Yanyan Dong

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Academic Experience

2024.12-now
- **Postdoctoral Fellow, The Chinese University of Hong Kong, Shenzhen** in School of Science and Engineering
- **Advisor:** Shenghao Yang
- **Research Area:** multi-armed bandits, finite-length codes

2022.12-2023.12
- **Research Fellow, National University of Singapore** (Singapore) in Electrical and Computer Engineering
- **Advisor:** Vincent Y. F. Tan
- **Research Area:** multi-armed bandits, best arm identification

Education

2017.8 – 2022.8
- **Ph.D student, The Chinese University of Hong Kong, Shenzhen** (China) in Computer and Information Engineering
- **Advisor:** Shenghao Yang
- **Research Area:** network coding, finite-length codes, network optimizaiton

2013.8 – 2017.7
- **B.Sc., Jilin University** (China) in Mathematics and Applied Mathematics (Operations Research and Control)
- **Class rank:** 1/48 in Mathematics and Applied Mathematics

Research Interests

- My research interests lie in information theory, online learning, and network coding. During my doctoral studies, I focused on designing optimal finite-blocklength codes for binary symmetric channels under maximum likelihood decoding, aiming to understand the fundamental limits of reliable communication in the short blocklength regime. I also investigated network utility optimization in multi-flow wireless networks with network coding, analyzing the scalability of throughput and latency as the length of line networks increases, and comparing the performance of different coding schemes.
  As a postdoctoral researcher, I have expanded my interests to include multi-armed bandit problems, exploring both theoretical aspects and practical extensions under constraints such as switching costs and delayed feedback.

Research Publications

Journal Articles

1. **Yanyan Dong** and Vincent Y. F. Tan. (2024). Adversarial combinatorial bandits with switching costs. *IEEE Transactions on Information Theory*, *70*, 5213–5227.
   https://doi.org/10.1109/TIT.2024.3384033
2. **Yanyan Dong** and Shenghao Yang. (2024). On optimal finite-length block codes of size four for binary symmetric channels. *IEEE Transactions on Information Theory*, 1–1.
   https://doi.org/10.1109/TIT.2024.3504823

3. **Yanyan Dong**, Shenghao Yang, Jie Wang and Cheng Fan. (2024). Throughput and latency analysis for line networks with outage links. *IEEE Journal on Selected Areas in Information Theory*, *5*, 464–477. https://doi.org/10.1109/JSAIT.2024.3419054
4. **Yanyan Dong**, Sheng Jin, Yanzuo Chen, Shenghao Yang and Hoover H. F. Yin. (2021). Utility maximization for multihop wireless networks employing bats codes. *IEEE Journal on Selected Areas in Information Theory*, *2*, 1120–1134. https://doi.org/10.1109/JSAIT.2021.3126426
5. Jie Wang, Shenghao Yang, **Yanyan Dong** and Yiheng Zhang. (2024). On achievable rates of line networks with generalized batched network coding. *IEEE Journal on Selected Areas in Communications*, *42*, 1316–1328. https://doi.org/10.1109/JSAC.2024.3365900

In Conference Proceedings

1. **Yanyan Dong**, Yang, S., Wang, J., & Cheng, F. (2024). Throughput and latency of network coding in line networks with outages, In *2024 ieee international symposium on information theory (isit)*. https://doi.org/10.1109/ISIT57864.2024.10619670
2. **Yanyan Dong** and Shenghao Yang. (2023). Characterization of all optimal finite-length codes of size four for binary symmetric channels, In *2023 ieee international symposium on information theory (isit)*. IEEE. https://doi.org/10.1109/ISIT54713.2023.10206921
3. **Yanyan Dong**, Sheng Jin, Shenghao Yang and Hoover H. F. Yin. (2020). Network utility maximization for bats code enabled multihop wireless networks, In *2020 ieee international conference on communications (icc)*. IEEE. https://doi.org/10.1109/ICC40277.2020.9148834
4. **Yanyan Dong** and Shenghao Yang. (2020). On optimal finite-length binary codes of four codewords for binary symmetric channels, In *2020 international symposium on information theory and its applications (isita)*. IEEE.
5. Shenghao Yang, Jie Wang, **Yanyan Dong** and Yiheng Zhang. (2019). On the capacity scalability of line networks with buffer size constraints, In *2019 ieee international symposium on information theory (isit)*. IEEE. https://doi.org/10.1109/ISIT.2019.8849792

Contributed Presentations

July 2024	IEEE International Symposium on Information Theory (ISIT)
June 2023	IEEE International Symposium on Information Theory (ISIT)
October 2020	International Symposium on Information Theory and Its Applications (ISITA), virtual
June 2020	IEEE International Conference on Communications (ICC), virtual

Reviewing Experience

Journal reviewer for:

- IEEE Transactions on Wireless Communications
- IEEE Transactions on Information Theory
- IEEE Transactions on Networking

Teaching

Fall 2021	**Teaching Assistant** for Selected Topics in Information Theory.
Spring 2021	**Teaching Assistant** for Advanced Linear Algebra.
Fall 2020	**Teaching Assistant** for Selected Topics in Information Theory.
Spring 2020	**Teaching Assistant** for Introduction to Geography and Topology.
Fall 2019	**Teaching Assistant** for Selected Topics in Information Theory.

Teaching (continued)

Spring 2019	**Teaching Assistant** for Probability Theory.
Fall 2018	**Teaching Assistant** for Elementary Real Analysis.
Fall 2017 and Spring 2018	**Teaching Assistant** for Mathematical Analysis.

Awards and Honors

July 2021	**2021 CIE Poster Award**, School of Science and Engineering, CUHKSZ
2020.9-2022.9	**Nominations for SRIBD PhD Fellowship**, Shenzhen Research Institute of Big Data, CUHKSZ
2016.8	**Third Class Award**, School of Mathematics, Jilin University.
2015.8	**First Class Award & School Outstanding Student**, Jilin University.
2014.8	**Inspirational scholarship**, School of Mathematics, Jilin University.
2013.8	**New Student Scholarship**, School of Mathematics, Jilin University.