

Fraser Greenlee

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Work

Machine Learning Engineer — Convergence, London, England (July 2024-Present)

Started our web agent project that is able to solve generic tasks using a web browser.

- Created a Reflexion style prompting framework able to support networks of agents.
- Created heuristics for annotating interactive parts of web pages and improved the prompts & formatting.
- Setup evaluation agents leveraging them for data annotation.
- Led distillation efforts on a yet to be published 7B agent.

Machine Learning Engineer — Cohere, London, England (May 2022-July 2024)

Started the Command project, a generic instruction following LLM which is now Cohere's primary model.

- Produced core instruction following and preference datasets with external and internal annotation teams.
- Created the Command dataset repo, central to our efforts it was contributed to by teams across the business.
- Led human preference evaluations to benchmark our models against competitors. Ran multiple evaluations weekly, with results presented to the board to demonstrate competitive parity.
- Created an automated human evaluation tool using reward models, which became the company standard with hundreds of auto-evals conducted across teams.
- Created training infrastructure using JAX used to create state-of-the-art reward and vision models.
- Implemented a shared tokenizer used across Cohere's internal repos and resolved issues with the production tokenizer.
- Research - Spearheaded improvements in reward models, achieving SOTA results on several benchmarks including RewardBench where we outperformed GPT-4 and other top LLMs in preference modelling. Co-authored the paper "Improving Reward Models with Synthetic Critiques" (currently under review).

Machine Learning Engineer — Darktrace, Cambridge, England (March 2021-May 2022)

As part of the Developer-Analyst team, I made ML models & services to alert customers on indicators of compromise.

- Led replacement of old heuristic based classifiers to using transformers, categorising hostnames, file paths, emails & more.
- Used Neptune graph databases to map all links in CommonCrawl as part of research into a hostname semantic encoder.

Software Engineer — Skyscanner, Edinburgh, Scotland (Sept 2019-March 2021)

Education

University of Glasgow - BSc Software Engineering, 1st Class (2015-2019)

Projects/Awards

Hugging Face JAX Contest (June 2021)

Came in the top 15 in the [Flax-JAX Community Week](#).

- Modified a T5 model in an MMD-VAE allowing smooth interpolations between pieces of code without syntax errors.
- Converted my T5-VAE into a JAX model to train on a TPUv3-8 on all of the English sentences in Wikipedia.

Datasets of state changes. (2019-2020)

- Developed a key dataset of Python state changes, crucial for the groundbreaking "[Show Your Work: Scratchpads for Intermediate Computation with Language Models](#)" paper by Google Research.
- Scraping - Involved creating a [Kaggle dataset](#) of 1 million Python HackerRank solutions and executing them while recording all of the state-changes during execution.
- Received special acknowledgement in the paper for the dataset's significant contribution to their impressive results on multi-step computations.
- The research laid foundational work for advanced LLM capabilities in tool use, leading to the formation of Adept, a prominent AI company specialising in LLM-driven tool use.

Pioneer Award - Winner (2019)

Pioneer is a global startup tournament funded by Marc Andreessen and Stripe.

I won the [award](#) with my desc2code project that converted natural language into code using an LSTM.

Later created a [VSCode Extension](#) which showed how your code executes as you type.

It got over 10k installs and was showcased during my [Pioneer livestream](#) with Instagram cofounder Mike Krieger.