

# Xinyang Geng

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## EDUCATION

### University of California, Berkeley

*Ph.D.* in Computer Science

Aug 2018 – Now

- Advised by Professor Sergey Levine.
- Research in large language models, vision-language models and deep reinforcement learning.

### University of California, Berkeley

*B.A.* in Computer Science and Statistics (double major)

Aug 2013 – May 2017

- Graduated with high distinction and honor in computer science.

## PUBLICATIONS AND PREPRINTS

### Offline Q-Learning on Diverse Multi-Task Data Both Scales And Generalizes

Aviral Kumar\*, Rishabh Agarwal\*, **Xinyang Geng**, George Tucker, Sergey Levine  
*Notable top 5%, ICLR 2023, arXiv:2211.15144*

### Towards Better Few-Shot and Finetuning Performance with Forgetful Causal Language Models

Hao Liu\*, **Xinyang Geng\***, Lisa Lee, Igor Mordatch, Sergey Levine, Sharan Narang, Pieter Abbeel  
*arXiv:2210.13432*

### Multimodal Masked Autoencoders Learn Transferable Representations

**Xinyang Geng\***, Hao Liu\*, Lisa Lee, Dale Schuurams, Sergey Levine, Pieter Abbeel  
*arXiv:2205.14204*

### Design-bench: Benchmarks for data-driven offline model-based optimization

Brandon Trabucco\*, **Xinyang Geng\***, Aviral Kumar, Sergey Levine  
*Oral presentation, ICML 2022, arXiv:2202.08450*

### Conservative Objective Models for Effective Offline Model-Based Optimization

Brandon Trabucco\*, Aviral Kumar\*, **Xinyang Geng**, Sergey Levine  
*Oral presentation, ICML 2021, arXiv:2107.06882*

### Variable-Shot Adaptation for Online Meta-Learning

Tianhe Yu\*, **Xinyang Geng\***, Chelsea Finn, Sergey Levine  
*arXiv:2012.07769*

### Meta-Reinforcement Learning Robust to Distributional Shift via Model Identification and Experience Relabeling

Russell Mendonca\*, **Xinyang Geng\***, Chelsea Finn, Sergey Levine  
*arXiv:2006.07178*

### Rewriting History with Inverse RL: Hindsight Inference for Policy Improvement

Benjamin Eysenbach\*, **Xinyang Geng\***, Sergey Levine, Ruslan Salakhutdinov  
*Oral presentation, NeurIPS 2020, arXiv:2002.11089*

**Dynamical Distance Learning for Unsupervised and Semi-Supervised Skill Discovery**

Kristian Hartikainen, **Xinyang Geng**, Tuomas Haarnoja\*, Sergey Levine\*  
*ICLR 2020. arXiv:1907.08225*

**Improved Generalization with Curvature Regularization**

**Xinyang Geng**, Lechao Xiao, Hossein Mobahi, Jeffrey Pennington  
*ICML 2018 Workshop: Modern Trends in Nonconvex Optimization for Machine Learning Workshop*

**Automatic Goal Generation for Reinforcement Learning Agents**

Carlos Florensa\*, David Held\*, **Xinyang Geng\***, Pieter Abbeel  
*ICML 2018. arXiv:1705.06366*

**Real-Time User-Guided Image Colorization with Learned Deep Priors**

Richard Zhang\*, Jun-Yan Zhu\*, Phillip Isola, **Xinyang Geng**, Angela S. Lin, Tianhe Yu, Alexei A. Efros  
*SIGGRAPH 2017. arXiv:1705.02999*

**Deep Reinforcement Learning for Tensegrity Robot Locomotion**

Marvin Zhang\*, **Xinyang Geng\***, Jonathan Bruce\*, Ken Caluwaerts, Massimo Vespignani, Vytas SunSpiral, Pieter Abbeel, Sergey Levine  
*ICRA 2017. arXiv:1609.09049*

**RESEARCH  
EXPERIENCE**

**UC Berkeley**

Graduate Student Researcher

Aug 2018 – Now  
Berkeley, CA

- Advised by Professor Sergey Levine.
- Working on deep reinforcement learning, model-based optimization, vision language models and large language models.

