

Xiqiang Liu

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🇺🇸 **Visa Status:** Authorized to work in the US without sponsorship

Education

University of California, San Diego

La Jolla, California

Master of Science

September 2023 - March 2025 (Tentative)

Major: Electrical Engineering (**Track:** Intelligent Systems, Robotics, and Control)

University of California, San Diego

La Jolla, California

Bachelor of Science

August 2019 - March 2023

Major: Data Science — **Minor:** Cognitive Science / Business

Experience

Research Assistant

University of California, San Diego

Advisor: Hao Su, Department of Computer Science and Engineering

June 2022 - December 2023

I contributed to the creation of [ManiSkill2\[1\]](#), a large-scale robotic manipulation benchmark. This robotic manipulation benchmark has **over 300 stars on GitHub** and received **widespread** attention in the robotics research community.

1. Created a **high-precision** assembly manipulation task *AssemblingKits*.
2. Using motion planning, generated expert demonstration datasets for many rigid-body manipulation tasks for demonstration-based algorithms.
3. **Ensured quality of the benchmark** by testing functionalities of all rigid-body manipulation tasks in the benchmark.
4. I worked on a research project that tries to under the **essential requirements** for state-of-the-art multi-modal large language models (MLLM) to comprehend spatial relationships.

Staff Research Associate

University of California, San Diego

Advisor: Michael Davidson, School Of Global Policy and Strategy

September 2022 - September 2023

- I served as the **core maintainer** of [Geodata](#), a Python library designed to streamline geospatial data collection and pre-analysis. The library aims to simplify the process for researchers to discover, access, and utilize diverse geospatial datasets.
- I **developed a geospatial modeling interface** within [Geodata](#), aimed at enabling intuitive and efficient wind speed modeling at global scales. Leveraging [Numba](#) Just-in-Time (JIT) compilation, the interface ensures **parallelized computation processes for enhanced performance**.
- Employing [pytest](#), I integrated tests to validate the core functionalities within the library. These tests cover crucial aspects including the download, validation, manipulation, and modeling of geospatial datasets, thereby ensuring high code quality.
- I improved the package's user experience by enhancing the readability of the documentation for its main functionalities, adopting a [readthedocs](#)-like interface. This effort has garnered **significant positive feedback** from users.

Publications

[1] Jiayuan Gu, Fanbo Xiang, Xuanlin Li, Zhan Ling, **Xiqiang Liu**, Tongzhou Mu, Yihe Tang, Stone Tao, Xinyue Wei, Yunchao Yao, Xiaodi Yuan, Pengwei Xie, Zhiao Huang, Rui Chen, and Hao Su. Maniskill2: A unified benchmark for generalizable manipulation skills. In *International Conference on Learning Representations*, 2023.

Skills

Programming Languages: Python, SQL, Java

Python Libraries: NumPy, PyTorch, pandas, GeoPandas, xarray, scikit-Learn, Numba, Matplotlib

Containerization: Docker, Kubernetes