

Xingran Chen

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Research Interests

My research focuses on **learning**, **information**, and **security** in decentralized networked systems:

- (1) decentralized learning and large language models;
- (2) security, privacy, and robustness;
- (3) networking and multi-agent systems.

Academic Positions

Postdoctoral Researcher

Jan. 2025 - Apr. 2026

Department of Electrical and Computer Engineering
Rutgers University
Advisor: Prof. Salim El Rouayheb

Assistant Professor

Sep. 2023 - present

School of Information and Communication Engineering
University of Electronic Science and Technology of China
Academic leave since Jan. 2025

Education

Ph.D. in Electrical and Systems Engineering

2018 - 2023

University of Pennsylvania
Advisor: Prof. Shirin Saeedi-Bidokhti

M.A. in Applied Mathematics and Computational Science

2016 - 2018

University of Pennsylvania
Thesis Advisor: Prof. Saswati Sarkar

M.S. in Operations Research

2015 - 2016

Central South University (transfer to Upenn in 2016)

B.S. in Mathematics and Statistics

2011 - 2015

Central South University (GPA: 4.0/4.0)

Awards

IEEE Communications Society & Information Theory Society Joint Paper Award

2023

IEEE INFOCOM Student Conference Award

2021

IEEE ISIT Student Travel Grant

2019

The Dean's Fellowship (University of Pennsylvania)

2018

Ganster Engineering Fellowship (University of Pennsylvania)

2018

Research Grants

Young Scientists Fund of the NSFC

Jan. 2025 - Dec. 2027

Grant No: 62401111

Title: Freshness-oriented decentralized random access theory and algorithms

Funding Agency: National Natural Science Foundation of China

Role: Solo PI

Grant No: ZYGX2024XJ001

Title: Research on Decentralized Random Access Protocols for Information Freshness

Funding Agency: Ministry of Education of China

Role: Solo PI

Publications

Preprints

- [P1] Y. Zhuang, K. Yang, **X. Chen***, Adaptive Requesting in Decentralized Edge Networks via Non-Stationary Bandits, under review. (*: correponding author)
- [P2] **X. Chen**, P. Parag, R. Bhagat, and S. El Rouayheb, Self-Creating Random Walks for Decentralized Learning under Pac-Man Attacks, under review.
- [P3] **X. Chen**, N. NaderiAlizadeh, A. Ribeiro, and S. Saeedi Bidokhti, Transferable Graphical MARL for Real-Time Estimation in Dynamic Wireless Networks, under review.

Journal

- [J1] **X. Chen**, K. Li, and K. Yang, Timely Requesting for Time-Critical Content Users in Decentralized F-RANs, *IEEE Transactions on Networking (ToN)*, 2025.
- [J2] **X. Chen**, Y. Zhuang, and K. Yang, Age of Computing: A Metric of Computation Freshness in Communication and Computation Cooperative Networks, *IEEE Transactions on Mobile Computing (TMC)*, 2025.
- [J3] H. Nikpey, J. Kim, **X. Chen**, S. Sarkar, and S. Saeedi Bidokhti, Group Testing with Correlation under Edge-Faulty Graphs, *IEEE Transactions on Information Theory (TIT)*, 2024.
- [J4] **X. Chen**, H. Nikpey, J. Kim, S. Sarkar, and S. Saeedi-Bidokhti, Containing A Spread through Sequential Learning: to Exploit or to Explore?, *Transactions on Machine Learning Research (TMLR)*, 2023.
- [J5] J. Kim, **X. Chen**, H. Nikpey, S. Saeedi-Bidokhti and S. Sarkar, Tracing and Testing Multiple Generations of Contacts to COVID-19 Cases: Cost-Benefit Tradeoffs, *Royal Society Open Science*, 2022.
- [J6] **X. Chen**, K. Gatsis, H. Hassani and S. Saeedi-Bidokhti, Age of Information in Random Access Channels, *IEEE Transactions on Information Theory (TIT)*, 2022. [IEEE Communications Society & Information Theory Society Joint Paper Award]
- [J7] **X. Chen**, S. Sarkar and M. H. Lotfi, The Interplay of Competition and Cooperation among Service Providers (Part II), *IEEE Transactions on Network Science and Engineering (TNSE)*, 2020.
- [J8] **X. Chen**, S. Sarkar and M. H. Lotfi, The Interplay of Competition and Cooperation among Service Providers (Part I), *IEEE Transactions on Network Science and Engineering (TNSE)*, 2020.
- [J9] **X. Chen**, Y. Liu, and Z.Wan, Optimal Decision Making for Online and Offline Retailers under BOPS Mode, *ANZIAM Journal*, 2016.

