

YUQI XIE

1859 Shirley Ln Apt B7, Ann Arbor, MI, 48105

📞 734-510-4285 ✉ xieleo@umich.edu 🌐 github.com/xieleo5

Education

University of Michigan, Ann Arbor

Bachelor of Computer Science - College of Engineering

Sep. 2021 – Apr. 2023(Expected)

Ann Arbor, Michigan, U.S.

- **Admitted Transfer Student of the Dual Degree Program**
- **GPA: 3.96/4.0**

Shanghai Jiaotong University

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

Sep. 2019 – Aug. 2021

Shanghai, China

Interested Area

- Artificial Intelligence, Reinforcement Learning, Multi-Modal Machine Learning.
- Software Engineering.
- Extended Reality (VR and AR).

Experience

MineDojo Team

Undergraduate Research Assistant

April 2022 - Present

[Github Website](#)

- Developed a **Gym** environment called FabricDojo for Reinforcement Learning agent based on **Fabric**. It is similar to Microsoft's **MineRL**, but change the action space to be only mouse and keyboard.
- Developed a web browsing Gym environment based on **Selenium**.
- Update MineDojo to MineDojo2 using the new MineRL v1.0 backend, which is based on **MCP-Reborn**

SOCR MDP Team

Undergraduate Research Assistant

Winter Semester, 2022

[Official Website](#)

- Help to clean up the MIMIC-III dataset. Remove unused columns and punctuations.
- Finetune scikit-learn's pre-trained word2vec language model on MIMIC-III dataset.
- Use the finetuned model to obfuscate the personal information in hospital's database.

Previous Works

MineDojo2 | *Python, Gym, Java, Gradle, Jinja2* — Research Project

On-going project

- MineDojo2 is based on MineRL's **new v1.0 backend**. It inherited all of the **MineDojo's api**, and have better support for mouse and keyboard actions.
- The game version is updated to v1.16.5, and there are more observation spaces.
- Support OpenAI's **VPT** pre-trained model, can train new agent based on that easily.

Contribution to MineRL | *Python, Java, Gym* — Personal Contribution

Summer Break, 2022

- MineRL v1.0 was released in August. It completely reformat its backend so many of its APIs are not working.
- Fix the problem that the life status observation always return the default value. [Link to PR](#)
- Implement the equipped item observation on java side, also fix problem of same observation on python side. [Link to PR](#)

FabricDojo | *Python, Gym, Java, GRPC, Mixin, Gradle* — Research Project

Summer Break, 2022

- FabricDojo is a Gym enviroment for Reinforcement Learning agent to play Minecraft. It is based on Fabric, which is a mod maker of Minecraft.
- Use GRPC and localhost socket to communicate between Java and python, run 2 times faster than Microsoft MineRL in benchmark.
- Unlike Microsoft MineRL only use Minecraft 1.12, it can be used on the latest Minecraft Game and can be updated to new version easily.
- The action space more focus on low-level input like mouse and keyboard, so that the agent can act more like a human.

SOCR-DataSifter | *Python* — MDP SOCR Project

Winter Semester, 2022

- **DataSifter** is a method to share real clinical data containing clearly identifiable personal health information (PHI) without compromising either the value of the data or by introducing a substantial risk for re-identification of individuals.
- Use LightGBM to find out keywords that contibute most to the information that need to be obfuscated.

- Finetune language model on MIMIC-III dataset. Obfuscate the data using the language model by finding synonymous substitution.
- Use SDV Privacy-Utility metrics to evaluate the effect of the whole model.

Arceus | *Python, Gym — Personal Project*

Winter Semester, 2022

- A Gym environment for agent to play with Pokemon Gold. The simulator is based on **Gym Retro**.
- The action space is just Game Boy keys. The observation space use the **RAM Map** to read game status.
- The agent now can use BFS to traverse the map, the next step is to use PPO algorithm to train the bot do more job.

Reimplement of WGAN | *Pytorch — EECS 545 Final Project*

Fall Semester, 2021

- Reimplement the Wasserstein Generative Adversarial Network. Train on CelebA, LSUN and animate character sets.
- Analysis the loss function of WGAN and porbe into the reason behind its success.
- Compare WGAN's FID score with the widely used DCGAN. Show that WGAN do better than DCGAN.

Technical Skills

Languages: Python, Java, C/C++, JavaScript

Libraries and tools: Pytorch, Gym, Gradle, Selenium, Mixin, GRPC

Developing Software: VS Code, Jupyter Notebook, Android Studio, Matlab, L^AT_EX, git