WEI XIONG

Mathematics, The Hong Kong University of Science and Technology
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RESEARCH INTERESTS

Machine learning theory, reinforcement learning, and large language model.

EDUCATION

The Hong Kong University of Science and Technology *Hong Kong, China*
Master student, *Department of Mathematics* *2021.9 - present*
Advisor: Prof. Tong Zhang

University of Science and Technology of China *Hefei, China*
Bachelor of Science, *Department of Mathematics* *2021.6*
Department of Electronic Engineering
ranking: 1/72 in Statistics

Shanghai Jiao Tong University *Shanghai, China*
Exchange student at School of Electronic Information and Electrical Engineering *2018*

EXPERIENCE

The Hong Kong University of Science and Technology:
Teaching Assistant: MATH 2421 - Probability (**Best TA Award**) *Spring 2023*
Teaching Assistant: MATH 2121 - Linear Algebra (**Best TA Award**) *Fall 2022*
Teaching Assistant: MATH 6913W - Reading Course: Statistical Learning Theory *Spring 2022*
Teaching Assistant: MATH 2023 - Multivariable Calculus (**Best TA Award**) *Spring 2022*

Microsoft Research Asia (MSRA):
Intern: Networking Research and Machine Learning Group *Spring 2021*
Worked on bandwidth estimation for real-time communications with reinforcement learning

University of Science and Technology of China:
Teaching Assistant: Mathematical Statistics *Fall 2020*
Teaching Assistant: Data Structures and Databases *Spring 2020*
Teaching Assistant: Algorithms and Data Structures *Fall 2018*

University of Virginia:
Research Assistant: worked on multi-player multi-armed bandit (MPMAB) *2019.8 - 2019.11*

SELECTED AWARDS AND FELLOWSHIPS

Hong Kong PhD Fellowship (300/3000+ PhD students in Hong Kong) *April 2021*
Nomination for Guo Moruo scholarship (3%, Highest Student Honor in USTC) *November 2020*
Yuanqing Yang Scholarship (8/600+ undergraduates in mathematics) *November 2020*
Chinese Academy of Sciences Institute of Electronics Scholarship *October 2018*
National Scholarship (2/356 in EE, top scholarship in mainland China) *October 2017*
Zhuang Caifang Scholarship (199/200000 high school graduates in Fujian Province) *July 2016*

Best Teaching Assistant Award at HKUST *June 2022*
Outstanding graduate (USTC and Anhui province, 2/150+ in the school of mathematics) *June 2021*
Honor Program in Electronic Engineering/Artificial Intelligence at USTC *2017 - 2019*

PROFESSIONAL ACTIVITY

Conference Reviewer: Neurips 2022,2023 (**Top Reviewer Award**); ICML 2022, 2023; AISTATS 2023;

Journal Reviewer: Machine Learning, JMLR.

SELECTED PUBLICATIONS AND MANUSCRIPTS

(* denotes random/alphabetical order or equal contribution)

[1] Hanze Dong*, Wei Xiong*, Deepanshu Goyal, Rui Pan, Shizhe Diao, Jipeng Zhang, Kashun Shum and Tong Zhang, "RAFT: Reward rAnked FineTuning for Generative Foundation Model Alignment", [Preprint].

[2] Han Zhong*, Wei Xiong*, Sirui Zheng, Liwei Wang, Zhaoran Wang, Zhuoran Yang, and Tong Zhang, "GEC: A Unified Framework for Interactive Decision Making in MDP, POMDP, and Beyond", [Preprint] [Slide].

[3] Chenlu Ye, Wei Xiong, Quanquan Gu, and Tong Zhang, "Corruption-Robust Algorithms with Uncertainty Weighting for Nonlinear Contextual Bandits and Markov Decision Processes", [ICML 2023].

[4] Chengshuai Shi, Wei Xiong, Cong Shen, and Jing Yang, "Provably Efficient Offline Reinforcement Learning with Perturbed Data Sources", [ICML, 2023].

[5] Chengshuai Shi, Wei Xiong, Cong Shen, and Jing Yang, "Reward Teaching for Federated Multi-Armed Bandits", [ISIT, 2023].

[6] Wei Xiong*, Han Zhong*, Chengshuai Shi, Cong Shen, Liwei Wang, and Tong Zhang,"Nearly Minimax Optimal Offline Reinforcement Learning with Linear Function Approximation: Single-Agent MDP and Markov Game", [ICLR 2023].

[7] Wei Xiong, Han Zhong, Chengshuai Shi, Cong Shen, and Tong Zhang,"A Self-Play Posterior Sampling Algorithm for Zero-Sum Markov Game", [ICML 2022].

[8] Han Zhong*, Wei Xiong*, Jiyuan Tan*, Liwei Wang, Tong Zhang, Zhaoran Wang, and Zhuoran Yang,"Pessimistic Minimax Value Iteration: Provably Efficient Equilibrium Learning from Offline Datasets", [ICML 2022] [Slide].

[9] Wei Xiong, Yong Lin, and Tong Zhang,"An Alternative Analysis of High-Probability Generalization Bound for Uniformly Stable Algorithms", [Preprint].

[10] Haishan Ye*, Wei Xiong*, and Tong Zhang, "PMGT-VR: A decentralized proximal-gradient algorithmic framework with variance reduction", [TPAMI Under Minor Revision] [Slide].

[11] Chengshuai Shi, Haifeng Xu, Wei Xiong, and Cong Shen, "(Almost) Free Incentivized Exploration from Decentralized Learning Agents", [NeurIPS 2021], [Code].

[12] Chengshuai Shi, Wei Xiong, Cong Shen, and Jing Yang, "Heterogeneous Multi-player Multi-armed Bandits: Closing the Gap and Generalization", [NeurIPS 2021], [Code].

[13] Pushi Zhang, Xiaoyu Chen, Li Zhao, Wei Xiong, Tao Qin, and Tie-Yan Liu, "Distributional Reinforcement Learning for Multi-Dimensional Reward Functions", [NeurIPS 2021].

[14] Chengshuai Shi, Wei Xiong, Cong Shen, and Jing Yang, "Decentralized multi-player multi-armed bandits with no collision information", [AISTATS, 2020].