

Yuqi Xie

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Education

University of Michigan, Ann Arbor

Sep. 2021 – Apr. 2023

Bachelor of Computer Science - College of Engineering

Michigan, U.S.

- Highlighted Courses: Machine Learning, Deep Learning for Computer Vision, Operating System, Web Systems
- GPA: 3.96/4.0

Shanghai Jiaotong University

Sep. 2019 – Aug. 2023

Bachelor of Electrical and Computer Engineering - UM-SJTU Joint Institute

Shanghai, China

Interested Area

- General-purpose agents, Foundation Models, Multimodal Learning
- Robotics, Reinforcement Learning

Research Experience

Nvidia research Team

August 2022 - Present

Research Assistant | Advised by Yuke Zhu, Jim Fan

Remote

- Aim to develop a new general-purpose agent that can understand and finish instructions in human language based on large foundation models. The agent will leverage the large amount of Internet data.
- Develop an asynchronous training server infrastructure based on Ray, Tianshou and Docker to scale-up the training.
- Propose a new group of benchmark tasks focus on the interaction between human and agents.

MineDojo Team

April 2022 - August 2022

Research Assistant | Advised by Jim Fan

Remote

- Develop a Fabric plugin for Minecraft. Allow agents to control the game through keyboard and mouse actions instead of cheat code actions. Get more detailed observation from the game.
- Upgrade MineDojo to v2.0 using the new MineRL backend, allow to run the Video-Pretraining model from OpenAI on all of the MineDojo benchmark tasks.
- Apply the Inverse Dynamic Model from OpenAI to all of the video data provided in MineDojo to generate new tasks.

SOCR MDP Team

Winter and Fall Semester, 2022

Research Assistant | Advised by Ivo D. Dinov, Simeone Marino

University of Michigan

- Clean up the MIMIC-III dataset. Finetune scikit-learn's pre-trained word2vec language model on the dataset.
- Implement the obfuscation process of the datasifter using word2vec, LightGBM and SDV.
- Implement python plugin for calculating utility and privacy of synthesis data in Virtual Hospital Rshiny APP.

Side Projects

Arceus | Personal Project

Winter Semester, 2022

- Build the Gym environment for training agents to play Pokemon Gold. Use Gym Retro as the game simulator.
- Use the RAM Map to hack and read the game's running status to provide the observation for the agents.
- Use Ray Parallel Env to scale-up training. Implement several rgb wrapper for training stability.

Probing into the Reason behind Wasserstein GAN's Success | Machine Learning Course Project

Fall Semester, 2021

- Implement Wasserstein in Generative Adversarial Network, as well as WGAN with gradient penalty.
- State the problem of GAN loss function. Analysis the modifications made by WGAN.
- Train WGAN on three datasets: LSUN Bedroom, CelebA, and Animefaces. Compare WGAN's FID score with the widely used DCGAN. Show the training stability of WGAN.

Technical Skills

Skills: Reinforcement Learning, Training Infrastructure Development, Computer Vision, Natural Language Processing

Software: Gym, Ray, Tianshou, Docker, Pytorch, Gradle, Selenium, Mixin, GRPC, Unity

Programming Language: Python, Java, JavaScript, C++, C#