PERSONAL INFORMATION

Name: Guowen Xu

Date of Birth: 5 June, 1991

E-Mail: guowen.xu@foxmail.com

Phone: +852 97054118

Homepages: https://guowen-xu.github.io/

Address: City University of Hong Kong, 83 Tat Chee Avenue, Kowloon, Hong Kong

EDUCATION BACKGROUND

- Ph.D. of Cyberspace Security   **2015/09-2020/12**

  (Supervisor: Prof. **Hongwei Li: IEEE Fellow**)

  School of Computer Science and Engineering

  University of Electronic Science and Technology of China (UESTC)

- Visiting Ph.D. in Cyberspace Security   **2019/08-2020/08**

  (Supervisor: Prof**. Robert H. Deng: IEEE Fellow)**

  School of Information of Systems

  Singapore Management University

- Bachelor of Information and Computing Science   **2010/09-2014/06**

  School of Mathematical and Physical Science

  Anhui Jianzhu University (AHJZU)

PROFESSIONAL EXPERIENCE

- Research Fellow   **2021/03-2023/05**

  School of Computer Science and Engineering

  Nanyang Technological University, Singapore

- Postdoc (Supervisor**: Prof.Yuguang Fang: IEEE Fellow)**   **2023/05-2024/05**

  Department of Computer Science

  City University of Hong Kong

- Professor   **2024/05-Present**

  School of Computer Science and Engineering, UESTC

RESEARCH INTERESTS

Applied Cryptography; Computer Security; AI Security and Privacy.

AWARDS AND HONORS

- **2023 Stanford World's Top 2% Scientists**
- **2023 IEEE BigDataSecurity Best Paper Award**
- 2022-2024 Distinguished Reviewer of ACM Transactions on the Web
- 2022 ECCV Online Registration Waiver Award, Committee of ECCV
- **2021 Wu Wenjun First Prize of Artificial Intelligence Science and Technology Progress**
- 2021 Outstanding Graduate Student of University of Electronic Science and Technology of China
- 2021 Outstanding Graduate Student in Sichuan Province
- 2021 IEEE INFOCOM Student Conference Award
- **2020 IEEE ICPADS Best Paper Award**
- 2020 National Scholarship of Graduate Student (MOE of PRC, Top 1%)
- 2020 First-class Scholarship of Graduate Student (UESTC, Top 1%)
- 2019 SCF Best Student Paper Award (Sichuan Province Computer Federation)

- ➢ 2019 National Scholarship of Graduate Student (MOE of PRC, Top 1%)
- ➢ 2019 First-class Scholarship of Graduate Student (UESTC, Rank: Top 1%)
- ➢ 2018 Network Security Scholarship of China Internet Development Foundation
- ➢ 2018 National Scholarship of Graduate Student (MOE of PRC, Top 1%)
- ➢ 2018 First-class Scholarship of Graduate Student (UESTC, Top 1%)
- ➢ 2018 First-class Scholarship of Shenzhen Huiding Technology Co.,Ltd   (Top 1%)
- ➢ 2018-2020 Excellent Student Award (UESTC)
- ➢ 2018-2020 Excellent Graduate Student (UESTC)
- ➢ 2016 Excellence award of National Cipher Technology Competition

SELECTED PUBLICATIONS (CCF A papers: **30**, Google Citations: **2839**; 2024/02/08)

[1] **[S&P 2024]** Xingshuo Han, Yutong Wu, Qingjie Zhang, Yuan Zhou, Yuan Xu, Han Qiu, **Guowen Xu**, and Tianwei Zhang. Backdooring Multimodal Learning[C]. in *IEEE Symposium on Security and Privacy*, 2024. (CCF A)

[2] **[INFOCOM 2024]** Xinyuan Qian, Hongwei Li, **Guowen Xu**, Haoyong Wang, Tianwei Zhang, Xianhao Chen, Yuguang Fang. Privacy-Preserving Data Evaluation via Functional Encryption, Revisited. in *Proceedings of IEEE International Conference on Computer Communications*, 2024. (CCF A)

[3] **[ICRA 2024]** Yuang Zhang, Haonan An, Zhengru Fang, **Guowen Xu**, Yuan Zhou, Xianhao Chen, Yuguang Fang. SmartCooper: Vehicle Collaborative Perception under Adaptive Fusion and Judger Mechanism. *IEEE International Conference on Robotics and Automation*, 2024. (CCF B)

[4] [**TDSC 2023**] **Guowen Xu**, Xingshuo Han, Tianwei Zhang, Shengmin Xu, Jianting Ning, Xinyi Huang, Hongwei Li, Robert H.Deng. SIMC 2.0: Improved Secure ML Inference Against Malicious Clients [J]. *IEEE Transactions on Dependable and Secure Computing*, 2023. (CCF A).

