

# SIMON EMMS

Senior Software Engineer, DevOps, Solutions Designer

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## SKILLS

### Languages and Frameworks

NodeJs            TypeScript

PHP                Python

Go                 Express

Restify            Vue

Angular           React

### DevOps

Docker            Kubernetes

Ansible           Terraform

Git/SVN           CI/CD

Semantic Release

### Data Stores

MySQL            PostgreSQL

MongoDB          Elasticsearch

Cassandra        RabbitMQ

### Principles

Design patterns   SOLID

12 Factor App    MicroServices

Agile (Scrum/Kanban)

### Other

IoT                OpenFAAS

Mentoring        Leadership

## EDUCATION

2001 - 2004

International Politics &  
Strategic Studies | University of  
Wales, Aberystwyth

## PROFILE

An experienced and motivated engineer with skills spanning a multitude of disciplines and a proven ability to deliver high quality systems under the tightest of deadlines. With over a decade of experience in different systems, companies and languages, I have an ability to quickly grasp even the most-poorly documented software and communicate solutions to appropriate stakeholders.

## SELECTED PROJECTS

### BrowserSpy | browserspy.io

NodeJS, TypeScript, Vue, MongoDB, SocketIO, Docker, Kubernetes, GitLab, Automation, MicroServices, Solutions Design

**A testing tool that records all website events for replaying at a later date with a simple, two-line installation that works cross-platform.**

- Designed a scalable microservice architecture that is able to work with third-party APIs for authentication and issue tracking. The API is flexible enough to implement additional third-party services at a later date by creation of an appropriate strategy. The service records large amounts of binary data so made use of cloud data buckets for optimal read/write capability.
- Established a DevOps workflow using Kubernetes with feature-branch deployments. Configured a full CI/CD suite, made a series of reusable CI functions to ensure terse configuration files. Maintained a separation between processes that needed to be real-time and ones that could be batch-processed later to reduce costs.
- Developed a recorder that is installed and configured in the user's browser that intercepts the relevant global DOM objects and pushes the events to a message queue for later processing into a playable timeline. Established metrics with automated tests to ensure that these adhere to appropriate performance criteria.
- Built a playback service that processed the events into the correct order with all relevant bucket data pre-loaded. Implemented an iterator pattern to load the data in segments to give a smooth playback experience.

## SELECTED WORK EXPERIENCE

**Nov 16 to Aug 19**

**Platform Engineer (contract) | Energy Systems Catapult**

NodeJS, Angular, Python, R, MongoDB, PostgreSQL, GraphDB, Docker, Kubernetes, Spark, Kafka, IoT, Hardware, AWS, Automation, MicroServices

**Inherited an undocumented codebase from a third-party, including an unsupported proprietary graph database and worked to achieve a stable platform to provide domestic heating for trials involving 30 and 100 homes.**

- Working within tight constraints I developed key components for the system that would ensure a standard of reliability to safeguard all users, particularly those vulnerable to downtime.
- Developed strong working relationships with key members of different teams to fully understand real-world issues with the applications and established proposals to address them.
- Worked with the data science team to provide an additional software resource especially with R, Spark and Cassandra, technologies I was previously unfamiliar with.
- Took responsibilities as interim scrum master when the need arose and managed interactions with third-party development partners.
- Encouraged use of best practice, especially amongst junior developers mentored.

**Jan 16 to Apr 16**

**Lead Engineer (contract) | Cromwell Tools**

NodeJS, ES6, TypeScript, MongoDB, AWS, Docker, RabbitMQ, Automation, Workshops, Leadership, Solutions Design

**Led the NodeJS development team on a replacement API for the main website, which had to maintain backwards compatibility with the existing website.**

- Established weekly workshops to educate the team on best practice in NodeJS and MongoDB.
- Managed the sprints and the whole agile process. The teams were spread across three different locations and, initially, the communication was poor. Improved this by tightening the agile disciplines.
- Encouraged the adoption of microservices for admin processes. Proposed an architectural design for this solution and implemented it.

**Oct 15 to Jan 16**

**Senior Software Engineer (contract) | CDG Group**

NodeJS, JavaScript, ES6, AngularJS, D3, Automation, SocketIO

**Brought in to provide Angular and D3 expertise. As a pure Java house, they had limited knowledge of front-end JavaScript. Improved their usage to provide a more consistent and an easier development experience.**

- Rewrote the front-end for their main Lean Client product. Although marketed as a single application, in reality it was a suite of software. Configured this to build to a Docker image.
- Created a Yeoman generator for fast construction of new AngularJS modules. This was partly to enforce consistency, but to help the Java engineers gain familiarity in JavaScript.

- Developed a comprehensive form generator to enable the API to generate a schema that would display the user input in a consistent way.
- Provided training to the Java engineers on how to use JavaScript, Angular and their associated ecosystems and how to develop and deploy with the module framework I developed.

**Sep 14 to May 15****Senior Software Engineer (contract) | Wealth Wizards**

NodeJS, PHP, AngularJS, D3, Automation, MongoDB

**Developed both front and back-end components as part of a team that created an automated pension advice system.**

- Collaborated to design and implement a Data Definition Language for the PHP back-end to publish a comprehensive question schema. This schema would be ingested by the Angular front-end to dynamically generate the form, which could be defined on a per-broker basis.
- Built a series of reusable Angular components to be used across the platform.
- Developed a PDF report generator for the broker's advice to be displayed with D3 infographics. Worked closely with the firm's pension advisers to ensure accurate and FCA compliant reports.

**Oct 12 to Aug 14****Senior Software Engineer | GeoPost (now DPD UK)**

NodeJS, MongoDB, MySQL, Rocket UniVerse, Automation, Workshops

**Worked on the main DPD/Interlink RESTful API. Written in pure NodeJS, this business-critical service was responsible for handling requests for web users, depot operations and receiving batch data from senders.**

- Implemented continuous integration principles to the development workflow. Due to the company being a round-the-clock operation, worked with the SysOps team to reduce the time required for software upgrades.
- Principal engineer on the industry-leading Follow My Parcel service, which included being part of the team that designed the architecture. The primary problem was that the current system was not designed for real-time tracking as the central database was monolithic and unscalable. The design and implementation needed to encompass methods of achieving live updates without huge expense or causing service outage. This was the flagship project that year and a major USP for the company, whilst handling a large increase in daily requests - ~700,000 and ~900,000 on Xbox One and PS4 launch days respectively.
- Wrote a pure JavaScript driver for the Rocket UniVerse NoSQL database. As UniVerse is a proprietary piece of software with little public documentation available, this required reverse engineering the Java driver and translating into NodeJS. As a fundamental piece of the live tracking architecture, this reliably handles millions of requests per day.
- Ran training sessions to upskill non-JS developers to be proficient in the NodeJS platform.

**FULL CAREER HISTORY AVAILABLE ON REQUEST**