Conference

- [C1] **X. Chen**, P. Parag, R. Bhagat, Z. Liu, and S. El Rouayheb, Random Walk Learning and the Pac-Man Attack, *IEEE ISIT*, 2026.
- [C2] **X. Chen**, N. NaderiAlizadeh, A. Ribeiro, and S. Saeedi Bidokhti, Decentralized Learning Strategies for Estimation Error Minimization with Graph Neural Networks, *IEEE ICASSP*, 2026.
- [C3] H. Nikpey, J. Kim, **X. Chen**, S. Sarkar, and S. Saeedi Bidokhti, Group Testing with Correlation via Edge-Faulty Graphs, *IEEE ISIT*, 2022.
- [C4] **X. Chen**, R. Liu, S. Wang, and S. Saeedi-Bidokhti, Timely Broadcasting in Erasure Networks: Age-Rate Tradeoffs, *IEEE ISIT*, 2021.
- [C5] **X. Chen**, X. Liao, and S. Saeedi-Bidokhti, Real-Time Sampling and Estimation on Random Access Channels: Age of Information and Beyond, *IEEE INFOCOM*, 2021. [IEEE INFOCOM Student

Conference Award]

- [C6] **X. Chen**, K. Gatsis, H. Hassani, and S. Saeedi-Bidokhti, Age of Information in Random Access Channels, *IEEE ISIT*, 2020.
- [C7] **X. Chen** and S. Saeedi Bidokhti, Benefits of Coding on Age of Information in Broadcast Networks, *IEEE ITW*, 2019.
- [C8] M. Fereydounian, **X. Chen**, H. Hassani, and S. Saeedi Bidokhti, Non-Asymptotic Coded Slotted ALOHA, *IEEE ISIT*, 2019. [IEEE ISIT Student Travel Grant]

Professional Service

Editorial Board Positions

Guest Editor, Entropy, Special Issue: Goal-Oriented Communication: Freshness, Semantics, and Beyond, 2025.

Guest Editor, China Communications, Blue Ocean Forum, 2024.

Conference Organizations

TPC Member, WiOpt, 2026.

TPC Member, IEEE ICC: SAC Smart Grid Communications Track, 2024.

TPC Member, IEEE GLOBECOM Workshop: Information Freshness, Communications, Control, and Computing for Industrial IoT, 2020.

Technical Reviewers

IEEE Transactions on Information Theory (TIT),
IEEE/ACM Transactions on Networking (ToN)
IEEE Transactions on Mobile Computing (TMC)
IEEE Journal on Selected Areas in Communications (JSAC)
IEEE Transactions on Network Science and Engineering (TNSE)
IEEE Transactions on Communications (TCOM)
IEEE Transactions on Wireless Communications (TWC)
IEEE Transactions on Artificial Intelligence (TAI)
Journal of Computational and Applied Mathematics (JCAM)
IEEE Wireless Communications Letters (WCL)
IEEE Internet of Things Journal (IoT-J)
IEEE Open Journal of the Communications Society (OJCOMS)

Presentations

Invited Talks

- [T1] *Self-Creating Random Walks for Decentralized Learning under Pac-Man Attacks*, Singapore University of Technology and Design (SUTD), Virtual, 2026.
- [T2] *Random Walk Learning and the Pac-Man Attack*, Joint Mathematics Meetings (JMM), Washington, D.C., UAS, 2026.
- [T3] *Random Walk Learning and the Pac-Man Attack*, Rutgers University, New Brunswick, USA, 2025.
- [T4] *Timely Requesting for Time-Critical Content Users in Decentralized F-RANs*, University of Pennsylvania, Philadelphia, USA, 2024.
- [T5] *Timely Inferences for Updating Decisions in Networked Systems*, Central South University, Online (due to COVID-19), 2022. [Celebrating the 20th Anniversary of the School of Mathematics and Statistics]
- [T6] *Benefits of Coding on Age of Information in Broadcast Networks*, Southwest University, Chongqing, China, 2019.

Professional Talks

[T1] Invited Program Talk, *Walk For Resiliency & Privacy: A Random Walk Framework for Learning at the Edge*, The 4th Resilient & Intelligent NextG Systems (RINGS) program PI meeting, Virtual, 2026.

Group

Current Students

Yi Zhuang 2024 - present

Master's student at University of Electronic Science and Technology of China
Co-advised with Prof. Kun Yang

Taichun Yeh 2025 - present

Master's student at Rutgers University

Ruoqi Lu 2025 - present

Master's student at University of Electronic Science and Technology of China
Co-advised with Prof. Kun Yang

Alumni

Kai Li 2023 - 2025

M.Phil. at University of Electronic Science and Technology of China
Co-advised with Prof. Kun Yang
Next: Meituan (Industrial)

Bohao Yang 2023 - 2025

Undergraduate at University of Electronic Science and Technology of China
Excellent Talents program for undergraduates
Next: Master's student at Southeast University, China