# Martin Walls

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Since completing my Master's degree in computer science, my strong theoretical foundation alongside my industrial experience has proven invaluable in approaching real-world problems. I continually strive to deepen my understanding of the systems and tools I work with, seizing every opportunity I have to expand my skillset. Previous employers have been impressed by the efficiency of my coding and my creativity in solving complex problems. My aim is to produce systems that are not only secure, robust, and accessible, but that also add real value to the end users, empowering them through technology.

## Employment Experience

**2024+** — Associate Software Developer, *Optimove*

Working primarily in C# .NET, TypeScript, and PHP, I develop and enhance communication channels for the company's marketing platform.

**2023** — Supervising Undergraduates, *University of Cambridge*

I supervised several groups of undergraduates for the Databases course of the Computer Science Tripos. This involved delivering small-group teaching which supplemented and consolidated the lecture material.

**July–August 2022** — Summer placement, *Propel Tech*

I completed an independent software project, developing an e-commerce website from research to development and deployment. Guided by an experienced mentor, I was able to rapidly pick up new technologies and start producing value.

**July 2018** — iCompetence GmbH, *Hamburg*

I developed a data visualisation dashboard for website analytics data, evaluating a new Python library as a potential tool for the company to use.

## Education

**2023–2024** — MSc Computer Science, *University of St Andrews*

— Master of Science with Distinction
— Placed on the Deans' List for Academic Excellence
— Awarded the Prize Medal for the best grade in MSc Computer Science

**2020–2023** — BA Computer Science, *Churchill College, University of Cambridge*

— Bachelor of Arts: Class 1

**2016–2020** — A-Levels/GCSEs, *Ripley St Thomas CE Academy, Lancaster*

— A-Levels: 4 A*s (Maths, Further Maths, Computer Science, Chemistry)

## Skills

I have experience with multiple programming languages, including C#, Java, C, Rust, PHP, JavaScript/TypeScript, and Python. Previous experience has demonstrated that I am able to quickly become proficient in new languages and tools. I have developed cloud-native software using technologies such as GCP, AWS, Kubernetes, and Docker. I am confident using Git and other command-line tools for an efficient development workflow.

## PROJECTS

**2024**   Wedding Admin website

To help my fiancée and I with wedding planning, I built a guest management dashboard tailored to our specific needs.

**2020**   IoT connected pair of lamps

I built a pair of LED lamps, that synchronise their colour over the Internet. When one user changes the colour of their lamp, the other updates its colour to match. I programmed this in C on ESP32 boards.

**2020**   LED matrix display

I built a 3D matrix of LEDs and programmed an Arduino to control it. I wrote low-level interrupt and timing code to individually control a single row of the matrix at a time, exploiting persistence-of-vision to display text and patterns across the entire display.

## ACADEMIC INQUIRY

**2024**   Round-trip ER Editor, *MSc dissertation project*

I implemented a novel diagram editing tool for entity-relationship diagrams that automatically synchronises between an ER diagram and corresponding SQL code. The tool is freely available on the VSCode marketplace as "sqlER Diagram Editor", and is currently used to support the teaching of the undergraduate databases course at St Andrews University.

**2022–2023**   C to WebAssembly Compiler, *BA dissertation project*

I researched, implemented and evaluated a compiler from a subset of C to WebAssembly, written in Rust. I implemented optimisations at several stages of the compiler, critically evaluating multiple possible algorithms before applying them to the project.

**2022**   The NTP Algorithm, *technical presentation*

I extensively researched the details of the Network Time Protocol, examining how it uses statistical filtering to achieve accurate synchronisation in the presence of variable network latency and jitter. I eloquently delivered a clear technical presentation, balancing the use of visual, spoken, and mathematical information to keep the audience engaged. I was awarded the prize for the *Best Talk in the Practice of Computer Science*. A recording can be found at *https://youtu.be/_Kuxmu7WkD8*.

## AWARDS

**2024**   Prize Medal for the best overall student in MSc Computer Science, *University of St Andrews*

**2024**   Dean's List for Academic Excellence, *University of St Andrews*

**2022–2024**   Academic Prize Scholarship, *Churchill College*

**2022**   Best Talk in the Practice of Computer Science, *Churchill Computer Science Talks Series*

**2021**   Duke of Edinburgh's Award, *Gold*

**2020**   George Phythian Award for Best A-Level Results, *Ripley St Thomas*

## REFERENCES

Available on request.