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

➢ **Department of Computer Science and Technology, University of Cambridge** **Cambridge, UK**
   Major: System & Machine Learning Group ; **09/2021 - Present**
   Degree: Doctor of Philosophy in Computer Science

➢ **Department of Computer Science, Johns Hopkins University** **Baltimore, USA**
   Major: Data Intensive & Machine Learning Group ; **12/2019 - 06/2021**
   Degree: Master of Science and Engineering
   Grade: Top 1, GPA 4.0

➢ **School of Physics, Peking University** **Beijing, China**
   Major: Physics, minor in math ; **09/2015 - 07/2019**
   Degree: Bachelor of Science
   Graduation with Honor

▪ Research Interest

Reinforcement Learning, LLM-Agent, Scalable Machine Learning, ML-enhanced System Optimization

▪ Working Experience

➢ **Huawei Technology Research Center UK** **06/2024 - 11/2024**
   Research Scientist Intern, Noah's Ark Lab-RL x LLM Agent Group, London, United Kingdom

➢ **Powersense Technology Lmited, UK** **09/2022 - 05/2024**
   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

▪ Research Experience

➢ **Phd Research, Computer Lab, University of Cambridge** **09/2021 - Present**
   Instructed by: Dr.Eiko Yoneki
   Project: RL-enhanced and ML-enhanced Optimizations over Systems

➢ **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, 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)

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- ## Publications

[1]. Taiyi Wang, Zhihao Wu, Jianehng Liu, et al. "DistRL: An Asynchronous Distributed Reinforcement Learning Framework for On-Device Control Agents", *Fine-Tuning in Modern Machine Learning: Principles and Scalability@ NeurIPS 2024*

[2]. Taiyi Wang, Jianheng Liu, Bryan Lee, Zhihao Wu, Yu Wu. "OCMDP: Observation-Constrained Markov Decision Process", *under review*

[3]. Taiyi Wang, Wenxuan Li, Eiko Yoneki. "HiBO: Hierarchical Bayesian Optimization via Adaptive Search Space Partitioning", *under review*

[4]. 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)*

[5]. Taiyi Wang, Eiko Yoneki. "Enhancing Generalization through Task Vector Fusion in Deep Reinforcement Learning for Database Optimization", *EuroSys, 2024* (Poster)

[6]. 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*

[7]. Taiyi Wang, Guang Yang, Liang Liang, Thomas Heinis and Eiko Yoneki. "LITune: Tuning Learned Index Using Deep Reinforcement Learning", *under review*

[8]. 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*

[9]. Hao Sun, Taiyi Wang. "Toward Causal-Aware RL: State-Wise Action-Refined Temporal Difference." *NeurIPS 2022 Workshop DeepRL, 2022*

[10]. 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*

[11]. 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*

[12]. Tayi Wang, Jiahao Shi, "Solving Maximal Stable Set problem via Deep Reinforcement Learning." *International Conference on Communication Technology, Computational Engineering and Artificial Intelligence (ICAART), 2020*

[13]. 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.*

- ## Program Committee

EuroMLSys'24, EuroMLSys'23

- ## Honors & Awards

Pillman and Cody Award, University of Cambridge	**04/2024**
Runner-up in Shenzhen Innovation and Enterpreneurship 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 Univeristy	**06/2019**
Special Award, the 5th Youth Physical Tournament, Peking University	**05/2016**
Third Prize, Freshman Scholarship, Peking University	**09/2015**