[5] [**TDSC 2023**] **Guowen Xu**, Xingshuo Han, Gelei Deng, Tianwei Zhang, Shengmin Xu, Jianting Ning, Anjia Yang, Hongwei Li. VerifyML: Obliviously Checking Model Fairness Resilient to Malicious Model Holder [J]. *IEEE Transactions on Dependable and Secure Computing*, 2023. (CCF A)

[6] [**TIFS 2023**] **Guowen Xu**, Shengmin Xu, Jinhua Ma, Jianting Ning, and Xinyi Huang. An Adaptively Secure and Efficient Data Sharing System for Dynamic User Groups in Cloud [J]. *IEEE Transactions on Information Forensics and Security,* 2023. (CCF A)

[7] [**TIFS 2023**] Jianfei Sun, **Guowen Xu*(Corresponding Author)**, Tianwei Zhang, Xuehuan Yang, Mamoun Alazab, Robert H. Deng. Privacy-aware and Security-enhanced Efficient Matchmaking Encryption [J]. *IEEE Transactions on Information Forensics and Security*, 2023, to appear. (CCF A)

[8] [**TKDE 2023**] Zhuoran Ma, Jianfeng Ma, Yinbin Miao, **Guowen Xu**, Yang Liu, Ximeng Liu, Robert H. Deng. FLGAN: GAN-Based Unbiased Federated Learning under Non-IID Settings[J]. *IEEE Transactions on Knowledge and Data Engineering*, 2023. (CCF A)

[9] **[ICML 2023]** Haoxiao Chen, Hongwei Li, Meng Hao, Kangjie Chen, **Guowen Xu**, Tianwei Zhang, Xilin Zhang [C]. GuardHFL: Privacy Guardian for Heterogeneous Federated Learning. in *International Conference on Machine Learning*, 2023. (CCF A)

[10] **[ICLR 2023]** Guanlin Li, **Guowen Xu***(**Corresponding Author**), Shangwei Guo, Han Qiu, Jiwei Li, Tianwei Zhang. Extracting Robust Models with Uncertain Examples[C]. in *International Conference on Learning Representations*. 2023.

[11] **[ICLR 2023]** Kangjie Chen, Xiaoxuan Lou, <u>**Guowen Xu**</u>, Jiwei Li, Tianwei Zhang. Clean-image Backdoor: Attacking Multi-label Models with Poisoned Labels Only[C]. in *International Conference on Learning Representations,* 2023. (Notable-top-5%)

[12] [**TDSC 2023**] Wenbo Jiang, Hongwei Li, <u>**Guowen Xu**</u>, Tianwei Zhang, Rongxing Lu. A Comprehensive Defense Framework against Model Extraction Attacks [J]. *IEEE Transactions on Dependable and Secure Computing*, 2023. (CCF A)

[13] [**CVPR 2023**] Wenbo Jiang, Hongwei Li, <u>**Guowen Xu**</u>, Tianwei Zhang. Color Backdoor: A Robust Poisoning Attack in Color Space [C]. in *Proceedings of IEEE / CVF Computer Vision and Pattern Recognition Conference*, 2023. (CCF A)

[14] [**INFOCOM 2023**] Dongyun Xue, Haomiao Yang, Mengyu Ge, Jingwei Li, <u>**Guowen Xu**</u>, Hongwei Li. Fast Generation-Based Gradient Leakage Attacks against Highly Compressed Gradients [C]. in *Proceedings of IEEE International Conference on Computer Communications*, 2023. (CCF A)

[15] [**TSC 2023**] Shengmin Xu, Xingshuo Han, <u>**Guowen Xu**</u>, Jianting Ning, Xinyi Huang, Robert H. Deng. An Adaptive Secure and Practical Data Sharing System with Verifiable Outsourced Decryption [J]. *IEEE Transactions on Services Computing*, 2023, to appear. (CCF A)

