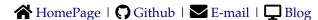
Siqiao Huang



EDUCATION

IIIS (Yao Class), Tsinghua University

2023 - 2027 (expected)

B.S. in Computer Science and Technology;

Beijing, China

o GPA: 3.93/4.00; Rank: 12/93

Selected Courses:

Natural Language Processing(A+), Algebra and Computation(A+, Top 1), Fundamentals of Programming(A+), Multi-modal Machine Learning (A), Deep Learning (A), Computer Vision (A), Introduction to Computer Systems (A).

PUBLICATIONS

* EQUAL CONTRIBUTIONS, † CORRESPONDING AUTHOR

- [1] Siqiao Huang*, Jialong Wu*, Qixing Zhou, Shangchen Miao, Mingsheng Long[†]. Vid2World: Crafting Video Diffusion Models to Interactive World Models. Submitted to NeurIPS, 2025.
- [2] Bohan Lyu*, **Siqiao Huang***, Zichen Liang*, Qian Sun, Jiaming Zhang. **SURGE: On the Potential of Large Language Models as General-Purpose Surrogate Code Executors**. *Submitted to EMNLP*, 2025.
- [3] Shaofeng Yin*, Jialong Wu*, **Siqiao Huang**, Xingjian Su, Xu He, Jianye Hao, and Mingsheng Long[†]. **Trajectory World Models for Heterogeneous Environments**. *Accepted at International Conference on Machine Learning (ICML)*, 2025.

RESEARCH EXPERIENCE

Are Transformers Optimal for Representing Dynamical Systems?

Iun 2025 -

Advisor: Prof. Max Simchowitz | Carnegie Mellon University

- Try to understand the "representation floors" of transformer architectures in dynamical systems.
- Showed both theoretically and empirically the sub-optimality of transformer transformers in representing dynamical systems, even when the dynamics is simple and has "nice" properties.

• Grounding Video Diffusion Models to Interactive World Models

Feb 2025 -Jun 2025

Advisor: Prof. Mingsheng Long | Tsinghua University

- Try to answer the question: Can we utilize the pretrained VDMs to build Interactive World Models?
- While Video Diffusion Models offer high fidelity, it builds on inter-token connections across whole sequence, limiting it's application in predictions where causality plays a huge role.
- Propose a novel structure to transform pretrained VDMs to action-conditioned auto-regressive World Models.

• Billiardbot: Real-World Billiard through VLM Planning and World Model Prediction

Feb 2025 -

Advisor: Prof. Huazhe Xu | Tsinghua University

- Try to tackle the problem of long-horizon planning with embodied agents
- Built a realistic physics simulator for the game of billiard, as well as evolving it to a benchmark for dynamics-model prediction and long-horizon planning.
- Combine the world knowledge embedded in VLMs with domain-specific physics from learned world models to obtain human-level billiard playing with embodied agents.

• SURGE: LLMs as General-Purpose Surrogate Code Executors

Feb 2025

Self-Advised | Tsinghua University

- Try to answer the question: Can current LLMs serve as General-Purpose Surrogate Code Executors?
- Curated a holistic benchmark to and evaluated multiple open- source and proprietary LLMs' performance
- Analyze the behavior of LLMs as surrogate models to provide empirical insight.

Trajectory World Models for Heterogeneous Environments

Jul 2024 - Feb 2025

Advisor: Prof. Mingsheng Long | Tsinghua University

- Try to answer the question: Can we effectively transfer knowledge across **different morphologies** in physical interaction modeling to tackle the out-of-distribution challenges in offline reinforcement learning?
- Pre-train on **data with distinct properties**: Exploratory, Experience replay and Expert Demostration.
- Demonstrates the **dynamics transfer benefits** in some state-based control environments.

HONORS AND AWARDS

Comprehensive Excellence Award

Tsinghua University, University Scholarship

Outstanding Sports Scholarship

Tsinghua University, University Scholarship

Nov 2024

Nov 2024

Sparking Program Member

The most prestigious and selective academic organization for students at Tsinghua University (top 1%).

May 2025

PROFESSIONAL SERVICES

Reviewer for World Model Workshop @ ICLR

2024-2025

ICLR 2025 Workshop on World Models: Understanding, Modelling and Scaling

Teaching Assistant for "Introduction to Artificial Intelligence"

Spring 2025

Introduction to Artificial Intelligence, Spring 2025, Tsinghua University. Instructor: Prof. Mingsheng Long.

SELECTED PROJECTS

• A Survey on k-means Clustering Algorithms: Theoretical Analysis & Performance Comparison Jan 2025

Mostly Theoretical, Tools: Python, Pytorch

 Elucidated the computational complexity and convergence properties of K-means clustering algorithms and its variants.

• DreamFactory: Grounding Language Models to World Models

Nov 2024- Jan 2025

Tools: Python, Pytorch

- · Investigated the feasibility of utilizing language models as text-based world models.
- Proposed a novel architecture to address the self-refutation issue of LLMs and testified it's effectiveness through empirical studies.

ManiGen: Generative Simulation Pipeline with Maniskill2

Oct 2024- Dec 2024

Tools: Python, Pytorch, XML

- Developed a generative simulation pipeline using ManiSkill to automate task creation.
- Utilizes the power of LLMs to propose tasks, generate scenes, and produce task-specific code for rewards, parameters, and metrics.

Course Sharing Platform

Jul 2024

Tools: React, Scala, PostgreSQL, HTML, CSS, JavaScript



- Designed and implemented a PostgreSQL-based course sharing platform using Scala for backend and React for frontend
- o Utilized Stable Diffusion 2 and Llama 2 API to enhance users experiences

CAD Escape Game

Dec 2023- Apr 2024

Tools: C#, Unity Engine

- Developed a 2D Stickman vs CAD-themed game using Unity.
- Won 2nd prize in Software Design Contest of Tsinghua Univerity (2024).

SKILLS

- **Programming Languages**: Python, C/C++, C#, Scala, React, PostGreSQL, Swift, Unity Engine.
- Professional Software: Pytorch, JAX.
- Language: TOEFL: 117/120 (On first trial, Speaking: 30/30). CET-4: 688/710, CET-6: 685/710.

MISC

- Hobbies: Basketball, Singing, Piano and Chinese Flute.
- Groups: I am a member of the IIIS basketball team and a member of Tsinghua University Chorus.
- In high school, I was quite into Physics & Chemistry, and participated in Olympiad in Physics and Olympiad in Chemistry.