Toby Smith

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Overview

A highly motivated engineering manager with a proven track record of delivering quality results, taking on new challenges with enthusiasm and learning new skills quickly. Accustomed to taking a hands-on approach to problem solving after working on a number of complex technical projects. After several years in the defence aerospace sector, looking to expand horizons and build upon existing skill set with a challenging new role in the tech industry.

Education   2008-2013

University of Bath – MEng (Hons) Aerospace Engineering (2:1)

- Topics studied included simulation & modelling, engineering mathematics and MATLAB.

Relevant Projects   2022-2023

Tour Tracker – tourtracker.tw-smith.me

- Developed a service for cycle tourists to create visualisations of their tours from Strava data, using interfaces with both the Strava API and Google Maps JavaScript API.
- Used WebHooks to automatically update visualisations whenever the user uploads a new activity to Strava.
- **Utilised:** Python, Flask, HTML/CSS, JavaScript, Webhooks, External APIs, SQLite

Cycling South Blog – cycling-south.com

- Created a custom blog to document my year travelling by bicycle through Latin America.
- Used the flexibility of a headless CMS to give design freedom on the website front end.
- Ensured an enjoyable user experience across a range of end user devices through responsive web design and optimisation of image sizes.
- Leveraged the capabilities of the Angular framework, such as using dependency injection to inject a service to resize image files based on viewport size.
- **Utilised:** Strapi CMS, Angular, Responsive Web Design, TypeScript

Arcade Game – arcade.tw-smith.me

- Created a browser-based version of the classic arcade game Snake, but with multiplayer functionality, using real time clint-server communication via WebSockets.
- Integrated with a separate service for authentication and authorisation (see below).
- **Utilised:** FastAPI, Angular, TypeScript, SQLite, JWT, WebSockets, Test Driven Development

Authentication Server – github.com/tw-smith/auth-server

- Constructed an authentication server to centralise authentication and authorisation logic for some of the above projects.
- Used JWTs to create a token-based authentication scheme and followed OWASP best practices to protect user data.
- **Utilised:** FastAPI, REST, Secure Password Storage, User Authentication & Authorisation, JWT

Employment

MBDA (UK) Ltd – Meteor Programmes Aerodynamics Lead   *2020-2022*

- Led a team of five aerodynamicists to deliver projects worth £3.5M on the Meteor missile programme, on time and on budget.
- Acted as the data owner for the missile aerodynamic datasets, responsible for the accuracy of the data being delivered to external stakeholders and setting data generation strategy.
- Communicated complex technical concepts in a clearly understandable manner to non-technical internal and external stakeholders, including in a second language.
- Collaborated closely with other engineering teams to mitigate the impact of uncertainty in input data and deliver a cutting-edge solution to a highly complex technical problem.
- Supported the trial of an alternative software package which automated a time consuming manual task, reducing process time from hours to minutes.
- Mentored junior members of the team and actively supported their development, resulting in a team member being the preferred replacement for my role despite strong external competition.

MBDA (UK) Ltd – Aerodynamics Engineer   *2015-2019*

- Received an innovation award for role in an agile team developing a new suite of software tools allowing idle PC resources to be utilised for performance modelling, reducing typical run times from weeks to days.
- Performed complex aerodynamic analyses, primarily using MATLAB and a Linux High Performance Computer, a key part of which involved collating input data and creating large datasets of aerodynamic data.
- Contributed towards the implementation of a collaborative code development process in the department, greatly reducing code duplication and improving overall codebase robustness.
- Developed a MATLAB wrapper for the FORTRAN-based product performance model that greatly improved the accessibility of the model, from only a handful of qualified specialist engineers to any competent MATLAB user being able to carry out their own simulations.

MBDA (UK) Ltd – Integration & Systems Validation Engineer   *2013-2015*

- Demonstrated logical thought processes and problem-solving skills in a high-pressure environment and received a company special recognition award for diagnosing and resolving a missile simulator bug during a live customer demonstration.
- Received a second special recognition award for refactoring Python-based experimental missile trials software, significantly increasing the maximum data transfer rate between the trials software and missile, with the refactored software being successfully used on live missile trials.

Personal Achievements

- Extensive solo bicycle travelling, including a year-long trip through Latin America from Seattle to Argentina. Navigating unfamiliar cultures in a second language greatly improved my interpersonal and communication skills along with my confidence and initiative.
- Developed advanced Spanish skills through self-guided study and application during above cycle trips.