

Heber Arteaga

Quant Developer | C++ / Python Software Engineer

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Paris, France | Available from November 2026

Profile

Engineer from École Centrale de Lyon and Pontificia Universidad Católica de Chile with experience developing production software and data tools supporting trading operations at Capital Fund Management in Paris. Strong C++ and Python background complemented by hands-on machine learning and quantitative finance projects.

Education

ÉCOLE CENTRALE DE LYON — Écully, France 09/2023 – 04/2026

Diplôme d'Ingénieur Généraliste — Master of Science in General Engineering

- Final-year thesis at Capital Fund Management: **17/20, 30 ECTS**.
- Relevant coursework: Big Data Computing, Deep Learning & Artificial Intelligence, Corporate Finance, Web Applications.

PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE — Santiago, Chile 03/2019 – 01/2026

Mechanical Engineering (Ingeniería Civil Mecánica), with distinction

- Relevant coursework: Advanced Programming, Probability & Statistics, Optimization.

Experience

Quant Developer Intern — IT Middle Office 03/2025 – 09/2025

CAPITAL FUND MANAGEMENT (CFM) — Paris, France

- Built and deployed full-stack internal applications supporting Middle Office and trading operations using Angular/TypeScript, Python/FastAPI, Pandas and SQL, integrating modern tools with existing trading systems.
- Redesigned a fragmented operational workflow and optimized data processing, reducing response time from approximately **8 s to 1 s** while improving reliability, validation and traceability.
- Modernized legacy ExtJS/PHP applications with dynamic validations, audit logs and alerting mechanisms; iterated with operations users through regular reviews and preproduction testing.

Software Development Intern 06/2024 – 09/2024

HABITERRA Consultores LTDA. — Santiago, Chile

- Developed a three-tier information-management platform using SQL, Node.js/Express and JavaScript, including lightweight data-processing pipelines and monitoring interfaces for business users.

Programming Teaching Assistant 03/2022 – 07/2023

PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE — Santiago, Chile

- Delivered practical sessions for Introduction to Programming and Computational Thinking, designing and evaluating programming exercises and teaching core algorithmic concepts.

Selected Projects

Event-Driven Backtesting Engine — C++23 *In Development*

- Developing an event-driven backtesting engine for daily-bar systematic trading strategies, with deterministic historical-data handling and explicit separation between market, signal, order and fill events.
- Designing the MVP around reproducible portfolio accounting, next-available-open execution, performance metrics and deterministic end-to-end validation.

ML Core — Classical Machine Learning in C++ *Repository*

- Implemented a classical machine-learning library in C++17 with Eigen, covering linear and logistic models, tree ensembles, k-NN, linear SVM, Naive Bayes, PCA, KMeans and a minimal neural-network implementation.
- Built reusable preprocessing, cross-validation and evaluation utilities, real-dataset workflows and Python verification, backed by 49 automated Catch2 tests, CTest and GitHub Actions CI.

Job Hunting AI — AI-Assisted Application Platform *Repository*

- Designed the system architecture, data model and AI workflow contracts for an Angular/Fastify/PostgreSQL platform, and supervised AI-assisted implementation and validation of structured role analysis, source-grounded research, versioned document generation and interview tracking.

Technical Skills

Programming — C++, Python, SQL, TypeScript/JavaScript

Data & Machine Learning — Pandas, NumPy, Eigen, scikit-learn

Software Engineering — FastAPI, Angular, PostgreSQL, Git, CMake, Docker, Bash

Quant & Finance — Probability & statistics, derivatives, fixed income, market microstructure, portfolio and risk fundamentals

Languages

Spanish: Native | French: C1 (DALF) | English: C1 (IELTS Academic 7.5)