

# ZHIYU ZHANG

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## RESEARCH INTEREST

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**Theory** Adaptive (instance-optimal) online learning, with connections to optimization, statistics, signal processing, game theory and dynamical systems.

**Applications** Uncertainty quantification, embodied AI and robotics.

## EMPLOYMENT

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**Harvard University** 09/2023 - Present  
Postdoctoral Fellow in Electrical Engineering  
Host: Heng Yang

## EDUCATION

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**Boston University** 09/2018 - 08/2023  
Ph.D. in Systems Engineering  
Advisor: Ioannis Paschalidis, Ashok Cutkosky

**Tsinghua University** 09/2014 - 06/2018  
B.Eng. in Mechanical Engineering

## PUBLICATION

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The Benefit of Being Bayesian in Online Conformal Prediction  
**Zhiyu Zhang**, Zhou Lu, Heng Yang  
[arXiv 2024](#)

Adapting Conformal Prediction to Distribution Shifts Without Labels  
Kevin Kasa, **Zhiyu Zhang**, Heng Yang, Graham Taylor  
[arXiv 2024](#)

Fast TRAC: A Parameter-Free Optimizer for Lifelong Reinforcement Learning  
Aneesh Muppidi, **Zhiyu Zhang**, Heng Yang  
[NeurIPS 2024](#) (Conference on Neural Information Processing Systems)

Discounted Adaptive Online Learning: Towards Better Regularization  
**Zhiyu Zhang**, David Bombara, Heng Yang  
[ICML 2024](#) (International Conference on Machine Learning)

Understanding Adam Optimizer via Online Learning of Updates: Adam is FTRL in Disguise  
Kwangjun Ahn, **Zhiyu Zhang**, Yunbum Kook, Yan Dai  
[ICML 2024](#) (International Conference on Machine Learning)

Improving Adaptive Online Learning Using Refined Discretization  
**Zhiyu Zhang**, Heng Yang, Ashok Cutkosky, Ioannis Paschalidis  
[ALT 2024](#) (Algorithmic Learning Theory)

Unconstrained Dynamic Regret via Sparse Coding  
**Zhiyu Zhang**, Ashok Cutkosky, Ioannis Paschalidis  
[NeurIPS 2023](#) (Conference on Neural Information Processing Systems)

Optimal Comparator Adaptive Online Learning with Switching Cost  
**Zhiyu Zhang**, Ashok Cutkosky, Ioannis Paschalidis  
NeurIPS 2022 (Conference on Neural Information Processing Systems)

PDE-Based Optimal Strategy for Unconstrained Online Learning  
**Zhiyu Zhang**, Ashok Cutkosky, Ioannis Paschalidis  
ICML 2022 (International Conference on Machine Learning)

Adversarial Tracking Control via Strongly Adaptive Online Learning with Memory  
**Zhiyu Zhang**, Ashok Cutkosky, Ioannis Paschalidis  
AISTATS 2022 (Artificial Intelligence and Statistics)

Provable Hierarchical Imitation Learning via EM  
**Zhiyu Zhang**, Ioannis Paschalidis  
AISTATS 2021 (Artificial Intelligence and Statistics)

## AWARD

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<b>Outstanding Dissertation Award</b> Division of Systems Engineering, Boston University	2024
<b>NeurIPS Scholar</b> Travel award, Conference on Neural Information Processing Systems	2023
<b>Several Top Reviewer Awards</b> AISTATS 2022, ICML 2022, NeurIPS 2022, NeurIPS 2023	2022 - 2023
<b>Dean's Fellowship</b> College of Engineering, Boston University	2018 - 2019
<b>Weichai Endowed Scholarship</b> Department of Mechanical Engineering, Tsinghua University	2017
<b>Scholarship for Distinction in Academics</b> Tsinghua University	2014 – 2017

## SERVICE

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### Action Editor

- TMLR, 2024 - Present (Transactions on Machine Learning Research)

### Conference Reviewer

- AISTATS 2021 - 2024 (Artificial Intelligence and Statistics)
- ICML 2022 - 2023 (International Conference on Machine Learning)
- NeurIPS 2022 - 2024 (Conference on Neural Information Processing Systems)
- ICLR 2025 (International Conference on Learning Representations)
- ALT 2023 (International Conference on Algorithmic Learning Theory)
- COLT 2024 (Conference on Learning Theory)

### Conference 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
- Automatica

## RESEARCH TALK

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(excluding conference presentations)

Center for Machine Learning Research, Peking University	04/2024
Na Li's group, Harvard University	02/2024
Na Li's group, Harvard University	10/2023
SIAM Student Chapter, Boston University	10/2023
Chuchu Fan's group, MIT	02/2023
CISE Graduate Student Workshop, Boston University	01/2023
Christos Cassandras' group, Boston University	12/2021

## TEACHING

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**Teaching Assistant** Fall 2024  
Harvard University

- ENG-SCI 155: Systems and Control

**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

## REFERENCE

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### Heng Yang

Assistant Professor, Harvard University  
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### Ashok Cutkosky

Assistant Professor, Boston University  
cutkosky@bu.edu

### Ioannis Paschalidis

Distinguished Professor, Boston University  
yannisp@bu.edu