

Zefang Huang

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Education

Nanjing University

Sep. 2021 – Now

Candidate for B.S. in Computer Science and Technology (National Elite Program) Nanjing, China

Research Interests

My research interest is reinforcement learning, especially model-based reinforcement learning. I am also looking forward to exploring the application of reinforcement learning in robotics.

Research Goal

In my understanding, reinforcement learning, as one of the artificial intelligence technologies, is different from currently popular generative artificial intelligence in that it can truly give machines the wisdom to make autonomous decisions. Combined with many successful reinforcement learning application examples in the past, I believe it plays a crucial role in the journey towards achieving general artificial intelligence. Although I am in the early stages of my academic journey, my passionate commitment to the field is unwavering. My goal is to overcome the current challenges faced by reinforcement learning, improve RL's efficiency, and explore its cross-application in other fields. I aim to enable machines to learn to think and make decisions like humans.

Publications

[1] Offline Transition Modeling via Contrastive Energy Learning

Ruifeng Cheng*, Chengxing Jia*, **Zefang Huang**, Tian-Shuo Liu, Xu-Hui Liu, Yang Yu

Under review (2024)

[2] Jade: A Differentiable Physics Engine for Articulated Rigid Bodies with Intersection-Free Frictional Contact

Gang Yang, Siyuan Luo, Yunhai Feng, Zhixin Sun, Chenrui Tie, Lin Shao

Under review (ICRA 2024)

I participated in part of the experimental work of the paper, mainly responsible for training the reinforcement learning algorithm to solve the LCP, but I did not signature.

Research experience

LAMDA Group, Nanjing University

SEP. 2022 - NOW

Researcher assistant at Learning And Mining from Data (LAMDA) Lab

NANJING UNIVERSITY

- Advised by [Prof. Yang Yu](#) and [Prof. Zongzhang Zhang](#)
- Focus on researching reinforcement learning, including the optimization of replay buffer, model-based reinforcement learning.

National University of Singapore

MAR. 2023 - OCT. 2023

Researcher assistant

NATIONAL UNIVERSITY OF SINGAPORE

- Advised by [Prof. Lin Shao](#)
- Focus on researching the intersection of reinforcement learning and robotics.

Project

Game - Bubble and Bubble

MAR. 2022 - JUNE 2022

Implemented a game named Bubble and Bubble.

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- The game is implemented using C++, based on QT.
- It can be played in the QT editor, it obtained praise from the teaching assistant of Problem Solving and got full score.
- I implemented it by myself, through this project, I deepened my understanding of C++, became more proficient in using C++, and learned how to organize and complete a small project.

App - Todolist

APR. 2022 - MAY 2022

Implemented an application named Todolist.

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- The application is implemented using dart, base on Android Studio.
- It contains multiple functions like reminding the schedule, counting the amount of expenditure and classifying it etc.
- The project is implemented by four people and I joined as a participant. I did the reminding the schedule part. I experienced a new language dart through this project and I learned how to complete a program with others.

Graph Theory Tool Library

SEP. 2022 - NOV. 2022

Implemented a graph theory tool library.

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- The tool library is implemented using C++. It mainly provides data types, operation functions and classic graph theory algorithm interfaces related to graph theory.
- Users can directly call the data types or functions in it to construct graphs and operate on graphs. They can quickly model to achieve the effect of use, and can also deepen their understanding of graph theory and its algorithms. A more detailed usage method is written on the project home page.

Game - overcooked

MAY 2023 - JUNE 2023

Implemented a game named overcooked.

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- The game is implemented using C++. It can be run directly in Windows terminal.
- It can be played by hands, and can also let the agents run automatically to get scores themselves.

Selected Honor and Awards

Second Prize for Nanjing University Programming Contest(2022)

Nanjing University People's Scholarship(2022, 2023)

Nanjing University Excellent Award for Special scholarship for basic disciplines(2022, 2023)

Outstanding Communist Youth League cadre of Nanjing University(2023)

Outstanding Communist Youth League cadre of College of First-Year Students, Nanjing University(2022)

Outstanding class cadre of College of First-Year Students, Nanjing University(2022)

Bronze Prize in Chinese Mathematical Olympiad(CMO)(2020)

First Prize in National High School Mathematics Joint Competition(the third place in the province)(2020)

Skills

Programming: C/C++, Python

Deep Learning: Pytorch

Robotics: Pybullet