Kitty Farren

Development Engineer at Nidec Drives

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ABOUT

Development engineer with a master's degree in electrical and electronic engineering. Currently designing and developing software, hardware, and firmware for internal tools for industrial automation. Looking to move into a more software focused development role. In the past year, designed and created a thermal model generation system for AC drives, including an MVVM C# .NET application, SQL database (SQL Server), control electronics and embedded firmware.

WORK

Nidec Drives (prev Control Techniques)

Jul 2019 - Present

5 yrs 5 mos

Powys

- **Development Engineer**

  Oct 2024 - Present 0 yrs 2 mos

  Designed and developed a new thermal model generation process.

  - Created a C# .NET program for capturing, processing, and fitting large amounts of IGBT thermal data into a custom thermal model of a VFD, including a WPF UI and SQL server database.
  - Supported a junior engineer in carrying out thermal testing.
  - Designed, 3D modelled, and built a panel for automated IGBT thermal data collection including a custom PCB, with embedded C++ control firmware.

- **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: Created Python and VBA tools for automated power electronics simulation and data processing; Created an upgraded IGBT thermal testing device; wrote a more efficient C# algorithm for processing thermal data that reduced run time by 8 hours; researched novel current sensing technology for next gen VFDs.
  - ECAD: Completed a lay out of a family of boards (FOB); demonstrated company use of distributed version control using Git and DevOps for PCB designs; set up an internal KiCAD workflow; created a manufacturing board to test DFM processes and aided the India team in creating layouts and schematics.
  - Tech Support: produced a Python data processing tool with Qt framework UI; wrote a specification for a set of Android setup wizards using Figma; directly supported customers via tickets; solved VFD field failures.
  - Attended ECPE courses for EMC in Power Electronics and Condition and Health Monitoring in Power Electronics.

- **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.

  - Created prototype control boards and conducted EMC efficiency testing using SIMetrix for circuit design.
  - Reviewed user interface of VFD keypad to improve customer experience.
  - Specified and produced a suite of automated tests for elevator drives written in IEC 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; Advanced AC Drives.

Group Projects:
Real-time car telemetry system including Vue JavaScript web application to plot streamed and saved data; Autonomous line following and RC Car using C++ and OpenCV on embedded Linux platform; SMPS design, layout and testing; Design of a Doppler radar speed measurement device signal processing and display.

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 2 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.
- Developed presentation skills explaining technical information to a non-technical audience.

Women in Engineering Society (WES)

- **Member (MWES)**

Jan 2022 - Present 2 yrs 11 mos

This is a group to support and increase the visibility of women in engineering.

- Organised company engagement with the "Lottie Tour" for Tomorrow's Engineers Week 2023 to show different sectors of engineering to young women.
- Founded the Women in Engineering group at Nidec Drives which now includes all women in STEM roles at Nidec Drives.
- Took part in Women in Tech promotional events including chairing a Women in Engineering round-table video and attending International Women's Day events.

SKILLS

Software Development	Python C# C++ Databases/ SQL JavaScript VBA Git Go
Frameworks	Vue.js ASP.NET WPF Bulma WinForms .NET Framework .NET Core Qt Tkinter
Embedded Development	C++ C Arduino Automated Testing Digital Signal Processing
Electrical And Electronics Engineering	Thermal Modelling VHDL PCB and ECAD Circuit Simulation EMC Design and Testing Power Electronic Design Digital and Analogue Electronic Design
Industrial Automation	Variable Speed Drives (VSDs, VFDs) IEC Structured Text PLCs Panel Design
CAD	CST Microwave Studio Simetrix PLECs LTSpice KiCAD DxDesigner Blender FreeCAD
Written Communication And Documentation	GitHub DevOps TFS Microsoft 365 LaTex Markup HTML CSS

</> PROJECTS

All my projects are available at: https://github.com/kitblafar/

Personal Website

A static website for writing up personal projects written in HTML and CSS (apart from the confetti).

Xmas Photo Game

A game were the player tries to get photos of themselves doing challenges. A full-stack web-application with REST ASP.NET MVC API, Vue.js frontend and SQLite DB. The API service is containerised on my website's server using Docker.

Bluetooth Earrings

A set of Bluetooth earrings with RGB LED that can flash colours dependent on BLE messages using NRF52833, custom PCB, firmware, and enclosure. Still in development, also available on my GitHub.

Meta-surfaces for HDR, Plenoptic Imaging

My dissertation project on designing metasurfaces for plenoptic, HDR imaging. Includes MATLAB generation program, from CST simulation results and Python image reconstruction GUI program.

Road Range

A web-app to stream car telemetry data to the browser. Node.js backend with Vue.js frontend.

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 Power Electronics Engineer: Ed Peate
Company: Nidec Drives, Email: available on request