

# Ben Falconmore

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## Profile

I am a long term full stack software engineer hoping to relocate to a **remote** job in France. While I am keen to learn new skills I also have strong existing skills with **C++**, **Rust**, **TypeScript**, and **Python**. I enjoy working on both frontend and backend solutions, and am pragmatic in finding the most appropriate solutions, while keeping the codebase maintainable.

## Biosite Systems Ltd

Biosite Systems Ltd is a company specialising in biometric security solutions for construction sites. In my 8 years at Biosite Systems I have achieved a great deal of professional development, both in technical and non-technical skills. Within a fast growing company I have experienced development at all scales and how to overcome the challenges of growth.

2017–Present

### Lead Software Engineer

In my position as Lead Software Engineer I began taking responsibility for many of the **Agile** processes in addition to stepping up as a mentor, role model, and leader.

As a mentor I spent much of my time teaching numerous developers by pair programming on the core product written in **C++**, **TypeScript**, **React**, and **PostgreSQL**.

As a role model I was keen to champion Test Driven Development (**TDD**) and Domain Driven Design (**DDD**), while ensuring everyone's voice was heard and listening to my team.

As a leader I had a hands on approach in numerous projects including:

- Migrating the codebase from **Mercurial** to **git** and **Github Actions**
- Rewriting the development environment with **Docker** and **Python**
- Containerizing the core product using **Docker**
- Designing and implementing an ETL pipeline in C++ and PostgreSQL to enable a **Business Intelligence** solution
- Implementing a public **Event Driven** subscription API with **Websocket** via **nodejs** with **TypeScript**
- Creating a cross-platform build pipeline for **Raspberry Pi**
- Modernising the end to end testing with **Cypress**
- Implementing a **PC/SC** interface for card scanners on automatic kiosks

With COVID-19 hitting in this period I started leading the team in successful **remote working** practices and avoided any drop in productivity.

2015–2017

### Senior Software Engineer

Moving to Senior Software Engineer brought with it new challenges:

- In depth work on the **C++** synchronisation engine for the **distributed systems** behind the core product
- Replacing Ethernet fingerprint scanners with biometric hardware controlled via **Raspberry Pi**
- Modernising the frontend from **AngularJS** to **Angular**
- Creating an ANPR traffic flow solution, from low level hardware interaction to high level system design
- Advocating for and implementing nightly end to end testing using **Robot Framework**
- Leading development on fully customisable theming for the online portal

2014–2015

### Software Engineer

Developing Biosite's core product with **C++**, **AngularJS**, and **PostgreSQL** lent itself to learning quickly on the job, having only programmed as a hobby before. Originally part of a team of 4 developers there was a lot of responsibility from the start. Shipping numerous parts of our delivery management system, and online induction was my responsibility as well as being on call to solve technical customer problems. Many of the libraries I created during this time are still in use today.












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## Education

- 2010–2014 **PhD Engineering** *University of Warwick*  
**A system for remotely taking high velocity, large scale, Particle Image Velocimetry measurements in a hostile environment.** I utilised a network of computers spread across a large anechoic wind tunnel to measure turbulence in the wake of a large scale jet engine. Designing the computer system to interface directly with the measurement hardware (namely four high framerate cameras, three Nd:YAG lasers, and numerous servos) allowed the system to safely be operated semi-automatically from a control room. Much of my PhD was on site, having to adapt to problems and alterations in the specifications at short notice with limited resources to hand.
- 2006–2010 **MEng Engineering - 2:1 (Hons)** *University of Warwick*  
Selected modules: Internet Enabled Engineering, Instrumentation & Measurement, Remote Sensing and Global Modelling, Signal & Image Processing, Wireless Communications.

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## Related Projects

- 2020-2022 **tomb-helper**  [zed0/tomb-helper](https://github.com/zed0/tomb-helper)  
A **Rust** tool designed to help speedrunners practice by manipulating the memory of the game they are playing to allow flying, resetting the player position, and skipping cutscenes.
- 2019-2022 **Advent of Code**  [zed0/advent-of-code](https://github.com/zed0/advent-of-code)  
A project originally started to teach myself **Rust**, these are solutions for all 50 stars of Advent of Code for the last 3 years.
- 2019  [zed0.co.uk/lego-colours](https://zed0.co.uk/lego-colours)  [zed0/lego-colour-matcher](https://github.com/zed0/lego-colour-matcher)  
A pure **Javascript** utility using Rebrickable's database to find the Lego colours that match HTML or hex colours most closely.
- 2015–2019  [zed0.co.uk/clang-format-configurator](https://zed0.co.uk/clang-format-configurator)  [zed0/clang-format-configurator](https://github.com/zed0/clang-format-configurator)  
A configuration tool for **clang-format** to set up configurations, with a dynamically updating preview of the formatting changes. Frontend written in plain **Javascript**. Backend written with **express** and **nodejs**.
- 2018 **coNTRoller-overlay**  [zed0/coNTRoller-overlay](https://github.com/zed0/coNTRoller-overlay)  
A display of inputs to a Nintendo 3DS acquired via NTR debugging information. Written in **Python** with PyNTR and Pygame.
- 2017  [zed0.co.uk/sass-configurator](https://zed0.co.uk/sass-configurator)  [zed0/sass-configurator](https://github.com/zed0/sass-configurator)  
A plain **Javascript** configuration tool written with **sass.js** to allow users to adjust and preview Sass themes.
- 2013  [zed0.co.uk/crossword](https://zed0.co.uk/crossword)  [zed0/adobe-crossword](https://github.com/zed0/adobe-crossword)  
A playable crossword based on XKCD's "Encryptic" solving password clues from the Adobe password leak of 2013. Written in **Javascript** and **Python**.

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## Languages

- English **Native speaker**  
French **Basic (A2)** - Actively learning for 18 months

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## Interests

- Lego I regularly display my Lego collection at local shows and meet with the local community.
- Programming As well as a profession I program various small projects in my free time.
- Skiing A keen skier in Scotland and the Alps when possible, I am a qualified NZSIA level 2 instructor.
- Climbing When there's no snow both indoor and outdoor rock climbing are a welcome alternative to skiing.
- Hiking After taking a Mountain Leadership training course from the British Mountaineering Council I keep in touch with my university hiking club and regularly meet up for walks.