[16] [**TCSVT 2023**] <u>**Guowen Xu**</u>, Guanlin Li, Shangwei Guo, Tianwei Zhang, Hongwei Li. Secure Decentralized Image Classification with Multiparty Homomorphic Encryption[J]. *IEEE Transactions on Circuits and Systems for Video Technology*, 2023. (CCF B)

[17] [**CCS 2022**] Gelei Deng, <u>**Guowen Xu**</u>*(**Corresponding Author**), Yuan Zhou, Tianwei Zhang, Yang Liu. On the (In) Security of Secure ROS2[C]. in *Proceedings of ACM Conference on Computer and Communications Security*, 2022. (CCF A)

[18] [**TDSC 2022**] **Guowen Xu**, Xingshuo Han, Shengmin Xu, Tianwei Zhang, Hongwei Li, Xinyi Huang, Robert H Deng. Hercules: Boosting the Performance of Privacy-preserving Federated Learning[J], *IEEE Transactions on Dependable and Secure Computing*, 2022. (CCF A)

[19] [**TIFS 2022**] Jianfei Sun, <u>**Guowen Xu**</u>*(**Corresponding Author**), Xuehuan Yang, Tianwei Zhang, Mamoun Alazab, Robert H. Deng. Verifiable, Fair and Privacy-preserving Broadcast Authorization for Flexible Data Sharing in Clouds [J]. *IEEE Transactions on Information Forensics and Security*. 2022. (CCF A)

[20] [**TIFS 2022**] Jianfei Sun, <u>**Guowen Xu**</u>*(**Corresponding Author**), Tianwei Zhang, Mamoun Alazab, Robert H. Deng. A Practical Fog-based Privacy-preserving Online Car-hailing Service System [J]. *IEEE Transactions on Information Forensics and Security*, 2022. (CCF A)

[21] [**ECCV 2022**] Guanlin Li, <u>**Guowen Xu**</u>*(**Corresponding Author**), Han Qiu, Ruan He, Jiwei Li, Tianwei Zhang. Improving Adversarial Robustness of 3D Point Cloud Classification Models[C]. in *Proceedings of European Conference on Computer Vision*. 2022. (CCF B)

[22] [**TITS 2022**] Jianfei Sun, <u>**Guowen Xu**</u>* (**Corresponding Author**) Tianwei Zhang, Xiaochun Cheng, Xingshuo Han, MingJian Tang. Secure Data Sharing with Flexible Cross-domain Authorization in Autonomous Vehicle Systems[J]. *IEEE Transactions on Intelligent Transportation Systems*, 2022. (CCF B)

[23] **[TIFS 2022]** Hanxiao Chen, Hongwei Li, Yingzhe Wang, Meng Hao, <u>**Guowen Xu**</u>, Tianwei Zhang. PriVDT: An Efficient Two-Party Cryptographic Framework for Vertical Decision Trees [J]. *IEEE Transactions on Information Forensics and Security*, 2022. (CCF A)

[24] [**TDSC 2022**] Wenbo Jiang, Tianwei Zhang, Han Qiu, Hongwei Li, <u>**Guowen Xu**</u>. Incremental Learning, Incremental Backdoor Threats[J]. *IEEE Transactions on Dependable and Secure Computing,*2022. (CCF A)

[25] [**NeurIPS 2022**] Meng Hao, Hongwei Li, Hanxiao Chen, Pengzhi Xing, **<u>Guowen Xu</u>**, Tianwei Zhang. Iron: Private Inference on Transformers [C]. in *Proceedings of Thirty-Sixth Conference on Neural Information Processing Systems*. 2022. (CCF A)

[26] [**MM 2022**] Xingshuo Han, **<u>Guowen Xu</u>**, Yuan Zhou, Xuehuan Yang, Jiwei Li, Tianwei Zhang. Physical Backdoor Attacks to Lane Detection Systems in Autonomous Driving [C]. in *Proceedings of ACM International Conference on Multimedia*. 2022. (CCF A)

