

# Josephine Burke

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## EDUCATION

### University College Dublin

*BA in Computer Science with Data Science*

- Clubs: Lacrosse, Networking Soc, Women in STEM, Sub-Aqua, AI in Medicine

Dublin, Ireland

Sept 2023 – present

### University of Maryland, College Park

*Young Scholars High School Program*

- Earned an A and 3 college credits in International Political Relations.

College Park, MD

June 2022 – July 2022

## EXPERIENCE

### United States Marshals Service Internship

June 2025 – Aug 2025

*Investigative Operations Division — Behavioral Analysis Unit*

- 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.

### 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

### Software Engineering | Eclipse, GitHub, GitLab, C

Jan 2023 – May 2023

- 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, GitHub, GitLab, JavaFX

Jan 2024 – May 2024

- 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

**Dashboards & Visualization:** Dash, Plotly, dash-bootstrap-components, dash-cytoscape, Streamlit

**Data Extraction & Processing:** PyPDF2, pdfminer, python-docx, python-pptx, openpyxl, textract, striprtf, extract-msg, BeautifulSoup, lxml

**NLP & Text Analytics:** spaCy, rapidfuzz, pycountry, country\_converter, us

**Testing:** JUnit

**Developer Tools:** Git, GitHub, GitLab, VS Code, PyCharm, IntelliJ, Eclipse, SceneBuilder, Jupyter Notebook, venv, Kibana

**Databases & Search:** MySQL, Elasticsearch

## CERTIFICATES

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<b>Elasticsearch</b>	Sept 2025
<i>Udemy</i>	
• Hands-on labs with index design, mappings/analyzers, DSL queries, and aggregations; built Kibana dashboards and ingested data via the Python client.	
<b>Introduction to Artificial Intelligence</b>	Sept 2022 – Apr 2023
<i>The Coding School</i>	<i>TRAIN</i>
• Implemented foundational ML models (linear regression, decision trees) in Python; examined AI ethics and bias.	
<b>Introduction to Quantum Computing</b>	Sept 2021 – Apr 2022
<i>The Coding School</i>	<i>Qubit by Qubit</i>
• Built and ran quantum circuits in Qiskit; applied error-correction algorithms on IBM's Quantum Platform.	
<b>Babysitting Basics</b>	Aug 2018
<i>American Red Cross</i>	
• Completed foundational childcare and safety training.	

## ADDITIONAL EXPERIENCE & ACTIVITIES

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<b>Child Care</b>	June 2021 – present
• Provided long-term childcare for a family with three young children.	
<b>Cybersecurity CTF Events</b>	Feb 2025 – present
• Ranked in open category at Zero-Days Dublin CTF; competed at University of Galway CTF.	
<b>Ireland Lacrosse</b>	Feb 2024 – present
• Represented Ireland in the European Lacrosse Championships (Portugal) and She-box Tournament (Czech Republic).	