

Lolézio VIORA MARQUET

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First-Class Honours MEng Electronic & Information Engineering graduate from Imperial College London, focused on **quantitative and high-performance software**. Hands-on with **C++ systems work**, **performance optimisation** and **GPU/parallel computing**, and a track record of taking machine-learning research from Python prototype to production, including a live, profitable cryptocurrency trading system with full backtesting and deployment infrastructure.

Experience

- **Software Development Engineer at Amazon** September 2026 - Present
On the Prime Video Detail Page team, shipping customer-facing features to production for millions of customers, with AI coding agents as my default workflow. Built custom agentic coding harnesses, tailored to my team's development process, that write and review code changes end to end, so my manual work is steering and final sign-off.
- **Software Development Engineer Intern at Amazon** April 2025 - September 2025
Joined the Amazon Fuse team and built an internal full-stack web application from user requirements, with a modern, dynamic React frontend. Implemented a strong authentication system with gated APIs allowing authorised users to query, edit and delete production database entries, on a native AWS stack (API Gateway, Lambda, DynamoDB). Engineered for scale and low latency: 150 daily users and 3,000+ daily requests, peaking at over 12,000, served at sub-300 ms latency with minimal operational cost.
- **Software Engineering & Data Science Intern at Equinor** June 2024 - August 2024
Joined the Renewables Bid Excellence team. Developed a cloud-hosted RAG application that uses natural language processing to retrieve the most relevant documents for a user question, with an LLM generating a grounded answer and citing its sources. Built the retrieval and data pipelines that turn hours of manual search across thousands of documents into a few-second query.
- **Software & Machine Learning Engineer at Maisha Design** November 2023 - January 2026
Applied modern machine learning (generative AI and conditional GANs) to improve the creative workflow of an interior-design firm. Built a full-stack application centralising supplier furniture offerings in a database, with a project-management frontend that generates invoices and supports catalogue exploration. Delivered automated web scrapers and LLM-enhanced category matching, cutting project turnaround time by 30%.

Education

- **Imperial College London – MEng Electronic and Information Engineering** October 2022 - June 2026
1st Class Honours. Core engineering skills in mathematics, AI/ML, hardware, software, networks and databases.
- **Vienna International School – International Baccalaureate Diploma** August 2015 - May 2022
IB DP 43/45 with Mathematics Analysis & Approaches (7/7), Physics (7/7) and Chemistry (7/7) at Higher Level, Economics (7/7), Spanish (7/7) and English Language & Literature (6/7) at Standard Level. EE in Physics. 1560 SAT in 2021.

Projects

- **Cryptocurrency Trading Bot** (July 2024 - Present): independently building a systematic trading bot: a transformer-based architecture that predicts crypto market movements and executes live trades through the Binance API from an AWS EC2 instance. Averaged 30% returns.
Took the model from Python research to 24/7 production. Built a full end-to-end backtesting, simulation and deployment pipeline that replays real market conditions (fills, fees, slippage) to validate strategies before they trade live capital. Engineered features from high-frequency tick data using quantitative and signal-processing methods to denoise price signals, trained the model on Google Cloud, and prioritised reliability and positive risk-adjusted returns throughout.
- **AutoFuser: Automatic GPU Kernel Fusion** [[GitHub](#)] (January 2026 - March 2026): a compiler-style framework that automatically detects fusion opportunities in deep-learning models and generates, fuses and auto-tunes GPU (Triton) kernels to cut memory traffic and latency, similar in spirit to `torch.compile`.
Extracts the data-dependency graph, identifies fusable chains, selects a per-candidate tiling strategy, emits the fused Triton kernel and auto-tunes its configuration before rewriting the graph. Built as modular, independently unit-tested and benchmarked stages, delivering measurable throughput and memory-bandwidth gains on scientific machine-learning models. Direct, hands-on work on profiling, advanced data structures and parallelism.

