

Zixin Zhong

PH. D.

Department of Mathematics, National University of Singapore

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Research Interests

Reinforcement learning, online machine learning (e.g., 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, CPA: 4.24/5.00

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), GPA: 4.10/5.00

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

Tutorials

Pure Exploration in Multi-Armed Bandits

Vincent Y. F. Tan, Zixin Zhong

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

*: Corresponding author

Preprints

Optimal Clustering with Bandit Feedback

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

Submitted, February 2022

On 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

Almost Optimal Variance-Constrained Best Arm Identification

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

Submitted, January 2022

Journal Papers

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

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

2022 Neural Information Processing Systems (NeurIPS)

International Conference on Machine Learning (ICML)

International Conference on Artificial Intelligence and Statistics (AISTATS)

International Conference on Learning Representations (ICLR)

2021 Neural Information Processing Systems (NeurIPS)

International Conference on Artificial Intelligence and Statistics (AISTATS)

JOURNAL REVIEWER

IEEE Transactions on Information Theory (TIT)

IEEE Transactions on Signal Processing (TSP)

Transactions on Machine Learning Research (TMLR)

Presentation

INFORMS 2021 Annual Meeting

Oral presentation for the work appeared at ICML 2021

Virtual
Oct. 2021

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

Oral presentation for the work appeared at ICML 2021

Virtual

Aug. 2021

The 3rd TBSI Workshop on Learning Theory (WOLT)

Oral and poster presentation for the work appeared at ICML 2021

Shenzhen, China
Jul. 2021

Analytics for X, iORA, NUS

Oral presentation for the work appeared at ICML 2021

Singapore
May. 2021

Volunteer Activities

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

Singapore

Internship

AiDA Thchnologies Pte Ltd

DATA SCIENTIST

Singapore

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

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