

# Kevin Frans

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## EDUCATION

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### University of California, Berkeley, PhD

Berkeley Artificial Intelligence Research, EECS Department

Advisors: Pieter Abbeel and Sergey Levine

Teaching: *Co-Instructor, Deep Unsupervised Learning*

Berkeley, CA

2023 - Current

### Massachusetts Institute of Technology, Master of Engineering

Computer Science and Electrical Engineering, AI Concentration

Advisor: Prof. Phillip Isola, CSAIL Embodied Intelligence Lab

Thesis: Generalizable Reinforcement Learning via Open-Ended Task Generation

Cambridge, MA

June 2023

### Massachusetts Institute of Technology, Bachelor of Science

Computer Science and Electrical Engineering

Cambridge, MA

June 2022

## WORK EXPERIENCE

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### MIT CSAIL Embodied Intelligence Lab, [ei.csail.mit.edu](https://ei.csail.mit.edu)

Research Assistant

Cambridge, MA

Sep 2018 - Current

- Advisor: Prof. Phillip Isola
- Led numerous projects on model generalization, curiosity, contrastive learning, language tasks.
- Took charge of blog posts, lab meetings, GPU infrastructure and research discussion

### Cross Labs, [crosslabs.org](https://crosslabs.org)

AI Research Scientist

Kyoto, Japan

Aug 2020 - Aug 2021

- Advisors: Dr. Olaf Witkowski and Dr. L. B. Soros
- Primary investigator on AI+games, open-endedness, meta-learning, evolutionary computation.
- Published a range of first-author papers, blogs, and open-source projects throughout the year.

### Sizigi Studios, [sizigistudios.com](https://sizigistudios.com)

AI Research and Engineering Intern

San Francisco, CA

June - Aug 2019

- Developed SOTA high-res portrait generation methods, successfully scaling to over 500,000+ users.
- Researched methods for character video generation from facial landmarks

### Autodesk Research, [autodeskresearch.com](https://autodeskresearch.com)

AI Research Intern, Office of the CTO

San Francisco, CA

June - Aug 2018

- Advisor: Chin-Yi Cheng
- Designed and published a method for translating pixel images into vector space.
- Created automatic drawing AI and a “sketch to design file” for architecture plans.

### OpenAI, [openai.com](https://openai.com)

AI Research Intern, Reinforcement Learning Group

San Francisco, CA

June - Aug 2017

- Advisors: Jonathan Ho and John Schulman
- Vastly sped up reinforcement learning algorithms on long-term robotics tasks, utilizing hierarchical structures and meta-learning over a range of tasks

## SELECT PUBLICATIONS

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### Unsupervised Zero-Shot Reinforcement Learning via Functional Reward Encodings

2023

Kevin Frans, Seohong Park, Pieter Abbeel, Sergey Levine

International Conference on Machine Learning (ICML) Spotlight, top-3%, [arxiv.org/abs/2402.17135](https://arxiv.org/abs/2402.17135)

### Powderworld: A Platform for Understanding Generalization via Rich Task Distributions

2022

Kevin Frans, Phillip Isola

International Conference on Learning Representations (ICLR), top-25%. [arxiv.org/abs/2211.13051](https://arxiv.org/abs/2211.13051)

### CLIPDraw: Exploring Text-to-Drawing Synthesis via Language-Image Encoders

2022

Kevin Frans, L.B. Soros, Olaf Witkowski

Neural Information Processing Systems (NeurIPS), [arxiv.org/abs/2106.14843](https://arxiv.org/abs/2106.14843)

