Kevin Frans

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EDUCATION

Massachusetts Institute of Technology, Master of Engineering *Cambridge, MA*
Computer Science and Electrical Engineering, AI Concentration Expected: **June 2023**
Advisor: Prof. Phillip Isola, CSAIL Embodied Intelligence Lab
Proposed Thesis: Generalizable Reinforcement Learning via Open-Ended Task Generation

Massachusetts Institute of Technology, Bachelor of Science *Cambridge, MA*
Computer Science and Electrical Engineering Expected: **June 2022**
Relevant Coursework: *Computational Sensorimotor Control, Representation and Inference in AI, Linear Algebra, Signals and Systems, Computational Structures, Interconnected Embedded-Systems, Probability & Random Variables, Computer System Engineering, Creating Video Games, Computer Graphics, Signals Systems and Inference*

WORK EXPERIENCE

MIT CSAIL Embodied Intelligence Lab, ei.csail.mit.edu *Cambridge, MA*
Research Assistant **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 *Kyoto, Japan*
AI Research Scientist **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 *San Francisco, CA*
AI Research and Engineering Intern **June - Aug 2019**

- Advisor: Haitao Mao
- 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 *San Francisco, CA*
AI Research Intern, Office of the CTO **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 *San Francisco, CA*
AI Research Intern, Reinforcement Learning Group **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

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

Selecting for Selection: Learning To Balance Adaptive & Diversifying Pressures in Evo. Search **2022**
Kevin Frans, L.B. Soros, Olaf Witkowski
Released as a Preprint, arxiv.org/abs/2103.06435

SELECT PUBLICATIONS, cont.

Population-Based Evolution Optimizes a Meta-Learning Objective **2021**
Kevin Frans, Olaf Witkowski
Released as a Preprint, arxiv.org/abs/2103.06435

To Extract Information from Language Models, Optimize for Causal Response **2021**
Kevin Frans, Phillip Isola
Released as a blog post, kvfrans.com/causal-language-model/

AI Charades: Language Models as Interactive Game Environments **2021**
Kevin Frans
IEEE Conference on Games, ieee-cog.org/2021/assets/papers/paper_241.pdf

Q's for the Open-Ended Evolution Community: Reflections from the 2021 Cross Labs Workshop **2021**
Kevin Frans, L.B. Soros, Olaf Witkowski
Conference on Artificial Life, workshops.alife.org/oee4/papers/frans-oee4-camera-ready.pdf

Meta Learning Shared Hierarchies **2018**
Kevin Frans, Jonathan Ho, Xi Chen, Pieter Abbeel, John Schulman
International Conference on Learning Representations (ICLR), arxiv.org/abs/1710.09767

Unsupervised Image to Sequence Translation with Canvas-Drawer Networks **2018**
Kevin Frans, Chin-Yi Cheng
Released as a Preprint, arxiv.org/abs/1809.08340

Outline Colorization through Tandem Adversarial Networks **2017**
Kevin Frans
Released as a Preprint, arxiv.org/abs/1704.08834

SERVICE AND TALKS

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

HONORS AND AWARDS

MIT IBM-Watson AI Undergraduate Research and Innovation Scholar **2021**
Paul E. Gray UROP Researcher **2021**
First Place, AI@MIT Generator Competition **2021**
Interact Fellow **2019**
USACO Platinum Division **2018**

SELECT PROJECTS

AI Tutorials and Visualizations, kvfrans.com/tag/research/ **June 2016 - Current**
- Wrote 400,000+ view graphical explanations detailing generative models, autoencoders, GANs, etc.
- Focus on communicative design for teaching to beginners and newcomers

Kirisame Jump Game Studio, https://store.steampowered.com/curator/37730152 **June 2018 - Current**
- Led assorted teams to develop indie games "RAIN Project", "Iwate Mountain Dance" +more on Steam
- Contributed programming, game design and pixel-art spritework

Learning to Win at Pokemon **Sep 2021 - Jan 2022**
- Conducted research on training reinforcement learning agents to self-play Pokemon
- Built out training infrastructure, integrated parallel game simulations and GPU calls

ParagraphAI, paragraphai.com ***Mar 2022* - Current**
- Startup bringing AI-powered writing collaboration to the general public.
- Scaled team to 16+ employees, overseeing development of core product, iOS, Chrome, and Android.

SELECT SKILLS

TECHNICAL: Python, Tensorflow/Pytorch/numpy, Javascript, Java, Swift, C#, C++, Lua
DESIGN: Unity, Photoshop, Illustrator, Procreate, PyxelEdit (Pixel Art)