SHANE WHELAN

Lucan, Dublin, Ireland

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Software Engineer — Powertrain Vice-Captain @ UCD Formula Student

Education

BSc Computer Science with Data Science & AI 2023 – 2027 (Expected)
University College Dublin
Current GPA: 3.73 - First Class Honours (1.1)

Leaving Certificate 2021 – 2023
Colaiste Phadraig CBS, Lucan
Achieved maximum possible points (625)

Skills

- **Languages:** Java, Python, C++, C, SQL, JavaScript, HTML/CSS
- **Technologies:** Git, Docker, Firebase, Google Cloud Platform, Google Guava, Artillery, Arduino, JavaFX
- **Concepts:** Object-Oriented Programming (OOP), Functional Programming, Data Structures & Algorithms, Agile Methodologies, MVC Architecture, Computer Networking

Professional Experience

Software Engineer Intern June 2025 – August 2025
Twilio (Dublin / Remote)

- Spearheaded the deprecation of a legacy microservice by migrating its core logic into a high-throughput, real-time messaging platform, improving system reliability for Apple Push Notifications (APNs).
- Engineered a new APNs binding adaptor in Java, piloting the modern `apns-http2` library to reduce network errors and operational overhead.
- Designed and implemented a thread-safe, in-memory APNs client caching solution using Google Guava to boost performance and enable accurate, comparative load testing.
- Conducted load tests using the Artillery framework to validate that the new implementation demonstrated superior latency and throughput under load.

Powertrain Vice-Captain & VCU Developer Oct 2024 – Present
UCD Formula Student (UCDFS), Dublin, Ireland
GitHub Repository

- Promoted to Vice-Captain in recognition of technical contributions and leadership within the powertrain division.
- Writing and debugging embedded C++ firmware for the team's custom Vehicle Control Unit, managing real-time data acquisition and vehicle dynamics.
- Developing software for CAN bus communication to ensure reliable data transmission between the VCU, motor controller, and battery management system.
- Collaborating with engineering sub-teams to integrate software with physical hardware and validate system performance on the track.

Projects

SmartCert – AI-Powered Study Platform   March 2025 – Present
View it Live

- Developing a full-stack web application using HTML, CSS, and JavaScript with a Firebase backend to provide AI-generated study materials for Irish Leaving Certificate students.
- Integrating with a large language model (LLM) API to generate practice questions, summaries, and flashcards based on user-selected topics from the curriculum.
- Designing and implementing a real-time database with Firestore to store user data, progress, and generated content securely and efficiently.

HexOust – Java Board Game Engine   Jan 2024 – Apr 2024
GitHub Repository

- Led a 3-person team in an Agile environment to develop a desktop-based board game engine in Java, writing approximately 3,000 lines of code.
- Architected the application using the Model-View-Controller (MVC) design pattern to separate game logic from the JavaFX-based user interface.

Computer Science Tutor & Retail Associate   2022 – 2025
Self-Employed & Homestore + More / JD Sports

- Held various part-time roles demonstrating strong communication, time management, and customer service skills while pursuing a full-time degree.

Honours & Awards

UCD Entrance Scholar Award   2023
Awarded by University College Dublin to incoming students with the highest academic results from their secondary school (minimum 500 points).