JOSEPH HALFPENNY

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Introduction

Enthusiastic computer science postgraduate and skilled full-stack developer with expertise in **Python, Flask, Django, JavaScript, and React.js**. Experienced in designing and managing databases using **SQL** and **PostgreSQL**, and in developing **RESTful APIs**. Proficient in **Agile methodologies** and version control with **Git**. A strong communicator and project manager, aiming to deliver impactful software solutions.

Education

2.2 BSc Computer Science | University of Leeds | *Sep 2020 - Jul 2023*
- **Dissertation:** Implementation and complexity testing on comparability graph recognition algorithms in **Java**.
- **Modules:**
  - **Distributed Systems:**
    - Gained expertise in cloud computing, IoT, edge computing, big data, REST architecture, time synchronization, and fault tolerance.
    - Designed and implemented a music web application integrating three web services (including one custom-built service).
  - **Secure Computing:**
    - Studied authentication, cryptography, ciphers, malware, web vulnerability management, and network defense techniques.
    - Conducted security testing on a Java web application, successfully exploiting three distinct vulnerabilities to access sensitive data.
  - **Web Services:**
    - Learned concepts of web crawling, tokenization, parsing, link analysis, indexing, query processing, and linked data.
    - Built and deployed a RESTful SkyScanner API system using Django.
  - **Robotics and Computer Vision:**
    - Covered motion planning, kinematics, localization, mapping (SLAM), image segmentation, object recognition, detection/tracking, and neural networks.
    - Implemented a room search and image identification system using Robot OS (ROS), completed a real-world deployment with TurtleBot.

A-Levels | Graveney Sixth Form | *Sep 2016 - Jul 2018*
- **Grades:** French A, Maths B, Physics B, Chemistry C.

Skills

- **Programming & Development:** Python, Flask, Django, Javascript, React.js, full-stack, Java.
- **Databases:** SQL, PostgreSQL design and management.
- **APIs & Web Services:** RESTful API design and development.
- **Tools & Practices:** Agile methodologies, Git, Postman, Visual Studio Code.
- **Soft Skills:** Eloquent communication, rapid understanding of others ideas, disciplined project management, adaptable problem-solving.

Projects

Family Tree Web Application | May 2025 - Current

Designed and developed a full-stack family tree application. Frontend with React and React Flow for interactive family tree visualisation. Backend is a Flask RESTful API with a strong focus on efficient database querying and function design. Architected the database schema and used Git for version control.

Global Emissions Visualiser | Aug - Sep 2025

Built a web application that integrates live API data from global sensors to visualise greenhouse gas emissions. Implemented with JavaScript, HTML5, CSS/Tailwind, and Express.js, featuring Chart.js for data graphs and an amCharts-powered interactive globe. Designed for smooth user interaction, API request management, and real-time country-level emissions insights.

Languages & Interests

Languages: English (Native), French (Fluent), Spanish (Upper intermediate).
Interests: Football, tennis, cooking, embroidery, reading, music, cinema.