Chong Yu

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RESEARCH INTERESTS

Wireless and mobile networks, data analytics and processing, and the Internet of Things.

EMPLOYMENT

- **Assistant Professor**   **2023 — Present**
  Department of Computer Science
  University of Cincinnati, USA

EDUCATION

- **Ph.D., Electrical and Computer Engineering**   **2019 — 2023**
  University of Nebraska-Lincoln, Lincoln, USA
  Supervisor: Professor Kuan Zhang
  Thesis: Efficient and Secure Hybrid Federated Learning

- **Ph.D., Computer Science — Specialization: Computer System Structure**   **2017 — 2022**
  Northeastern University, Shenyang, China
  Supervisor: Professor Hai Zhao
  Thesis: Research on Information Infrastructure for Semi-Physical Simulation in the Internet of Battlefield Things

- **Master of Science, Communication and Information System**   **2015 — 2017**
  Northeastern University, Shenyang, China
  Supervisor: Professor Hai Zhao

- **Bachelor of Science, Communication Engineering**   **2011 — 2015**
  Northeastern University, Shenyang, China

HONORS and AWARDS

- Co-recipient of Best Paper Award, 2024 SEDE   2024
- Co-recipient of Best Paper Award, 2024 IEEE SEAI   2024
- WCNC 2022 Student Travel Grants   2022
- UNL International Nutritional Fellowship   2022
- National Scholarship, Ministry of Education of the People's Republic of China   2017
- Outstanding Student of Shenyang, Shenyang Science and Education Working Committee   2016
- Outstanding Student of Northeastern University, Northeastern University   2016
- The First Class Scholarship for Outstanding Students of Northeastern University for 2 (of 2) years   2015 — 2017
- Chancellor Scholarship, Northeastern University   2015
- "Au80 Radio" Scholarship in Northeastern University for 2 (of 3) years   2011 — 2015
- Scholarship for Outstanding Students in Northeastern University for 7 (of 7) semesters   2011 — 2015

PUBLICATIONS

Peer-reviewed Journal Publications

[J1] H. Wang, K. Fan, **C. Yu**, K. Zhang, F. Li, and H. Zhu, "Beyond Access Pattern: Efficient Volume-Hiding Multi-Range Queries over Outsourced Data Services," *IEEE Transactions on Information Forensics and Security*, 2025.

[J2] **C. Yu**, Z. Meng, W. Zhang, L. Lei, J. Ni, K. Zhang, and H. Zhao, "Secure and Efficient Federated Learning Against Model Poisoning Attacks in Horizontal and Vertical Data Partitioning," *IEEE Transactions on Neural Networks and Learning Systems*, 2024.

[J3] **C. Yu**, S. Shen, S. Wang, K. Zhang, and H. Zhao, "Communication-Efficient Hybrid Federated Learning for E-health with Horizontal and Vertical Data Partitioning," *IEEE Transactions on Neural Networks and Learning Systems*, 2024.

[J4] D. Chen, Z. Liao, R. Chen, H. Wang, **C. Yu**, K. Zhang, N. Zhang, and X. Shen, "Privacy-Preserving Anomaly Detection of Encrypted Smart Contract for Blockchain-Based Data Trading", *IEEE Transactions on Dependable and Secure Computing*, 2024.

[J5] H. Wang, K. Fan, **C. Yu**, K. Zhang, F. Li, H. Li, Y. Yang, and H. Zhu, "LSPSS: Constructing Lightweight and Secure Scheme for Private Data Storage and Sharing in Aerial Computing," *IEEE Transactions on Services Computing*, 2023.

[J6] **C. Yu**, S. Shen, H. Yang, K. Zhang and H. Zhao, "Leveraging Energy, Latency and Robustness for Routing Path Selection in Internet of Battlefield Things," *IEEE Internet of Things Journal*, vol.9, no.14, pp.12601-12613, 2022.

[J7] S. Shen, **C. Yu**, K. Zhang, J. Ni, and S. Ci, "Adaptive Artificial Intelligence for Resource-Constrained Connected Vehicles in Cybertwin-Driven 6G Network," *IEEE Internet of Things Journal*, vol.8, no.22, pp.16269-16278, 2021.

[J8] S. Shen, **C. Yu**, K. Zhang, J. Ni, and S. Ci, "Adaptive and Dynamic Security in AI-Empowered 6G: From an Energy Efficiency Perspective," *IEEE Communications Standards Magazine*, vol.5, no.3, pp.80-88, 2021.

[J9] **C. Yu**, S. Si, H. Zhao, J. Zhu, S. Shao, and J. Liu, "Network Evolution Algorithm of Unmanned Aerial Vehicle Flocking Based on Two-hop Common Neighbors," *Journal of Software*, vol.31, no.11, pp.3559-3570, 2020.

[J10] **C. Yu**, H. Zhao, S. Si, J. Zhu, "Vehicle Following Control Model of Platoon Considering Communication Delay," *Control and Decision*, vol.34, no.2, pp.377-382, 2019.

