posts and Telecommunications, China

1. **A Hardware Security Isolation Architecture for Intelligent Accelerator**
Rui Gong; Lei Wang; Wei Shi; Wei Liu; Jianfeng Zhang

2. **A Blockchain-based Privacy-Preserving Scheme for Cross-domain Authentication**
Junfeng Jiang; Yujian Zhang; Junhao Li

3. **Self-Supervised Adversarial Example Detection by Disentangled Representation**
Zhaoxi Zhang; Leo Yu Zhang; Xufei Zheng; Jinyu Tian; Jiantao Zhou

4. **Multi-pipeline HotStuff: A High Performance Consensus for Permissioned Blockchain**
Taining Cheng; Wei Zhou; Shao Wen Yao; Libo Feng; Jing He

5. **MLIA: Modulated LED Illumination-based Adversarial Attack on Traffic Sign Recognition System for Autonomous Vehicle**
Yixuan Shen; Yu Cheng; Yini Lin; Sicheng Long; Canjian Jiang; Danjie Li; Siyuan Dai; You Jiang; Junbin Fang; Zoe Jiang; S. m. You

TrustCom-25: Emerging Tech Track (V)
Session Chair: Yongling Huang, Huazhong University of Science and Technology, China

1. **Forgery Detection Scheme of Deep Video Frame-Rate Up-Conversion Based on Dual-Stream Multi-Scale Spatial-Temporal Representation**
Qing Gu; Xiangling Ding; Dengyong Zhang; Ce Yang

2. **A Novel Asynchronous Evolution Opinion Dynamics Model**
Xiao Xiao; Minghua Xu; Han Xu

3. **A Faster Blockchain Sharding Protocol for Decentralized Ledger**
Liu Dongdong; Mingsheng Wang; Li Taotao; Han Ya

4. **Practical Side-Channel Attack on Message Encoding in Masked Kyber**
Jian Wang; Weiqiong Cao; Hua Chen; Haoyuan Li

TrustCom-26: Emerging Tech Track (VI)
Session Chair: Jiayang Sun, Liaoning Technical University, China

1. **Efficient SM2 Hardware Design for Digital Signature of Internet of Vehicles**
Mei Yang; Chong Liu; Huiyun Li; Cuiping Shao

2. **One-Time Rewritable Blockchain with Traitor Tracing and Bilateral Access Control**
Lifeng Guo; Huide Lei; Wei Chuen Yau

3. **Reducing Gas Consumption of Tornado Cash and Other Smart Contracts in Ethereum**
Jingyan Yang; Shang Gao; Guyue Li; Rui Song; Bin Xiao

4. **VecSeeds: Generate Fuzzing Testcases from Latent Vectors Based on VAE-GAN**
Zhongyuan Qin; Wen Wang; Xin Sun; Xujian Liu; Yubo Song; Jiarong Fan; Zeru Li

5. **CPDT: A Copyright-Preserving Data Trading Scheme Based on Smart Contracts and Perceptual Hashing**
Baowei Wang; Bin Li; Yi Yuan; Changyu Dai; Wu Yufeng; Zheng Weiqian

TrustCom-27: Safety, Security & Privacy in Intelligent Transportation Systems
Session Chair: Zhenkun Jin, Wuhan Business University, China

1. **False Data Injection Attack Detection in a Platoon of CACC in RSU**
Kai Gao; Xiangyu Cheng; Hao Huang; Xunhao Li; Ronghua Du

2. **Forgery Trajectory Injection Attack Detection for Traffic Lights Under Connected Vehicle Environment**
Yanghui Zhang; Kai Gao; Shuo Huang; Xunhao Li; Ronghua Du

3. **Battery Aging-Robust Driving Range Prediction of Electric Bus**
Heng Li; Zhijun Liu; Yongting Liu; Hui Peng; Rui Zhang; Jun Peng; Zhiwu Huang

4. **A Thermal-Aware Digital Twin Model of Permanent Magnet Synchronous Motors (PMSM) Based on BP Neural Network**
Heng Li; Zeyu Zhu; Peinan He; Yingze Yang; Bin Chen; Jun Peng; Zhiwu Huang

