

**Title:**

The 2022 International Workshop on Cyber Security with Big Data (WCSBD'22)

**Abstract:**

Cyberspace and its underlying infrastructure are vulnerable to a wide range of risk stemming from both physical and cyber threats and hazards. In light of the risk and severe consequences of cyber events, strengthening the security and resilience of cyberspace has become an important security mission. Moreover, the advent of big data provides a more powerful and intelligent way of defending against the risk in cyberspace than ever before. Hence, the 2021 International Workshop on Cyber Security with Big Data (WCSBD'22) aims to provide a forum for researchers and practitioners from academia and industry to exchange their latest research findings, novel ideas, and valuable comments regarding cyber security with big data. Its major concerns include cyber security theories, system design and implementation for cyber security, big data service for cyber security, artificial intelligence security, blockchain service for cyber security and emerging cyber security applications. The conference will be held together with the 7th International Conference on Artificial Intelligence and Security (ICAIS 2022). The workshop program will consist of oral presentation sessions, where each presenter will show his/her work followed by Q/A, and an open discussion session.

**Scope and Topics:**

We encourage submissions that present fundamental research to address challenges in enabling cyber security in the big data era. The topics to be addressed at the WCSBD'21 include, but are not limited to, all aspects of cyber security theories, methods, applications and big data technology, targeting one of the following six major areas:

- ✧ Cyber Security Theories
  - Cryptography and Cryptanalysis
  - Complex Network Theory for Cyber Security
  - Game Theory for Cyber Security
  - System Security and Defensive Technology
  - Network Security and Defensive Technology
  - Content Security and Defensive Technology
  - Social Network Security
- ✧ System Design and Implementation for Cyber Security
  - Architecture of Intrusion Detection Systems
  - Software-Defined Networking in Cyber Protection Systems
  - Network Function Virtualization for Cyber Security
  - Novel architecture and engineering approach in Cyber Security
- ✧ Big Data Service for Cyber Security
  - Machine Learning with Big Data
  - Machine Learning Security
  - Data Mining for Cyber Security
  - Scalable computing models, theories, and algorithms for Cyber Security



- o Mobile big data computing for Cyber Security
- ◇ Artificial Intelligence Security
- ◇ Blockchain Service for Cyber Security
- ◇ Emerging Cyber Security Applications

### **Program Committee Chairs:**

**Jieren Cheng**, Hainan University, China  
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Jieren Cheng received his Ph.D. degree in Computer Science and Technology from National University of Defense Technology (NUDT) in 2010. He is now a Professor and the Associate Dean of School of Computer Science & Technology in Hainan University, China. He is awarded as “Famous South China Sea Scholar”. He serves as the director of the Hainan Provincial Blockchain Technology Engineering Research Center. His research interests include blockchain, big data, cloud computing, cyber security, artificial intelligence and intelligent transportation. He is a senior member of CCF and a member of IEEE. He has been invited to serve as a reviewer in several journals and international conferences, e.g., Computer Research and Development, Computer Science, FAW, and a PC member for several international conferences. In recent years, hosted two National Natural Science Foundation of China, national defense key research projects, China-US Computer Science Research Center Open Project, Ministry of Education Industry-University-Research Collaborative Education Project, Ministry of Education "Tiancheng Huizhi" Innovation and Education Fund, Hainan Province Key, R&D innovation team projects, Hainan Provincial Key R&D Projects, Hainan Provincial Natural Science Foundation Projects, Hainan Provincial Science and Technology Enterprise Technology Innovation Fund Projects, and Hunan Provincial Twelfth Five-Year Plan Projects, with a total project funding of more than 10 million. As the main person in charge, he participated in 9 national key projects, including the National Natural Science Foundation of China, the National Defense Preliminary Research Key Project, the National Support Plan, and the Innovation Planning Project of the Ministry of Public Security. It has won 22 provincial-level projects and 11 school-level projects such as the Provincial Natural Science Foundation, the Provincial Science and Technology Plan Fund, and the Provincial Department of Education Key Project. In recent years, published 157 academic papers, and 43 papers have been included in SCI, including 21 papers in the first area of JCR, more than 73 papers in EI, and 1 high-cited paper (1%) by ESI, achieving a high ESI score in Hainan University's electronic information category. Cited zero breakthrough papers, 4 first-level journals, 24 software copyrights, 31 invention patents, 5 authorized invention patents, and 2 academic monographs published. He won the ICAIS 2021 Outstanding Organization Chairman, ICCCS 2018 Outstanding Contribution Award, and the first prize of ICCCS 2018 and ICCCS 2017 Excellent Papers.

**Qiang Liu**, National University of Defense Technology, China  
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Dr. Qiang Liu received his Ph.D. degree in computer science and technology from National University of Defense Technology (NUDT) in 2014. He is now an Assistant Professor at NUDT and a member of IEEE and CCF. His research interests include 5G network, Internet of Things, wireless network security, and machine learning. Dr. Liu has contributed several archived journal and international conference papers, such as IEEE Network Magazine, IEEE Transactions on Wireless Communications, IEEE



Transactions on Knowledge and Data Engineering, IEEE Transactions on Cybernetics, Pattern Recognition, IEEE Communications Letters, Neurocomputing, Neural Computing and Applications, Mobile Information Systems, EDBT'17, WCNC'17, ICANN'17, SmartMM'17, etc. He currently serves on the editorial review board of Artificial Intelligence Research journal, and he is a Co-Chair of SmartMM'18.

**Xiangyang (Alex X.) Liu**, Michigan State University, USA

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Prof. Alex X. Liu received his Ph.D. degree in Computer Science from The University of Texas at Austin in 2006. He received the IEEE & IFIP William C. Carter Award in 2004, the National Science Foundation CAREER Award in 2009, the Michigan State University Withrow Distinguished Scholar Award in 2011, and Best Paper Award of ICNP. His research focuses on networking and security. Prof. Liu has contributed tens of archived journal papers and more than 100 international conference papers, including MOBICOM, INFOCOM, SIGMETRICS, PODC, ICSE, USENIX Security, ICNP, ICDCS, NDSS, DSN, VLDB, ICDE and ACM/IEEE Transactions. He has also edited two books, namely "Firewall Design and Analysis" and "Hardware Based Packet Classification for High Speed Internet Routers". Prof. Liu has hosted 6 NSF projects, and he served as a program chair or committee member of various top conferences, e.g., SIGMETRICS, INFOCOM, ICNP, ICDCS.

### **Program Committee:**

Yan Zhang, University of Oslo, Norway

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