

# Jiarong Liang

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## EDUCATION

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### University of Waterloo

Research Assistant at the TIGER Lab, advised by Prof. Wenhui Chen.

Waterloo, Canada

2025 – Present

### Washington University in St. Louis(WUSTL)

Master of Science in Computer Science, GPA 4.0/4.0

St. Louis, USA

2022 – 2024

### South China University of Technology(SCUT)

Bachelor of Engineering in Computer Science, GPA 3.85/4.0, Rank 8/160

Guangzhou, China

2018 – 2022

## PUBLICATIONS

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### VisPhyWorld: Probing Physical Reasoning via Code-Driven Video Reconstruction

- **Jiarong Liang\***, Max Ku\*, Ka-Hei Hui, Ping Nie, Wenhui Chen.
- Built **VisPhyWorld**, an execution-based benchmark that tests MLLMs' physical reasoning by having them generate executable simulator code from visual inputs.
- Released **VisPhyBench** (209 scenes, 108 templates) and showed SOTA MLLMs often match semantics but fail to recover physical parameters and consistent dynamics.

### SWE-Next: Scalable Real-World Tasks for Software Engineering Agents

- **Jiarong Liang\***, Zhiheng Lyu\*, Xiangchao Chen, Zijie Liu, Ping Nie, Yuyu Zhang, Wenhui Chen.
- Built **SWE-Next**, an execution-grounded pipeline that automatically turns real GitHub pull requests into runnable tasks by validating commit pairs via test execution and filtering for strict improvements without regressions.
- Introduced reusable environment profiles and containerized, gated trajectory collection to cut build/storage overhead and enable scalable dataset construction and stronger downstream SWE agent performance.

### VisCoder2: Building Multi-Language Visualization Coding Agents

ICLR'26

- Yuansheng Ni\*, Songcheng Cai\*, Xiangchao Chen\*, **Jiarong Liang**, Zhiheng Lyu, Jiaqi Deng, Kai Zou, Ping Nie, Fei Yuan, Xiang Yue, Wenhui Chen.

## EXPERIENCE

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### Software Engineer Intern

2020 – 2021

Tencent

- Contributed to servers cluster stability of mobile **League of Legends** and **Honor Of Kings**.
- Implemented a back-end program using **Golang** responds to user requests, uses **redis** as a cache, and **mysql** stores data, which can handle a large number of requests in a short time.
- Improved the stability and containerized the servers cluster by using **Docker** and **Golang** to improve efficiency
- Containerized the back-end services using **Kubernetes** and **Golang** to manage over 20,000 servers
- Built master node to control work node using **Kubernetes**, built server node management to allocate free resources and removed the problematic nodes, which improved stability rate by 18% for system
- Featured across 5 news networks attracted over 30,000 new users using app

### Graduate Research Assistant

2022 – 2024

Washington University in St. Louis

- Implemented a detection network **Mask-RCNN** with **HTCmask** using **Openmmlab**, **Pytorch**, and **Colab** to classify objects in pictures and identify object outlines from the autonomous driving system
- Redesigned the underwater camera image acquisition using **UNet** and **Pytorch** to analyze track of fish on over 1000 pictures

## TECHNICAL SKILLS

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**Languages:** Swift, UIKit, Golang, Java, Python, C/C++/C#, SQL, JavaScript, HTML/CSS

**Technology Stack:** Figma, Docker, Kubernetes, Vue, Node.js, Flask, Git, REST API, AWS, Apache, Nginx, Redis, MySQL

**LLM/Agent Stack:** vLLM, LiteLLM, Hugging Face Transformers, DeepSpeed, ms-swift, Ray, LLaMA-Factory