## SELECT PUBLICATIONS, cont.

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<b>Selecting for Selection: Learning To Balance Adaptive &amp; Diversifying Pressures in Evo. Search</b>	2022
Kevin Frans, L.B. Soros, Olaf Witkowski Released as a Preprint, <a href="https://arxiv.org/abs/2103.06435">arxiv.org/abs/2103.06435</a>	
<b>Population-Based Evolution Optimizes a Meta-Learning Objective</b>	2021
Kevin Frans, Olaf Witkowski Released as a Preprint, <a href="https://arxiv.org/abs/2103.06435">arxiv.org/abs/2103.06435</a>	
<b>To Extract Information from Language Models, Optimize for Causal Response</b>	2021
Kevin Frans, Phillip Isola Released as a blog post, <a href="https://kvfrans.com/causal-language-model/">kvfrans.com/causal-language-model/</a>	
<b>AI Charades: Language Models as Interactive Game Environments</b>	2021
Kevin Frans IEEE Conference on Games, <a href="https://ieeegames.org/2021/assets/papers/paper_241.pdf">ieeegames.org/2021/assets/papers/paper_241.pdf</a>	
<b>Q's for the Open-Ended Evolution Community: Reflections from the 2021 Cross Labs Workshop</b>	2021
Kevin Frans, L.B. Soros, Olaf Witkowski Conference on Artificial Life, <a href="https://workshops.alife.org/oe4/papers/frans-oe4-camera-ready.pdf">workshops.alife.org/oe4/papers/frans-oe4-camera-ready.pdf</a>	
<b>Meta Learning Shared Hierarchies</b>	2018
Kevin Frans, Jonathan Ho, Xi Chen, Pieter Abbeel, John Schulman International Conference on Learning Representations (ICLR), <a href="https://arxiv.org/abs/1710.09767">arxiv.org/abs/1710.09767</a>	
<b>Unsupervised Image to Sequence Translation with Canvas-Drawer Networks</b>	2018
Kevin Frans, Chin-Yi Cheng Released as a Preprint, <a href="https://arxiv.org/abs/1809.08340">arxiv.org/abs/1809.08340</a>	
<b>Outline Colorization through Tandem Adversarial Networks</b>	2017
Kevin Frans Released as a Preprint, <a href="https://arxiv.org/abs/1704.08834">arxiv.org/abs/1704.08834</a>	

## SERVICE AND TALKS

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**Review:** NeurIPS, ICLR, ICML, SIGGRAPH, Eurographics    **Organize:** Cross Labs Innovation Science Workshop  
**Talks:** TED 2018, "What if AI Learned More like Humans Do?"

## HONORS AND AWARDS

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<b>NSF Graduate Research Fellow</b>	2023-Current
<b>Finalist, Hertz Fellowship</b>	2023
<b>MIT IBM-Watson AI Undergraduate Research and Innovation Scholar</b>	2021
<b>Paul E. Gray UROP Researcher</b>	2021
<b>First Place, AI@MIT Generator Competition</b>	2021
<b>Interact Fellow</b>	2019
<b>USACO Platinum Division</b>	2018

## SELECT PROJECTS

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<b>AI Tutorials and Visualizations, <a href="https://kvfrans.com/tag/research/">kvfrans.com/tag/research/</a></b>	June 2016 - Current
<ul style="list-style-type: none"><li>Wrote 400,000+ view graphical explanations detailing generative models, autoencoders, GANs, etc.</li><li>Focus on communicative design for teaching to beginners and newcomers</li></ul>	
<b>Kirisame Jump Game Studio, <a href="https://store.steampowered.com/curator/37730152">https://store.steampowered.com/curator/37730152</a></b>	June 2018 - Current
<ul style="list-style-type: none"><li>Led assorted teams to develop indie games "RAIN Project", "Iwate Mountain Dance" +more on Steam</li><li>Contributed programming, game design and pixel-art spritework</li></ul>	
<b>Learning to Win at Pokemon</b>	Sep 2021 - Jan 2022
<ul style="list-style-type: none"><li>Conducted research on training reinforcement learning agents to self-play Pokemon</li><li>Built out training infrastructure, integrated parallel game simulations and GPU calls</li></ul>	
<b>ParagraphAI, <a href="https://paragraphai.com">paragraphai.com</a></b>	Mar 2022 - Current
<ul style="list-style-type: none"><li>Startup bringing AI-powered writing collaboration to the general public.</li><li>Scaled team to 16+ employees, overseeing development of core product, iOS, Chrome, and Android.</li></ul>	