

Ben Butterworth

ben@orth.uk

London, UK [[Website](#), [Stack Overflow](#), [GitHub](#)]

I'm often torn between making things to help people and tinkering with tech. I design and build for change. I've built developer tools, machine learning apps, real-time web apps with distributed systems. On the side, I tinker, make [apps](#), write on Stack Overflow ([top 0.15%](#)), give [talks](#), write [articles](#) (10K visitors/month), & open source (e.g. [push](#)).

WORK EXPERIENCE

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

- Implement multiplayer and offline (PWA) features for "[battlefield AI](#)" app with React, Typescript, Node, Rust, WebSockets, Postgres/SQLite, leading to multi-million £ contracts.
- Design and implement internal tools for visualizing and debugging sensor streams, for example reducing the time for new starters to visualize data from hours to a few clicks.
- 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.
- Developed, documented & tested drone application, including automated simulations tests.
- Writing fast unit/integration tests with high test coverage (e.g. 92%) and giving workshops.
- Optimised CI/CD pipeline duration from 20 minutes to 3-6 minutes, depending on changes.

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 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
- [Fixing and enhancing documentation](#) on the Ably documentation site covering all SDKs
- [Contributed Flutter Engine PR](#) to enhance Flutter plugin development on iOS.

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

- 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 modeling) 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

- Built demo app & gave workshop for annotating images with bounding boxes for ML training, using Flutter, and Cloudflare (D1/SQLite on the edge, Workers, R2 object storage, etc).
- Developed open-source push notifications Flutter package and presented at GDGDevFest
- Developed & published GPS/orientation Flutter app (iOS, Android).
- Organising and running events for 800 students in Halls, given Imperial Volunteer award.
- Managing websites, releases and DNS for customers, organisations and personal projects.
- Author of technical articles & guides on <https://orth.uk>, averaging 10K unique visitors a month, with one article gaining 33K unique visitors in 3 days and top of Hacker News.