

PROFESSIONAL SUMMARY

Highly analytical and results-oriented Computer Science graduate with proven experience developing and validating AI-powered systems and algorithmic trading strategies. Developed and deployed full-stack applications, leveraging advanced technologies like React, Flask, and AWS. Successfully led projects, delivering significant cost reductions and performance improvements. Proficient in Python, R, and data analysis techniques, adept at communicating complex technical information. Seeking to leverage expertise in model development and quantitative analysis within the financial services industry.

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