

Daniel Ho

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I believe the future of AI is embodied. To get there, I work to solve robot learning for practical, unstructured, helpful tasks at exponential scale, to make robot intelligence orders of magnitudes better.

WORK EXPERIENCE

Everyday Robots (Google/Alphabet) (from X, Google[X])

2018 – Present

Senior Software Engineer, Machine Learning (Google L5)

Mountain View, CA

- Leading sim-to-real transfer research effort: using reinforcement learning, imitation learning, and perception to solve general purpose robotics learning for everyday tasks and services using mobile manipulators, in a team of 30+ FTEs jointly with [Robotics at Google](#) researchers.
- Built end-to-end machine learning systems that autonomously open latched doors ([WIRED](#)), grasp and sort recycling objects ([WIRED](#)), and solve hundreds of manipulation tasks from natural language instructions ([TechCrunch](#)) with large language models.
- Created team's synthetic CV/ML data generation and visual domain adaptation / sim2real transfer systems.
- Published [7 publications](#) and 5 pending patents.

Berkeley AI Research (BAIR)

2017 – 2019

Undergraduate Researcher

Berkeley, CA

- Research in AutoML and generative models with [Peter Xi Chen](#) and [Pieter Abbeel](#).

University of California, Berkeley

2017 – 2018

Student Instructor, EECS

Berkeley, CA

NVIDIA

2018

Deep Learning Intern, Isaac Robotics Simulation

Santa Clara, CA

Lawrence Livermore National Laboratory

2017

Computer Vision Research Intern

Livermore, CA

EDUCATION

University of California, Berkeley

2016 – 2018

BA, Computer Science

Berkeley, CA

- 4.0 GPA, Highest Distinction in General Scholarship, Phi Beta Kappa, Upsilon Pi Epsilon.
- Special Award for Excellence in Computer Science. Outstanding Undergraduate Teaching and Leadership.

Affiliations: Queer in AI

PUBLICATIONS

Papers: Robotics

Do As I Can, Not As I Say: Grounding Language in Robotic Affordances

Michael Ahn*, Anthony Brohan*, Noah Brown*, Yevgen Chebotar*, Omar Cortes*, Byron David*, Chelsea Finn*, Keerthana Gopalakrishnan*, Karol Hausman*, Alex Herzog*, **Daniel Ho***, Jasmine Hsu*, Julian Ibarz*, Brian Ichter*, Alex Irpan*, Eric Jang*, Rosario Jauregui Ruano*, Kyle Jeffrey*, Sally Jesmonth*, Nikhil Joshi*, Ryan Julian*, Dmitry Kalashnikov*, Yuheng Kuang*, Kuang-Huei Lee*, Sergey Levine*, Yao Lu*, Linda Luu*, Carolina Parada*, Peter Pastor*, Jornell Quiambao*, Kanishka Rao*, Jarek Rettinghouse*, Diego

Reyes*, Pierre Sermanet*, Nicolas Sievers*, Clayton Tan*, Alexander Toshev*, Vincent Vanhoucke*, Fei Xia*, Ted Xiao*, Peng Xu*, Sichun Xu*, Mengyuan Yan*
Preprint. [arXiv:2202.07600](https://arxiv.org/abs/2202.07600). say-can.github.io.

Bayesian Imitation Learning for End-to-End Mobile Manipulation

Yuqing Du, **Daniel Ho**, Alexander A. Alemi, Eric Jang, Mohi Khansari

Accepted at International Conference on Machine Learning (ICML), 2022. [arXiv:2202.07600](https://arxiv.org/abs/2202.07600)

Practical Imitation Learning in the Real World via Task Consistency Loss

Mohi Khansari, **Daniel Ho**, Yuqing Du, Armando Fuentes, Matthew Bennice, Nicolas Sievers, Sean Kirmani, Yunfei Bai, Eric Jang

Preprint. [arXiv:2202.01862](https://arxiv.org/abs/2202.01862).

Universal Controllers with Differentiable Physics for Online System Identification

Michelle Guo, Wenhao Yu, **Daniel Ho**, Jiajun Wu, Yunfei Bai, Karen Liu, Wenlong Lu

Preprint.

RetinaGAN: An Object-aware Approach to Sim-to-Real Transfer

Daniel Ho, Kanishka Rao, Zhuo Xu, Eric Jang, Mohi Khansari, Yunfei Bai

International Conference on Robotics and Automation (ICRA), 2021. [arXiv:2011.03148](https://arxiv.org/abs/2011.03148). retinagan.github.io.

SimGAN: Hybrid Simulator Identification for Domain Adaptation via Adversarial Reinforcement Learning

Yifeng Jiang, Tingnan Zhang, **Daniel Ho**, Yunfei Bai, C. Karen Liu, Sergey Levine, Jie Tan

International Conference on Robotics and Automation (ICRA), 2021. [arXiv:2101.06005](https://arxiv.org/abs/2101.06005)

COCOI: Contact-aware Online Context Inference for Generalizable Non-planar Pushing

Zhuo Xu, Wenhao Yu, Alexander Herzog, Wenlong Lu, Chuyuan Fu, Masayoshi Tomizuka, Yunfei Bai, C. Karen Liu, **Daniel Ho**

International Conference on Intelligent Robots and Systems (IROS), 2021. [arXiv:2011.11270](https://arxiv.org/abs/2011.11270)

Papers: Core Machine Learning and Computer Vision

Population Based Augmentation: Efficient Learning of Augmentation Policy Schedules

Daniel Ho, Eric Liang, Ion Stoica, Pieter Abbeel, Xi Chen

International Conference on Machine Learning (ICML), 2019. [arXiv:1905.05393](https://arxiv.org/abs/1905.05393)

Improvements to Context Based Self-Supervised Learning

T. Nathan Mundhenk, **Daniel Ho**, Barry Y. Chen

Conference on Computer Vision and Pattern Recognition (CVPR), 2018. [arXiv:1711.06379](https://arxiv.org/abs/1711.06379)

Blog Posts

1000x Faster Data Augmentation: [Towards Data Science](#). [Berkeley AI Research Blog](#).

Toward Generalized Sim-to-Real Transfer for Robot Learning: [Google AI Blog](#).

Research Interests

Machine Learning, Deep Learning Algorithms, Computer Vision, Sim-to-Real Transfer, Transfer Learning, Domain Adaptation, Reinforcement Learning, Imitation Learning, Learning from Demonstrations, Robot Perception, Robot Manipulation, Self-supervised Learning, PyBullet. Using TensorFlow and Python.