Robert G. Gambee

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Professional Experience

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

Responsibilities

- Prototype, test and integrate key printer systems
- Design and implement algorithms for production firmware
- Develop, document and maintain tools to enable other engineers to work more efficiently
- Facilitate communication between hardware and software teams
- Mentor junior team members to foster their technical abilities
- Interview job applicants to assess their problem solving skills

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
- 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
  - Rapidly deployed firmware fix for hardware issue that was blocking production line
  - 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
- STEM outreach volunteering 2022
  - Collaborated on lesson plan to introduce high schoolers to microcontrollers
  - Advised team of three students to build RFID reminder system during two day hackathon

Personal Projects

AI Safety Camp 2023 to Present
Generate Alignment Datasets (3 person team plus advisor)

- Gather and augment data on research processes
- Fine tune large language model to make it more useful for AI alignment research

Chronicle 2023 to Present
Web app to keep track of how one spends one's time

- Record new entries and query past ones using Django framework
- Present data in table format for sorting and filtering
- Visualize data using bar and pie charts, as well as heat map

Advent of Code 2018 to 2021
Annual set of programming challenges

- Solved problems in different language each year teach myself something new

Software Skills

- Proficient
  - Python including NumPy, SciPy, Matplotlib
  - C++
  - Git
- Experienced
  - PyTorch, Django
  - JavaScript, HTML, CSS
  - 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 to 2023
- 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