5. **Short Signatures via Multiple Hardware Security Modules with Key Splitting in Circuit Breaking Environments**
Lukasz Krzywiecki; Hannes Salin

6. **Robust Perception for Autonomous Vehicles using Dimensionality Reduction**
Shivam Garg; Nandish Chattopadhyay; Anupam Chattopadhyay

TrustCom-28: AI-driven Network 2022 (I)
Session Chair: Xin Nie, Huazhong University of Science and Technology, China

1. **Vehicle Classification System with Mobile Edge Computing Based on Broad Learning**
Xiting Peng; Naixian Zhao; Lexi Xu; Shi Bai

2. **Detection of Impurity Content in Wheat Based on Cone-Beam CT**
Gangyang Wang; Chunhua Zhu; Jianhou Wang

3. **Performance Analysis for Bearings-only Geolocation Based on Constellation of Satellites**
Jinzhou Li; Shouye Lv; Liu Yang; Sheng Wu; Yang Liu; Qijun Luan

4. **Multi-channel Live Video Processing Method Based on Cloud-edge Collaboration**
Zhen Guo; Pengzhou Zhang; Junjie Xia; Zhe Zhou; Juan Cao

TrustCom-29: AI-driven Network 2022 (II)
Session Chair: Zecan Yang, Huazhong University of Science and Technology, China

1. **Collaborative Improvement of User Experience and Network Quality Based on Big Data**
Chuntao Song; Jie Gao; Fan Zhang; Tao Zhang; Yi Zhang; Lixia Liu; Bei Li; Yong Wang; Lexi Xu

2. **Research on Intelligent 5G Remote Interference Avoidance and Clustering Scheme**
Tian Xiao; Bei Li; Zixiang Di; Guanghai Liu; Lexi Xu; Jian Guan; Zhaoning Wang; Chen Cheng; Yi Li

3. **Big Data based Potential Fixed-Mobile Convergence User Mining**
Qingqing Zhang; Tao Zhang; Shikun Jiang; Qiang Zhang; Yuhui Han; Xinzhou Cheng; Yunyun Wang; Xin He; Tian Xiao

4. **Telecom Customer Churn Prediction based on Half Termination Dynamic Label and XGBoost**
Yi Zhang; Fan Zhang; Chuntao Song; Xinzhou Cheng; Chen Cheng; Lexi Xu; Tian Xiao; Bei Li

5. **Study on Gateway Station Deployment for Large Scale LEO Satellite Constellation Networks**
Cheng Lei

TrustCom-30: Big Data Research and Application (I)
Session Chair: Shixin Peng, Central China Normal University, China

1. **A Hybrid BCI System Combining Motor Imagery and Conceptual Imagery in a Smart Home Environment**
Ruixuan Liu; Muyang Lyu; Jiangrong Yang

2. **Energy-Efficient and Traffic-Aware VNF Placement for Vertical Services in 5G Networks**
Yi Yue; Wencong Yang; Xiao Liang; Xihuizi Meng; Rong Huang; Xiong-yan Tang

3. **Technical Architecture of Integrated Big Data Platform**
Yuan Liu; Yanmei Liu; Minjing Zhong

4. **Research on Enterprises Loss in Regional Economic Risk Management**
Heng Zhang; Wenyu Li; Lianbo Song; Lexi Xu; Xinzhou Cheng; Lijuan Cao; Kun Chao; Wei Xia; Qinqin Yu; Sai Han

5. **Research and Application of 5G Edge AI in Medical Industry**
Shangyu Tang; MingDe Huo; Yi Du; Yan Zhang; Yuwen Hou; Lexi Xu; Ying Ji; Guoyu Zhou

TrustCom-31: Big Data Research and Application (II)
Session Chair: Liang Zhong, China University of Geosciences, China

1. **Telecom Big Data assisted Algorithm and System of Campus Safety Management**
Chen Cheng; Xinzhou Cheng; Shikun Jiang; Xin Zhao; Yuhui Han; Tao Zhang; Lijuan Cao; Yuwei Jia; Tian Xiao; Bei Li