[27] [**TSC**] Jingwei Wang, Xinchun Yin, Jianting Ning, Shengmin Xu, **<u>Guowen Xu</u>**, and Xinyi Huang. Secure Updatable Storage Access Control System for EHRs in the Cloud [J]. *IEEE Transactions on Services Computing*, 2022, to appear. (CCF A)

[28] [**INFOCOM 2021**] Haoran Yuan, Xiaofeng Chen, **<u>Guowen Xu</u>***(**Corresponding Author**), Jianting Ning, Joseph Liu, Robert H Deng. Efficient and Verifiable Proof of Replication with Fast Fault Localization[C]. in *Proceedings of IEEE International Conference on Computer Communications,* 2021. (CCF A)

[29] [**TCC 2021**] Jianfei Sun, **<u>Guowen Xu</u>***(**Corresponding Author**), Tianwei Zhang, Hu Xiong, Hongwei Li, Robert H Deng. Share your data carefree: An efficient, scalable and privacy-preserving data sharing service in cloud computing[J]. *IEEE Transactions on Cloud Computing*, 2021. (JCR-Q1)

[30] [**TDSC 2021**] Shengmin Xu, Jianting Ning, Xinyi Huang, Yingjiu Li, **<u>Guowen Xu</u>**. Untouchable Once Revoking: A Practical and Secure Dynamic EHR Sharing System via Cloud[J]. *IEEE Transactions on Dependable and Secure Computing*, 2021. (CCF A)

[31] [**TIFS 2021**] Xiaoyuan Liu, Hongwei Li, **<u>Guowen Xu</u>**, Zongqi Chen, Xiaoming Huang, and Rongxing Lu. Privacy-Enhanced Federated Learning against Poisoning Adversaries [J]. *IEEE Transactions on Information Forensics and Security*, 2021. (CCF A)

[32] [**TDSC 2021**] Shengmin Xu, Jianting Ning, Yingjiu Li, Yinghui Zhang, **<u>Guowen Xu</u>**, Xinyi Huang, Robert H. Deng. A Secure EMR Sharing System with Tamper Resistance and Expressive Access Control[J]. *IEEE Transactions on Dependable and Secure Computing*, 2021. (CCF A)

[33] [**ESORICS 2021**] Shengmin Xu, Jianting Ning, Jinhua Ma, **<u>Guowen Xu</u>**, Jiaming Yuan, Robert Deng. Revocable Policy-Based Chameleon Hash [C], in *Proceedings of European Symposium on Research in Computer Security*, 2021. (CCF B)

[34] [**ACSAC 2021**] Meng Hao, Hongwei Li, **<u>Guowen Xu</u>**, Hanxiao Chen, Tianwei Zhang. Efficient, Private and Robust Federated Learning[C]. in *Proceeding of Annual Computer Security Applications Conference*, online, 2021. (CCF B)

[35] **[TDSC 2020]** **<u>Guowen Xu</u>,** Hongwei Li, Yun Zhang, Shengmin Xu, Jianting Ning, Robert H. Deng. Privacy-preserving Federated Deep Learning with Irregular Users[J]. *IEEE Transactions on Dependable and Secure Computing*, 2020. (CCF A)

[36] [**ASIACCS 2020**] **<u>Guowen Xu</u>**, Hongwei Li, Shengmin Xu, Hao Ren, Kan Yang, Yinghui Zhang, Jianfei Sun, Robert H. Deng. Catch You If You Deceive Me: Verifiable and Privacy-aware Truth Discovery in Crowd Sensing Systems[C]. in *Proceedings of ACM ASIA Conference on Computer and Communications Security,* Taipei, Taiwan, China, 2020. (CCF C)

[37] [**ACSAC 2020**] **<u>Guowen Xu</u>**, Hongwei Li, Hao Ren, Jianfei Sun, Shengmin Xu, Jianting Ning, Haomiao Yang, Kan Yang, Robert H. Deng. Secure and Verifiable Inference in Deep Neural Networks[C]. in *Proceeding of Annual Computer Security Applications Conference*, 2020. (CCF B)

[38] [**TCC 2020**] **<u>Guowen Xu</u>**, Hongwei Li, Hao Ren, Xiaodong Lin, Xuemin (Sherman) Shen. DNA Similarity Search with Access Control over Encrypted Cloud Data[J]. *IEEE Transactions on Cloud Computing*, 2019. (JCR-Q1)

