Xiaoyu (Shaw) XIA

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Research and Teaching

My research interests include system privacy and security, distributed AI systems, sustainable computing, and edge and cloud computing. My current research directions include optimization, security and AI in edge and cloud systems. I am a senior member of IEEE and member of ACM. Currently, I serve as an associate editor for IEEE Transactions on Dependable and Secure Computing and a member of the IEEE Transactions on Parallel and Distributed Systems Review Board.

As a teacher, I believe that creative thinking is as important as content mastery. I want students to value their own ability to think creatively, and I encourage them to use novel ways to demonstrate their knowledge. I prefer to use examples and data from industry for presenting information and emphasizing the importance to students. Due to my academic and industrial background, I can teach units in the areas of computer science, AI, software engineering, networks, distributed systems, programming language, algorithms, cloud computing and cybersecurity.

Work Experiences

2023 – Now   Senior Lecturer (Equiv. to Associate Professor in US), Lecturer @ RMIT University
Research: privacy, security and sustainability for distributed AI and networking systems in edge and cloud
Teaching: develop and delivery software engineering courses, and design a master major program
2022 – 2023   Lecturer (Equiv. to Assistant Professor in US) @ University of Southern Queensland
Research: edge and cloud computing, distributed systems, privacy and security
Teaching: develop and delivery web application courses
2021 – 2022   Research Assistant, Postdoctoral Research Fellow @ The University of Adelaide
Research: edge and cloud computing, distributed systems, privacy and security

Funded Project

2025-2027   ARC Discovery Project
"Privacy-Aware Intelligent Digital Twin for Secure Critical Infrastructures", $506k+ from Australian Research Council, Australia
2024-2025   CSIRO-RMIT Research Masters Project
Optimizing Collaborative Learning at the Constrained Edge with Privacy Awareness", jointly funded by CSIRO and RMIT University, Australia
2023-2024   Advance HE Global Impact Grants
"Empowering Female Cybersecurity Leaders: Bridging the Gender Gap in Cybersecurity Education", funded by Advance HE, United Kingdom
2022   Academic Affairs Research Collaboration Grant
"Cost-Effective and Secure Data Management in Edge Computing", funded by University of Southern Queensland, Australia

Teaching Experiences

2026 – Now   Program Manager - Bachelor of Software Engineering, RMIT University
2023 – 2025   Program Manager - Master of Information Technology, RMIT University
2024 – Now   Academic Member - STEM College Program and Course Management Committee, RMIT University
2024 – Now   Master Major Program Designer - Master of Cybersecurity in Critical Infrastructure, RMIT University

2023 – Now   **Coordinator & Lecturer**, RMIT University
2022 – 2023   **Coordinator & Lecturer**, University of Southern Queensland
2019 – 2021   **Tutor**, Swinburne University of Technology

Education

2018 – 2021   **Doctor of Philosophy – PhD, Information Technology**
@ Deakin University, Melbourne, Australia
2013 – 2015   **Master of Information Technology**
@ The University of Melbourne, Melbourne, Australia
2009 – 2013   **Bachelor of Engineering in Computer Science and Technology**
@ National Huaqiao University, Xiamen, China

Awards

2023 – Now   **World's Top 2% Scientists,** Stanford University
2025   **RMIT Early Career Researcher Award for Research Excellence,** RMIT University
2023   **Alfred Deakin Medal for Doctoral Theses in 2022,** Deakin University
2021   **Teaching Excellence Award,** Swinburne University of Technology
2021   **Postgraduate Research Award,** Deakin University
2020   **Outstanding Service,** IEEE/ACM International Conference on Automated Software
Engineering (ASE)
2018 – 2021   **Postgraduate Research Scholarship,** Deakin University

Professional Services

2025 – Now   **Associate Editor**
@ IEEE Transactions on Dependable and Secure Computing
2023 – Now   **Technical Review Board Member**
@ IEEE Transactions on Parallel and Distributed Systems
2023 – Now   **Program Committee Member**
@ ACM The Web Conference
2026   **Program Committee Member**
@ Privacy Enhancing Technologies Symposium, and ISOC Fellowship Review Committee
for @ NDSS
2025   **Program Committee Member**
@ International Symposium on Research in Attacks, Intrusions and Defenses
2023   **Program Committee Member**
@ IEEE International Conference on Data Mining (Workshop) & International Joint
Conference on Neural Networks (Workshop)
2022   **Program Committee Member**
@ Pacific Rim International Conference on Artificial Intelligence & IEEE International
Conference on Edge Computing & Asian Conference on Computer Vision (Workshop)
2023 – Now   **Seminar Series Chair**
@ The RMIT University Centre for Cyber Security Research and Innovation (CCSRI)

Selected Publications

My total citations are 2,213 and h-index is 28 on Google Scholar.

