Huayu Chen

Beijing, China chenhuay23@mails.tsinghua.edu.cn 15071064154
https://huayuchen2004.github.io/ HuayuChen2004

Research Interest

My research interest lies in computer vision, reinforcement learning and causal perception. I love to learn new knowledge, to think and to write. My ultimate dream is to build a human-like machine utilizing the power of computation and memory, and this requires extending robots' abilities in various fields, such as perception, motion, cognition and reasoning. I will work ceaselessly to approach this goal.

Education

Tsinghua University *Sept 2023 – now*
Undergrad in Department of Automation

- GPA: 3.82/4.0
- Maths: Calculus, Linear Algebra, Discrete Mathematics, Probability and Statistics
- Computer Science: Programming in C, Object Oriented Programming, Data Structure, Introduction to AI, Principles of AI, Principles and System of Computer
- Electronic Engineering: Electric Circuit, Digital Electronic Technology, Signal and System

Experience

Beijing Institute for General Artificial Intelligence *July 2024 – now*

- Took courses in various fields in AI, read extensive papers, wrote a reading report and a research essay in the summer practical program
- Volunteered in two projects working separately on 3D reconstruction and decision-making process

Social Work

Association of Science and Technology of Automation, Tsinghua University *July 2024 – now*

- Received extensive training on basic programming skills and team development
- Took part in the development of a programming competition Thuai-8
- Responsible for weekly tech-share

Projects

Cooperative Project On Decision Making and Temporal Abstraction *Mar 2024 - now*

- Took part in the development of experimental environment
- Ran extensive experiments to test offline and online RL and DT algorithms
- Read papers to investigate new approaches to solve the sequence modeling problem

Cooperative Project On 3D Reconstruction *Oct 2024 - now*

- Processed video data
- Worked on multi-state modeling with monocular video input
- Helped improve learning algorithms to promote efficient and accurate learning
- Worked on how to cluster 3D tracks obtained by models to help the segmentation process

Style Transfer *github*

- Made use of large vision model to take features from images and transfer to other images
- Automated large scale training process

Cross Game *github*

- Designed heuristic algorithms to solve the CrossGame problem
- Improved GUI to let users better visualize the testing of the algorithm

Image Classification *github*

- Designed convolutional neural network to solve the Image Classification problem
- Evaluated and improved the structure of the neural network

Street Cleaning *github*

- Developed a training environment that is compatible with OpenAI gym APIs to test RL algorithms
- Tested both traditional planning algorithms and deep reinforcement learning algorithms to try to solve the problem of street cleaning
- Visualized results using pygame

Nonogram *github*

- Developed Nonogram game using PyQt as visualization
- Tested some algorithms to solve Nonogram with less computing complexity

3DWorldBuilding *github*

- Project for Object Oriented Programming
- Support operations on points, lines, and faces in obj files that can be visualized online

Skills

Code Languages: C++, C, Python, C#, MATLAB

Technologies: Linux basic commands, Git multi-branch development, Research tools such as tmux and wandb, Neural networks with pytorch, Pygame and PyQt GUI