Zhiyu Zhang

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Last updated: 2/5/2024

Research interest

Adaptive online learning, with applications in system control and robotics. The goal is to design theoretically sound and practically useful sequential decision making algorithms that Bayes-optimally exploit offline knowledge, such as domain structures, physical models and deep learning.

Employment

Harvard University 09/2023 – Present
Postdoctoral Fellow *Advisor: Heng Yang*

Education

Boston University 09/2018 – 08/2023
PhD, Systems Engineering *Advisor: Ioannis Paschalidis, Ashok Cutkosky*

Tsinghua University 09/2014 – 06/2018
BEng, Mechanical Engineering

Delft University of Technology 09/2016 – 02/2017
Exchange Student, Control Engineering

Publication

Discounted Adaptive Online Prediction Preprint
***Zhiyu Zhang**, David Bombara, Heng Yang*

Understanding Adam Optimizer via Online Learning of Updates: Adam is FTRL in Disguise Preprint
*Kwangjun Ahn, **Zhiyu Zhang**, Yunbum Kook, Yan Dai*

Improving Adaptive Online Learning Using Refined Discretization ALT'24
***Zhiyu Zhang**, Heng Yang, Ashok Cutkosky, Ioannis Paschalidis*

Unconstrained Dynamic Regret via Sparse Coding NeurIPS'23
***Zhiyu Zhang**, Ashok Cutkosky, Ioannis Paschalidis*

Optimal Comparator Adaptive Online Learning with Switching Cost NeurIPS'22
***Zhiyu Zhang**, Ashok Cutkosky, Ioannis Paschalidis*

PDE-Based Optimal Strategy for Unconstrained Online Learning ICML'22
***Zhiyu Zhang**, Ashok Cutkosky, Ioannis Paschalidis*

Adversarial Tracking Control via Strongly Adaptive Online Learning with Memory AISTATS'22
***Zhiyu Zhang**, Ashok Cutkosky, Ioannis Paschalidis*

Provable Hierarchical Imitation Learning via EM AISTATS'21
***Zhiyu Zhang**, Ioannis Paschalidis*

Award

NeurIPS Scholar (Travel Award) 2023
Multiple Top Reviewer Awards (∼10%)
AISTATS'22, ICML'22, NeurIPS'22 and '23
Dean's Fellowship 2018 – 2019
College of Engineering, Boston University
Scholarship for Distinction in Academics 2014 – 2017
Tsinghua University
Scholarship for Outstanding Exchange Students 2016
China Scholarship Council

Service

Conference reviewer: AISTATS 2021-2024 (Artificial Intelligence and Statistics), ICML 2022-2023 (International Conference on Machine Learning), NeurIPS 2022-2023 (Conference on Neural Information Processing Systems), ALT 2023 (International Conference on Algorithmic Learning Theory), COLT 2024 (Conference on Learning Theory).

Subreviewer: NeurIPS 2020, L4DC 2020 (Learning for Dynamics & Control Conference).

Journal reviewer: IEEE Transactions on Robotics, Journal of Machine Learning Research, Foundations and Trends in Machine Learning.

Research talk

Prof. Na Li's group, Harvard University	10/2023
SIAM Student Chapter, Boston University	10/2023
Prof. Chuchu Fan's group, MIT	02/2023
CISE Graduate Student Workshop, Boston University	01/2023
Prof. Christos Cassandras' group, Boston University	12/2021

Teaching and mentoring

Teaching Assistant 2020 – 2021

Boston University

- EK 381: Probability, Statistics, and Data Science for Engineers
- ME 366: Probability and Statistics for Mechanical Engineers
- ME 404: Dynamics and Control of Mechanical Systems

BU RISE program mentor Summer 2019

Boston University

- Summer research program for high school students.