

Xuanlin (Simon) Li

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EDUCATION

University of California - San Diego

PhD in Computer Science and Engineering, 2021 - now
Advisor: Prof. Hao Su

University of California - Berkeley

B.A. Computer Science (honors) & Mathematics (honors), 2017-2021
Technical GPA: 4.0

EXPERIENCE

• UC San Diego Center for Visual Computing & Contextual Robotics Institute

PhD Student & Researcher

La Jolla, CA

Sep 2021 - Now

- Primary interests: **Embodied AI, Vision-Language, Robotics.**
- Building vision-language models and policies with universal, open-world (2D & 3D) perception and reasoning capabilities that can be efficiently and effectively deployed for real world applications. For example, by integrating these models into large-scale robotic learning systems, we empower robots to acquire generalizable skills and excel in diverse challenging tasks.
- I'm also a major contributor of the SAPIEN Manipulation Skill Challenge (ManiSkill 1&2).

• Qualcomm AI Research

Research Intern

San Diego, CA

Mar 2023 - Sep 2023

- Worked on situated real-time interactions with large language models through multimodal (vision-audio) stream conditioning.

• Berkeley Artificial Intelligence Research

Undergraduate Researcher

Berkeley, CA

Mar 2019 - May 2021

- Advised by Prof. Trevor Darrell. Worked on non-monotonic sequence generation on vision & language tasks, reinforcement learning, and neural network architecture learning.

PUBLICATIONS AND PROJECTS (* = EQUAL CONTRIBUTION)

As of Nov. 28, 2023

• Open X-Embodiment: Robotic Learning Datasets and RT-X Models

Contributor

Preprint

Category: Robotics

• PartSLIP++: Enhancing Low-Shot 3D Part Segmentation via Multi-View Instance Segmentation and Maximum Likelihood Estimation

Y. Zhou*, J. Gu*, X. Li, M. Liu, Y. Fang, H. Su

Preprint

Category: Vision-Language

• Unleashing the Creative Mind: Language Model As Hierarchical Policy For Improved Exploration on Challenging Problem Solving

Z. Ling, Y. Fang, X. Li, T. Mu, M. Lee, R. Pourreza, R. Memisevic, H. Su

Preprint

Category: Language

• OpenShape: Scaling Up 3D Shape Representation Towards Open-World Understanding

M. Liu*, R. Shi*, K. Kuang*, Y. Zhu, X. Li, S. Han, H. Cai, F. Porikli, H. Su

NeurIPS 2023

Category: Vision-Language

• Deductive Verification of Chain-of-Thought Reasoning

Z. Ling*, Y. Fang*, X. Li, Z. Huang, M. Lee, R. Memisevic, H. Su

NeurIPS 2023

Category: Language

• Situated Real-time Interaction with a Virtually Embodied Avatar

S. Panchal, G. Berger, A. Mercier, C. Bohm, F. Dietrichkeit, X. Li, R. Pourreza, P. Madan, A. Bhattacharyya, M. Lee, M. Todorovich, I. Bax, R. Memisevic

CVPR 2023 Embodied AI Workshop (Preprint)

Category: Vision-Language, Embodied AI

• Distilling Large Vision-Language Model with Out-of-Distribution Generalizability

X. Li*, Y. Fang*, M. Liu, Z. Ling, Z. Tu, H. Su

ICCV 2023

Category: Vision-Language, Embodied AI

• Reparameterized Policy Learning for Multimodal Trajectory Optimization

Z. Huang, L. Liang, Z. Ling, X. Li, C. Gan, H. Su

ICML 2023 (Oral)

Category: Robotics, Embodied AI

• On the Efficacy of 3D Point Cloud Reinforcement Learning

Z. Ling*, Y. Yao*, X. Li, H. Su

Preprint

Category: Vision, Embodied AI, Robotics

- **Frame Mining - A Free Lunch for Learning Robotic Manipulation from 3D Point Clouds**
X. Li*, M. Liu*, Z. Ling*, Y. Li, H. Su
CoRL 2022
Category: Vision, Embodied AI, Robotics
- **ManiSkill2: A Unified Benchmark for Generalizable Manipulation Skills**
J Gu⁺, F. Xiang⁺, X. Li*, Z. Ling*, X. Liu*, T. Mu*, Y. Tang*, S. Tao*, X. Wei*,
Y. Yao*, X. Yuan, P. Xie, Z. Huang, R. Chen, H. Su
ICLR 2023
Category: Vision, Embodied AI, Robotics
- **ManiSkill: Generalizable Manipulation Skill Benchmark with Large-Scale Demonstrations**
T. Mu*, Z. Ling*, F. Xiang*, D. Yang*, X. Li*, S. Tao, Z. Huang, Z. Jia, H. Su
NeurIPS 2021
(Dataset & Benchmarks Track)
Category: Vision, Embodied AI, Robotics
- **Improving Policy Optimization with Generalist-Specialist Learning**
Z. Jia, X. Li, Z. Ling, S. Liu, Y. Wu, H. Su
ICML 2022
Category: Robotics, Embodied AI
- **Discovering Non-Monotonic Autoregressive Orderings with Variational Inference**
X. Li*, B. Trabucco*, D.H. Park, Y. Gao, M. Luo, S. Shen, T. Darrell
ICLR 2021
Category: Vision-Language
- **Regularization Matters in Policy Optimization - An Empirical Study on Continuous Control**
Z. Liu*, X. Li*, B. Kang, T. Darrell
ICLR 2021 (Spotlight)
Category: Robotics

HONORS AND AWARDS

- Jacobs School of Engineering PhD Fellowship, UC San Diego, 2021
- Arthur M. Hopkin Award, UC Berkeley EECS, 2021

TECHNICAL SKILLS

- **Languages:** Python, Java, C/C++, Bash, LaTeX, Golang, HTML/CSS
- **Libraries / Softwares:** PyTorch, Tensorflow, Numpy/Scipy/Pandas/Matplotlib/Scikit-learn, Jax, Open3D/Trimesh, Blender
- **Developer Tools:** Git, Docker, Kubernetes, Vim, VSCode
- **Selected CourseWork:**
 - Graduate: Computer Vision, ML for 3D Geometry, Deep Unsupervised Learning, ML for Robotics, Deep Reinforcement Learning, Advanced Robotics, Natural Language Processing, Theoretical Statistics, Topology and Real Analysis, Functional Analysis
 - Undergraduate: Machine Learning, Operating Systems, Probability Theory and Random Processes, Optimization, Algorithms, Data Structures, Machine Structures, Real Analysis, Linear Algebra, Abstract Algebra, Complex Analysis, Numerical Analysis, Differential Geometry, PDE

SERVICE

- **Reviewer:**
 - Computer Vision: CVPR'22'23, ECCV'22, ICCV'23
 - Machine Learning: NeurIPS'22'23, ICML'22'23, ICLR'22'24
 - Robotics: ICRA'24
- **Teaching Assistant:** Fall 2022 UCSD CSE 291 - ML for 3D Geometry