Robert G. Gambee

Portfolio: https://rgambee.github.io
robertgambee@gmail.com • (914) 672-3352
37 Edwards Street • Quincy, MA 02169

Professional Experience

Formlabs: 3D printing company in Somerville, MA 2015 to Present
Systems Integration Engineer

Responsibilities

- Tackle challenging problems at the interface between hardware and software
- Rapidly shift priorities and gain skills in response to project needs
- Prototype, test and integrate key printer systems from inception to public release
- Analyze and visualize printer data to answer pressing questions and inform business decisions
- Facilitate communication between engineering teams and across departments
- Mentor junior team members to foster their technical abilities

Projects

- Novel firmware architecture 2021 to Present
  - Independently developed firmware in Python for a fleet of prototypes
  - Advised architectural decisions for embedded and desktop software
  - Owned many major features during multi-team software sprints
- Dashboard for plotting live sensor data 2021
  - Independently developed over four days during company hackathon
  - Wrote backend in Go, wrote frontend in JavaScript, streamed data via WebSockets
- Laser pointing calibration for Form 3 and Form 3L 3D printers 2019 to 2020
  - Wrote factory software routines to calibrate thousands of printers
  - Led effort to speed up automatic recalibration by a factor of five
  - Led validation testing to prove system meets accuracy goals
- Resin management for Form 3 and Form 3L 2018 to 2021
  - Implemented algorithm to maintain consistent resin level despite variable sensor readings
  - Overhauled resin tracking and dispense logic to improve customer experience
  - Created customer maintenance routine to improve performance of printers in the field

Personal Projects

AI Safety Camp March, 2023 to Present
Using Large Language Models to Facilitate AI Safety Research (3 person team plus advisor)

- Built React web app to generate feedback on one's research ideas using GPT
- Fine tuned model to make its responses more relevant for AI safety research

Chronicle January to April, 2023
Web app to keep track of how one spends one's time

- Used Django framework to manage HTTP requests and access SQLite database
- Presented data as a table for sorting and filtering, as well multiple charts for visualization
- Set up automated tests and deployment using GitHub Actions workflow

AI Research Reproduction April, 2023 to Present
Reproduction of "The Capacity for Moral Self-Correction in Large Language Models" by Ganguli et al.

- Loaded and processed tens of thousands of samples from three different datasets
- Submitted API requests asynchronously, with automatic retries and rate limiting
- Analyzed bias in model responses according to three different metrics

Software Skills

- Proficient
  - Python
    - Matplotlib, NumPy, Pandas, SciPy, Pandas
    - asyncio, Django, Twisted
  - C++
  - Git
- Experienced
  - PyTorch, scikit-learn
  - JavaScript, HTML, CSS
  - SQL
  - Bash
- Familiar
  - Go
  - Rust

Education

Harvey Mudd College, Claremont, CA
Bachelor of Science in Engineering with High Distinction 2011 to 2015

- GPA: 3.8
- Inducted into Tau Beta Pi, national engineering honor society 2014
- Dean's List 2012 to 2015
- Advised fellow students on weekly Materials Engineering homework assignments 2014 to 2015

Continuing Education

- NYU's Deep Learning with Prof. Yann LeCun 2022
- Google's Machine Learning Crash Course 2022
- fast.ai's Practical Deep Learning for Coders 2022

Undergraduate Projects

SpaceX, Hawthorne, CA & Harvey Mudd College 2014 to 2015
Recoverable Flight Data Recorder (5 person team)

- Designed housing and selected materials to protect electronics from rocket explosion
- Built and tested prototypes according to SMC-S-016 and other specifications
- Contributed to software for receiving information over UDP and saving to SD card

Academic Research, Harvey Mudd College 2014 to 2015
Gas Permeation Across Nanocomposite Polymer Membranes (5 to 8 person team)

- Performed gas permeation experiments on synthesized membranes
- Ran and analyzed molecular simulations containing over ten thousand atoms each
- Wrote grant proposal for Amazon EC2 resources that decreased runtime by an order of magnitude

Sandia National Laboratories, Albuquerque, NM & Harvey Mudd College 2013 to 2014
Measurement of Barium Titanate Nanoparticle Permittivity (5 person team)

- Developed analytical and numerical models for interpretation of experimental data
- Presented work at Materials Research Society meeting as invited speaker
- Project findings were later submitted to several scientific journals for publication