

Zixin Zhong

POSTDOCTORAL FELLOW

Department of Computing Science, University of Alberta, Canada

✉ zixin.zhong@u.nus.edu | 🏠 zixinzh.github.io/homepage | 🎓 Zixin Zhong



Research Interests

Reinforcement learning, online machine learning (e.g., multi-armed bandit problem)

Work Experience

University of Alberta

Edmonton, Canada

POSTDOCTORAL FELLOW IN DEPARTMENT OF COMPUTER SCIENCE

Jul. 2022 – Present

- Supervisors: Prof. Csaba Szepesvári (also leading the Foundations team at DeepMind)

National University of Singapore (NUS)

Singapore

RESEARCH FELLOW IN DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

Jun. 2021 – Jul. 2022

- Supervisors: Prof. Vincent Y. F. Tan and Prof. Wang Chi Cheung

Education

National University of Singapore (NUS)

Singapore

PH. D. IN DEPARTMENT OF MATHEMATICS (LOUIS CHEN HSIAO YUN BEST DISSERTATION PRIZE)

Aug. 2017 – Oct. 2021

- Supervisors: Prof. Vincent Y. F. Tan (main) and Prof. Wang Chi Cheung

Sun Yat-sen University (SYSU)

Guangzhou, China

B. S. IN SCHOOL OF MATHEMATICS (OUTSTANDING GRADUATE)

Aug. 2013 – Jun. 2017

- Thesis Advisor: Prof. Guocan Feng

University of California, Berkeley (UCB)

Berkeley, U.S.A

INTERNATIONAL STUDENT

Aug. 2015 – Dec. 2015

Sun Yat-sen University (SYSU)

Guangzhou, China

YAT-SEN SCHOOL (INCLUDING TOP 5% FROM SCHOOL OF MATHEMATICS)

Nov. 2014 – Jun. 2017

The Affiliated High School of South China Normal University

Guangzhou, China

MIDDLE SCHOOL

Aug. 2007 – Jun. 2013

Tutorials

Pure Exploration in Multi-Armed Bandits

Zixin Zhong, Vincent Y. F. Tan

International Joint Conference on Artificial Intelligence (IJCAI), Messe Wien, Vienna, Austria, July 2022

*: Corresponding author, *: equal contribution.

Preprints

Optimal Clustering with Bandit Feedback

Junwen Yang, Zixin Zhong, and Vincent Y. F. Tan

Submitted, February 2022

Achieving the Pareto Frontier of Regret Minimization and Best Arm Identification in Multi-Armed Bandits

Zixin Zhong, Wang Chi Cheung, and Vincent Y. F. Tan

Submitted, January 2022

Journal Papers

Almost Optimal Variance-Constrained Best Arm Identification

Yunlong Hou, Vincent Y. F. Tan, and Zixin Zhong*

IEEE Transactions on Information Theory (IEEE TIT), 2022, doi: 10.1109/TIT.2022.3222231.

Fast Beam Alignment via Pure Exploration in Multi-armed Bandits (Journal Version)

Wei Yi, Zixin Zhong*, and Vincent Y. F. Tan

IEEE Transactions on Wireless Communications (IEEE TWC), 2022, doi: 10.1109/TWC.2022.3217131.

Thompson Sampling Algorithms for Cascading Bandits [Code]

Zixin Zhong, Wang Chi Cheung, and Vincent Y. F. Tan

Journal of Machine Learning Research (JMLR), Vol. 22, No. 218, Pages 1 – 66, September 2021

Conference Papers

Probably Anytime-Safe Stochastic Combinatorial Semi-Bandits

Yunlong Hou, Vincent Y. F. Tan, and Zixin Zhong*

International Conference on Machine Learning (ICML), Hawaii, U.S.A, July 2023

Stochastic Gradient Succeeds for Bandits

Jincheng Mei**, Zixin Zhong**, Bo Dai, Alekh Agarwal, Csaba Szepesvári, and Dale Schuurmans

International Conference on Machine Learning (ICML), Hawaii, U.S.A, July 2023

Fast Beam Alignment via Pure Exploration in Multi-armed Bandits

Yi Wei, Zixin Zhong, and Vincent Y. F. Tan

IEEE International Symposium on Information Theory (ISIT), Aalto, Finland, June 2022