1. **Xiaoyu Xia**, Ziqi Wang, Ruoxi Sun, Bowen Liu, Ibrahim Khalil, Minhui Xue, Edge Unlearning is Not "on Edge"! An Adaptive Exact Unlearning System on Resource-Constrained Devices, IEEE Symposium on Security and Privacy **(Oakland, CCF A, CORE A*)**, 2025.

2. Ziqi Wang, **Xiaoyu Xia**, Ibrahim Khalil, Minghui Liwang, Xiaolong Xu, Xun Yi, Yan Li, Minhui Xue, KGEES: An Energy Saving System with Location Privacy Preservation in Multi-Access Edge Computing, IEEE Transactions on Dependable and Secure Computing **(TDSC, CCF A, CORE A*)**, 2025.

3. Ziqi Wang, **Xiaoyu Xia**, Ibrahim Khalil, Minghui Liwang, Minhui Xue, MoSEEC: Sustainable and Trajectory Privacy-Preserving Edge Resource Management, IEEE Transactions on Mobile Computing **(TMC, CCF A, CORE A*)**, 2025.

4. Z. Cheng, **X. Xia**, H. Wang, M. Liwang, N. Chen, W. Fan, X. Wang, Privacy-Aware Joint DNN Model Deployment and Partitioning Optimization for Collaborative Edge Inference Services, IEEE Transactions on Services Computing **(TSC, CCF A, CORE A*, Q1)**, 2025.

5. H. Shi, Q. He, X. Xia, X. He, F. Chen, Y. Yang, Z. Wang, KPath: Dependent and Redundant Task Execution Path Planning in Edge Service Networks, IEEE Transactions on Services Computing **(TSC, CCF A, CORE A*, Q1)**, 2025.

6. B. Guo, M. Liwang, **X. Xia**, L. Li, Z. Jiao, S. Hosseinalipour, X. Wang, Seamless Graph Task Scheduling Over Dynamic Vehicular Clouds: A Hybrid Methodology for Integrating Pilot and Instantaneous Decisions, IEEE Transactions on Services Computing **(TSC, CCF A, CORE A*, Q1)**, 2025.

7. X. Xu, K. Meng, H. Xiang, G. Cui, **X. Xia**, W. Dou, Blockchain-Enabled Secure, Fair and Scalable Data Sharing in Zero-Trust Edge-End Environment, IEEE Journal on Selected Areas in Communications **(JSAC, CCF A, Q1)**, 2025.

8. X. Xu, H. Dong, H. Xiang, X. Hu, X. Li, **X. Xia**, X. Zhang, L. Qi, D. Dou, C2lRec: Causal Contrastive Learning for User Cold-start Recommendation with Social Variable, ACM Transactions on Information Systems **(TOIS, CCF A, Q1)**, 2025.

9. J. Ng, A. Kalapaaking, **X. Xia**, D. Niyato, I. Khalil, I. Gondal, Edge Association Strategies for Synthetic Data Empowered Hierarchical Federated Learning with Non-IID Data, IEEE Internet of Things Journal, **(IoTJ, Q1)**, 2025.

10. **Xiaoyu Xia**, Feifei Chen, Qiang He, Ruikun Luo, Bowen Liu, Caslon Chua, Rajkumar Buyya, Yun Yang, EdgeShield: Enabling Collaborative DDoS Mitigation at the Edge, IEEE Transactions on Mobile Computing **(TMC, CCF A, CORE A*, Q1)**, Vol. 23(12), pp. 14502 - 14513, 2024.

11. Ziqi Wang, **Xiaoyu Xia**, Minhui Xue, Ibrahim Khalil, Minghui Liwang, Xun Yi, GEES: Enabling Location Privacy-Preserving Energy Saving in Multi-Access Edge Computing, ACM The Web Conference **(WWW/TheWebConf, CCF A, CORE A*)**, 2024.

12. Yuhao Hu, Xiaolong Xu, Lianyong Qi, Xiaokang Zhou, **Xiaoyu Xia**, Latency and Privacy Aware Convolutional Neural Network Distributed Inference for Reliable Artificial Intelligence Systems, IEEE Transactions on Artificial Intelligence **(TAI, Q1)**, 2024.

13. Xiaolong Xu, Hongsheng Dong, Lianyong Qi, Xuyun Zhang, Haolong Xiang, **Xiaoyu Xia**, Yanwei Xu, Wanchun Dou, CMCLRec: Cross-modal Contrastive Learning for User Cold-Start Sequential Recommendation, ACM SIGIR Conference on Research and Development in Information Retrieval **(SIGIR, CCF A, CORE A*)**, 2024.

14. **Xiaoyu Xia**, Sheik Mohammad Fattah, Muhammad Ali, A Survey on UAV-enabled Edge Computing: Resource Management Perspective, ACM Computing Survey **(CSUR, CORE A*, Q1)**, Vol. 56(3), Art. 78, pp.1 - 36, 2024.

