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 software engineering and data-driven roles. 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. Quick to learn, and adaptable, with a focus on delivering practical high-impact solutions.

PROFESSIONAL EXPERIENCE

PURITAN AI | AI Associate Intern   June – September 2024

Supported the design and development of data-driven AI solutions within this specialist consultancy, supporting research, analysis, and prototyping of chatbot systems used to improve business workflows and customer interaction.

Key achievements

- Contributed to applied research on AI-driven automation, analysing data workflows and identifying opportunities to improve operational efficiency.
- Assisted in prompt engineering and model evaluation, tuning responses for accuracy, relevance and reduced hallucinations.
- Supported the prototyping of automated client-support systems, improving response times and documentation processes across multiple business use cases.

HORIZONE LTD | IT Technician   February 2022 - September 2022

Delivered client-focused IT solutions and support within this telecommunications / IT service provider. Optimised operations and customer service delivery while performing effectively under pressure in a high-tech and dynamic environment.

Key achievements

- Developed a VBA-driven automation tool reducing invoice processing time by ~85%, saving several days of manual work and improving internal operational efficiency.
- Translated complex technical issues into clear, practical solutions for non-technical stakeholders, strengthening cross-team collaboration.
- Administered Microsoft accounts and enforced access controls, ensuring compliance and secure productivity for client organisations.
- Supported the implementation and maintenance of IT infrastructure to ensure reliable connectivity and business continuity.

EDUCATION AND QUALIFICATIONS

UNIVERSITY OF EAST ANGLIA, NORWICH | BSc Computer Science (2:1)   September 2022 - July 2025

- Achieved top grade (78%) in final year project *'Sylvie'*, a web based AI chatbot tailored for university students to improve access to university services through data-led insights and user-centred design.
- Gained a strong foundation in computing, data analysis, and problem-solving, with practical experience translating user requirements into functional solutions.

Projects (*Full Portfolio Available at 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.

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

Languages & Tools: Python | TypeScript | JavaScript | VBA | SQL | C# | Excel

Frameworks & Libraries: React | Next.js | Node.js | FastAPI | Express | Tailwind CSS

Data & Methodologies: Data Reporting | Process Improvement | Requirements Gathering | Agile | SDLC