

# TAIYI WANG

## CONTACT

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## SKILLS

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- Fund Raising
- Supervision and lecturing
- Research planning
- System Infra Development
- Research Team Leading

## PROFESSIONAL SUMMARY

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Diligent researcher with a robust academic and industry background in applied reinforcement learning and system infrastructure development. As co-founder and CTO of a startup in the past, I led successful fundraising initiatives and drove innovative projects in a dynamic entrepreneurial environment. Drawing on my extensive lectureship and TA experience from my senior PhD years, I effectively co-supervised students, combining advanced research with practical, hands-on lessons to empower young teams and deliver real-world results.

## INTERESTS AND EXPERTISE

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Reinforcement Learning, LLM, Scalable Machine Learning, Database, ML-enhanced System Optimization (e.g. ML4DB)

## EDUCATION

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Expected graduation September 2025

**Doctor of Philosophy in Computer Science Candidate**

University of Cambridge

June 2021

**Master of Engineering in Computer Science**

Johns Hopkins University

July 2019

**Bachelor of Science in Physics, minor in math**

Peking University

## WORKING EXPERIENCE

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June 2024 - November 2024

**Research Scientist Intern**

Huawei Technology Research Center UK, London

- Noah's Ark Lab-RL x LLM Agent Group

September 2022 - May 2024

**Co-founder and Chief Technology Officer**

Powersense Technology Limited, Cambridge

June 2023 - October 2023

**Research Scientist Intern**

Huawei Technology Research Center UK, Edinburgh

- Database Group

November 2018 - May 2019

**Research and Development Engineer**

Baidu, Beijing

- Big Data Group

September 2018 - November 2018

**Research and Development Intern**

Sohu.com Ltd, Beijing

- Advertising Strategy Group

## RESEARCH EXPERIENCE

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Research Internship, SCALE Lab, Imperial College London (2020 Summer)

**Instructed by:** Prof. Thomas Heinis

**Project:** Leveraging Soft Functional Dependencies for Indexing Multi-dimensional Data

Research Assistant, Center for Data Science Peking University (2019 Fall)

**Instructed by:** Prof. Weinan E (Princeton), Zaiwen Wen (BICMR)

**Project:** Building Reinforcement Learning Simulator for Continuous Control

Visiting Scholar, CUSP Big Data Interaction (BDI) Lab, NYU (2018 Summer)

**Instructed by:** Prof. Huy T. Vo

**Project:** Simulating Taxi Ride Sharing at Scale

Research Assistant, Intelligent Transportation Research Center, EECS, MIT (2018 Spring)

**Instructed by:** Prof. Berthold K.P. Horn, Dr. Yajun Fang

**Project:** Building Bilateral Control Simulation Platform (BCSP)

## AWARDS

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- Pillman and Cody Award, University of Cambridge
- Runner-up in Shenzhen Innovation and Entrepreneurship Competition, Global Final, Shenzhen, China
- Runner-up in the Chris Abell postdoc Business Plan Competition, Cambridge, United Kingdom
- Finalist (F Awards, Top 1%), Mathematical Contest in Modeling (MCM)
- Excellent Graduate Student Award in School of Physics, Peking University
- Excellent Graduation thesis, Peking University
- Special Award, the 5th Youth Physics Tournament, Peking University
- Third Prize, Freshman Scholarship, Peking University

## PUBLICATIONS

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---2025---

- Taiyi Wang, Zhihao Wu, Jianehng Liu, et al. "DistRL: An Asynchronous Distributed Reinforcement Learning Framework for On-Device Control Agents", the Thirteenth International Conference on Learning Representations (ICLR'25)
- Taiyi Wang, Liang Liang, Guang Yang, Thomas Heinis, Eiko Yoneki. "A New Paradigm in Tuning Learned Indexes: A Reinforcement Learning-Enhanced Approach", the International Conference on Management of Data (SIGMOD'25)
- Youhe Jiang, Fangcheng Fu, Xiaozhe Yao, Taiyi Wang, Bin Cui, Ana Klimovic, Eiko Yoneki. "ThunderServe: High-performance and Cost-efficient LLM Serving in Cloud Environments", the Eighth Annual Conference on Machine Learning and Systems (MLSys'25)
- Youhe Jiang\*, Fangcheng Fu\*, Taiyi Wang\*, Eiko Yoneki. "LiveServe: Efficient LLM Serving via Workload-aware Scheduling and Workload-adaptive Switching", under review

- Taiyi Wang, Zakir Singh, Eiko Yoneki. "AutoIndexer: A Reinforcement Learning-Enhanced Index Advisor Towards Scaling Workloads", under review
- Wenxuan Li\*, Taiyi Wang\*, Eiko Yoneki. "HiBO: Hierarchical Bayesian Optimization via Adaptive Search Space Partitioning", under review
- Taiyi Wang, Jianheng Liu, Bryan Lee, Zhihao Wu, Yu Wu. "OCMDP: Observation-Constrained Markov Decision Process", under review

#### ---2024---

- Taiyi Wang, Eiko Yoneki. "IA2: Leveraging Instance-Aware Index Advisor with Reinforcement Learning for Diverse Workloads", the 4th Workshop on Machine Learning and Systems of EuroSys, 2024 (EuroMLSys'24)
- Taiyi Wang, Eiko Yoneki. "Enhancing Generalization through Task Vector Fusion in Deep Reinforcement Learning for Database Optimization", European Conference on Computer Systems (EuroSys), Poster, 2024
- George-Octavian Bărbulescu, Taiyi Wang, Zak Singh, Eiko Yoneki. "Learned Graph Rewriting with Equality Saturation: A New Paradigm in Relational Query Rewrite and Beyond", under review

#### ---2023---

- Ali Hadian, Behzad Ghaffari, Taiyi Wang, Thomas Heinis. "COAX: Correlation-Aware Indexing on Multidimensional Data with Soft Functional Dependencies", DBML workshop of the 39th IEEE International Conference on Data Engineering (DBML@ICDE), 2023

#### ---2022 and Before---

- Hao Sun, Taiyi Wang. "Toward Causal-Aware RL: State-Wise Action-Refined Temporal Difference", NeurIPS 2022 Workshop DeepRL, 2022
- Hao Sun, Ziping Xu, Meng Fang, Zhenghao Peng, Taiyi Wang, Bolei Zhou. "Constrained MDPs can be Solved by Early-Termination with Recurrent Models", NeurIPS 2022 Workshop FMDM, 2022
- Hao Sun, Ziping Xu, Taiyi Wang, Meng Fang, Bolei Zhou. "Supervised Q-Learning can be a Strong Baseline for Continuous Control", NeurIPS 2022 Workshop FMDM, 2022
- Taiyi Wang, Jiahao Shi. "Solving Maximal Stable Set problem via Deep Reinforcement Learning", International Conference on Communication Technology, Computational Engineering and Artificial Intelligence (ICAART'20)
- Taiyi Wang, Yajun Fang, Berthold K.P. Horn. "Why do we need bilateral control-in view of energy consumption", 2018 4th IEEE International Conference on Universal Village (IEEE UV'18)