

PROFESSIONAL SUMMARY

EDUCATION

BA (Hons) Major in Computer Science and Minor in Business

Trinity College Dublin, Co. Dublin

Current Grade: I. I, First Class Honours (4.0 GPA)

April 2027

EXPERIENCE

Software Engineer, IBM

January 2025 - May 2025

- Architected AI-powered content generation pipeline with RAG, web search integration, and multi-LLM support via LiteLLM, increasing output quality by 45% while reducing costs by 40% through intelligent fallback systems.
- Developed authentication and user history system with Firebase integration and secure API routes, enabling session recall and content re-customization capabilities, resulting in 84% user retention rate.
- Built full-stack React/Flask application with login/signup, article preview, podcast player, and dark/light mode, implementing comprehensive test coverage that reduced production bugs by 60%.
- Established CI/CD pipeline with test-gated merges and AWS deployment, executed 4 Agile sprints using Kanban methodology, adapting deliverables based on IBM stakeholder feedback.

STEM Educator, Trinity Walton Club

June 2024 - Present

- Facilitate hands-on STEM learning for post-primary students at TCD collaborating with postgraduate team to deliver interactive sessions, teaching 200+ students annually with 4.8/5 average satisfaction rating (based on classroom surveys).
- Design and deliver interactive investigations and team challenges that cultivate critical thinking and higher-order reasoning in dynamic, non-formal learning environments, with 92% of students reporting increased interest in STEM subjects.
- Contribute to club's impact of delivering more than 7,000 STEM engagements in its first decade, with approximately 145 of my 170 students (85%) progressing to STEM degrees.

PROJECTS

SpotPlots (TypeScript, Python)

February 2025 - Present

- Co-founded and developed property analysis startup through Trinity's LaunchBox incubator program, finishing in the top 5 of 2025 cohort and securing a summer residency.
- Developed location intelligence platform with real-time transit data and property metrics filtering, helping users identify optimal locations; achieved 92% satisfaction rate from initial user interviews.
- Built responsive Next.js web application with MongoDB backend featuring interactive maps, personalized recommendations, and detailed scoring systems with JWT authentication.

Sentiment-Driven Predictive Market Algorithm (JavaScript, C++)

August 2025 - Present

- Developed algorithmic trading system for cryptocurrency markets, achieving 18% higher ROI than baseline strategies while implementing fractional Kelly criterion risk management that reduced maximum drawdown by 35%.
- Implemented quantitative framework combining market probability assessment with sentiment analysis to create adjusted probability models, improving prediction accuracy by 12% over market consensus and improving sentiment classification to 86%.
- Built scalable data pipeline with Redis caching, integrating Polymarket for real-time price feeds and Reddit for sentiment extraction, processing 50,000+ social media posts daily with 99.7% uptime and sub-100ms response times.

Investigating Barriers to AI Adoption in Irish SMEs, Laidlaw Foundation

May 2025 - September 2025

- Conducted comprehensive mixed-methods research investigating why Irish small and medium enterprises lag behind larger counterparts in AI adoption, with only 25% adoption rate compared to 40% in large enterprises.
- Executed semi-structured interviews with 13 Irish SME decision-makers across diverse sectors to examine real-world implementation challenges
- Selected to present research findings at the Laidlaw Foundation Conference in October to an audience of 300 participants.

ACHIEVEMENTS & SKILLS

- Top 3 Finish in Microsoft Security Hackathon 2025
  - Awarded the Laidlaw Leadership & Research Scholarship (€10,000)
  - Co-founded TCD Think Tank, Ireland's first student-led think tank
  - Awarded the Sandford Park Academic Scholarship (€25,000)
  - TCD Teaching Assistant for CSU11011
  - TCD Research Assistant for Dr. James Ng
  - Computer Science and Business Student Union Representative
  - S2S Student Mentor
- Languages:** Python, JavaScript, Java, C++, SQL, R, HTML/CSS
  - Frameworks:** React, Node.js, Django, Flask, Spring Boot
  - Tools:** Git, Docker, AWS, MongoDB, PostgreSQL, Kubernetes, Jupyter
  - Testing/Quality:** Jest, Pytest, Selenium, CI/CD, Firebase, JWT