Jinhang Zuo

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Research Interests

My research strives to develop efficient, scalable and trustworthy machine learning algorithms to build intelligent, **learning-enabled networks and systems**. I design rigorous algorithms with theoretical guarantees that have been deployed in data networks, edge/mobile/cloud computing systems, machine learning systems, and beyond.

Professional Experience

City University of Hong Kong (CityU) — **Hong Kong SAR**
Assistant Professor, Department of Computer Science — *Aug 2024–Present*

California Institute of Technology & University of Massachusetts Amherst — **United States**
Joint Caltech/UMass Postdoc, Caltech CMS & UMass Amherst CICS — *Sept 2022–July 2024*
Hosts: Adam Wierman (Caltech) and Mohammad Hajiesmaili (UMass Amherst)

Microsoft Research Asia — **China**
Research Intern, Theory Group (now Theory Center) — *June 2019–Sept 2019*
Mentor: Wei Chen

Education

Carnegie Mellon University — **United States**
Ph.D., Electrical and Computer Engineering — *Sept 2017–Aug 2022*
Advisor: Carlee Joe-Wong

Carnegie Mellon University — **United States**
M.S., Electrical and Computer Engineering — *Sept 2017–June 2020*

Nanjing University of Posts and Telecommunications — **China**
B.E., Communication Engineering — *Sept 2013–June 2017*

Honors and Awards

Center for Data Science (CDS) Postdoctoral Fellowship, UMass Amherst CICS	*2022*
ACM SIGMETRICS Best Poster Award	*2022*
Qualcomm Innovation Fellowship Finalist	*2021*
AAAI-20 Student Scholarship	*2020*
ACM SIGMETRICS Student Travel Grant	*2018*
Carnegie Institute of Technology Dean's Fellowship	*2017*
National Scholarship, Ministry of Education of China	*2015, 2016*

Publications

Conference Publications

[1] Taejin Kim, **Jinhang Zuo**, Xiaoxi Zhang, Carlee Joe-Wong. Edge-MSL: Split Learning on the Mobile Edge via Multi-Armed Bandits. Accepted by *IEEE Conference on Computer Communications (**INFOCOM**)*, 2024. (CCF-A. Acceptance rate: 19.6%)

[2] Xutong Liu, **Jinhang Zuo**, Junkai Wang, Zhiyong Wang, Yuedong Xu, John C.S. Lui. Learning Context-Aware Probabilistic Maximum Coverage Bandits: A Variance-Adaptive Approach. Accepted by *IEEE Conference on*

*Computer Communications (**INFOCOM**)*, 2024. (CCF-A. Acceptance rate: 19.6%)

[3] Xutong Liu, Siwei Wang, **Jinhang Zuo**, Han Zhong, Xuchuang Wang, Zhiyong Wang, Shuai Li, Mohammad Hajiesmaili, John C.S. Lui, Wei Chen. Combinatorial Multivariant Multi-Armed Bandits with Applications to Episodic Reinforcement Learning and Beyond. Accepted by *International Conference on Machine Learning (**ICML**)*, 2024 (CCF-A. Acceptance rate: 27.5%).

[4] Adam Lechowicz, Nicolas Christianson, **Jinhang Zuo**, Noman Bashir, Mohammad Hajiesmaili, Adam Wierman, Prashant Shenoy. The Online Pause and Resume Problem: Optimal Algorithms and An Application to Carbon-Aware Load Shifting. Accepted by *ACM **SIGMETRICS***, 2024. (CORE A*, CCF-B)

[5] **Jinhang Zuo**, Zhiyao Zhang, Zhiyong Wang, Shuai Li, Mohammad Hajiesmaili, Adam Wierman. Adversarial Attacks on Online Learning to Rank with Click Feedback. *Thirty-seventh Conference on Neural Information Processing Systems (**NeurIPS**)*, 2023. (CCF-A. Acceptance rate: 26.1%)

[6] Xutong Liu*, **Jinhang Zuo***, Hong Xie, Carlee Joe-Wong, John C.S. Lui. Variance-Adaptive Algorithm for Probabilistic Maximum Coverage Bandits with General Feedback. *IEEE International Conference on Computer Communications (**INFOCOM**)*, 2023. (*Equal contribution. CCF-A. Acceptance rate: 19.2%)

[7] Yi Hu, **Jinhang Zuo**, Bob Iannucci, Carlee Joe-Wong. Intelligent Communication Planning for Constrained Environmental IoT Sensing with Reinforcement Learning. *The 20th annual IEEE International Conference on Sensing, Communication, and Networking (**SECON**)*, pp. 357-365, 2023. (CCF-B. Acceptance rate: 23.6%)

[8] Xutong Liu, **Jinhang Zuo**, Siwei Wang, John C.S. Lui, Mohammad Hajiesmaili, Adam Wierman, Wei Chen. Contextual Combinatorial Bandits with Probabilistically Triggered Arms. *The Fortieth International Conference on Machine Learning (**ICML**)*, pp. 22559-22593, 2023. (CCF-A. Acceptance rate: 27.9%)

[9] **Jinhang Zuo**, Xutong Liu, Carlee Joe-Wong, John C.S. Lui, Wei Chen. Online Competitive Influence Maximization. *International Conference on Artificial Intelligence and Statistics (**AISTATS**)*, pp. 11472-11502, 2022. (CORE A. Acceptance rate: 29.1%)