Probabilistic Sequential Shrinking: A Best Arm Identification Algorithm for Stochastic Bandits with Corruptions [Code]

Zixin Zhong, Wang Chi Cheung, and Vincent Y. F. Tan

International Conference on Machine Learning (ICML), Virtual, July 2021

Best Arm Identification for Cascading Bandits in the Fixed Confidence Setting

Zixin Zhong, Wang Chi Cheung, and Vincent Y. F. Tan

International Conference on Machine Learning (ICML), Virtual, July 2020

A Thompson Sampling Algorithm for Cascading Bandits (oral presentation)

Wang Chi Cheung, Vincent Y. F. Tan, and Zixin Zhong

International Conference on Artificial Intelligence and Statistics (AISTATS), Naha, Okinawa, Japan, April 2019

Thesis

Performance Guarantees for Online Learning: Cascading Bandits and Adversarial Corruptions

Zixin Zhong

Ph.D. Thesis, Department of Mathematics, National University of Singapore, October 2021

Professional Activities

CONFERENCE REVIEWER

2021-2023 Neural Information Processing Systems (NeurIPS) [Top reviewer in 2022]

2022-2023 International Conference on Machine Learning (ICML)

2022-2023 International Conference on Artificial Intelligence and Statistics (AISTATS)

2021-2023 International Conference on Learning Representations (ICLR)

2023 European Workshop on Reinforcement Learning (EWRL)

JOURNAL REVIEWER

IEEE Transactions on Information Theory (TIT)

IEEE Transactions on Signal Processing (TSP)

Transactions on Machine Learning Research (TMLR)

Presentation

Rising Stars: Academic Career Workshop in EECS

University of Texas At

Austin, U.S.A

Oral and poster presentation of existing works

Oct. 2022

INFORMS 2021 Annual Meeting

Virtual

Oral presentation for the work appeared at ICML 2021

Oct. 2021

The 22nd Conference of the International Federation of Operational Research Societies (IFORS)

Virtual

Oral presentation for the work appeared at ICML 2021

Aug. 2021

The 3rd TBSI Workshop on Learning Theory (WOLT)

Tsinghua-Berkeley

Shenzhen institute, China

Oral and poster presentation for the work appeared at ICML 2021

Jul. 2021

Analytics for X, iORA, NUS

National University of

Singapore

Oral presentation for the work appeared at ICML 2021

May. 2021

Volunteer Activities

Nov. 2021 The 13th Asian Conference on Machine Learning (ACML)

Singapore

Nov. 2014 The 90th Anniversary of Sun Yat-Sen University

Guangzhou, Guangdong

Aug. 2014 Aid Education in Mountainous Area

Heyuan, Guangdong

Internship

AiDA Thchnologies Pte Ltd

Singapore

DATA SCIENTIST

Nov. 2020 – Mar. 2021

Reporting officers: Dr. Tan Geok Leng (CEO), Dr. Zha Wei

- **Insurance upsell/cross sell.** Developing a predictive analytics model for identifying candidates who have a propensity to buy insurance products from a bank's existing CASA customer base.
- **PIER71 Smart Port Challenge.** Developing a machine learning model to predict the Estimated Time of Arrival (ETA) for vessels plying between two known port pairs which achieves 1.34% percentage error. Analyzing the limitations of the model so developed.
- **Trading Floor Misconduct.** Developing a framework for text mining using Regular Expression to conduct experiments to lockdown parameters so that Risk Events may be detected with low False Alarm rates. The framework is now used as a standard tool in the company.

Honors & Awards

| | | |
|-------------|--|--------------------|
| 2023 | NUS Louis Chen Hsiao Yun Best Dissertation Prize | Singapore |
| 2022 | Top reviewer for NeurIPS 2022 | New Orleans, U.S.A |
| 2022 | Rising Star in EECS | Austin, U.S.A |
| 2017 – 2021 | NUS Research Scholarship | Singapore |
| 2014 | China National Scholarship | China |
| 2014, 2015 | SYSU First Class Scholarship | Guangzhou, China |

Skills

Programming Python, Matlab, Latex, R, C/C++

Languages English, Mandarin, Cantonese