JIAYI WENG

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EXPERIENCE

OpenAI L.P. — San Francisco, CA

Member of Technical Staff — 07/2022 – now

- ChatGPT: [Blog] [Website]
- GPT-4: [Blog] [Paper]

Sea Ltd. (Shopee's parent company) — Singapore

Research Engineer, AI Lab — 05/2021 – 09/2021

- Implemented a high-performance parallel environment executor *EnvPool* with C++11 threadpool and pybind11 for a faster reinforcement learning agent training pipeline
- Achieved 1M FPS throughput with the Atari Pong video game and 3M FPS throughput with the Mujoco physics engine on a single DGX-A100 machine, about 20x faster than Python implementation and 2x faster than state-of-the-art solution; open-source at ⌘ **sail-sg/envpool**, ☆ **794**

EDUCATION

Carnegie Mellon University, School of Computer Science — Pittsburgh, PA

Master in Computational Data Science (System Track), QPA: 3.83/4 — 08/2020 – 05/2022

Tsinghua University — Beijing, China

B.Eng. in Computer Science and Technology, GPA: 3.77/4, Rank: 18/154 — 08/2016 – 07/2020

SELECTED OPEN-SOURCE PROJECTS

⌘ **Tianshou**: A PyTorch Deep Reinforcement Learning (RL) Library, ☆ **6022** — 03/2020 – 08/2020

- Initialized project Tianshou with comprehensive functionality and high-quality software engineering standard
- Implemented 20+ RL algorithms, imitation/offline RL and multi-agent RL within only 4000 lines of code
- Supported any type of environment state, RNN-style training and parallel environment simulation (synchronous or asynchronous) for all algorithms with complete documentation and comprehensive unit tests
- Received over 6k GitHub stars with more than 50 contributors around the world

PUBLICATIONS

- **Jiayi Weng**, Min Lin, Shengyi Huang, Bo Liu, Denys Makoviichuk, Viktor Makoviychuk, Zichen Liu, Yufan Song, Ting Luo, Yukun Jiang, Zhongwen Xu, and Shuicheng Yan, "EnvPool: A Highly Parallel Reinforcement Learning Environment Execution Engine", in **NeurIPS'22 Datasets and Benchmarks** [PDF]
- **Jiayi Weng**, Huayu Chen, Dong Yan, Kaichao You, Alexis Duburcq, Minghao Zhang, Yi Su, Hang Su, and Jun Zhu, "Tianshou: A Highly Modularized Deep Reinforcement Learning Library", in **JMLR MLOSS**, [PDF]
- Dong Yan, **Jiayi Weng**, Shiyu huang Chongxuan Li, Yichi Zhou, Hang Su, and Jun Zhu, "Deep Reinforcement Learning with Credit Assignment for Combinatorial Optimization", in **Pattern Recognition**, [PDF]
- Shihong Song*, **Jiayi Weng***, Hang Su, Dong Yan, Haosheng Zou, and Jun Zhu, "Playing FPS Game with Environment-aware Hierarchical Reinforcement Learning", in **IJCAI'19 (oral)**, [PDF]
- **Jiayi Weng**, Tsung-Yi Ho, Weiqing Ji, Peng Liu, Mengdi Bao, and Hailong Yao, "URBER: Ultrafast Rule-Based Escape Routing Method for Large-Scale Sample Delivery Biochips", in **TCAD'18**, [PDF]

SKILLS

Programming Languages: Python, C/C++, Java, JavaScript, HTML/CSS, PHP, Bash, SQL
Tools and Frameworks: Git, LaTeX, PyTorch, Bazel, Spark, Docker, React, Bootstrap