# Kitty Farren

Software Engineer at Atlas Endoscopy

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## ABOUT

Software engineer with a 1st class master's degree in electrical and electronics engineering. Currently working as a software engineer at a medical robotics startup, writing embedded C++ on an FreeRTOS MPSoC and modern C++ on a custom Linux system deployed with Docker. In previous roles has worked with C# .NET; Microsoft SQL Server and electronics including PCB design. Skilled in C++, Docker, embedded architecture, Linux systems, Python and bash scripting and electronics.

## WORK

### Atlas Endoscopy

Mar 2025 - Present

0 yrs 6 mos

Leeds

#### Software Engineer

Mar 2025 - Present 0 yrs 6 mos

Embedded systems development and high-level user interface design for medical devices

- Designed and implemented MISRA C++ compliant communications firmware on a Zynq Utrascale+ running FreeRTOS.
- Developed an immediate mode user interface in modern C++ using Dear ImGui to run on Nvidia Jetson.
- As a proof of concept, rewrote existing Python PyQt user interface to work with a new robotics system.
- Built C++ software to stream high-frame-rate video from a Blackmagic capture card in an Nvidia Jetson.
- Introduced best practices for version control.
- Created a build process for a modified Linux image based on Jetson Linux.
- Deployed containerised software on an Nvidia Jetson using Docker and Docker Compose.
- Produced documentation in compliance with IEC 62304 (software development process for medical devices) and IEC 60601 (basic electrical safety and essential performance requirements for medical devices).
- Implemented unit testing with Unity for embedded code and GTest for software running on the NVIDIA Jetson.

### Nidec Drives (prev Control Techniques)

Jul 2019 - Mar 2025

5 yrs 8 mos

Powys

#### Development Engineer

Oct 2024 - Mar 2025 0 yrs 5 mos

Developed a new thermal model generation process.

- Wrote a C# .NET program for processing large amounts of IGBT thermal data into a VFD thermal model including ML algorithm, WPF UI and SQL server database.
- Constructed a panel for automated IGBT thermal data collection including a custom PCB, embedded C++ solution and 3D models.
- Supported a junior engineer in using the developed program and test procedure

#### Graduate Engineer

Jul 2022 - Jul 2024 2 yrs 0 mos

This role included rotations in the Power Electronics, ECAD and Tech Support departments to broaden my engineering skill set

- Power electronics: Developed a suite of .NET programs to control a test panel and process the data collected; wrote a more efficient C# algorithm for processing thermal data that reduced run time by 8 hours; Refactored and further developed existing VBA tools for power electronic simulation and data processing; researched novel current sensing technology; Wrote documentation to comply with IEC 61800 (standard for Adjustable Speed Electrical Drive Systems)
- ECAD: Completed a lay out of a family of boards (FOB); demonstrated and presented use of distributed version control using Git on DevOps for PCB designs; set up an internal KiCAD workflow; and aided the India team in creating layouts and schematics.
- Tech Support: Produced a Python web-scraping and data processing tool with Qt framework and Selenium; wrote a specification for a set of Android setup wizards using Figma; answered customer tickets.

### E3 Student Engineer

Jul 2019 - Jul 2022 3 yrs 0 mos

Summer placements in the Electronics (2019), Tech Support (2020) and Embedded Elevator (2021) teams as part of the E3 Academy scholarship scheme.

- Simulated control circuits in SIMetrix and carried out EMC testing.
- Specified and produced a suite of automated tests for elevator drives written in IEC 61131-3 Structured Text on a PLC.

## EDUCATION

MEng Electrical and Electronics Engineering — Dec 2018 - Dec 2022

University of Nottingham

1st Class Hons. IET Accredited.

Individual Project:
A Framework for Plenoptic HDR Imaging using Metasurfaces

Modules:
Computer Aided Engineering; Information and Systems; Electronic Processing and Communication; Modelling Methods and Tools; HDL for Programmable Devices; IT infrastructure and cybersecurity; Digital Signal Processing; Sensing Systems; Instrumentation and Measurement; Power and Energy; Electrical Energy Conditioning and Control; Contemporary Engineering Themes; Electrical Machines, Drive Systems and Applications; Analogue Electronics; Professional Studies; and Advanced AC Drives.

Group Projects:
Car telemetry: JavaScript web application in Vue with Node backend to plot, stream and save car data; Autonomous line following and RC Car: C++ and OpenCV on embedded Linux (Raspberry Pi); Doppler radar speed sensor: embedded C solution on STM32 for real-time signal acquisition, processing, and display; and Buck-Boost SMPS: design and creation.

Awards:
Peter John's Award for an Outstanding Final Year Student and Michael Bromwich Award for the Two Highest Achieving Home Students.

## VOLUNTEERING

### STEM Ambassadors

#### STEM Ambassador

Sep 2021 - Present 3 yrs 11 mos

STEM ambassadors aims to raise the awareness and understanding of STEM careers. This includes attending careers fairs and events; creating classroom showcases and leading computer workshops with the STEM ambassadors and careers teams.

- Promote STEM to young women and being visible as a woman in engineering.
- Manage and running workshops to give students hands-on experience and making links to real-world applications.
- Develop interactive demonstrations of software writing, electronics and control systems.
- Give presentations and Q&A sessions to help demystify STEM.
- Developed presentation skills explaining technical information to a non-technical audience.

## OTHER

**Languages** English (Native Speaker) German (Limited Working)

**Interests** Crochet and Needlework 3D modelling (Blender) Hobbyist Electronics Rock Climbing Painting Running Singing and Guitar

## REFERENCES

**Lead Software Engineer: James Martin**
Company: Atlas Endoscopy

**Lead Power Electronics Engineer: Ed Peate**
Company: Nidec Drives