[10] **Jinhang Zuo**, Songwen Hu, Tong Yu, Shuai Li, Handong Zhao, Carlee Joe-Wong. Hierarchical Conversational Preference Elicitation with Bandit Feedback. *The 31st ACM International Conference on Information & Knowledge Management (**CIKM**)*, pp. 2827-2836, 2022. (CORE A, CCF-B. Acceptance rate: 27.5%)

[11] Samarth Gupta*, **Jinhang Zuo***, Carlee Joe-Wong, Gauri Joshi, Osman Yağan. Correlated Combinatorial Bandits for Online Resource Allocation. *The Twenty-Third International Symposium on Theory, Algorithmic Foundations, and Protocol Design for Mobile Networks and Mobile Computing (**MobiHoc**)*, pp. 91-100, 2022. (*Equal contribution. CORE A, CCF-B. Acceptance rate: 19.8%)

[12] Xutong Liu, **Jinhang Zuo**, Siwei Wang, Carlee Joe-Wong, John C.S. Lui, Wei Chen. Batch-Size Independent Regret Bounds for Combinatorial Semi-Bandits with Probabilistically Triggered Arms or Independent Arms. *Thirty-seventh Conference on Neural Information Processing Systems (**NeurIPS**)*, pp.14904-14916 2022. (CCF-A. Acceptance rate: 25.5%)

[13] **Jinhang Zuo**, Carlee Joe-Wong. Combinatorial Multi-armed Bandits for Resource Allocation. *55th Annual Conference on Information Sciences and Systems (**CISS**)*, 2021. (Invited Paper)

[14] Xutong Liu, **Jinhang Zuo**, Xiaowei Chen, Wei Chen, John C.S. Lui. Multi-layered Network Exploration via Random Walks: From Offline Optimization to Online Learning. *International Conference on Machine Learning (**ICML**)*, pp. 7057-7066, 2021. (Long oral (3%). CCF-A. Acceptance rate: 21.5%)

[15] **Jinhang Zuo**, Xiaoxi Zhang and Carlee Joe-Wong. Observe Before Play: Multi-armed Bandit with Pre-Observations. *AAAI Conference on Artificial Intelligence (**AAAI**)*, pp. 7023-7030, 2020. (CCF-A. Acceptance rate: 20.5%)

[16] Jiawei Li, Chuyu Wang, Ang Li, Dianqi Han, Yan Zhang, **Jinhang Zuo**, Rui Zhang, Lei Xie, Yanchao Zhang. RF-Rhythm: Secure and Usable Two-Factor RFID Authentication. *IEEE International Conference on Computer Communications (**INFOCOM**)*, pp. 2194-2203, 2020. (CCF-A. Acceptance rate: 19.1%)

Journal Publications

[1] Xiaoxi Zhang, **Jinhang Zuo**[#], Zhe Huang, Zhi Zhou, Xu Chen, Carlee Joe-Wong. Learning with Side Information: Online Resource Control for 5G/6G Disaggregated RANs. *IEEE Journal on Selected Areas in Communications*, vol. 42, no. 2, pp. 295-309, 2024. ([#]Corresponding author. CCF-A)

[2] Jiawei Li, Chuyu Wang, Ang Li, Dianqi Han, Yan Zhang, **Jinhang Zuo**, Rui Zhang, Lei Xie, Yanchao Zhang. Rhythmic RFID Authentication. *IEEE/ACM Transactions on Networking*, vol. 31, no. 2, pp. 877-890, 2022. (CCF-A)

[3] Bo Zhang, **Jinhang Zuo**, Weiwei Mao. SmartWAZ: Design and Implementation of a Smart WiFi Access System Assisted by Zigbee. *IEEE Access*, vol. 7, pp. 31002-31009, 2019.

Academic Service

TPC Member: MASS 2024, WiOpt 2023, ACM S3 Workshop 2021
Session Chair: Asilomar 2023, MobiHoc 2022
Journal Reviewer: IEEE/ACM Transactions on Networking, IEEE Transactions on Mobile Computing, IEEE Transactions on Network Science and Engineering, ACM Transactions on Modeling and Performance Evaluation of Computing Systems, Performance Evaluation
Conference Reviewer: NeurIPS, ICML, ICLR, AISTATS, SIGMETRICS, KDD, MLSys, ACM e-Energy

Teaching Experience

Mathematical Foundations of Electrical Engineering, CMU
Head Teaching Assistant *Fall 2020*

Introduction to Machine Learning for Engineers, CMU
Teaching Assistant *Fall 2019*

Outreach Lecture: Edge Machine Learning for Resource-constrained IoT Devices, CMU
Guest lecture for visiting high school students with the Mao Yisheng Foundation *Spring 2018*

Presentations

Trustworthy Online Learning in Networks and Systems
– School of Computer Science and Engineering, Sun Yat-sen University *July 2024*
– John Hopcroft Center, Shanghai Jiao Tong University *July 2024*

Adversarial Attacks on Cooperative Multi-agent Bandits
– Information Theory and Applications (ITA) Workshop *Feb 2024*

Variance-Adaptive Algorithms for Probabilistic Maximum Coverage Bandits
– IEEE International Conference on Computer Communications (INFOCOM) *May 2023*
– Information Theory and Applications (ITA) Workshop *Feb 2023*

Correlated Combinatorial Bandits for Online Resource Allocation
– ACM MobiHoc Conference *Oct 2022*

Online Competitive Influence Maximization
– International Conference on Artificial Intelligence and Statistics (AISTATS) *Mar 2022*
– Shanghai Jiao Tong University *July 2021*

Combinatorial Multi-armed Bandits in Competitive Environments
– University of Massachusetts Amherst *Feb 2022*