**Google Brain**

Research Intern

May 2022 – October 2022  
Mountain View, CA

- Worked under the supervision of Igor Mordatch
- Worked on research projects in large language models, vision-language models and deep reinforcement learning.

**Google Brain**

Google AI Resident

Jul 2017 – Jul 2018  
Mountain View, CA

- Worked under the supervision of Sergey Levine, Jeffrey Pennington, Hossein Mobahi, Nicolas Le Roux and Ofir Nachum.
- Worked on research projects in neural network architecture improvement, regularization techniques for neural networks and meta-reinforcement learning.

**UC Berkeley AI Research Lab**

Undergraduate Research Assistant

Oct 2015 – May 2017  
Berkeley, CA

- Worked under the supervision of Professor Pieter Abbeel, Professor Sergey Levine and Professor Alexei Efros.
- Performed research on deep reinforcement learning for robotics, curriculum for goal conditioned reinforcement learning and image colorization.

**UC Berkeley StatNews Project** Jan 2014 – May 2015  
Undergraduate Research Assistant Berkeley, CA

- Worked under the supervision of Professor Laurent El Ghaoui.
- Applied machine learning approaches to the analysis of large text corpus.

**ENGINEERING EXPERIENCE** **Google** May – Aug 2015  
Software Engineering Intern Mountain View, CA

- Worked in advertisement data infrastructure engineering productivity team.
- Designed and built dashboard website for a log processing pipeline testing framework.
- Created performance visualization and alert service.

**IBM** May – Aug 2014  
Software Engineering Intern Emeryville, CA

- Worked on the IBM Endpoint Manager product.
- Designed software for multiple platforms including Windows with Microsoft SQL Server and Linux with IBM DB2.
- Developed GUI in Microsoft Visual Studio with MFC.

**RESEARCH SOFTWARE**

**EasyLM**  
<https://github.com/young-geng/EasyLM>  
Easy to use model parallel large language models training and evaluation in JAX/Flax using pjit on cloud TPU pods, with support for popular language models such as GPT-J, OPT and Roberta.

**MLXU**  
<https://github.com/young-geng/mlxu>  
Machine Learning eXperiment Utilities: convenient utilities for running machine learning experiments, parsing experiment configurations and logging results.

**M3AE**  
[https://github.com/young-geng/m3ae\\_public](https://github.com/young-geng/m3ae_public)  
This is a JAX/Flax re-implementation for multimodal masked autoencoders (M3AE) and regular masked autoencoders (MAE) with support for large scale data parallelism on cloud TPU pods.

**JaxCQL**  
<https://github.com/young-geng/JaxCQL>  
A simple and modular implementation of the conservative Q learning (CQL) and soft actor critic (SAC) algorithm in JAX and Flax. This implementation is highly efficient, so that you can train an SAC agent in 30 minutes and a CQL agent in an hour.

**RESEARCH MENTORING**

**Russell Mendonca** (2019-2020)  
Undergraduate at UC Berkeley → PhD student at CMU.  
CRA Undergraduate Research Award finalists.

**Brandon Trabucco** (2020-2021)  
Undergraduate at UC Berkeley → PhD student at CMU.

**Kevin Li** (2022)  
5th year MS at UC Berkeley.

**Sathvik Kolli** (2022-2023)  
5th year MS at UC Berkeley, to graduate in 2023.

**Han Qi** (2022-2023)  
Undergraduate at UC Berkeley, to graduate in 2023.  
CRA Undergraduate Research Award nomination.

**SERVICES**

**Reviwer:** ICML 2019, NeurIPS 2019, ICLR 2020, NeurIPS 2020, ICLR 2021, ICML 2021, NeurIPS 2021, Neurips 2022, ICLR 2022, ICLR 2023

**TECHNICAL  
SKILLS**

**Programming Skills:** Python, C/C++, CUDA, Java, Bash, MATLAB.  
**Deep Learning Frameworks:** JAX(Flax), PyTorch  
**Github Profile:** <https://github.com/young-geng>