

Taiyi Wang

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Add: Apt 402, 3 Station Square, CB1 2GB, Cambridge, Cambridgeshire, UK

Personal Website: <https://kevinwty0107.github.io/>

▪ Education Background

School of Physics, Peking University

Major: Physics;

Degree: Bachelor of Science, minor in math;

Graduation with Honor

Beijing, China

09/2015 - 07/2019

Department of Computer Science, Johns Hopkins University

Major: Data Intensive & Machine Learning Group ;

Degree: Master of Science and Engineering

Grade: Top 1, GPA 4.0

Baltimore, USA

12/2019 - 06/2021

Department of Computer Science and Technology, University of Cambridge

Major: System & Machine Learning Group ;

Degree: Doctor of Philosophy in Computer Science

Cambridge, UK

09/2021 - Present

▪ Research Interest

Reinforcement Learning, ML-enhanced Database Optimization, ML-enhanced System Optimization

▪ Papers & Posters

- [1]. Taiyi Wang, Zhihao Wu, Jianehng Liu, et al. "DistRL: An Asynchronous Distributed Reinforcement Learning Framework for On-Device Control Agents." *NeurIPS 2024 Workshop on Fine-Tuning in Modern Machine Learning: Principles and Scalability*
- [2]. Taiyi Wang, Wenxuan Li, Eiko Yoneki. "HiBO: Hierarchical Bayesian Optimization via Adaptive Search Space Partitioning", *under review*
- [3]. 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)*
- [4]. Taiyi Wang, Eiko Yoneki. "Enhancing Generalization through Task Vector Fusion in Deep Reinforcement Learning for Database Optimization", *EuroSys, 2024 (Poster)*
- [5]. Taiyi Wang, George-Octavian Bărbulescu, Zak Singh and Eiko Yoneki. "Learned Graph Rewriting with Equality Saturation: A New Paradigm in Relational Query Rewrite and Beyond", *under review*
- [6]. Taiyi Wang, Guang Yang, Liang Liang, Thomas Heinis and Eiko Yoneki. "LITune: Tuning Learned Index Using Deep Reinforcement Learning", *under review*
- [7]. Ali Hadian, Behzad Ghaffari, Taiyi Wang and Thomas Heinis. "COAX: Correlation-Aware Indexing on Multidimensional Data with Soft Functional Dependencies", *DBML workshop of the 39th IEEE International Conference on Data Engineering (ICDE), 2023*
- [8]. Hao Sun, Taiyi Wang. "Toward Causal-Aware RL: State-Wise Action-Refined Temporal Difference." *NeurIPS 2022 Workshop DeepRL, 2022*
- [9]. 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*
- [10]. 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*

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- [11]. Wang, Taiyi, Shi, Jiahao, "Solving Maximal Stable Set problem via Deep Reinforcement Learning." *International Conference on Communication Technology, Computational Engineering and Artificial Intelligence (ICAART)*, 2020
- [12]. Wang, Taiyi, Yajun Fang, and Berthold KP Horn. "Why do we need bilateral control?-in view of energy consumption." *2018 4th International Conference on Universal Village (UV)*. IEEE, 2018.
- [13]. Wang, Taiyi, Fu, Zuntao. "Regional Studies on low-frequency variations in DTR." *Graduation thesis, Department of Atmospheric and Oceanic Sciences, School of Physics, Peking University*, 2019

▪ Program Committee

EuroMLSys'24, EuroMLSys'23

▪ Working Experience

- **Huawei Technology Research Center UK** 06/2024 - 11/2024
Research Scientist Intern, [Noah's Ark Lab-RL x LLM Group](#), London, United Kingdom
- **Powersense Technology Limited, UK** 09/2022 – Present
[Co-founder and Chief Technology Officer](#), Cambridge, United Kingdom
- **Huawei Technology Research Center UK** 06/2023 - 10/2023
Research Scientist Intern, [Database Group](#), Edinburgh, United Kingdom
- **Baidu, Beijing** 11/2018 - 05/2019
Research and Development Engineer, [Big Data Group](#), Beijing, China
- **Sohu.com Ltd** 09/2018 - 11/2018
Research and Development Intern, [Advertising Strategy Group](#), Beijing, China
- **People's Insurance Company of China (PICC)** 08/2017 - 09/2017
Intern actuary, [Actuarial Lab](#), Beijing, China
- **China Securities Co. Ltd** 06/2017 - 08/2017
Investment Bank Research Assistant, [IBD group](#), Beijing China

▪ Research Experience

- **Phd Research, Computer Lab, University of Cambridge** 09/2021 - Present
Instructed by: Dr.Eiko Yoneki
Project: RL-enhanced and ML-enhanced optimization over database management
- **Research Internship, SCALE Lab, Imperial College London** 05/2020 - 10/2020
Instructed by: Prof. Thomas Heinis
Project: Leveraging Soft Functional Dependencies for Indexing Multi-dimensional Data
- **Research Assistant, Computer Science and Health Care Center, JHU** 01/2020 - 05/2020
Instructed by: Prof. Anton Dahbura
Project: Learning-based In-Patient Therapy Analytics
- **Research Assistant, Center for Data Science Peking University** 04/2019 - 08/2019
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** 06/2018 - 10/2018
Instructed by: Prof. Huy T. Vo
Project: Simulating Taxi Ride Sharing at Scale
- **Research Assistant, Intelligent Transportation Research Center, EECS, MIT** 01/2018 - 06/2018
Instructed by: Prof. Berthold K.P. Horn, Dr. Yajun Fang
Project: Building Bilateral Control Simulation Platform (BCSP)

▪ Honors & Awards

Pillman and Cody Award, University of Cambridge

04/2024

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Runner-up in Shenzhen Innovation and Entrepreneurship Competition, Global Final, Shenzhen, China	11/2022
Runner-up in the Chris Abell postdoc Business Plan Competition, Cambridge, United Kingdom	10/2022
Finalist (F Awards, Top 1%), Mathematical Contest in Modeling (MCM)	04/2018
Excellent Graduate Student Award in School of Physics, Peking University	06/2019
Excellent Graduation thesis, Peking University	06/2019
Special Award, the 5th Youth Physical Tournament, Peking University	05/2016
Third Prize, Freshman Scholarship, Peking University	09/2015