[J11] S. Si, B. Wang, X. Liu, **C. Yu**, C. Ding, and H. Zhao, "Brain Network Modeling based on Mutual Information and Graph Theory for Predicting the Connection Mechanism in the Progression of Alzheimer's Disease," *Entropy*, vol.21, no.3, pp.300-318, 2019.

[J12] **C. Yu**, S. Si, H. Guo, and H. Zhao, "Modeling and Performance of the IEEE 802.11p Broadcasting for Intra-Platoon Communication," *Sensors*, vol.18, no.9, pp.2971-2986, 2018.

[J13] S. Si, J. Wang, **C. Yu**, and H. Zhao, "Energy-Efficient and Fault-Tolerant Evolution Models based on Link Prediction for Large-Scale Wireless Sensor Networks," *IEEE Access*, vol.6, pp.73341-73356, 2018.

[J14] **C. Yu**, H. Zhao, S. Si, and H. Peng, "Complex Networks Analysis Method of VANET Mobility Model," *Acta Electronica Sinica*, vol.45, no.6, pp.1449-1455, 2017.

[J15] H. Zhao, **C. Yu**, S. SI, H. Peng, "Contrast Analysis of Analytical Solution and Numerical Solution to the VANET Mobility Model," *Journal of Northeastern University (Natural Science)*, vol.37, no.8, pp.1084-1088, 2016.

Peer-reviewed Conference Papers

[C1] P. Phung, A. Varghese, B. Wang, Y. Zhao, and **C. Yu**, "JSMBox - A Runtime Monitoring Framework for Analyzing and Classifying Malicious JavaScript," in *Proc. of SEDE 2024*, San Diego, USA, Oct. 2024, pp.100-122.

[C2] J. Cui, Y. Zhao, **C. Yu**, J. Huang, Y. Wu, and Y. Zhao, "Code Comprehension: Review and Large Language Models Exploration," in *Proc. of IEEE SEAI 2024*, Xiamen, China, June 2024, pp.183-187.

[C3] Z. Meng, W. Zhang, S. Shen, **C. Yu**, and K. Zhang, "Secure Interaction-based Feature Selection for Vertical Federated Learning," in *Proc. of IEEE ICC'24*, Denver, USA, June 2024, pp.4608-4613.

[C4] W. Zhang, **C. Yu**, Z. Meng, S. Shen, and K. Zhang, "Explore Patterns to Detect Sybil Attack during Federated Learning in Mobile Digital Twin Network," in *Proc. of IEEE ICC'24*, Denver, USA, June 2024, pp.3969-3974.

[C5] S. Perry, Y. Jiang, F. Zhong, and **C. Yu**, "Detecting Poisoning Attacks with DynaDetect," in *International Symposium on Intelligent Computing and Networking*, San Juan, Puerto Rico, USA, March 2024, pp.241-255.

[C6] Z. Meng, **C. Yu**, and Q. Yi. "Privacy-preserving Task Allocation and Decentralized Dispute Protocol in Mobile Crowdsourcing," in *Proc. of IEEE ICC'23*, Rome, Italy, June 2023, pp.1579-1584.

[C7] **C. Yu**, S. Shen, S. Wang, K. Zhang, and H. Zhao. "Efficient Multi-Layer Stochastic Gradient Descent Algorithm for Federated Learning in E-health," in *Proc. of IEEE ICC'22*, Seoul, South Korea, May 2022, pp.1263-1268.

[C8] S. Shen, **C. Yu**, K. Zhang, and S. Ci. "Collaborative Edge Caching with Personalized Modeling of Content Popularity over Indoor Mobile Social Networks," in *Proc. of IEEE ICC'22*, Seoul, South Korea, May 2022, pp.4114-4119.

[C9] **C. Yu**, S. Shen, K. Zhang, H. Zhao, and Y. Shi. "Energy-Aware Device Scheduling for Joint Federated Learning in Edge-assisted Internet of Agriculture Things," in *Proc. of IEEE WCNC'22*, Austin, USA, Apr. 2022, pp.1140-1145.

[C10] W. Yao, K. Zhang, **C. Yu**, and H. Zhao. "Exploiting Ensemble Learning for Edge-assisted Anomaly Detection Scheme in e-healthcare System," in *Proc. of IEEE Globecom'21*, Madrid, Spain, Dec. 2021, pp.1-7.

[C11] S. Shen, **C. Yu**, K. Zhang, X. Chen, H. Chen, and S. Ci. "Communication-Efficient Federated Learning for Connected Vehicles with Constrained Resources," in *Proc. of IEEE IWCMC*, Harbin, China, Jun. 2021, pp.1636-1641.

[C12] S. Shen, **C. Yu**, K. Zhang, and S. Ci. "Exploiting Feature Interactions for Malicious Website Detection with Overhead-accuracy Tradeoff," in *Proc. of IEEE ICC'21*, Montreal, Canada, Jun. 2021, pp.1-7.

