







# LIAM VIADER MOLINA

## Software Engineer | Generative AI & Full Stack

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### PROFILE

Software Engineer, Ranked **1st in my class**, specialized in **Full-Stack** architectures and **generative AI** systems. I design and implement **end-to-end** solutions prioritizing scalability, performance and user experience. I select the optimal technology stack based on the specific problem and context. Technical demos and more information available at [liamviader.com](https://liamviader.com) .

### EDUCATION

**Bachelor's Degree in Video Game Design and Development, Universitat de Girona (UdG)** 09/2020 – 09/2025

- Graduated **1st in class** — GPA: **9.07/10**.
- **18 Honors Distinctions** — Bachelor's Final Thesis: **10/10**.
- **Relevant coursework:** Software Engineering, Data Structures & Algorithms, Distributed Systems & Cloud Computing, Security, Operating Systems, Networking, Databases, Artificial Intelligence, Computer Graphics and Computer Vision.

### PROFESSIONAL EXPERIENCE

**Grup de recerca eXiT, Universitat de Girona, Software Developer (Internship)** 06/2024 – 09/2024

- Designed and implemented an energy community simulator **from scratch** in **Python**.
- Developed algorithmic modeling of households and automated generation of consumption/production profiles, including mathematical logic for efficient energy and cost distribution.
- Integrated **AI-based optimization techniques** to minimize overall energy costs within the community.

### SELECTED PROJECTS

**AI-Orchestrated Video Game — Generative Multi-Agent System** 

- Designed an **LLM-based multi-agent architecture** capable of dynamically generating and directing the **narrative, visual, and structural** components of a video game from an initial prompt.
- Orchestrated 5 specialized agents (director, narrative, environments, characters, events) via **LangChain** and **LangGraph**, integrating **RAG** for global contextual coherence.
- Optimized agent reasoning using **Chain-of-Thought** and **self-reflection** techniques to improve consistency and decision quality.
- Developed a visual pipeline using **Stable Diffusion** and **ComfyUI**, including post-processing and a **TinyCNN** classifier trained in **TensorFlow**.
- Programmed a **real-time structured streaming system** with a custom tag parser, enabling seamless integration between the generative model and the Unity client.
- Built a **full-stack architecture** with a **Python** core, a **FastAPI** API layer, and an interactive **Unity client (C#)**.

**AI Quiz Generator — Full-Stack Application in Production** 

- Designed a **cloud-native** application for dynamic quiz generation via **LLMs**, featuring configurable parameters (length, language, difficulty).
- Implemented authentication with **Google OAuth** and session management using **signed JWTs**, including per-user rate limiting to control inference costs.
- Decoupled architecture with a **React (Vite)** frontend and a **NestJS** backend deployed on **Google Cloud Run** (serverless with auto-scaling).
- Integrated **MongoDB Atlas** for persistence and **migrated** the infrastructure from **Azure** to **Google Cloud Platform**.

### **Other Projects**

I have developed several additional projects focused on video games, AR/VR experiences, and multiplayer systems. Covering gameplay mechanics, core gameplay, software architecture, and networking.

Full projects and documentation are available at: [liamviader.com/projects](https://liamviader.com/projects) .

### SKILLS

**Programming Languages:** Python, TypeScript, C#, C++

**Artificial Intelligence & Generative AI:** LangChain, LangGraph, OpenAI API, RAG, Stable Diffusion, ComfyUI, Scikit-Learn, Jupyter Notebook

**Backend & Cloud:** NestJS, Node.js, FastAPI, Google Cloud Platform (Cloud Run), Azure, REST APIs, Arquitecturas Serverless

**Frontend Development:** React, Next.js, HTML/CSS, TailwindCSS

**Databases & Tools:** MongoDB, SQL, Git, OAuth, JWT