

MATTHEW MACLEOD

FULL-STACK SOFTWARE ENGINEER

Background

I am a cross-discipline, full-stack software engineer with over 15 years of experience working in industries including robotics, publishing, academic research, and visual design. I have a comprehensive skillset which is applicable to a wide variety of applications, including user interfaces, low-level systems, high-throughput data processing pipelines, and native applications on both mobile and desktop platforms.

I have previously worked in small and large teams as both an engineer and a technical lead managing other developers and designers. I enjoy working at all levels of the technology stack, but particularly appreciate roles that allow me to work on the design and implementation of large-scale, technically challenging systems. I'm comfortable working with customers and other stakeholders to effectively deliver engaging and powerful solutions, and I appreciate an open, supportive, and constructive engineering culture.

I have experience with a wide variety of environments – my main toolset at the moment is **Go**, along with **React**, **TypeScript**, and **SCSS** for web frontends. I also have extensive knowledge of **Ruby** and **Rails**, **Java**, **C++**, and **Objective C**.

Technical Skillset

Go

Experience building high-performance system applications and APIs using Go and common libraries.

Ruby

Expert knowledge of Ruby, Rails, and common frameworks and libraries.

Javascript / Typescript

Excellent JS/TS knowledge on client and server with extensive React and webpack experience.

HTML / CSS

Expert knowledge of cross-browser HTML and CSS. Particular skills with high-performance responsive front-end development using latest technologies.

Java

Expertise building high-performance processing pipelines with computer vision and ML technologies.

Objective C & Swift

Extensive experience building macOS and iOS apps. Good knowledge of the Cocoa and UIKit APIs.

Testing

Good knowledge of testing strategies and techniques and a proponent of CI and CD culture.

Other languages

Working knowledge of C/C++, PHP, Python, Rust. Experience building language extensions in C; Qt; POSIX API; x64 assembly etc.

Databases

Management and optimisation of MySQL, PostgreSQL, SQLite, MongoDB, Elasticsearch, Redis and InfluxDB.

Development / deployment

Full familiarity with Git, shell scripting, Docker, deployment and hosting systems, AWS, GCP etc.

Project management

Extensive work with Jira and similar tools. Full knowledge of Scrum and related development processes.

Design and production

PDF, PostScript, colour management systems and TIFF/JPEG and other image formats. Expert knowledge of all major graphic design tools, including Adobe Photoshop, Indesign and Illustrator. Extensive knowledge of graphic design principles and techniques.

User Experience


Commercial experience designing and building compelling user interfaces for a wide variety of applications.

Education

2002–2007 – University of Edinburgh

Master of Engineering (MEng) – Electronics & Computer Science

An interdepartmental computer science and engineering degree which covered the entire spectrum of computer systems, including physical processor design, algorithms, languages, data structures, AI, and user interfaces.

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Recent Projects

Examples of recent systems and projects I have worked on include:

- ◆ Real-time detection and localisation of 10k+ QR code markers using commodity hardware on a mobile robotics platform, using a custom Java-based image processing pipeline.
- ◆ 3D reconstruction of physical objects in real-time, including automatic feature extraction and dimensioning, using LiDAR scans from an autonomous robot.
- ◆ Architecting and developing a high-throughput pipeline for identifying discussion of scientific research in online news sources using a combination of text mining techniques, capable of processing hundreds of articles per second.
- ◆ Historical and real-time event identification and extraction from Wikipedia, involving high-efficiency processing of multiple terabytes of XML data.
- ◆ Designing and building a custom interactive data explorer UI for database of ~100M records, with extensive filtering, sorting, graphing and analysis tools.

Previous Experience

2015–2022 **BotsAndUs**

Head of Software

BotsAndUs is a startup bringing cost-effective autonomous robots to a variety of applications using a powerful, modular platform. As the first hire, I led the design and implementation of the full robotics stack – including autonomous navigation, hardware integration, OTA updates, monitoring systems, administration tools, and customer-facing dashboards. I also grew and managed the software development team, and worked with customers to help them build solutions using our platform.

2013–2018 **Digital Science / Altmetric**

Senior Software Engineer / Lead UI Developer

Digital Science is a group of companies building software for scientists and the wider research community. I initially worked on the laboratory data management product **Projects**, where I successfully carried out the design and development of a from-scratch re-write as a native desktop application for macOS.

I transitioned to the **Altmetric** team at Digital Science, where I developed several high-throughput data collectors and pipelines which identified online discussion of scientific research in real-time. I later moved to the UI Lead role, where I focused on ground-up re-implementations of our flagship internal- and external-facing web applications to meet modern technical and user experience expectations.

2009–2013 **tictoc**

Technical Director

Tictoc is a middleweight digital software agency building websites and apps for a client base of around 300 charities, educational institutions and private businesses. I implemented the technical platforms we used to deliver projects, providing a toolset for fast and flexible development of client projects. This included the development of a new, flexible in-house web framework targeted at rapid application development and ease of use. I introduced testing and agile practices to the development studio, and managed the day-to-day operation of the technical team.

2007–2009 **Radge Media**

Creative Director

Radge Media publishes culture magazines across the UK. As the Creative Director, I managed design and layout for monthly magazines and publications. I later moved to head up the company's digital strategy, and implemented a powerful system for cross-channel online and print publishing. This project included complex data management tools and integration with multiple third-party data sources, with the ability to publish content seamlessly across web, mobile and print channels through a variety of XML and JSON feeds as well as integration with Adobe InDesign.



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