2. **Research on Capability Building of Mobile Network Data Analysis and Visualization**
Jian Guan; Xinzhou Cheng; Kun Chao; Xin He; Yuwei Jia; Lexi Xu; Yunyun Wang; Tian Xiao; Bei Li

3. **User Analysis and Traffic Prediction Method based on Behavior Slicing**
Xin He; Lijuan Cao; Yuwei Jia; Kun Chao; Miaoqiong Wang; Chao Wang; Yunyun Wang; RunSha Dong; Zhenqiao Zhao

4. **An Attribute-Attack-Proof Watermarking Technique for Relational Database**
Shuguang Yuan; Chi Chen; Ke Yang; Tengfei Yang; Jing Yu

5. **Smart Grid Data Aggregation Scheme Based on Local Differential Privacy**
Zhongyuan Qin; Leione Zhang; Dong Mao; Yubo Song; Liquan Chen; Zuge Chen

TrustCom-32: Machine Learning assisted Smart System 2022 (I)
Session Chair: Xingshi Wan, Wuhan Research Institute of Posts and Telecommunications, China

1. **5G-A Capability Exposure Scheme based on Harmonized Communication and Sensing**
Lin Lin; Bin Zhu; ZeLin Wang; Guangquan Wang; Jianzhi Wang; Lexi Xu; Sai Han; Yuwei Jia

2. **Automatic Association of Cross-Domain Network Topology**
Sai Han; ZeLin Wang; Guangquan Wang; Qiukeng Fang; Hongbing Ma; Lin Lin; Lexi Xu; Heng Zhang

3. **Research on User Complaint Problem Location and Complaint Early Warning Stragegy Based on Big Data Analysis**
Jie Gao; Lixia Liu; Tao Zhang; Shenghao Jia; Chuntao Song; Lexi Xu; Yang Wu; Bei Li; Yunyun Wang; Xinjie Hou

4. **Research on 5G Network Capacity and Expansion**
XiaoMeng Zhu; Yi Li; Yuting Zheng; Rui Xia; Lexi Xu; Bei Li; Zixiang Di; Lu Zhi; Xinzhou Cheng

5. **Mahalanobis Distance and Pauta Criterion based Log Anomaly Detection Algorithm for 5G Mobile Network**
Yuting Zheng; Yi Li; Yuchao Jin; XiaoMeng Zhu; Lexi Xu; Tian Xiao; Bei Li; Xinzhou Cheng

TrustCom-33: Machine Learning assisted Smart System 2022 (II)
Session Chair: Fulan Fan, South-Central Minzu University, China

1. **AI based Collaborative Optimization Scheme for Multi-Frequency Heterogeneous 4G/5G Networks**
Tian Xiao; Guoping Xu; Bei Li; Lexi Xu; Xinzhou Cheng; Feibi Lyu; Guanghai Liu; Yi Zhang; Qingqing Zhang

2. **Coverage Estimation of Wireless Network Using Attention U-Net**
Feibi Lyu; Xinzhou Cheng; Lexi Xu; Liang Liu; Jinjian Qiao; Lu Zhi; Zixiang Di; Tian Xiao; Chen Cheng

3. **A Novel User Mobility Prediction Scheme based on Weighted Markov Chain Model**
Yuwei Jia; Kun Chao; Xinzhou Cheng; Lin Lin; Lijuan Cao; Yi Li; Yuchao Jin; Zixiang Di; Chen Cheng

4. **Research on Voice Quality Evaluation Method Based on Artificial Neural Network**
Zixiang Di; Tian Xiao; Yi Li; Xinzhou Cheng; Bei Li; Lexi Xu; XiaoMeng Zhu; Lu Zhi; Rui Xia

5. **Pre-training Fine-tuning data Enhancement method based on active learning**
Deqi Cao; Zhaoyun Ding; Wangfei Wang, fei

TrustCom-34: Next Generation Data-driven Networks
Session Chair: Zecan Yang, Huazhong University of Science and Technology, China

1. **Performance Analysis of the IEEE 802.11p for Vehicular Networks With Bursty Packet Errors**
Ning Wang; Jia Hu

2. **Cache Top-level Domain Locally: Make DNS Respond Quickly**
Haisheng Yu; Yan Liu; Lihong Duan; Sanwei Liu; WenYong Wang; Zirui Peng; Daobiao Gong

