Richard Beattie

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Education

Massachusetts Institute of Technology **2021 - 2025**

Candidate for Bachelor Degree in Computer Science and Electrical Engineering GPA: 4.9/5.0

Experience

Electrical Engineering Intern · Milwaukee Tool, Platform IoT **Jun 2024 – ongoing**

- Evaluating the accuracy and usability of advanced Bluetooth Low Energy (BLE) features for a jobsite-wide tool positioning system

Undergraduate Researcher · Distributed Robotics Lab @ MIT CSAIL **Jun 2023 – ongoing**

- Developed firmware for the Nordic nRF52840 SoC to control 30 Bluetooth Low Energy (BLE) Sphero BOLT robots concurrently (C++, C, Zephyr, nRF Connect SDK)
- Wrote real-time tracker to monitor positions of 30 Sphero BOLTs and expanded it to synchronise IDs with BLE connections & determine robots' orientation (Python, OpenCV)
- Implemented Swarmalator swarm robotics model to perform experiments (Python, Numpy)

Product Engineering Intern · Evervault **Jun 2022 – Aug 2022**

- Launched "Secured by Evervault" pages. Automatically show customers' security compliance
  - Collaborated with the Product Design team to create pages in Figma and developed them in React
  - Provisioned AWS infrastructure to deploy pages with Terraform, ECS, and Elastic Load Balancing
- Refactored React web app, Rust backend (API) and SQL databases to implement app tenancy

Founding Developer · Prepsheets.com **Jan 2021 – Aug 2022**

- Developed https://prepsheets.com web app & backend with React, Typescript, Firebase (GCP)
- Implemented system in customer's cafes, saving them over €100,000 in food costs in 6 months
- Created GCP .NET cloud functions to convert HTML templates into PDF labels for Zebra label printers
- Built Python scrapers to extract prices from invoices. Decreased user input by ~10 hours per week

Product Engineer · ToDesktop (YC W20) **Sep 2020 – Aug 2021**

- Developed Node.JS C++ to Typescript bindings for Windows UIAutomation DLL for enterprise customer
- Rebuilt todesktop.com landing page in Svelte
- Maintained core-product and expanded desktop API (React, Electron, Typescript, GCP)

Projects

Connect-4 Robot **Feb - May 2024**

Built a robot that plays Connect-4 on a physical board. Developed an algorithm in C to determine the optimal move. Wrote firmware for PSOC-5LP to detect the opponent's move and actuate the board to place counters. Designed the mechanical frame in Fusion360.

FPGA Voice Recognising Robot **Oct - Dec 2023**

Wrote System Verilog code for a Spartan-7 FPGA that locates a person in a room based on where their voice is coming from and drives a robot towards them.

Bat Conservation Tools **Oct 2017 - May 2019**

Built a $100 bat detector comparable to a $1000 model. Modified microphone to record ultrasonic sounds, and implemented real-time frequency filters in Python & Bash. Represented Ireland at the International Science & Engineering Fair (ISEF), placed in the top 15 projects globally (Best in Category Award).

Skills

Programming Languages: C++, C, Python, Typescript, Javascript, PHP, SQL, System Verilog, MATLAB, Assembly
Frameworks: React, Svelte, nRF Connect SDK, Numpy, Electron, Node.js
Software: KiCAD, Fusion360, Eagle, Git, Cadence