

ETHAN GOUGH

Software Engineer

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Portfolio Website: ethangough.tech

SUMMARY

Full-stack software engineer with commercial experience delivering production systems across web, mobile, desktop, and internal tooling. Proficient in Python and JavaScript/TypeScript, with professional experience using SQL databases and Git-based version control. Comfortable working independently in remote environments or collaborating within teams.

EXPERIENCE

Full-Stack Software Developer

2022 - Present

Heap & Partners

Birkenhead, Wallasey

- Designed and delivered bespoke internal software solutions to support business operations, including database management tools, workflow automation, and reporting systems used across multiple departments.
- Built and maintained full-stack applications using Python, React, and Docker, with a focus on maintainability, scalability, and long-term reliability.
- Integrated internal systems with third-party APIs, including Microsoft Graph and HR and finance platforms, to automate processes and significantly reduce manual workload.
- Worked closely with staff to gather requirements, refine workflows, and iteratively deliver solutions that improved efficiency across day-to-day operations.
- Developed, supervised, and continuously upgraded a production system that ran reliably for over a year, supporting live operational workflows and evolving alongside business requirements.

PROJECTS

Automated Email Processing System

2024 - 2025

Heap & Partners Ltd., Birkenhead, UK

Designed and built an automated system to handle incoming enquiries and dynamically assign tasks across 20+ staff, replacing a largely manual workflow.

- Implemented as a long-running Windows background service in Python with a React-based internal interface for monitoring and interaction.
- Reduced manual enquiry processing by 95% and cut customer response times by 50%.
- Integrated multiple real-time data sources, including HR systems, attendance data, Sage, and product timing data, to balance staff workload dynamically.

Built supporting data-driven tools, including a web crawler to extract and verify external data against internal databases, and an internal product lookup tool that surfaced detailed product information and troubleshooting guidance, significantly improving the speed and accuracy of internal queries.

Smart Insole Android Application

2025

Lancaster University

Designed and developed an Android application to process, visualise, and stream live sensor data from a smart insole device.

- Implemented real-time Bluetooth communication to receive and display live sensor readings during testing sessions.
- Improved data accuracy and reliability for use in mobility research studies.
- Implemented calibration and data smoothing techniques to interpret noisy sensor readings and improve measurement accuracy.

Database Management & Optimisation System

2023 - 2024

Heap & Partners Ltd., Birkenhead, UK

Designed and implemented a bespoke system to manage and optimise a company database containing 30,000+ records.

- Reduced record retrieval times from around 10 minutes to sub-second performance through query optimisation and indexing.
- Restructured the database schema into third normal form (3NF), improving data integrity and reducing redundancy.
- Diagnosed and resolved recurring data corruption issues by redesigning table relationships and enforcing stronger integrity constraints.
- Planned and executed the migration of legacy data into the redesigned schema while preserving data integrity.

SKILLS

Core: Python, JavaScript/TypeScript, SQL (MySQL, SQLite, SQL Server), React, Node.js, Git, Docker, REST APIs, Unit testing, Integration testing

Additional: Java, C, C++, C#, PHP, R, MATLAB, HTML/CSS

Platforms: Linux, macOS, Windows

EDUCATION

Master of Science - MSci, Software Engineering (First-Class Honours)

2021 - 2025

Lancaster University

Lancaster, United Kingdom

INTERESTS

- Music production and digital audio technology.
- Live automation systems.