15. Feifei Chen, Jingwen Zhou, **Xiaoyu Xia**, Yong Xiang, Xuehong Tao, Qiang He, Joint Optimization of Coverage and Reliability for Application Placement in Mobile Edge Computing, IEEE Transactions on Services Computing **(TSC, CCF A, CORE A*, Q1)**, accepted in July 2023.

16. Zhipeng Cheng, **Xiaoyu Xia**, Minghui Liwang, Xuwei Fan, Yanglong Sun, Xianbin Wang, Lianfeng Huang, CHEESE: Distributed Clustering-Based Hybrid Federated Split Learning over Edge Networks,

IEEE Transactions on Parallel and Distributed Systems **(TPDS, CCF A, CORE A*, Q1)**, Vol. 34(12), pp. 3174 - 3191, 2023.

17. **Xiaoyu Xia**, Feifei Chen, Qiang He, Guangming Cui, John Grundy, Mohamed Abdelrazek, Athman Bouguettaya, Hai Jin, OL-MEDC: An Online Approach for Cost-effective Data Caching in Mobile Edge Computing Systems, IEEE Transactions on Mobile Computing **(TMC, CCF A, CORE A*, Q1)**, Vol. 22(3), pp. 1646 - 1658, 2023.

18. Guangming Cui, Qiang He, **Xiaoyu Xia**, Feifei Chen, Yun Yang, EESaver: Saving Energy Dynamically for Green Mobile Edge Computing, IEEE Transactions on Parallel and Distributed Systems **(TPDS, CCF A, CORE A*, Q1)**, accepted in May 2023.

19. Houyi Qi, Minghui Liwang, Seyyedali Hosseinalipour, **Xiaoyu Xia**, Zhipeng Cheng, Xianbin Wang, and Zhenzhen Jiao, Matching-based Hybrid Service Trading for Task Assignment over Dynamic Mobile Crowdsensing Networks, IEEE Transactions on Services Computing **(TSC, CCF A, CORE A*, Q1)**, accepted in Nov 2023.

20. Ruikun Luo, Hai Jin, Qiang He, Song Wu, **Xiaoyu Xia**, Enabling Balanced Data Deduplication in Mobile Edge Computing, IEEE Transactions on Parallel and Distributed Systems **(TPDS, CCF A, CORE A*, Q1)**, accepted in Feburary 2023.

21. Guangming Cui, Qiang He, **Xiaoyu Xia**, Feifei Chen, Fang Dong, Hai Jin, Yun Yang, OL-EUA: Online User Allocation for NOMA-based Mobile Edge Computing, IEEE Transactions on Mobile Computing **(TMC, CCF A, CORE A*, Q1)**, Vol. 22(3), pp. 1449 - 1463, 2023.

22. **Xiaoyu Xia**, Feifei Chen, Qiang He, John Grundy, Mohamed Abdelrazek, Jun Shen, Athman Bouguettaya, Hai Jin, Formulating Cost-Effective Data Distribution Strategies Online for Edge Cache Systems, IEEE Transactions on Parallel and Distributed Systems **(TPDS, CCF A, CORE A*, Q1)**, Vol. 33(12), pp. 4270 - 4281, 2022.

23. **Xiaoyu Xia**, Feifei Chen, Qiang He, John Grundy, Mohamed Abdelrazek, Xiaolong Xu, Hai Jin, Data, User and Power Allocations for Caching in Multi-Access Edge Computing, IEEE Transactions on Parallel and Distributed Systems **(TPDS, CCF A, CORE A*, Q1)**, Vol. 33(5), pp. 1144-1155, 2022.

24. **Xiaoyu Xia**, Feifei Chen, Qiang He, John Grundy, Mohamed Abdelrazek, Hai Jin, Online Collaborative Data Caching in Edge Computing, IEEE Transactions on Parallel and Distributed Systems **(TPDS, CCF A, CORE A*, Q1)**, Vol. 32(2), pp. 281-294, 2021.

25. **Xiaoyu Xia**, Feifei Chen, Qiang He, John Grundy, Mohamed Abdelrazek, Hai Jin, Cost-Effective App Data Distribution in Edge Computing, IEEE Transactions on Parallel and Distributed Systems **(TPDS, CCF A, CORE A*, Q1),** Vol. 32(1), pp. 31-44, 2021.

26. **Xiaoyu Xia**, Feifei Chen, John Grundy, Mohamed Abdelrazek, Hai Jin, Qiang He, Constrained App Data Caching over Edge Server Graphs in Edge Computing Environment, IEEE Transactions on Services Computing **(TSC, CCF A, CORE A*, Q1)**, DOI:10.1109/TSC.2021.3062017. 2021.

