

Collin J. Gray

781-720-9770
me@collin.sh

Backend and ML Engineer - San Francisco

Professional Experience

Radix Labs – Software Engineer - Device Automation

May 2022 – Present

Bio-lab Automation Software - Cambridge, MA

- Lead the team responsible for designing controllers which automate the operation of bio-lab machines, including various sensors, liquid handlers, and mass spectrometers
- Created and maintained controllers for a wide range of devices, prioritizing interoperability, fault-tolerance, and maintainability
- Designed and implemented a ground up framework to accelerate the development of future device controllers
- Conceived and developed an internal tool to automatically generate serializer codecs, and implemented it across our entire codebase, saving hundreds of developer hours
- Co-managed the automation of multiple assays of a multi-national bio-lab, increasing the throughput by a factor of two.
- Designed and implemented a companion phone app which interfaces with our system to provide custom notifications and view system events

SDM Foundation – Teacher - Programming & Robotics

June 2018 – September 2021

School - Melrose, MA

- Taught one-on-one and group lessons on a wide range of technical topics
- Planned and taught a range of classes in software, programming and electronics
- Developed and deployed internal software tools to simplify scheduling and content creation
- Designed and managed the websites of both clients and the foundation itself

Projects

- **Independent ML Research:** Researched the behavior of sparse auto-encoders I trained to detect features in LLMs, including architecture improvements like multi-layer designs targeted at improving generalizability and compute usage
- **ML Analysis tools:** Created multiple visualization and inspection tools to streamline my research on auto-encoders, including an intuitive [visual filtering system](#) for model features, and a graph based [feature circuit analyzer](#)
- **TransformerLens:** Contributed many bug diagnoses/fixes, new model architectures such as mixture of experts, and model benchmarking tools
- **Developer Tools:** Designed many developer and productivity tools for personal and general use, including a fully-featured [scientific and graphing calculator](#), and a [service to automate tasks](#) based on macOS system events

Technical Skills

- **Languages and Frameworks:** Python, PyTorch, NumPy, C/C++, CUDA, Scala, ZIO, Cats IO, Akka, Java, Swift, SwiftUI, JS/TS, React, Rust, Haskell, Verilog, APL
- **Tools and Miscellaneous:** Git, Docker, Bazel, Nomad, Consul, Vault, Kafka, Redis, GraphQL, Avro, IPFS, Flask, QEMU, Wireshark
- **Architecture and design:** Distributed systems, reactive streams, functional programming