Xuanlin (Simon) Li

xul012@ucsd.edu ◇ LinkedIn ◇ Website ◇ Github

EDUCATION

University of California - San Diego *September 2021 - Present*

Ph.D. in Computer Science and Engineering Advisor: Prof. Hao Su

University of California - Berkeley *August 2017 - May 2021*

B.A. Computer Science (honors program), B.A. Mathematics (honors program) Technical GPA: 4.0

Research Assistant at Berkeley Artificial Intelligence Research Advisor: Prof. Trevor Darrell

HONORS AND AWARDS

Jacobs School of Engineering Ph.D. Fellowship UC San Diego CSE, 2021

Arthur M. Hopkin Award (Link) UC Berkeley EECS, 2021

PUBLICATIONS

Areas: 2D & 3D computer vision, unsupervised learning, representation learning, natural language processing, deep reinforcement learning, embodied AI, robotics, optimization

(* = equal first-author contribution)

- T. Mu*, Z. Ling*, F. Xiang*, D. Yang*, **X. Li***, S. Tao, Z. Huang, Z. Jia, H. Su | Link
  ManiSkill: Generalizable Manipulation Skill Benchmark with Large-Scale Demonstrations
  Neural Information Processing Systems (NeurIPS) 2021 (Datasets and Benchmarks Track)
  - We propose SAPIEN Manipulation Skill Benchmark (ManiSkill Benchmark), a large-scale benchmark for generalizable physical manipulation skill learning over diverse object geometries and topologies from 3D visual inputs. We provide a large number of demonstrations (∼1.5M point cloud/RGB-D frames) and baselines using 3D deep learning architectures and learning-from-demonstrations (LfD) algorithms.
- **X. Li***, B. Trabucco*, D.H. Park, Y. Gao, M. Luo, S. Shen, T. Darrell | Link
  Discovering Non-Monotonic Autoregressive Orderings with Variational Inference
  International Conference on Learning Representations (ICLR) 2021 (poster).
  - We propose a novel unsupervised approach using Transformers and approximated variational inference over permutation distributions for efficiently learning autoregressive sequence generation orders across vision and language tasks purely from training data - no domain knowledge required. Empirical results demonstrate that our method is context-aware and discovers orderings that are competitive with or even better than fixed orders.
- Z. Liu*, **X. Li***, B. Kang, T. Darrell | Link
  Regularization Matters in Policy Optimization - An Empirical Study on Continuous Control
  International Conference on Learning Representations (ICLR) 2021 (spotlight).
  - We explore the effectiveness of conventional regularization techniques in supervised learning on continuous control tasks in deep reinforcement learning through performance and hyperparameter sensitivity analysis. We assess how these regularizers encourage model generalization through sample complexity, return distribution, policy weight norm, and noise robustness perspectives.

TECHNICAL SKILLS

Areas: Machine Learning, Deep Learning (Computer Vision, Deep Reinforcement Learning, Natural Language Processing, Robotics), Operating Systems, Statistics, Probability Theory, Optimization

Languages: Python, Java, C/C++, Bash, LaTeX, Golang, HTML/CSS

Libraries: Deep learning frameworks (PyTorch, Tensorflow v1 & v2), Numpy, Scipy, Pandas, Scikit-learn, Matplotlib, Seaborn

Developer Tools: Git, Docker, Kubernetes, Vim, Sublime Text

Selected Coursework:

- Graduate: Computer Vision, Deep Unsupervised Learning, Deep Reinforcement Learning, Advanced Robotics, Mathematics for 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