

# Zilin Wang

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## About me

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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

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### 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

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### 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 Thampiratwong, 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

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## Lingjun Investment

Quantitative Research

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

Beijing, China

Jun 2024 - Sept 2024

## OpenDILab, Shanghai AI Lab

Deep Reinforcement Learning

- 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.

Shanghai, China

May 2022 - Jan 2023

## AI Lab, Tencent

Speech Processing

- 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).

Shenzhen, China

Nov 2021 - Apr 2022

## MMLab, Dalian University of Technology

Scene Text Detection

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

Dalian, China

Sept 2020 - May 2021

## Awards and Scholarships

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

## Teaching Experiences

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### 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

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### 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

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

Creator and Maintainer