Matthew Pidden

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Education

University of Bristol Graduating May 2025

Bachelor of Science in Computer Science (Top 10 student award, current grade of 81%) *Bristol, UK*

- **Third Year Classes:** Machine Learning, Computer Vision, High Performance Computing, Advanced Algorithms, Artificial Intelligence, Final Dissertation Project
- **Second Year:** Security and Operating Systems: 95, Programming Languages and Computation: 87, Software Engineering Project: 85, Concurrent and Distributed Programming: 80, Algorithms: 74

Experience

Global Expeditions Group Oct 2023 – Present

Software Engineer (Internship transitioned into Part Time) *Remote*

- Developed and implemented an internal cross-platform blog management system using Flutter, enabling daily use by students and staff worldwide, including offshore.
- Utilized REST APIs to integrate with a WordPress backend, providing seamless connectivity.
- Implemented full offline functionality, image editing and compression, and custom blog management solutions.
- Distributed the app on iOS, macOS, and Android with regular updates.

Projects

The Picks | *Flutter, Firebase Hosting, Firestore Database, Google Cloud Functions, JavaScript*

- Transformed a family football prediction game from an Excel spreadsheet into a fully automated full-stack web application, modernizing a process that originated nearly two decades ago.
- Hosted the app on Firebase, enabling users to enter and update their predictions in real-time, vastly improving the user experience from the original email-based system.
- Implemented a real-time scoring system that integrates with the Premier League API, automating score updates and eliminating the need for manual user input.

Marine Conservation App | *Flutter, Django, React Native, SQL Databases, Azure, AWS, REST APIs, iOS & Android SDK*

- Collaboratively developed and deployed a full stack mobile app and desktop website for the UK's largest scuba diving club, enabling identification, logging, and research on marine species.
- Led the transition from React Native to Flutter after identifying limitations, which enhanced the efficiency and performance of the beta release.
- Engaged in Agile development practices, working closely with the client to deliver regular updates and improvements based on user testing and feedback.
- Managed version control using GitHub, implementing PRs, Issues, Merge Queues, and Code Reviews to coordinate the group project effectively.
- Designed and implemented a full CI/CD pipeline, reducing deployment time and ensuring consistent, reliable releases through rigorous unit and integration testing.

Parallel and Distributed Benchmarking | *Go, Python, AWS, Latex*

- Improved the performance of Conway's Game of Life simulation by implementing parallel processing in Go, utilizing Go Routines and Channels to manage multiple threads, resulting in a 25% reduction in run time.
- Engineered a distributed version of the simulation using Google's Go Language with Remote Procedure Calls (RPCs) to distribute workloads across multiple nodes on AWS. This approach reduced run time by 66.75%.
- Integrated fault-tolerance mechanisms into the distributed system, enabling smooth operation and recovery even when individual components failed.
- Conducted thorough performance analysis using benchmarking tools sysstat, pprof, and custom Python scripts. Visualized data to evaluate the effectiveness of various parallel and distributed implementations.

Technical Skills

Languages: Dart, JavaScript, Go, Python, Java, C, Swift, Haskell
Technologies: Git, GitHub, Firebase, Flutter, Android SDK, iOS SDK, Rest AIPs, React, Django, AWS, Azure
Concepts: Agile Methodology, Parallel and Distributed paradigms, Operating System, Virtual Memory, Encryption, Decryption, Database Normalization, Continuous Integration/Continuous Deployment (CI/CD), Test-Driven Development (TDD), Data Structures and Algorithms