Zhiming Huang

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EMPLOYMENT

Postdoc at Paul G. Allen School of Computer Science & Engineering — Dec 2025 – Now
- **University of Washington**, WA, USA
- Advisor: Prof. Jamie Morgenstern

EDUCATION

Ph.D. in Computer Science — Aug 2025
- **University of Victoria**, BC, Canada
- Advisor: Prof. Jianping Pan
- Dissertation: Swap-Regret-Minimizing Bandits for Distributed Network Optimization

M.Sc. in Computer Science — Aug 2020
- **University of Victoria**, BC, Canada
- Advisor: Dr. Jianping Pan
- Thesis: Thompson sampling-based online decision making in network routing

B.Eng. in Communication Engineering — Jun 2018
- **Northwestern Polytechnical University**, Shaanxi, China

RESEARCH INTERESTS AND SKILLS

- **Learning and Optimization Theory**
  Design and analyze algorithms with theoretical performance guarantees in a) online learning, b) bandits, c) game theory.
- **Computer Networks and Communications**
  Use bandit algorithms and reinforcement learning algorithms to improve a) congestion control, routing in network protocols, b) network selection in wireless communication and edge computing, c) scheduling, load balancing, and resource allocation in data centers and cloud computing.

PUBLICATIONS

CONFERENCE PUBLICATIONS

[1] **Z. Huang** and J. Pan, Faster Convergence for Unknown-game Bandits. , *IEEE International Conference on Computer Communications (INFOCOM)*, May 2025.

[2] **Z. Huang** and J. Pan, Adversarial Semi-Bandits with Moving Arms. , *IEEE International Conference on Computer Communications (INFOCOM)*, May 2025.

[3] **Z. Huang**, Bingshan. Hu, and J. Pan, Gaussian Randomized Exploration for Semi-bandits with Sleeping Arms, *NeurIPS 2024 Workshop on Bayesian Decision-making and Uncertainty*, Dec 2024.

[4] **Z. Huang** and J. Pan, A Near-optimal High-probability Swap-Regret Upper Bound for Multi-agent Bandits in Unknown General-sum Games, *Uncertainty of Artificial Intelligence (UAI)*, Aug 2023.

[5] **Z. Huang**, K. Liu and J. Pan, End-to-end Congestion Control as Learning for Unknown Games, *IEEE International Conference on Distributed Computing Systems (ICDCS)*, Jul 2023.

[6] **Z. Huang**, B. Hu, and J. Pan, Poster: Multi-agent Combinatorial Bandits with Moving Arms, *IEEE International Conference on Distributed Computing Systems (ICDCS)*, Jul 2021.

[7] B. Hu, **Z. Huang**, T. Zhang, M. Lécuyer and N. Hegde, Connecting Thompson Sampling and UCB: Towards More Efficient Trade-offs Between Privacy and Regret, *International Conference on Machine Learning (ICML)*, May 2025.

[8] Q. Zhang, **Z. Huang**, J. Zhao, and J. Pan, A Congestion Control Test Suite for Real-Time Communication, *ACM Multimedia Systems Conference (MMSys)*, Apr 2025.

[9] F. Amri, **Z. Huang**, K. Liu, and J. Pan, Energy-aware Inter-data Center VM Migration over Elastic Optical Networks, *IEEE International Conference on Communication (Globecom)*, Dec 2023.

[10] B. Hu, Y. Chen, **Z. Huang**, N. Mehta, and J. Pan, Intelligent Caching Algorithms in Heterogeneous Wireless Networks with Uncertainty, *IEEE International Conference on Distributed Computing Systems (ICDCS)*, Jul 2019.

[11] R. Liu, J. Song, **Z. Huang**, and J. Pan, EQRC: An Enhanced QR Code-based Secure E-coupon Transaction Framework, *IEEE International Conference on Communication (ICC)*, May 2019.

JOURNAL PUBLICATIONS

[1] **Z. Huang** and J. Pan, Game-theoretic Bandits for Network Optimization with High-probability Swap-regret Upper Bounds, *IEEE/ACM Transactions on Networking (TON)*, Jul 2024.

[2] **Z. Huang** and J. Pan, Distributed Learning of Unknown Games for HetNet Selection , *IEEE Transactions on Network Science and Engineering (TNSE)*, Jan 2024.

