

Ben Butterworth

ben@orth.uk

London, UK [[Stack Overflow](#), [Projects](#), [GitHub](#), [Articles](#)]

I'm obsessed with building the best stuff that changes lives. I've built applications and tools for customers, colleagues, developers and randoms. Many of these [projects](#) were born from my curiosity and an impatience to fix problems. I've spent thousands of hours helping people, with 27K points on [Stack Overflow](#), hundreds of stars on Github and 20K downloads per week on pub.dev.

WORK

Lead Software Engineer at Deep tech stealth startup March 2024-now

- Built drone control software, including mission planning & live monitoring, using Python, Typescript, React, Tailwind, WebRTC and Websockets for Linux, macOS, Windows
- Implement manual piloting, video recording and camera control by integrating controllers, cameras with gstreamer (h265, h264, KLV etc.), WebRTC and mavlink

Senior Fullstack Engineer at Skyrail Oct 2023-March 2024

- Built geospatial visualisation and annotation tools, including sketching, shapes, arrows, annotations, undo/redo on maps on deck.gl, MapLibre, React, Redux, Typescript and Node

Senior Software Engineer at Helsing (Command and control team) Jan 2022-Sep 2023

- Implemented multiplayer and offline (PWA) features for "[battlefield AI](#)" app with React, Typescript, Node, tRPC, WebSockets, Postgres/SQLite, leading to multi-million £ contracts
- Designed and implemented internal tools for visualising and debugging sensor streams, for example reducing the time for new starters to visualise data from hours to a few clicks
- Migrated legacy Rust application to NodeJS and reduce hundreds of API calls into one
- Lead/maintain frontend infrastructure with NGINX & Kubernetes on Azure & embedded
- Develop free GPS and orientation data collection Flutter [app](#) used by field teams
- Built SDKs for AI applications, to handle configuration, observability & lifecycle, including improving performance of real-time AI applications in resource-constrained environments
- Built tools used by many apps e.g. RPC packages for Rust, Python & Typescript

SDK Developer at Ably.com (Flutter, Swift, Kotlin) Apr 2021-Dec 2021

- Nominated for the award, "bias for action" on my last week of work at Ably
- Oversee development by contractors working on WebSocket SDKs (iOS and Android)
- Added push notification and encryption support to WebSocket [package](#), abstracting iOS / Android APIs into Flutter API, e.g. spawning Flutter Engine for background processing
- Found bugs in internal and open-source code, providing actionable bug reports & fixes
- Built an anonymous video calling app (<https://club2d.orth.uk>) which generates a 3D face mesh, rendering it to other user's browsers in real time. Gave [talk](#) at JSMonthly
- Maintaining open-source libraries: creating changelogs, writing documentation, handling issues and supporting enterprise customers

Machine Learning Engineer at Popsa (TensorFlow, Python, Kotlin, Swift) Sep 2020 - Apr 2021

- Designed and built on-device photo library face recognition feature, including parallel image processing and IO, profiling and optimising memory and throughput across devices
- Built photo albums title suggestions using EXIF data, using Protobuf over HTTP APIs.
- Wrote NumPy files parser in Kotlin to investigate cross platform image processing inconsistencies and subsequently discovering a bug in Android graphics library.
- Optimized models with additional layers and pre-processing to improve performance
- Built internal tools for data scientists, including Python applications and macOS CLI tool to run models, including distribution for macOS (notarization) and progress animations

Software Engineer (Mobile Team) at Ocado Technology Feb 2019 - Sep 2019

- Designed mobile-friendly APIs for mobile application offering sold to other supermarkets
- Reduced response time for requests by 3x, 1.24s to 0.39s by merging related APIs

Product Engineer at Emberton Part time, Aug 2014 - Aug 2018

- Built tool to translate English product videos into Mandarin using ML to improve China sales
- Migrated vulnerable IT systems into secure and usable products (Gmail, GDrive)
- Designed (sketching, 3D modelling) products for hotel rooms, e.g. iron & iron board holder

EDUCATION

Imperial College, Master's in Computer Science, **Distinction (highest)** 1 year

- C++, OOP, Computer vision, ML, Information Security, Networking and Distributed Systems
- Thesis: comparing/ implementing real-time ML systems for the edge and in cloud
- Built [receipt scanning app](#) and invited to present and meet start-up with £150m investment
- Published mobile app to help 'calculate carbon impact of food' on Apple Store / Play Store, using React Native, GraphQL and Google cloud functions
- Built landing page in React and GatsbyJS in 4 hours: <https://foodprint.orth.uk>

Imperial College, Master's in Engineering, **1st class (highest), Dean's list** 4 years

- Developed painting machine using Arduino, Solidworks, 3d printing and CNC machining
- Business School courses: Project Management (A*) and Strategic Management (A*)

MIT / Massachusetts Institute of Technology, exchange student 6 months

- Courses: Intro to Algorithms, Entrepreneurship in Engineering, Intro to Machine Learning
- Research assistant: Analysed molecular simulation data for [publications](#) using Python

VOLUNTEERING, HOBBIES & AWARDS

- Won £1.4k worth of prizes at Consumer AI Hackathon 2024 by building [travel summariser](#)
- Developed push notifications [package](#) with 5k weekly downloads (see [GDGDevFest](#) talk)
- Built [geojsons.com](#), a GeoJSON visual and code-editor app using React, CodeMirror, etc.
- Organising and running events for 800 students in Halls, given Imperial Volunteer award