YUE CUI

✉ yuecui8-c@my.cityu.edu.hk   🏠 ycui26.github.io   🎓 Google Scholar

EDUCATION

Northwestern University   Sept 2025 - Feb 2026
Visiting Student, Electrical and Computer Engineering (Advisors: Dr. Randall Berry and Dr. Ermin Wei)   *Evanston, IL, U.S.*

City University of Hong Kong   Aug 2022 - Aug 2026
Ph.D. Candidate, Computer Science (Advisor: Dr. Man Hon Cheung)   *Hong Kong SAR*

University of Tennessee, Knoxville   Sept 2021 - May 2022
Research Assistant, Electrical Engineering and Computer Science (Advisor: Dr.Jian Liu)   *Knoxville, TN, U.S.*

University of Electronic Science and Technology of China (UESTC)   Sept 2017 - Jun 2021
B.Eng. in Computer Science and Technology, Double Major in Finance, GPA: 3.92/4.0   *Chengdu, Sichuan, China*

RESEARCH INTERESTS

- **Trustworthy AI**: machine unlearning, federated learning, adversarial attack and defense

- **Network Optimization**: incentive mechanism design, game theory, online stochastic optimization

SELECTED PUBLICATIONS

1. Yue Cui and Man Hon Cheung. "**The Price of Forgetting: Incentive Mechanism Design for Machine Unlearning.**" 2025 IEEE Transactions in Mobile Computing (TMC) (PDF)

2. Yue Cui, Ningning Ding, and Man Hon Cheung. "**AoI-aware Federated Unlearning for Streaming Data with Online Client Selection and Pricing.**" 2025 IEEE International Conference on Computer Communications (INFOCOM'25) (Acceptance Rate: 18.6%) (PDF)

3. Yue Cui and Man Hon Cheung. "**The Price of Forgetting: Data Redemption Mechanism Design for Machine Unlearning.**" 2024 IEEE International Conference on Communications (ICC'24) (PDF)

4. Ni Yang, Yue Cui, and Man Hon Cheung. "**Contract Design for Adaptive Federated Learning.**" 2024 IEEE Global Communications Conference (GLOBECOM'24) (PDF)

5. Yue Cui, Syed Irfan Ali Meerza, Zhuohang Li, Luyang Liu, Jiaxin Zhang, and Jian Liu. "**RecUP-FL: Reconciling Utility and Privacy in Federated learning via User-configurable Privacy Defense.**" 2023 ACM Asia Conference on Computer and Communications Security (ASIA CCS'23) (Acceptance Rate: 17.1%) (PDF)

6. Yue Cui, Zhuohang Li, Luyang Liu, Jiaxin Zhang, Jian Liu. "**Privacy-preserving speech-based depression diagnosis via federated learning.**" 2022 44th Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC'22) (Student Paper Competition Finalist) (PDF)

RESEARCH EXPERIENCE

Visiting Scholar | Northwestern University   Aug 2025 – Present
Advisors: Dr. Randall Berry and Dr. Ermin Wei   *Evanston, IL, U.S.*

- Developed a **defense** mechanism against backdoor attacks using federated unlearning; Analyzed the **attacking and defending game** between attackers and the server; Conducted impact studies of various system parameters.

Research Assistant | City University of Hong Kong   Aug 2022 – Present
Advisors: Dr. Man Hon Cheung and Dr. Ningning Ding   *Hong Kong SAR*

- Addressed concept drift of streaming data by **Age of Information (AoI)-aware federated unlearning** for the first time; Proposed an efficient federated unlearning algorithm and theoretically characterized the **unlearned model's loss optimality bound**; Formulated an **online** model performance optimization problem and approximated it by **Lyapunov optimization**; Proposed a **reverse auction** mechanism for

truthful reporting of fresh data collection cost; Proved the sublinear bound for our algorithm's asymptotic performance; Achieved better model accuracy on real datasets than SOTA methods.

- Designed the **first incentive mechanism in machine unlearning** for compensating non-redeemed data; Balanced the trade-off between the data privacy and model performance in machine unlearning; Characterized model accuracy degradation and consumed time function on real datasets; Proved the distributed convergence of best responses updates to the unique Nash Equilibrium for users' non-cooperative data redemption game; Achieved higher social welfare than current data regulations on real datasets.
- Proposed an efficient threshold-based **verification algorithm in machine unlearning**; Characterized the relationship between verified and deleted data amount on real datasets; Analyzed the **first verification game** in machine unlearning; Proposed an algorithm for equilibrium convergence based on **fictitious play**; Enhanced the 'Right-To-Be-Forgotten' regulation for the government on real datasets.

Research Assistant | University of Tennessee, Knoxville   Sept 2021 - May 2022
Advisor: Dr. Jian Liu   *Knoxville, TN, U.S.*

- Proposed the **first speech-based depression diagnosis model** in federated learning and integrated various secure aggregation methods
- Developed a **personalized defense algorithm in federated learning** against data reconstruction attack and attribute inference attack on **user-specific attributes** by selectively adding neuron-wise perturbations on model updates

TEACHING EXPERIENCE

- **Teaching Assistant** of CS3402 Database Systems, CityU, 2023 - 2026 Spring
- **Teaching Assistant** of CS5222 Computer Network and Internets, CityU, 2023 - 2024 Fall
- **Teaching Assistant** of CS1302 Introduction to Programming, CityU, 2022 Fall
- **Supervision of Final Year Project (FYP)** Depression diagnosis via Federated Learning, UTK, 2021 Fall
- **Teaching Assistant** of Virtual Simulation of Unmanned Aerial Vehicle (UAV), UESTC, 2019 Spring

SERVICES

- **Journal Reviewer**: IEEE/ACM Transactions on Networking (ToN)
- **Sub-reviewer**: IEEE Transactions on Mobile Computing (TMC), IEEE Internet of Things Journal (IoTJ), IEEE INFOCOM 2024 - 2026, ACM SIGKDD 2022

AWARDS AND HONORS

- **Research Tuition Scholarship (RTS)**, City University of Hong Kong, $42,000, 2024 - 2025
- **Research Activities Fund (RAF)**, City University of Hong Kong, $30,000, 2025
- **Student Travel Grant**, IEEE ICC, $1000, 2024
- **Student Paper Competition Finalist**, IEEE EMBC, Only 1 in North America, 2022
- **Tennessee's Top 100 Fellowship**, $10,000 per year, University of Tennessee, 2021
- **The Outstanding Student of 2019**, School of Computer Science and Engineering, UESTC, 2019

REFERENCES

Dr. Man Hon Cheung | Assistant Professor, City University of Hong Kong
Email: mhcheung@cityu.edu.hk | Website | Relationship: Ph.D. Advisor
Dr. Randall Berry | Chair and Professor, Northwestern University
Email: rberry@northwestern.edu | Website | Relationship: Host Professor
Dr. Ermin Wei | Associate Professor, Northwestern University
Email: ermin.wei@northwestern.edu | Website | Relationship: Host Professor