Shaofeng Yin

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Education

Tsinghua University Sept. 2022 – Present

B.S. Information and Computing Science; GPA: 3.953/4.0; Major GPA: 4.0/4.0; Rank: 1

Publications & Preprints

[1] **Shaofeng Yin***, Yanjie Ze*, Hong-Xing Yu, C Karen Liu, and Jiajun Wu. Visualmimic: Visual humanoid loco-manipulation via motion tracking and generation. *arXiv preprint arXiv:2509.20322*, In Submission.

[2] Jialong Wu, **Shaofeng Yin**, Ningya Feng, and Mingsheng Long. RLVR-World: Training World Models with Reinforcement Learning. *Advances in Neural Information Processing Systems*, 2025.

[3] **Shaofeng Yin***, Jialong Wu*, Siqiao Huang, Xingjian Su, Xu He, Jianye Hao, and Mingsheng Long. Trajectory World Models for Heterogeneous Environments. In *Proceedings of the 42nd International Conference on Machine Learning (ICML)*, 2025.

[4] Jialong Wu*, **Shaofeng Yin***, Ningya Feng, Xu He, Dong Li, Jianye Hao, and Mingsheng Long. iVideoGPT: Interactive VideoGPTs are Scalable World Models. In *Advances in Neural Information Processing Systems*, 2024.

Research Experience

VisualMimic | *Advisor: Karen Liu & Jiajun Wu | Stanford University* Feb.2025 – Sept.2025

- Pioneered the **first** sim-to-real reinforcement learning (RL) framework for **whole-body visual humanoid loco-manipulation**.
- Introduced a **general** hierarchical control architecture, consisting of a low-level motion tracker and a high-level motion generator.
- Achieves **natural, human-like behaviors** effortlessly via a low-level tracker trained on human motion data—eliminating the need for adversarial training or costly human demonstrations, as required in prior work.
- Easily incorporates new tasks via a high-level motion generator trained with **simple reward signals**—unlike prior sim-to-real RL approaches that rely on extensive and complex reward engineering.
- No MoCap? No problem. Our policy generalizes robustly to **challenging real-world settings**—including outdoor environments—empowering humanoids to perform tasks like box-pushing autonomously, day or night.
- Visibility and recognition: 91k+ views on X, featured by RoboPapers, and invited to present at Amazon's Frontier AI and Robotics (FAR).
- **Leader of the project. In submission (co-first author).**

RLVR-World | *Advisor: Mingsheng Long | Tsinghua University* Feb.2025 – June.2025

- Identified **a key insight**: As world models grow in sophistication, their training objectives increasingly diverge from the true goal of world modeling.
- Proposed the **first** framework to directly optimize world models for task-specific metrics using Reinforcement Learning with Verifiable Rewards (RLVR).
- Demonstrated that adopting RLVR leads to significantly faster and more effective post-training adaptation.
- Achieved substantial performance gains on both **language** and **video** world models across challenging domains including text-based games, web navigation, and robotic manipulation.
- Redefined how world models support downstream tasks—unlocking direct task optimization and offering a paradigm-shifting perspective for the community.
- **Core contributor**. **Paper accepted by NeulPS 2025 (second author).**

TrajWorld | *Advisor: Mingsheng Long* | *Tsinghua University* Sept.2024 – Feb.2025

- Identified a **fundamental limitation** in current world models: they often ignore sensor-actuator configurations, and existing datasets are highly heterogeneous in this regard.
- Designed **a unified architecture** capable of modeling data from diverse environments with varying morphologies—enabling effective transferability and even zero-shot generalization.
- Curated and pre-trained the model on **1.3 million trajectories** collected from heterogeneous embodied environments.
- Achieved strong **zero-shot generalization** and demonstrated substantial **pre-training benefits** on **downstream tasks**, including Off-Policy Evaluation and Model Predictive Control.
- **Led the project end-to-end. Paper accepted to ICML 2025 (co-first author).**
- Received reviewer praise: **"This work could inspire future research on generalist world models."**

AdaPlan | *Advisor: Guanya Shi* | *Carnegie Mellon University* July.2024 – Aug.2024

- Developed a unified framework for progressive model learning and planning.
- Enabled the model to evolve from coarse but smooth representations to accurate yet stiff dynamics, while allowing the planner to exploit the model's adaptive granularity.
- Decomposed the solution into two key components: stiffness-aware dynamics modeling and stiffness-level identification integrated with planning.
- Achieved superior performance on the Go2 quadruped robot in simulation, significantly outperforming baseline methods.

iVideoGPT | *Advisor: Mingsheng Long* | *Tsinghua University* Sept.2023 – June.2024

- Addressed a key question: How can recent advances in **scalable video generative models** be leveraged to build **interactive visual world models**?
- Developed one of the first world modeling frameworks that unifies both scalability and interactivity in a single system.
- Pretrained on 1.4 million **robot manipulation trajectories**, achieving **step-level interactivity** through autoregressive modeling.
- Introduced a compressive tokenization strategy to reduce memory usage during training and enable faster rollouts at inference.
- **Core contributor**. **Paper accepted to NeurIPS 2024 (co–first author).**

Honors

National Scholarship | *Highest honor for undergraduates* Oct. 2025
SenseTime Scholarship | *Top 30 undergraduates in China* June. 2025
Grand Prize (Top 1 of 1,852 Projects) | *Student Research Training Program* Dec. 2024
Scholarship for Excellence in All Aspects | *University Scholarship* Oct. 2023, Oct. 2024
Spark Scientific and Technological Innovation Fellowship (top 1% in university) | *Fellowship* May. 2024
The First Prize of (National) Regional College Students' Physics Contest | *Contest* Dec. 2023
Scholarship for Excellence in Academic Performance | *University Scholarship* Oct. 2023

Skills

Languages: Proficient in C++, Python, and SystemVerilog. Experienced with PyTorch and JAX.

Maths: Familiar with mathematics analysis, measure theory, linear algebra, abstract algebra, probability theory, statistics, causal inference, and discrete mathematics

Platform: IsaacGym, IsaacLab, Unitree G1

TOEFL Score: 108 (Speaking 23)