C++ & Systems

- **Full-octave STM32 Synthesiser** [[GitHub](#)] (February 2025 - March 2025): a real-time RTOS synthesiser (electronic piano) in embedded C++ on a multi-threaded architecture, with a custom 3D rendering engine running the game DOOM, under hard STM32 limits (64 kB RAM, 256 kB flash).
*Wrote performance-critical C++ with **no dynamic memory allocation** and careful ownership of fixed buffers to meet*

real-time deadlines. Hand-optimised the render loop to a worst-case full-screen refresh of 48 ms (≈ 18 ms average, 45 fps) via chunked rendering, perspective warping and a lean threading model, and implemented the full game: 2.5D world exploration, enemies, shooting mechanics and joystick control.

- **C90-to-RISC-V Compiler** [GitHub] (January 2024 - March 2024): a C compiler written in C++ that translates pre-processed C90 source into RISC-V assembly.

Designed the internal instruction representation, integrated lexer/parser and the code-generation passes, with an emphasis on clean abstraction and STL-based data structures, validated against an extensive automated test suite. Sharpened practical command of the C++ memory model and systems-level tooling.

- **Pipelined RISC-V CPU** [GitHub] (October 2023 - December 2023): a fully functional RISC-V CPU in SystemVerilog: single-cycle, then pipelined with static branch prediction, hazard handling and a data cache.

Built and verified the datapath end-to-end against assembly test programs. The pipelining, hazard-handling and caching work gave a concrete, low-level model of the latency and memory-hierarchy trade-offs that govern high-performance systems.

- **Fyrryx Rover** [GitHub] (June 2023): a wirelessly-controlled rover built for Imperial's Electronics Design Project, with embedded C++ firmware split across two microcontrollers and a Python (pygame) controller client.

Wrote the embedded C++ running on an AdaFruit Metro M0 main board and a secondary microcontroller, exchanging state over a JSON protocol (ArduinoJson), with a wireless link to a pygame ground-station GUI for real-time driving.

Machine Learning & Python

- **Master's Thesis: Neuro-Symbolic Learning under Multi-Modal Data** (October 2025 - June 2026): MEng thesis on making neuro-symbolic AI "right for the right reasons": getting models to reason over the correct underlying concepts rather than exploiting shortcuts, even when a concept can take many different visual forms.

Reached a new state of the art across multiple established neuro-symbolic frameworks, substantially improving concept-level accuracy both in- and out-of-distribution while using only a fraction of the usual supervision, and validated the approach on real-world autonomous-driving data. Implemented in PyTorch with reproducible experimental pipeline on A100 GPUs (paper under review at a leading AI conference).

- **IoT Embedded Personal Trainer** [GitHub] (January 2025 - February 2025): team of 3 building a real-time personal trainer: a Raspberry Pi feeding an AWS EC2 Flask server and a React Native mobile app, tracking and analysing workouts live.

Implemented asynchronous handling for a scalable number of concurrent users, with machine-learning analytics, an intuitive UI, graphical result display and dynamic control of the workout.

Skills

Programming - C/C++ (STL, memory management, multithreading, RTOS), Python, TypeScript & React, Java & JavaFX, Swift

Data & ML - PyTorch, NumPy, pandas, Jupyter, Triton/CUDA, signal processing, quantitative & feature engineering

Systems & Infra - native AWS (Lambda, API Gateway, DynamoDB, EC2), Google Cloud, SQL, Shell scripting, Git, SystemVerilog/Verilog, RISC-V, MATLAB

Spoken languages - French & English (bilingual) | German & Spanish (professional working proficiency)

Awards

- **The Undergraduate of the Year Awards 2024:** Finalist in category Artificial Intelligence and Robotics
- **Vienna International Science Fair 2021:** Best in Computer Science & Best in Division 14 and above.
- **World Economics Cup 2021:** Silver Medalist, Team 7th Worldwide, Team Presentation 4th Worldwide.