

# HARRY MCDONAGH

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## Computer Science Graduate (2:1) | Software Engineering, AI & Data-Driven Solutions

Ambitious and technically skilled Computer Science graduate seeking opportunities in technology and finance. Proven ability to design and deliver scalable software solutions. Achieved a top-grade (78%) final-year project building Sylvie, an intelligent web-based AI chatbot integrating a Retrieval-Augmented Generation (RAG) pipeline. Experienced across the full SDLC, from requirements gathering to deployment, with hands-on expertise in Python, JavaScript/TypeScript, React, FastAPI, and SQL/NoSQL databases. Strong analytical grounding in data science and machine learning, with a passion for building user-centric systems. Quick to learn, adaptable, and motivated to contribute to dynamic engineering teams.

## EDUCATION AND QUALIFICATIONS

### UNIVERSITY OF EAST ANGLIA, NORWICH | BSc Computer Science

September 2022 - July 2025

- Developed a strong foundation in computing principles, including mathematics, logic, and engineering, while analysing its impact on individuals, organisations and society.
- Built skills needed to analyse computer architecture suitability for data processing.
- Strengthened proficiency in programming, algorithms, and software design.
- Achieved top performance in final-year project (78%) developing an AI chatbot with Retrieval-Augmented Generation (RAG)

### Projects (Full Portfolio Available at [harrymcdonagh.com](https://harrymcdonagh.com))

- Sylvie:** Designed and developed Sylvie, a web-based AI chatbot supporting UEA students. Implemented a Retrieval-Augmented Generation (RAG) pipeline with semantic search to answer queries on university services and student well-being. Built with FastAPI, React, and Next.js, including user authentication, conversation history, and ethical prompt engineering. Delivered accurate responses in < 5s for 90% of queries during user testing, achieving a 78% grade and top performance among peers.
- Voyage:** Built a full-stack web application enabling real-time analysis of the top 100 cryptocurrencies. Designed REST API endpoints, integrated live price tracking and historical data analysis, and implemented secure portfolio management. Used Git for version control to maintain production-ready quality, enhancing accuracy and reliability of financial insights.

## PROFESSIONAL EXPERIENCE

### HORIZONE LTD | IT Technician

February 2022 - September 2022

Delivered client-focused IT solutions and support within this telecommunications service provider; optimised operations and customer service delivery while demonstrating a positive response to pressure in a high-tech and dynamic environment.

### Key achievements

- Engineered a VBA-driven automation tool reducing invoice processing time by ~80%, saving several days of manual work and improving operational efficiency.
- Translated complex technical issues into clear, actionable solutions for non-technical stakeholders, strengthening cross-team collaboration.
- Optimised internal systems and customer workflows, introducing process improvements that boosted service quality.
- Administered Microsoft accounts and enforced access controls, ensuring compliance and secure productivity for client organisations.
- Built and maintained network infrastructures to improve connectivity and business continuity.

## ADDITIONAL EXPERIENCE

### J.P. MORGAN | Software Engineering Virtual Experience (Forage)

February 2024

- Engineered a functional development environment, debugged critical issues to optimise system performance, and created real-time, interactive data visualisations using JPMorgan Chase's Perspective library, enhancing trader monitoring and decision-making.

### IEUK 2024 | Technology Intern

June 2024

Collaborated in employer-led workshops with BT, CrowdStrike, and Lloyds Banking Group, strengthened problem-solving and innovation skills through industry-recognised challenges.

## TECHNICAL SKILLS

**Programming Languages:** Java | Python | JavaScript | TypeScript | VBA | C#

**Frameworks & Libraries:** React | Next.js | Node.js | Express | Tailwind CSS | Auth.js | PyTorch

**Databases:** SQL | NoSQL

**Software Development:** MVC | UX/UI | CI/CD | Agile/Scrum

**Tools & Platforms:** Git | Networking & IT Support