3. **An Energy-Efficient Scheme for Industrial Wireless Sensor Network Based on Hierarchical Network Structure**
Huamei Qi

4. **MGF-GAN: Multi Granularity Text Feature Fusion for Text-guided-Image Synthesis**
Wang Xingfu; Xiangyu Li; Ammar Hawbani; Liang Zhao; Saeed Alsamhi

5. **Multimodal Graph Reasoning and Fusion for Video Question Answering**
Shuai Zhang; Wang Xingfu; Ammar Hawbani; Liang Zhao; Saeed Alsamhi

6. **A Secure Remote Password Protocol from the Learning with Errors Problem**
Huapeng Li; Baocheng Wang

TrustCom-35: Sensing and Communications 2022
Session Chair: YiXuan Geng, Wuhan Research Institute of Posts and Telecommunications, China

1. **Ferrite Microstrip Limiter Based on the Equivalent Nonlinear Loss Simulation Model for the Narrow Microwave Pulse Environment**
Mingyu Yang; Tao Yang; Haiyang Wang; Hao Li; Tianming Li; Biao Hu

2. **Dynamic Resource Allocation for Beam Hopping Satellites Communication System: An Exploration**
XinQing Du; Xin Hu

3. **PAPR Suppression in Radar Communication Integration System Based on Subcarrier Reservation**
Biao Yang; Shanshan Zhao; Hongfei Du; Minju Yi; Ziwei Liu

4. **Listing the Ingredients for IFTTT Recipes**
Shirin Kalantari; Danny Hughes; Bart De Decker

5. **Cache Design Effect on Microarchitecture Security: A Contrast between Xuantie-910 and BOOM**
Zhe Zhou; Xiaoyu Cheng; Yang Sun; Fang Jiang; Fei Tong; Yuxing Mao; Ruilin Wang

TrustCom-36: Cyberspace Security and Artificial Intelligence (I)
Session Chair: YiXuan Geng, Wuhan Research Institute of Posts and Telecommunications, China

1. **Measurement of Malware Family Classification on a Large-Scale Real-World Dataset**
Qinqin Wang; Hanbing Yan; Rui Mei; Zhihui Han

2. **Data Driven Based Malicious URL Detection Using Explainable AI**
Saranda Poddar; Deepraj Chowdhury; Ashutosh Dhar Dwivedi; Raghava Rao Mukkamala

3. **Towards Logical Specification of Adversarial Examples in Machine Learning**
Marwa Zeroual; Brahim Hamid; Jason Jaskolka; Morayo Adedjouma

4. **A Blockchain-assisted Collaborative Ensemble Learning for Network Intrusion Detection**
Lijian Liu

5. **Hierarchical Classification of Android Malware Traffic**
Giampaolo Bovenzi; Valerio Persico; Antonio Pescapé; Anna Piscitelli; Vincenzo Spadari

TrustCom-37: Cyberspace Security and Artificial Intelligence (II)
Session Chair: Ruonan Zhao, Huazhong University of Science and Technology, China

1. **Sybil-resistant Truth Discovery in Crowdsourcing by Exploiting the Long-tail Effect**
Lin Dejia

2. **A Compatible Security Protocol for ACARS with Identity Privacy Protection**
Xinwei Li; Qianyun Zhang; Lexi Xu; Tao Shang

3. **A Formalization-based Vulnerability Detection Method for Cross-Subject Network Components**
Jinfu Chen; Haodi Xie; Saihua Cai; Ye Geng; Yemin Yin

4. **Research on OTFS Systems for 6G**
Bei Li; Tian Xiao; Kai Zhou; Lexi Xu; Guanghai Liu; Bo Wang; Jie Gao; Jian Guan; Zixiang Di

TrustCom-38: Cyberspace Security and Artificial Intelligence (III)
Session Chair: Xin Nie, Huazhong University of Science and Technology, China

1. **CCTVCV: Computer Vision Model/Dataset Supporting CCTV Forensics Applications**
Hannu Turtiainen; Andrei Costin; Timo Hämäläinen; Tuomo Lahtinen; Lauri Sintonen

