Ben Butterworth

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London, UK [Stack Overflow, LinkedIn, Website]

I've worked with a variety of platforms, runtimes and languages for library development, machine learning, parallel processing and app development. I've worked on mobile APIs and distributed systems as a Backend Engineer at Ocado.com, before I earnt my Computer Science degree. I achieved first-class honours, dean's list and distinction for degrees in computer science and engineering at Imperial College including time at MIT. I'm a decent communicator: writing documentation, hundreds of Stack Overflow answers (and questions 😄), giving talks, teaching others, bringing out the best in teams. Find more projects at **https://orth.uk/projects**

WORK EXPERIENCE

SDK Developer at Ably.com (**Flutter**/ iOS/ Android)   April 2021-January 2022

- Oversee development by contractors working on other SDKs (iOS and Android)
- Added push notification and encryption support to package, abstracting iOS and Android APIs into ergonomic Flutter API. Spawning Flutter Engines for background processing.
- Added Swift Package Manager support to 1 Objective-C and 1 Swift library, while using advanced module structure to ensure proper API access control for SDK users.
- 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.
- Released open-source libraries: creating changelogs, writing documentation, handling issues and keeping enterprise customers such as banks feeling supported and happy.
- Fixing and enhancing documentation on the Ably documentation site covering all SDKs
- Contributed Flutter Engine PR to enhance Flutter plugin development on iOS.

Mobile ML Engineer at Popsa.com (**Android, iOS, TensorFlow**)   Sep 2020 - April 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 Protocol-buffer based 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 in Python 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.

Mobile Engineer, University software project (**React Native**)   Dec 2019 - May 2020

- Published mobile app to help 'calculate carbon impact of food' on Apple Store and Play Store.
- Wrote helpful documentation and automated processes with scripts and CI/CD tools.
- Built landing page in React and GatsbyJS in 4 hours: https://foodprint.orth.uk

- Helped developers learn and be productive by teaching and guiding them, opting for Javascript and React Hooks for simplicity (Used Redux, Typescript in personal projects).
- Built navigation, GraphQL network requests, authentication with good test coverage, and assisted less experienced developers with NodeJS, Apollo Server and authentication.

Software Engineer (Mobile Team) at Ocado Technology (**Java**)   Feb - Sep 2019
- Designed mobile friendly APIs for API gateway microservice accessed by white-label mobile applications sold to international supermarkets (e.g. Bon Preu, Kroger).
- Reduced response time for requests by 3x, 1.24s to 0.39s by merging related APIs.
- Won weekly internal coding competition twice, involving 10-15 experienced developers.

EDUCATION

Imperial College, Master's in Computer Science, **Distinction (highest)**   Oct 2019 - Aug 2020
- 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 and reimbursement app with React Native as part of a team who focused on the backend implementation, then invited to present app and meet employees at Fintech start-up with ~£150m investment.

Imperial College, Master's in Engineering, **1st class (highest), Dean's list**   2014 - 2018
- Developed automated painting machine, one component of an automated mini factory, using Autodesk SketchBook, Arduino, Solidworks, 3d printing, CNC machining
- Thesis: simulating and analysing nanoparticle behaviour in human cells using Python, Bash and molecular dynamics (GROMACS); and highest marks in simulation/ modelling.
- Business School courses: Project Management (A*) and Strategic Management (A*).

Massachusetts Institute of Technology, exchange student   2017
- Courses: Intro to Algorithms, Entrepreneurship in Engineering, Intro to Machine Learning.
- Research assistant: Analysed molecular simulation data for publications using Python.
- Photographer at student-led newspaper society.

Harrow School, *A-levels:* 4A* in Further Maths, Physics, Chemistry, Maths   2012 - 2014
- Several 100%'s in A-levels exams; Represented school in rifle shooting and football.
- Awarded gold prize in UK Chemistry Challenge and silver prize in Chemistry Olympiad.

VOLUNTEERING, HOBBIES & AWARDS
- Self-taught ML engineering and TensorFlow, achieving the TensorFlow Developer Certificate.
- Organising and running events for 800 students in Halls, given Imperial Volunteer award.
- Experience with DNS, Docker, NodeJS, NoSQL, MySQL, AWS, GCP, Terraform, Cloudflare.