[39] [**ICPADS 2020**] <u>**Guowen Xu**</u>, Hongwei Li, Yuan Zhang, Xiaodong Lin, Robert H Deng, Xuemin (Sherman) Shen. A Deep Learning Framework Supporting Model Ownership Protection and Traitor Tracing[C]. in *Proceedings of IEEE International Conference on Parallel and Distributed Systems*, 2020. (**Best Paper Award**)

[40] [**TDSC 2020**] Shengmin Xu, Jianting Ning, Yingjiu Li, Yinghui zhang, <u>**Guowen Xu**</u>, Xinyi Huang, Robert H Deng. Match in My Way: Fine-Grained Bilateral Access Control for Secure Cloud-Fog Computing[J]. *IEEE Transactions on Dependable and Secure Computing*, 2020. (CCF A)

[41] [**TIFS 2019**] <u>**Guowen Xu**</u>, Hongwei Li, Sen Liu, Kan Yang, Xiaodong Lin. VerifyNet: Secure and Verifiable Federated Learning[J]. *IEEE Transactions on Information Forensics and Security,* 2019. (CCF A)

[42] [**TVT 2019**] <u>**Guowen Xu**</u>, Hongwei Li, Sen Liu, Mi Wen, Rongxing Lu. Efficient and Privacy-preserving Truth Discovery in Mobile Crowd Sensing Systems[J]. *IEEE Transactions on Vehicular Technology,* 2019. (JCR-Q1)

[43] [**IEEE Commun Mag 2019**] <u>**Guowen Xu**</u>, Hongwei Li, Hao Ren, Kan Yang，Robert H. Deng. Data Privacy and Security in Deep Learning: Attacks, Solutions and Opportunities[J]. *IEEE Communications Magazine*, 2019. (JCR-Q1)

[44] [**TIFS 2018**] <u>**Guowen Xu**</u>, Hongwei Li, Yuanshun Dai, Kan Yang, Xiaodong Lin. Enabling Efficient and Geometric Range Query with Access Control over Encrypted Spatial Data[J]. *IEEE Transactions on Information Forensics and Security,* 2018. (CCF A)

[45] [**CCS 2018**] <u>**Guowen Xu**</u>, Hongwei Li, Rongxing Lu. Poster: Practical and Privacy-Aware Truth Discovery in Mobile Crowd Sensing Systems[C]. in *Proceedings of ACM Conference on Computer and Communications Security*, Toronto, Canada. 2018 (Poster).

[46] [**Comput Secur 2017**] <u>**Guowen Xu**</u>, Hongwei Li, Chen Tan, Dongxiao Liu, Yuanshun Dai, Kan Yang. Achieving Efficient and Privacy-Preserving Truth Discovery in Crowd Sensing Systems[J]. *Computers & Security*, 2017. (CCF B)

PROJECT EXPERIENCES

➢ [2017.7-2020.6] Research on Heterogeneous Identity Alliance and Basic Scientific Issues of Supervision (National Key Research and Development Program of China), Amount: ￥**15.9 million**.

➢ [2018.1-2021.12] Research on Searchable Encryption Technology Oriented to Practical Application (National Natural Science Foundation of China), Amount: ￥**860,000**.

➢ [2020.1-2022.12] Research on Data Security and Privacy Issues in Edge Computing (Sichuan Youth Science and Technology Innovation Team Foundation), Amount: ￥**1.2 million**.

➢ [2021.1-2025.12] Research on Security and Privacy Issues in Internet of Things Applications Based on Edge Computing (National Natural Science Foundation of China), Amount: ￥**2.6 million**.

➢ [2022.1-2024.12] A Systematic Study about the Integrity Threats and Protection of Sensory Data in Autonomous Vehicles (NTU-Desay-SV), Amount: S$**700K**.

➢ [2022.6-2025.06] A Framework for Intellectual Property Protection of Deep Learning Applications (MoE AcRF Tier2, Singapore), Amount: S$**350K**.

TEACHING EXPERIENCES

➢ [**Teaching Assistant**] – School of Computer Science and Engineering (UESTC), Mar 2018 - Aug 2018
  • Worked as a Teaching Assistant (TA) for the Algorithm Design and Analysis Course.
  • Held recitations and solve students' questions during the course of study.