2. **K-Time Redactable Blockchain with Controllable Cheating Editors**
Yong Li; Zhenghao Zhang; Xi Chen; Ruxian Li; Liang Zhang

3. **DIV-SC: A Data Integrity Verification Scheme for Centralized Database Using Smart Contract**
Xiaofei Xing; Siqi He; Guojun Wang

4. **A Trusted, Verifiable and Differential Cyber Threat Intelligence Sharing Framework Using Blockchain**
Kealan Dunnett; Shantanu Pal; Guntur Dharma Putra; Zahra Jadidi; Raja Jurdak

5. **"The Need for Speed": Extracting Session Keys from the Main Memory Using Brute-force and Machine Learning**
Stewart Sentanoe; Christofer Fellicious; Hans Reiser; Michael Granitzer

6. **Trusted Hart for Mobile RISC-V Security**
Vladimir Ushakov; Sampo Sovio; Qingchao Qi; Vijayanand Nayani; Valentin Manea; Philip Ginzboorg; Jan-Erik Ekberg

TrustCom-39: Cyberspace Security and Artificial Intelligence (IV)
Session Chair: Liang Zhong, China University of Geosciences, China

1. **TINKER: A framework for Open source Cyberthreat Intelligence**
Nidhi Rastogi; Sharmishtha Dutta

2. **Benchmark Tool for Detecting Anomalous Program Behaviour on Embedded Devices**
Michal Borowski; Sangeet Saha; Xiaojun Zhai; Klaus McDonald-Maier

3. **Understanding the Penetration Test Workflow: A Security Test with Tramonto in An e-Government Application**
Daniel Dalalana Bertoglio; Luis Bier Schüler; Avelino F. Zorzo; Roben Castagna Lunardi

4. **SCEVD: Semantic-Enhanced Code Embedding for Vulnerability Discovery**
Joseph Gear; Yue Xu; Ernest Foo; Praveen Gauravaram; Zahra Jadidi

5. **Clean-Label Backdoor Attack on Machine Learning-Based Malware Detection Models and Countermeasures**
Wanjia Zheng; Kazumasa Omote

6. **Adversarial Attacks on Deep Learning-Based Methods for Network Traffic Classification**
Meimei Li; Yiyan Xu; Nan Li; Zhongfeng Jin

TrustCom-40: Assistive Engineering and Information Technology (I)
Session Chair: Fulan Fan, South-Central Minzu University, China

1. **An End-To-End Multi-Label Classification Model for Arrhythmia Based on Varied-Length ECG Signals**
Yanfang Dong; Wenqiang Cai; Wenliang Zhu; Lirong Wang

2. **Arteriovenous Fistula Stenosis Classification Method Based on Auxiliary Wave and Transformer**
Jinke Xu; Junwei Zhang; Yujie Chen; Gang Ma; Zhanpeng Zhu; Lirong Wang

3. **A Heart Sound Classification Method Based on Residual Block and Attention Mechanism**
Yujie Chen; Wenliang Zhu; Jinke Xu; Junwei Zhang; Zhanpeng Zhu; Lirong Wang

4. **Denoising Method of ECG Signal Based on Channel Attention Mechanism**
Junwei Zhang; Rui Bao; Lirong Wang; Jinke Xu; Yujie Chen; Xueqin Chen

TrustCom-41: Assistive Engineering and Information Technology (II)
Session Chair: Ning Zhang, Huazhong University of Science and Technology, China

1. **Image Encryption Algorithm Based on Convolutional Neural Network and Four Square Matrix Encoding**
Bin Ge; Ting Wang; Chenxing Xia; Gaole Dai

2. **A Study on the Exoskeleton Motion Intent Recognition Algorithm for Embedded Calculation**
Shi Lei

3. **EEG Classification Algorithm of Motor Imagery Based on CNN-Transformer Fusion Network**
Haofeng Liu; Yuefeng Liu; Yue Wang; Bo Liu; Xiang Bao

4. **CCTV-FullyAware: Toward End-to-End Feasible Privacy-Enhancing and CCTV Forensics Applications**
Hannu Turtiainen; Andrei Costin; Timo Hämäläinen; Tuomo Lahtinen; Lauri Sintonen

