

# Robert G. Gambee

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**Experienced software developer passionate about improving the world for future generations**

## Professional Experience

**Formlabs:** Building industry-leading, professional 3D printers in Somerville, MA 2015 to Present  
*Systems Integration Engineer III*

### Responsibilities

- Autonomously tackle challenging problems at the interface between hardware and software
- Rapidly shift priorities and gain skills in response to project needs
- Own key printer systems for the entire product cycle, driving them from inception to public release
- Understand complex interactions between printer systems, keeping both details and big picture in mind
- Optimize for printer reliability through robust design and failure mode prediction
- Analyze and visualize printer data to answer pressing questions and inform business decisions
- Mentor junior team members to foster their technical abilities
- Facilitate communication between engineering teams and across departments

### Leadership Experience

- Project lead of Formlabs' most widely-used internal tool, which manages print settings 2023 to Present
  - Understand the workflows of the dozens of engineers who use this system daily to refine hundreds of settings for more than 30 resins
  - Regularly discuss improvements with stakeholders and transform them into concrete specifications
  - Coordinate across multiple teams to complete improvements amid competing priorities
  - Improvements include search box, tags for grouping related settings, and intuitive indication of links between settings

### Technical Projects

- Senior embedded developer for Form 4 2021 to Present
  - Thoughtfully crafted powerful yet understandable API to control all aspects of product functionality
  - Comprehensively audited API for security vulnerabilities and coordinated plan to address them
  - Advised architectural decisions for embedded and desktop software
- Data management on user-replaceable consumables for Form 4 2023 to Present
  - Designed a unified architecture for all consumables, agnostic to interface and data format
  - Wrote extensive validation checks to be robust to failures when reading or writing
  - Secured system against counterfeiting to protect company's primary revenue stream
  - Thoroughly tested all code with automated checks
- Print preparation routine for Form 4 2021 to Present
  - Sped up routine by a factor of 5 to 10 compared to previous product, vastly improving user experience
  - Wrote predictive checks to give user advance warning of issues and avoid interrupting prints
  - Implemented specification for how to handle over 50 possible errors
- Prototype firmware for early iterations of Form 4 2021 to 2022
  - Independently developed prototype firmware in Python to support crucial conceptual testing
  - Balanced competing desires for flexibility and stability using a modular design
  - Rapidly responded to feature requests and bug reports, addressing them in days if not hours
- 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
  - Recognized by the CEO in a company-wide email as one of the most impressive projects that year

### Achievements

- Recipient of Formlabs' Perform Award, which recognizes top 10% of employees 2020 and 2023

## Software Skills

### Proficient

- Python
  - NumPy, SciPy, Pandas, Matplotlib
  - asyncio, Django, Twisted
- C++
- Git
- Jira

### Experienced

- PyTorch, scikit-learn
- JavaScript, React, HTML, CSS, Bootstrap
- SQL, BigQuery, Grafana
- Bash

### Familiar

- Go
- Rust
- Docker
- Make, CMake
- GitHub Actions

## Personal Projects

### Independent AI Research

2023

*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
- Analyzed bias in model responses according to three different metrics
- Compared and contrasted results to demonstrate influence of RLHF training vs. prompt engineering

### Chronicle

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 test and deployment workflows using GitHub Actions

### SCAFFOLD

2023

*Completed as part of AI Safety Camp (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 to AI safety research

## 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
- Recognized on Dean's List of top performing students

2014

2012 to 2015

### Continuing Education

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

2022

2022

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 flight data over UDP and saving to SD card

### 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