ROBYN VAUGHAN-WILLIAMS

Software Engineer

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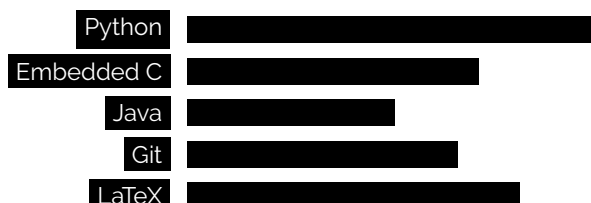@ bobrobynvw@proton.me
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WHO AM I?

Graduate from Aberystwyth university, passionate about robotics, FOSS, experienced working independently and within a team. Experience producing bespoke products for a variety of companies, primarily in the agricultural research space, alongside in-house projects.

Python

Embedded C

Java

Git

LaTeX

EXPERIENCE

9/2023 – Present

Assistant Electronics and Software Engineer   **Ystumtec**

The majority of my fulltime employment with Ystumtec was spent as the primary software developer for the Fjord Autonamous Underwater Vehicle (FAUV), a submarine intended to perform long distance/duration missions surveying fjords in Greenland. For this project, I produced diagrams and documentation for stakeholders and for field use and modification.

6/2021 – 7/2022
Industrial Year

During my industrial year, I worked on embedded low power devices including long term animal GPS trackers, early warning invasive moth detectors to protect crop using GSM and user interface and communication layer for crop spray test equipment.

```
Python  /  C  /  Java  /  Hardware Assembly  /  Design, build, test, document
```

July-August 2018

Nuffield Photonics project provider (mentor) with PAWB   **Photonics Academy of Wales at Bangor**

Assisting summer school students in envisioning, designing, fault finding of electronic circuits and testing their opto-electronic photonics ideas.

```
Electronics  /  Photonics
```

2012-2020

General assistant   **The Independent Inspection Service**

Assisting with LOLER inspections (PPE and Lifting equipment) by testing equipment and checking for defects and deterioration and ensuring all equipment was up to standards that complied with the law, weekends and holidays.

```
Health and safety in the workplace  /  Equipment inspection
```

EDUCATION

2018 – 2023

Space Science and Robotics$_{BsC}$ **2:1**   **Aberystwyth University**

Joint honors degree between the department of physics and computer science. Focus on sensors and instrumentation, scientific python, embedded C, robotic operating system (ROS).
During this time I was also the two time president of the robotics society.

```
C&C++  /  Python  /  ROS  /  Electronics and instrumentation
```

2015-2017

BTEC level 3 Diploma in Electronic Engineering. Grade: Distinction*   **Coleg Menai Bangor**

A course focusing on producing mechanical engineering drawings with CAD/CAM (Soldiworks, Fusion 360), designing, etching and populating PCBs and producing components using hand fitting techniques.

```
Electronics  /  CAD&CAM  /  Workshop tools
```

REFERENCES

Mark Neal
Director
Ystumtec
markjjneal@gmail.com

Alun Jones
Software Engineer
Ystumtec
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WORK PROJECTS FURTHER DETAIL

2023 – Present   **Fjord Autonomous Underwater Vehicle (FAUV)**   **Ystumtec**

Created the majority of a bespoke control system including an occupancy grid built from sonar data, path planner, navigation, and obstacle avoidance system to enable FAUV to navigate its underwater environment. Created an ecosystem of daemons that leveraged MQTT to interface with micro-controllers, sensors, and control surfaces to create a modular crash resistant infrastructure. Created bespoke simulation of the expected working environment including physics (buoyancy, drag, inertia, etc), hardware (movement of control surfaces) and sensor behavior (Sonar, IMU, DVL). Produced and presented documentation and diagrams to stakeholders and for field use.

```
Python  /  Rasperry pi  /  Linux
```

2024   **Robot Arm**   **Ystumtec**

Prototyped a bespoke system that would enable the user to batch process chemical analysis. Produced a GUI and backend that would control an xArm robotic arm to process samples based on user set paramaters.

```
Python  /  wxPython  /  xArm api
```

2021 – 2022   **Moth trap**   **Ystumtec**

Developed embedded C code for a GSM enabled IR motion based moth sensor intended to act as an early warning system for a swarming species of invasive moth in the Tamil Nadu region of India.

```
Arduino & embedded C  /  GSM
```

2021 – 2022   **XY Spray rig**   **Ystumtec**

Worked to on a bespoke 2 axis crop spray tester for laboratory conditions. Used Java to produce a GUI that allowed the user to specify where on the crop was to be sprayed by clicking on images of the crop, and the associated backend to communicate commands to the spray rig to carry out its operation.

```
Java  /  JavaFX  /  Arduino & embedded C
```

2021 – 2022   **GPS collar**   **Ystumtec**

Prototyped a GPS animal collar for research on tame and wild animals, included collars, remote basestations and handheld interface device. Used embedded C to handle low power device operation, GPS handling, memory management, radio data download, remote collar release.

```
Arduino & embedded C  /  Soldering  /  LoRa comms protocols
```

PERSONAL PROJECTS

Slime VR trackers

Manufactured a full body set of slime VR trackers for myself and a friend, intend to contribute to the open source tracking software.

```
Soldering  /  PlatformIO  /  VR
```

Reused vape battery bank

Manufactured a battery bank out of improperly disposed of vape batteries based on open source designs. This involved manufacturing PCBs, safe disassembly of the used vapes and assembly of battery bank.

```
Open Source  /  Hardware assembly  /  Soldering
```

Homelab

Maintain a homelab hosting various services for myself and others, https://aberwebr.ing/ , https://bobyn.uk , Imich, Nextcloud, Jellyfin, with automated offsite backups.

```
Linux  /  Docker  /  Reverse proxy  /  Nginx
```

Laser based Navigational Compass

During my time with PAWB, I produced a working prototype of a novel compass design that made use of a non dispersive Amci roof prism to digitise a magnetic compass bearing.

```
Soldeirng  /  Circuit Design  /  Photonics
```

SKILLS

Driving license - Fully qualified
English - Native
Welsh - Learner

FURTHER DETAIL

To see more about what I get up to professionally and personally, checkout my blog at https://bobyn.uk