5. **Create Persona of Elderly Users by Clustering Analysis of Needs**
Xiaoying Li

TrustCom-42: Machine Learning for Trust, Security and Privacy in Computing and Communications (I)
Session Chair: Ruonan Zhao, Huazhong University of Science and Technology, China

1. **An Improved Actor-Critic Method for Auto-Combating in Infantry Vehicles**
Chen Ruizhu

2. **End-to-End Speech Recognition Technology Based on Multi-Stream CNN**
Xiao Hao

3. **Research And Implementation of Fault Diagnosis of Switch Machine Based on Data Enhancement And CNN**
Li Mingyue

4. **Guide Tracking Method Based on Particle Filter Fusion**
Wang Zilong

TrustCom-43: Machine Learning for Trust, Security and Privacy in Computing and Communications (II)
Session Chair: Zhe Li, Huazhong University of Science and Technology, China

1. **Fuzzy Keyword Search over Encrypted Cloud Data with Dynamic Fine-grained Access Control**
Boshen Shan; Yuanzhi Yao; Weihai Li; Xiaodong Zuo; Nenghai Yu

2. **CAHOOT: A Context-Aware VeHicular IntrusiOn DetectiOn System**
Davide Micale; Gianpiero Costantino; Ilaria Matteucci; Florian Fenzl; Roland Rieke; Giuseppe Patanè

3. **Confusing Traffic Against Intra-Domain Webpage Fingerprinting Attacks**
Weilin Yang; Yi Tang; Zhonghui Du; Yonghui Wu

4. **On the Performance of Deep Learning Methods for Identifying Abnormal Encrypted Proxy Traffic**
Hongce Zhao; Shunliang Zhang; Zhuang Qiao; Xianjin Huang; Xiaohui Zhang

5. **Personalized User Profiles-based Insider Threat Detection for Distributed File System**
Wu Xin; Qingni Shen; Ke Feng; Yutang Xia; Zhonghai Wu; Zhenghao Lin

6. **A K-Induction Method Extended with Value Analysis for C Program Safety Verification**
Guo Hui; Hou Chunyan; Wang Jinsong; Chen Chen

Sessions of BigDataSE 2022

BigDataSE-1: Big Data Science and Engineering
Session Chair: Zhe Li, Huazhong University of Science and Technology, China

1. **Phishing Domain Name Detection Based on Hierarchical Fusion of Multimodal Features**
Sirui Zhang

2. **Validating Crowdsourced Flood Images Using Machine Learning and Real-Time Weather Data**
Ankit Gupta; Adriel Kim; Abhir Karande; Shuo Yan; Shiva Manandhar; N. Rich Nguyen

3. **Intellectual Social Scanning and Analytics Platform**
Chi Yat Lau; Connie Man-Ching Yuen; Johnny Wing-Fat Cheng; Ming-Yeung Lau; Wing-Fu Chan; Hin-Ching Wong

4. **A Data Science Solution for Analyzing Weather Data for Transportation Analytics in Smart Cities**
Carson K. Leung

Sessions of CSE 2022

CSE-1: Embedded and Ubiquitous Computing & Intelligent and Bio-inspired Computing
Session Chair: Li Cheng, Wuhan Institute of Technology, China

1. **Indoor Localization Based on Sparse TDOA Fingerprints**
Guang Ouyang; Tinghao Qi; Lixiao Wei; Bang Wang

2. **Speeding Up Machine Learning Inference on Edge Devices by Improving Memory Access Patterns Using Coroutines**
Bruce Belson; Bronson Philippa

3. **LED Dynamic Marker and Tracking Algorithm for External Camera Positioning**
Jianxu Mao; Zhiqiang Zou; Caiping Liu; Junfei Yi; Ziming Tao; Yaonan Wang

4. **Data-driven Prior for Pharmaceutical Snapshot Spectral Imaging**
Xuesan Su; Jianxu Mao; Yaonan Wang; Yurong Chen; Hui Zhang

CSE-2: Big Data Applications and Analytics & Service and Internet Computing
Session Chair: Li Cheng, Wuhan Institute of Technology, China