[3] **Z. Huang**, Y. Xu, and J. Pan, TSOR: Thompson Sampling-based Opportunistic Routing , *IEEE Transactions on Wireless Communications (TWC)*, vol. 20, no. 11, pp. 7272-7285 May 2021.

[4] **Z. Huang**, B. Hu, and J. Pan, Caching by User Preference with Delayed Feedback for Heterogeneous Cellular Networks, *IEEE Transactions on Wireless Communications (TWC)*, vol. 20, no. 3, pp. 1655-1667, Mar 2021.

[5] **Z. Huang**, R. Zhang, J. Pan, Y. Jiang, and D. Zhai, A Framework of Multipath Clustering based on Space Transformed Fuzzy c-Means and Data Fusion for Radio Channel Modeling, *IEEE Transactions on Vehicular Technology (TVT)*, vol. 69, no. 1, pp. 4-15, Jan 2019.

[6] W Yang, L Cai, S Shu, A Sepahi, **Z. Huang** and J. Pan, QoS-driven Contextual MAB for MPQUIC Supporting Video Streaming in Mobile Networks, *IEEE Transactions on Mobile Computing (TMC)*, Nov 2024.

[7] K. Liu, J. Wang, **Z. Huang**, and J. Pan, Sampling-based Job Placement and Load Balancing for Heterogeneous Deep Learning Clusters, *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, Apr 2024.

[8] B. Hu, **Z. Huang**, N. Mehta, and N. Hegde, Near-Optimal Algorithms for Differentially Private Online Learning in a Stochastic Environment, *Arxiv*, Jul 2024.

[9] R. Liu, J. Song, **Z. Huang**, and J. Pan, EQRC: A Secure QR Code-based E-coupon Framework Supporting Online and Offline Transactions, *Journal of Computer Security (JCS)*, vol. 28, no. 5, pp. 577-605, Sep 2020.

TEACHING EXPERIENCE

TEACHING

- **CSC111: Fundamentals of Programming with Engineering Applications** Spring 2024

TEACHING ASSISTANT

- **Lab and Tutorial Instructor for CSC361: Computer Communication and Networks**
- **Tutorial Instructor for CSC360: Introduction to Operating Systems**

PROFESSIONAL ACTIVITIES

PROGRAM COMMITTEE

- Shadow TPC member for ACM CoNEXT 2025

IEEE SERVICES

- IEEE Day Ambassador, IEEE Region 7 (Canada), 2021
- IEEE Victoria Section Webmaster

REVIEWER

- IEEE Transactions on Wireless Communications
- IEEE Transactions on Intelligent Transportation Systems
- IEEE Transactions on Artificial Intelligence

AWARDS & SCHOLARSHIPS

- **Canada NSERC Postdoctoral Fellowship** 2025
- **British Columbia Graduate Scholarship** 2024
- **UVic President's Fellowship in Research-enriched Teaching** 2023
- **ICDCS 2023 Travel Award** 2023
- **UAI 2023 Scholarships** 2023
- **Melva J. Hanson Graduate Scholarship** 2022
- **M.A. & D.E. Breckenridge Graduate Awards** 2022
- **IEEE ICDCS 2021 Best Poster Award** 2021
- **John and Myrtle Tilley Graduate Scholarship** 2020
- **Robert W. Ford Graduate Scholarship** 2020
- **Howard E. Petch Research Scholarship** 2020
- **UVic Graduate Fellowship** 2020

PRESENTATIONS AND TALKS

Poster: Gaussian Randomized Exploration for Semi-bandits with Sleeping Arms
NeurIPS 2024 BDU Workshop, Vancouver, Canada Dec 2024

Poster: High-probability Swap-regret bounds for Multi-agent Bandits in Unknown General-sum Games
UAI 2023, Pittsburgh, USA Aug 2023

Oral: Near-optimal High-probability Swap-Regret Upper Bounds for Multi-agent Bandits in Unknown General-sum Games
IEEE ICDCS 2023, Hong Kong, China. Jul 2023
Poster: Multi-agent Combinatorial Bandits with Moving arms (Best Poster Award)
IEEE ICDCS 2021, Virtual. Jul 2021