TEACHING AND MENTORING EXPERIENCES

Teaching Experiences

- CS7005 "Advanced Special Topics in Computer Science", – *Instructor*   Spring 2025
  Department of Computer Science, University of Cincinnati
  Undergraduate Level
  Number of Students: 9

- CS2028C "Data Structures", – *Instructor*   Fall 2024
  Department of Computer Science, University of Cincinnati
  Undergraduate Level
  Number of Students: 117

- CS2028C "Data Structures", – *Instructor*   Fall 2023
  Department of Computer Science, University of Cincinnati
  Undergraduate Level
  Number of Students: 110

- ECEN 488/888 "Wireless Security", – *Teaching Assistant*   Spring 2023
  Department of Electrical and Computer Engineering, University of Nebraska-Lincoln
  Undergraduate & Graduate Level

- ECEN 194-003 "System Programming", – *Teaching Assistant*   Spring 2023
  Department of Electrical and Computer Engineering, University of Nebraska-Lincoln
  Undergraduate Level

- ECEN 484/884 "Network Security", – *Teaching Assistant*   Fall 2022
  Department of Electrical and Computer Engineering, University of Nebraska-Lincoln
  Undergraduate & Graduate Level

- ECEN 352 "Electronic Circuits II", – *Teaching Assistant*   Fall 2022
  Department of Electrical and Computer Engineering, University of Nebraska-Lincoln
  Undergraduate Level

- Certificate of International Teaching Assistant (ITA) Training Program   August 2022
  Office of Graduate Studies, University of Nebraska-Lincoln

Mentoring Experience

Ph.D. Students in Progress

- **Shukun Yang**   August 2024 — present
  Ph.D. in Computer Science, University of Cincinnati

- **Wei Wang** (Co-advised with Dr. Jun Bai)   August 2024 — present
  Ph.D. in Computer Science, University of Cincinnati

- **Adel Alshappip**   August 2023 — present
  Ph.D. in Computer Science, University of Cincinnati

M.S. Students Graduated
- **Yoshitha Challagulla**   September 2023 — November, 2023
  Master of Engineering in Computer Science, University of Cincinnati

M.S. Students in Progress
- **Bryan Cora**   August 2023 — present
  M.S. in Computer Science, University of Cincinnati

PROFESSIONAL SERVICES

Technical Program Vice Chairs

- International Symposium on Intelligent Computing and Networking (ISICN)   2025

Technical Program Committee Member

- IEEE International Conference on Ubiquitous Intelligence and Computing (UIC)   2024
- IEEE International Conferences on High Performance Computing and Communications (HPCC)   2024
- IEEE International Conference on Communication (ICC)   2023, 2024
- IEEE/CIC International Conference on Communications in China (ICCC)   2024
- IEEE International Symposium on Parallel and Distributed Processing with Applications (ISPA)   2023
- International Conference on Wireless Communications and Signal Processing (WCSP)   2019, 2023, 2024
- IEEE Vehicular Technology Conference (VTC)   2023, 2024
- IEEE International Conference on Trust, Security and Privacy in Computing and   2022, 2024
  Communications (TrustCom)
- International Conference on Ubiquitous Security (UbiSec)   2021, 2022, 2023, 2024

Session Chair

- Session: SAC-eHealth-1, IEEE ICC   May 2022
- Session: ST3 Wireless 1, International Conference on Wireless and Mobile Computing, Networking   October 2021
  and Communications (WiMob)

Reviewer of Journals and Conferences
(Have reviewed over 100 papers)
- Journal of Selected Topics in Applied Earth Observations and Remote Sensing
- IEEE Transactions on Network and Service Management
- IEEE Transactions on Intelligent Transportation Systems
- IEEE Transactions on Parallel and Distributed Systems
- IEEE Transactions on Computational Social Systems
- Peer-to-Peer Networking and Applications (Springer)
- IEEE Journal on Selected Areas in Communications
- IEEE Transactions on Wireless Communications

- IEEE Transactions on Services Computing
- IEEE Wireless Communications Magazine
- IEEE Internet of Things Journal
- IET Wireless Sensor Systems
- IEEE Communications Letters
- IEEE Sensors Journal
- Computer Networks
- IEEE Access
- PLOS ONE
- IEEE ICC 2023, 2024
- IEEE ICCC 2023, 2024
- IEEE VTC-Fall 2023
- IEEE ISPA 2023
- IEEE BDCloud 2023
- IEEE TrustCom 2022, 2024
- IEEE UIC, 2024
- IEEE HPCC, 2024
- WCSP 2019, 2023, 2024
- STWiMob 2021
- UbiSec 2021, 2022, 2023, 2024

Dissertation Committee Member

- Stephan Ralescu - M.S. Computer Science (Advisor: Dr. Badri Vellambi).   May 2025
- Wenjiao Liu - Ph.D. Computer Science (Advisor: Dr. Anca Ralescu).   March 2025
- Lucas Jividen - M.S. Computer Science (Advisor: Dr. Jun Bai).   December 2024
- Sarfaraz Ahmed Mohammed - Ph.D. Computer Science (Advisor: Dr. Anca Ralescu).   Fall 2024
- Lakshmi Poojitha Madhamsetty - M.S. Computer Science (Advisor: Dr. Raj Bhatnagar).   Fall 2023