1. **Improving the System Identification of Transonic Wind Tunnel by a Regression Ensemble-Based Outlier Mining Method**
Hongyan Zhao; Dong Yu; Biao Wang

2. **Attention Based Collaborator Recommendation in Heterogeneous Academic Networks**
Xiao Ma; Qiumiao Deng; Yi Ye; Tingting Yang; Jiangfeng Zeng

3. **Web-Based Automatic Deep Learning Service Generation System by Ontology Technologies**
Incheon Paik

CSE-3: Scientific and Engineering Computing & Security, Privacy and Trust & CSE Education
Session Chair: Jun Feng, Huazhong University of Science and Technology, China

1. **Design and Development of Operation Status Monitoring System for Large Glass Substrate Handling Robot**
Xinhe Pu; Xiaofang Yuan; Liangsen Li; Weiming Ji

2. **Neural Network Approximation of Simulation-Based IDS Fitness Evaluation**
Abdulmonem Alshahrani; John Clark

3. **Towards Efficient Reverse-Time Migration Imaging Computation by Pipeline and Fine-grained Execution Parallelization**
Rong Gu; Bo Li; Dingjin Liu; Zhaokang Wang; Suhui Wangzhang; Shulin Wang; Haipeng Dai; Yihua Huang

4. **Analysis of Student e-Learning Engagement Using Learning Affect: Hybrid of Facial Emotions and Domain Model**
Weiwei Yu

CSE-4: Big Data Applications and Analytics
Session Chair: Ning Zhang, Huazhong University of Science and Technology, China

1. **Dense 3D Face Reconstruction from a Single RGB Image**
Jianxu Mao; Yifeng Zhang; Caiping Liu; Ziming Tao; Junfei Yi; Yaonan Wang

2. **Electroencephalogram Emotion Recognition Based on Three-Dimensional Feature Matrix and Multivariate Neural Network**
Qiuming Liu; Wei Xu

3. **Predicting Articles Attitude From News Agencies Towards Wearing Masks With Both Time and Text Data**

Sessions of EUC 2022

EUC-1: Data Analysis and Data Management for Embedded and Ubiquitous Computing
Session Chair: Jinglin Zhao, Huazhong University of Science and Technology, China

1. **CARET: Chain-Aware ROS 2 Evaluation Tool**
Takahisa Kuboichi; Atsushi Hasegawa; Bo Peng; Keita Miura; Kenji Funaoka; Shinpei Kato; Takuya Azumi

2. **A Signal-Physical Siamese Neural Network for Wi-Fi Fingerprint Localization**
Lixiao Wei; Tinghao Qi; Guang Ouyang; Bang Wang

3. **Prediction and Analysis of Ship Traffic Flow Based on a Space-Time Graph Traffic Computing Framework**
Li Zhaoxuan; Mei Qiang; Li Yong; Wang Peng; Yang Yang; Hu Wenlong

4. **AoTI Minimization for Multi-Type Data Sampling in Industrial Wireless Sensor Networks**
Chen Ying; Zhen Zhao; Changyan Yi; You Shi; Ran Wang

5. **Rep-Enhancer: Re-Parameterizing Neural Network for Real-Time Low-Light Enhancement in Visual Maritime Surveillance**
Xijing Li; Yuxu Lu; Yu Guo; Jingxiang Qu; Wen Liu

EUC-2: Mobile Systems and Applications for Embedded and Ubiquitous Computing
Session Chair: Jinglin Zhao, Huazhong University of Science and Technology, China

1. **Cooperative Task Offloading in Cybertwin-Assisted Vehicular Edge Computing**
Enchao Zhang; Liang Zhao; Na Lin; Weijun Zhang; Ammar Hawbani; Geyong Min

2. **Joint VNF Deployment and Resource Allocation in Integrated Terrestrial-Aerial Access Networks Enabled by Network Slicing**
Yuming Peng; Boya Di

3. **Centralized and Distributed Consensus in Wireless Network: An Analytical Comparison**
Dachao Yu; Lei Zhang