27. **Xiaoyu Xia**, Feifei Chen, Qiang He, Guangming Cui, John Grundy, Mohamed Abdelrazek, Fang Dong, Formulating Interference-aware Data Delivery Strategies in Edge Storage Systems, 51st International Conference on Parallel Processing **(ICPP, CCF B, CORE B)**, accepted in June 2022.

28. Jingwen Zhou, Feifei Chen, Qiang He, **Xiaoyu Xia**, Rui Wang, Yong Xiang, Data Caching Optimization with Fairness in Mobile Edge Computing, IEEE Transactions on Services Computing **(TSC, CCF A, CORE A*, Q1)**, accepted in August 2022.

29. Hai Jin, Ruikun Luo, Qiang He, Song Wu, Zilai Zeng, **Xiaoyu Xia**, Cost-Effective Data Placement in Edge Storage Systems with Erasure Code, IEEE Transactions on Services Computing **(TSC, CCF A, CORE A*, Q1)**, accepted in 2022.

30. Guangming Cui, Qiang He, **Xiaoyu Xia**, Feifei Chen, Hai Jin, Yang Xiang, Yun Yang, Efficient Verification of Edge Data Integrity in Edge Computing Environment, IEEE Transactions on Services Computing **(TSC, CCF A, CORE A*, Q1)**, accepted in 2021, DOI:10.1109/TSC.2021.3090173.

31. Guangming Cui, Qiang He, **Xiaoyu Xia**, Feifei Chen, Tao Gu, Hai Jin, Yun Yang, Demand Response in NOMA-based Mobile Edge Computing, IEEE Transactions on Mobile Computing **(TMC, CCF A, CORE A*, Q1)**, accepted in 2021. DOI:10.1109/TMC.2021.3108581.

32. Phu Lai, Qiang He, **Xiaoyu Xia**, Feifei Chen, Mohamed Abdelrazek, John Grundy, John Hosking, Yun Yang, Dynamic User Allocation in Stochastic Mobile Edge Computing Systems, IEEE Transactions on Services Computing **(TSC, CCF A, CORE A*, Q1)**, accepted in 2021.

33. Ruikun Luo, Hai Jin, Qiang He, Song Wu, Zilai Zeng, **Xiaoyu Xia**, Graph-based Data Deduplication in Mobile Edge Computing Environment, 19th International Conference on Service-Oriented Computing **(ICSOC2021, CCF B, CORE A)**, pp. 499-515, Online, 2021.

34. **Xiaoyu Xia**, Feifei Chen, Guangming Cui, Mohamed Abdelrazek, John Grundy, Hai Jin, Qiang He, Budgeted Data Caching based on k-Median in Mobile Edge Computing, 27th IEEE International Conference on Web Services **(ICWS2020, CCF B, CORE A)**, pp. 197-206, Beijing, China, 2020.

35. **Xiaoyu Xia**, Feifei Chen, Qiang He, Guangming Cui, Phu Lai, Mohamed Abdelrazek, John Grundy, Hai Jin, Graph-based Data Caching Optimization in Edge Computing, Future Generation Computer Systems **(FGCS, CCF C, CORE A, Q1)**, Vol. 112, pp. 684-694, 2020.

36. Ying Liu, Qiang He, Dequan Zheng, **Xiaoyu Xia**, Feifei Chen, Bin Zhang, Data Caching Optimization in the Edge Computing Environment, IEEE Transactions on Services Computing **(TSC, CCF A, CORE A*, Q1)**, accepted in 2020. DOI: 10.1109/TSC.2020.3032724.

37. Bo Li, Qiang He, Guangming Cui, **Xiaoyu Xia**, Feifei Chen, Hai Jin, Yun Yang, READ: Robustness-oriented Edge Application Deployment in Edge Computing Environment, IEEE Transactions on Services Computing **(TSC, CCF A, CORE A*, Q1)**, accepted in 2020.

38. **Xiaoyu Xia**, Feifei Chen, Qiang He, Guangming Cui, Phu Lai, Mohamed Abdelrazek, John Grundy, Hai Jin, Graph-based Optimal Data Caching in Edge Computing, 17th International Conference on Service-Oriented Computing **(ICSOC2019, CCF B, CORE A)**, pp. 477-493, Toulouse, France, 2019.

Regular Reviewer

Nature Communications, IEEE Transactions on Parallel and Distributed Systems, IEEE Transactions on Software Engineering, IEEE Transactions on Services Computing, IEEE Transactions on Dependable and Secure Computing, IEEE/ACM Transactions on Networking, IEEE Transactions on Mobile Computing, IEEE Transactions on Knowledge and Data Engineering, IEEE Transactions on Dependable and Secure Computing, IEEE Transactions on Computational Social Systems, World Wide Web Journal, Future Generation Computer Systems, etc.

References

Available upon request.