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** — La Jolla, CA
  PhD Student & Researcher — *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** — San Diego, CA
  Research Intern — *Mar 2023 - Sep 2023*
  - Worked on situated real-time interactions with large language models through multimodal (vision-audio) stream conditioning.
- **Berkeley Artificial Intelligence Research** — Berkeley, CA
  Undergraduate Researcher — *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 (* = EQUAL CONTRIBUTION)

As of Oct. 3, 2023

- **Open X-Embodiment: Robotic Learning Datasets and RT-X Models**
  Contributor — Preprint
  Category: Robotics
- **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**
  M. Liu*, **X. Li***, 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