

Zilin Wang

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About me

I am a second-year DPhil student in Computer Science at the *University of Oxford*. My research focuses on developing general decision-making agents capable of interacting with complex and dynamic environments. In particular, I explore *Deep Reinforcement Learning (Deep RL)* as a core solution methodology, with a current emphasis on RL methods that leverage offline datasets and pretrained policies. I also care about using RL to tackle real-world challenges like large-scale autonomous driving deployment and improving the reasoning capabilities of large language models, with a particular focus on the role of self-play and reward design.

Education

University of Oxford

DPhil Student in Computer Science

Oxford, UK

Oct 2024 - April 2028 (Expected)

- **Research Interest:** Deep Reinforcement Learning
- **Advisor:** Prof. Shimon Whiteson and Prof. Jakob Foerster

Tsinghua University

Master of Computer Technology

Beijing, China

Sept 2021 - Jun 2024

- **Research Interest:** Reinforcement Learning for Multi-modality Content Generation
- **Advisor:** Prof. Zhiyong Wu

Dalian University of Technology

Bachelor of Digital Media and Technology

Dalian, China

Sept 2017 - Jun 2021

- **GPA:** 4.08/5.00
- **Rank:** 1/77
- **Courses:** Machine Learning (A+), Computer Vision (A+), Computer Graphics (A+), Speech Processing (A+), Software Engineering (A+), Computer network (A+), Graduation Defense (A+)

Publications

Learning to Drive in New Cities: Generalization with Self-Play Reinforcement Learning

Zilin Wang, Saeed Rahmani, Daphne Cornelisse, Bidipta Sarkar, Alexander D. Goldie, Jakob N. Foerster, Shimon Whiteson (2025). 2025

DiscoBench: An Open-Ended Benchmark For Algorithm Discovery

Alexander D. Goldie, **Zilin Wang**, Adrian Hayler, Deepak Nathani, Edan Toledo, Ken Thampirawatwong, Aleksandra Kalisz, Michael Beukman, Alistair Letcher, Shashank Reddy, Clarisse Wibault, Theo Wolf, Charles O'Neill, Shimon Whiteson, Jakob N. Foerster, Roberta Raileanu

<https://alexgoldie.github.io/discobench-blog/> (2025). 2025

How Should We Meta-Learn Reinforcement Learning Algorithms?

Alex Goldie, **Zilin Wang**, Jakob Foerster, Shimon Whiteson

Reinforcement Learning Conference (RLC) (**Outstanding Paper Award**), 2025

Network Sparsity Unlocks the Scaling Potential of Deep Reinforcement Learning

Guozheng Ma, Lu Li, **Zilin Wang**, Li Shen, Pierre-Luc Bacon, Dacheng Tao

Forty-second International Conference on Machine Learning (ICML) (**Oral**, Top 1%), 2025

Explore 3D Dance Generation via Reward Model from Automatically-Ranked Demonstrations

Zilin Wang, Zhuang Haolin, Lu Li, Yinmin Zhang, Junjie Zhong, Jun Chen, Yu Yang, Boshi Tang, Zhiyong Wu

The 38th Annual AAAI Conference on Artificial Intelligence (AAAI), 2024

A Synthetic Corpus Generation Method For Neural Vocoder Training

Zilin Wang, Peng Liu, Jun Chen, Sipan Li, Jinfeng Bai, Gang He, Zhiyong Wu, Helen Meng

ICASSP 2023-2023 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2023

UnifiedGesture: A Unified Gesture Synthesis Model for Multiple Skeletons

Sicheng Yang*, **Zilin Wang*** (equal contribution), Zhiyong Wu, Minglei Li, Zhensong Zhang, Huang Qiaochu, Lei Hao, Songcen Xu, Xiaofei Wu, Changpeng Yang, Zonghong Dai

31st ACM International Conference on Multimedia (ACM MM) (**Oral**, Top 5.39%), 2023

FullSubNet+: Channel attention fullsubnet with complex spectrograms for speech enhancement

Jun Chen, **Zilin Wang**, Deyi Tuo, Zhiyong Wu, Shiyin Kang, Helen Meng

ICASSP 2022-2022 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2022

Experiences

Lingjun Investment

Quantitative Research

Beijing, China

Jun 2024 - Sept 2024

- Research on Stock Price Prediction by Deep Learning.
- Research on the application of Reinforcement Learning in Portfolio Management.

OpenDILab, Shanghai AI Lab

Deep Reinforcement Learning

Shanghai, China

May 2022 - Jan 2023

- Development of **DI-engine**, a reinforcement learning algorithm framework. Including development of algorithms, e.g., **decision transformer**, **MAPPO** and environments, e.g., **Multiple Particle Environment (MPE)**, **Starcraft Multi-Agent Challenge (SMAC)**.
- Exploration and development of multi-agent reinforcement learning algorithms.
- Development of **DI-adventure**, a Reinforcement Learning beginners adventure, which was selected as a final assignment for the Big Data Analytics B course at Tsinghua University.

AI Lab, Tencent

Speech Processing

Shenzhen, China

Nov 2021 - Apr 2022

- Research on Speech Processing and Speech Synthesis.
- A paper "**A Synthetic Corpus Generation Method for Neural Vocoder Training**" was accepted by ICASSP2023 (top conference of Speech Processing).

MMLab, Dalian University of Technology

Scene Text Detection

Dalian, China

Sept 2020 - May 2021

- Research on Computer Vision and Scene Text Detection.
- A paper "**Location-Aware Feature Selection Text Detection Network**" was completed

Awards and Scholarships

2024	Waymo Studentship , Studentship for DPhil research	UK
2023	Excellent Teaching Assistant (top 5%) , Teaching Assistant Award	China
2023	Excellent Teaching Assistant (top 5%) , Teaching Assistant Award	China
2021	Outstanding Graduate (top 1%) , Graduation	China
2020	Bachelor National Scholarship (top 1%) , National Scholarship	China
2020	First Class Study Excellence Scholarship (top 5%) , Study Excellence Scholarship	China
2020	Spiritual Civilization Scholarship (top 5%) , Spiritual Civilization Award	China
2019	First Class Study Excellence Scholarship (top 5%) , Study Excellence Scholarship	China
2019	Spiritual Civilization Scholarship (top 5%) , Spiritual Civilization Award	China
2019	Winner (Student Exchange Support Program) , JASSO Scholarship	Japan
2018	First Class Study Excellence Scholarship (top 5%) , Study Excellence Scholarship	China
2018	Spiritual Civilization Scholarship (top 10%) , Spiritual Civilization Award	China
2018	Lingshui Scholarship Winner (top 3%) , Lingshui Scholarship	China

Teaching Experiences

Reinforcement Learning

University of Oxford

Oxford, UK

Fall 2025

Leading Practicals for graduated Reinforcement Learning course. The main content includes Q-learning, Policy Gradient, Deep RL, POMDP, and Multi-Agent Reinforcement Learning.

Big Data Analysis

Tsinghua University

Shenzhen, China

Fall 2022 & 2023

Lecturing the Reinforcement Learning part, as well as designing and implementing the final project codebase. Winning Excellent teaching assistant award of Tsinghua University.

Open-source repositories

DI-engine

A generalized decision intelligence engine for PyTorch and JAX

Shanghai, China

Contributed over 5,000 lines of code

DI-engine is a reinforcement learning algorithm framework. I focus on incorporate algorithms including decision transformer, MAPPO, and some MARL environments.

DI-adventure

Decision intelligence adventure for beginners

Shanghai, China

Creator and Maintainer

DI-adventure is a tutorial repo exploring the representation learning in Visual Reinforcement Learning.