4. **Achieving a Blockchain-Based Privacy-Preserving Quality-Aware Knowledge Marketplace in Crowdsensing**
Yanwei Li; Mingyang Zhao; Zihan Li; Weiting Zhang; Jinyang Dong; Tong Wu; Chuan Zhang

5. **From Distributed Sensing to Virtual Sensors: A Domain-Specific Language for Reactive Centralized Edge-Fog-Cloud Computation**
Andrea Damiani; Marco Rabozzi; Kaixi Matteo Chen; Lorenzo Di Tucci; Marco D Santambrogio

EUC-3: Applications for Embedded and Ubiquitous Computing
Session Chair: Yunzhi Xia, Huazhong University of Science and Technology, China

1. **Obstruction Simulation in Real-Time 3D Audio on Edge Systems**
Mattia Surricchio; Andrea Damiani; Marco D Santambrogio

2. **A Flow Classification Algorithm Based on FPGA and CPU Collaboration**
Dasheng Zhao

3. **Smart Parking System Based on mmWave Radars and Bluetooth Low Energy Prototype Implementation**
Abdulbary Naji; Aisha Alabsi; Wang Xingfu; Ammar Hawbani; Liang Zhao; Saeed Alsamhi

4. **An Improved QMIX-Based AGV Scheduling Approach for Material Handling Towards Intelligent Manufacturing**
Jiatong Zhang; Yaqiong Lv; Yifan Li

5. The Generalized Graph Real-Time Task Model
David Doose; Luca Santinelli

EUC-4: Security, Safety and Reliability/Dependability
Session Chair: Huaiming Wang, Huazhong University of Science and Technology, China

1. SignGest: Sign Language Recognition Using Acoustic Signals on Smartphones
Haoyu Wang; Junbao Zhang; Yue Li; Lin Wang

2. Research on Intelligent Security Management Architecture of Military Blockchain
Da Ning

3. Transformation From MVC Applications to Smart Contracts
Qiqi Gu; Wei Ke; Yilong Yang

4. Component Framework for Multiprocessor Real-Time Operating Systems
Yoshitada Takaso; Hiroshi Oyama; Takuya Azumi

Sessions of iSCI 2022

iSCI-1: Urban Computing and Big Data & Sustainable Industry 4.0 & Smart Society Informatization Technologies
Session Chair: Jiayang Sun, Liaoning Technical University, China

1. **Anomaly Detection of Multivariate Industrial Sensing Data Based on Graph Attention Network**
Weihong Zheng

2. **An Evidence Study of Long-Term Impacts on Mobility Patterns Brought by COVID-19**
Zhenli Shou; Mincheng Wu; Kehan Li; Chao Li

3. **A Real-Time Fall Detection System Using ToF Depth Images**
Rihui Li; Dongxiao Li; Ming Zhang

4. **ObstaDetect: Obstacle Detection Using Acoustic Signals on Smart Phones**
Yue Li; Junbao Zhang; Lin Wang; Haoyu Wang

5. **Incentive Mechanism for Secure Mobile Edge Computing Under Managed Eavesdropping Risk**
Yichao Chen

6. **Energy-Efficient Dependency-Aware Task Offloading in Mobile Edge Computing: A Digital Twin Empowered Approach**
Huan Zhou; Lingxiao Chen; Jiang Kai; Yuan Wu

iSCI-2: Applications for Smart City Informatization
Session Chair: Huaiming Wang, Huazhong University of Science and Technology, China

1. **Multi-Hop Routing Optimization of Transmission-Line Monitoring Based on the LoRa Technology**
Zhao Yimei

2. **Prediction of Carbon Peak Path Based on STIRPAT Model: A Case Study in Anji County**
Feng Lu; Songsong Zheng; Qinchao Li; Hanyu Dong; Qin Xue; Yi Xing

3. **A Fast and Efficient Short-Term Wind Speed Forecast Model for Wind Turbines**
Kai Hao; Zhengdong Chen; Qinmin Yang; Shuzong Xie

4. **Indoor Air Quality Assessment and Control Using Fuzzy Inference**
Liang Zhao; Shuai Huang; Jieru Xu; Yujun Yao

5. **Research on Terminal Security of 5G Network Under Different Attack Scenes**
Jiang Zhu

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