➢ [**Teaching Assistant**] – School of Computer Science and Engineering (UESTC), Sep 2017 - Jan 2018
  • Worked as a Teaching Assistant (TA) for the Network and System Attack Technology Course.

- Held recitations and solve students' questions during the course of study.

ACADEMIC TALKS

- ➢ "CryptMDB: A Practical Encrypted MongoDB over Big Data", IEEE ICC 2017, Paris, France.
- ➢ "EFRS: Enabling Efficient and Fine-grained Range Search on Encrypted Spatial Data", IEEE ICC 2018, Kansas, USA.
- ➢ "Enabling Efficient and Fine-grained DNA Similarity Search with Access Control over Encrypted Cloud Data", WASA 2018, Tianjing, China.
- ➢ "Privacy-enhanced Deep Packet Inspection at Outsourced Middlebox", WCSP 2018, Hangzhou, China
- ➢ "A Deep Learning Framework Supporting Model Ownership Protection and Traitor Tracing", ICPADS 2020, Hong Kong, China.
- ➢ "Secure and Verifiable Inference in Deep Neural Networks", ACSAC 2020, Austin, Texas, USA.

ACADEMIC ACTIVITIES

- ➢ Editorial Board:
    - Associate Editor of International Journal of Information Security and Privacy (CCF C), 2024-present
    - Academic Editor of IET Information Security (CCF C), 2023-present
    - Consulting Associate Editor of IEEE Open Journal of Signal Processing (OJSP), 2024-present
    - Distinguished Reviewer Board for ACM Transactions on the Web (CCF B), 2022-present
    - Lead Guest Editor of IET Information Security (CCF C), 2023-2024
- ➢ Publicity Chair
    - 2018 International Workshop on Smart Sensing and Computing (IWSSC)
- ➢ Technical Committee:
    - 2024 Area Chair of International Conference on Machine Learning (ICML)
    - 2024 Annual Computer Security Applications Conference (ACSAC)
    - 2024 IEEE International Conference on Communications (ICC)
    - 2023 The ACM Web Conference
    - 2023-2024 Thirty-Seventh AAAI Conference on Artificial Intelligence (AAAI)
    - 2022-2024 Distinguished Review Board for ACM Transactions on the Web
    - 2022 International Conference on Knowledge Science, Engineering and Management (KSEM)
    - 2018 International Workshop on Smart Sensing and Computing (IWSSC)
- ➢ Session Chair：The 13th International Conference on Wireless Algorithms, Systems, and Applications
- ➢ Reviewer:
    - IEEE Transactions on Information Forensics and Security (TIFS)
    - IEEE Transactions on Dependable and Secure Computing (TDSC)
    - IEEE Transactions on Mobile Computing (TMC)
    - IEEE Transactions on Network and Service Management (TNSM)
    - IEEE Transactions on Intelligent Transportation Systems (TITS)
    - IEEE Transactions on Knowledge and Data Engineering (TKDE)
    - IEEE Transactions on Vehicular Technology (TVT)
    - IEEE Transactions on Services Computing (TSC)
    - IEEE Transactions on Neural Networks and Learning Systems (TNNLS)
    - IEEE Transactions on Circuits and Systems for Video Technology (TCSTV)

- IEEE Internet of Things Journal (IoT-J)
- IEEE Transactions on Reliability (TR)
- ACM Transactions on Sensor Networks (TOSN)
- ACM Transactions on Web(TWEB)
- IEEE/ACM Transactions on Networking (ToN)
- Peer-to-Peer Networking and Applications (PPNA)
- Thirty-sixth Conference on Neural Information Processing Systems (NeurIPS 2022)
- The 39th International Conference on Machine Learning (ICML 2022)
- IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR 2022, 2023)
- IEEE International Conference on Robotics and Automation (ICRA 2024)
- IEEE International Conference on Communications (ICC, 2018, 2019)
- IEEE Global Communications Conference (GLOBECOM, 2018, 2019, 2020)
- IEEE/CIC International Conference on Communications in China (ICCC 2015)
- Future Generation Computer Systems
- IEEE NETWORK
- Computers & Security
- Information Sciences
- Information Fusion