

Josephine Burke

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EDUCATION

University College Dublin <i>BA in Computer Science with Data Science</i>	Dublin, Ireland <i>Sept 2023 – present</i>
• Clubs: Lacrosse, Networking Soc, Women in STEM, Sub-Aqua, AI in Medicine.	
University of Maryland, College Park <i>Young Scholars High School Program</i>	College Park, MD <i>June 2022 – July 2022</i>
• Earned an A and 3 college credits in International Political Relations.	
Saint John's College High School <i>High School Diploma</i>	Washington, D.C. <i>Sept 2019 – May 2023</i>

EXPERIENCE

United States Marshals Service Internship <i>Investigative Operations Division — Behavioral Analysis Unit</i>	June 2025 – Aug 2025
• Developed a Python-based investigative dashboard (Dash/Plotly) to automate analysis of complex case folders with thousands of heterogeneous files.	
• Implemented file-type summarization, storage usage visualization, and advanced search (exact, case-insensitive, fuzzy).	
• Built NLP pipelines (spaCy, regex) to extract entities (names, locations, emails, phone numbers) and integrated geographic visualizations.	
• Reduced manual review time by delivering interactive filters, entity network graphs, and geospatial dashboards.	
• Continuing to advise the USMS to help integrate and expand on this codebase for future investigative use.	
Quantum Computing Research	July 2022 – Aug 2022
• Designed and ran quantum circuits using IBM's Quantum Platform with Professor Sebastian Deffner (UMBC).	
• Presented research on entanglement-assisted invariance to leaders in the quantum field.	

PROJECTS

Projects include but are not limited to:

- Software Engineering — Eclipse, C** — Developed a C program to dynamically sort and shuffle user-provided songs; collaborated on an interactive Gantt chart tool and a board viewer built with linked lists; applied C unit testing to ensure program reliability.
- Software Engineering II — IntelliJ, JavaFX** — Led group development of HexOust, a JavaFX-based board game; contributed to planning, architecture design, and successful A-grade implementation.

TECHNICAL SKILLS

Languages: Java, Python, C, SQL, HTML/CSS, Scheme

Frameworks & Tools: Dash, Plotly, dash-cytoscape, spaCy, Git/GitHub/GitLab, VS Code, IntelliJ, Eclipse, Jupyter

Databases & Search: MySQL, Elasticsearch **Testing:** JUnit, CUnit

NLP & Text Analytics: spaCy, rapidfuzz, pycountry, country converter

CERTIFICATES

Elasticsearch — Udemy — Hands-on labs with index design, mappings/analyzers, DSL queries, and aggregations; built Kibana dashboards and ingested data via the Python client.

Introduction to Artificial Intelligence — The Coding School (TRAIN) — Implemented foundational ML models (linear regression, decision trees) in Python; examined AI ethics and bias.

Introduction to Quantum Computing — The Coding School (Qubit by Qubit) — Built and ran quantum circuits in Qiskit; applied error-correction algorithms on IBM's Quantum Platform.

Babysitting Basics — American Red Cross — Completed foundational childcare and safety training.

ADDITIONAL EXPERIENCE & ACTIVITIES

Technical Officer, UCD AI in Medicine Society — Coordinate events and manage technical operations, including sourcing speakers and designing events for students with technical backgrounds.

Child Care — Provided long-term childcare for a family with three young children for 4+ years, including travel to Maine.

Cybersecurity CTFs — Ranked in open category at Zero-Days Dublin; competed at University of Galway CTF.

Ireland Lacrosse — Represented Ireland in European Championships and She-box Tournament.

Learn more about me: <https://josierb.github.io/applications/>