

Pietro Agnoli

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“Early Careers Full Stack Engineer fluent across Java and the Node.js/TypeScript stack. User-first, collaborative, ship-oriented.”

SKILLS

- **Languages:** Java, JavaScript, TypeScript, Python, SQL, Rust, C, Bash
- **Frontend:** React, SPA architecture, client-side routing, responsive UI, Figma
- **Backend & APIs:** Rust (Axum / Tokio), Node.js (Express / Elysia), RESTful API design, JWT auth, Java (JavaFX, RMI/Socket); Tomcat
- **Databases:** PostgreSQL, MongoDB, MySQL (SQL & NoSQL), Drizzle ORM
- **Cloud & DevOps:** Azure, Azure DevOps, Cloudflare R2, Docker, Git/GitHub, CI pipelines
- **Testing & Observability:** Unit & integration testing (JUnit, JavaScript test suites), k6 load testing, OpenTelemetry
- **AI:** Claude API & SDK, OpenAI Agents, prompt engineering, agentic coding (Claude Code)
- **Soft Skills:** Collaboration & active listening, communication (technical writing, public speaking), team leadership & project management, proactive problem-solving

EDUCATION

Universitat Politècnica de Catalunya (Barcelona)

Master in Innovation and Research in Informatics (MIRI) / Advanced Computing

Starting Sep 2026

- Admitted to the **MIRI** research master, specializing in **Advanced Computing** (advanced algorithms, complexity, advanced data structures, parallel computing).

Polytechnic of Milan

Bachelor of Science in Computer Science

March 2026

- Relevant Coursework: **Algorithms and Data Structures**, **Software Engineering**, Database Systems, Operating Systems, Computer Architecture, **Artificial Intelligence**, Web Technologies, Human-Computer Interaction, Digital Logic, Computer Networks, Mathematical Analysis, Linear Algebra, Discrete Mathematics, Automatic Control Systems

FURTHER EDUCATION

University of Helsinki

Functional Programming I MOOC

2024

- Mastered **pure functions**, **immutability**, **higher-order functions**, and **type systems** in **Haskell** strengthened mathematical reasoning and compositional thinking.

WORK EXPERIENCE

Software Engineer Intern

Nov 2025 - Sep 2026

Brembo

Hybrid

- Brembo is a world leader in high-performance braking systems; embedded in the R&D Data Science team as a Software Engineer.
- Pioneered the **first observability initiative** in the company's software division for **Alchemix**, Brembo Solution's flagship product, designing standards, instrumentation patterns, and **OpenTelemetry** boilerplates now running in production, actively surfacing bugs and infrastructure/configuration issues.
- Uncovered **2 critical bugs** through systematic **k6** load testing that had gone undetected for months and could have caused application failures in front of enterprise customers; the fixes prevented potentially severe production incidents.
- Contributed to full-stack development of Alchemix using **TypeScript**, **Node.js/Express RESTful APIs**, **MongoDB**, and **React**, delivering features alongside the core engineering team within an **Azure DevOps** CI workflow.
- Built a **Databricks / Apache Spark** application for the Data Science team, delivering data pipelines and analytics over large experimental R&D datasets.
- Took **end-to-end ownership** of **3 components** across **two different projects**, driving them from design through implementation and delivery. Acted as the go-to engineer for each, handling architecture decisions, code, and maintenance independently while coordinating with the wider team.

ENTREPRENEURSHIP JOURNEY

Jobed - Recruitment Platform Startup (Co-founder)

2024

- Co-founded AI-powered recruitment platform targeting the €120M Italian graduate market, reducing hiring costs by €1000/employee.
- Conducted **market research (94% student interest)** and secured **2 companies** interested as clients before the product was built; pitched to **investors** at **PoliHub** and to an **angel investor** in office hours.
- Competed in **StartupChallenge**, got coached by PoliHub on **product ownership**, **business planning**, **investor pitching**, and **PMF**.
- **Recognized by PoliHub** top 90 of 180 teams in the **Switch To Product** competition.

PROJECTS PORTFOLIO

Corvivio | Full-Stack AI Dance Practice Platform (corvivio.com) 2026 - Present

- Designed, built, and shipped a production **full-stack** platform end-to-end — from user research to deployment: a **React** (React Router 7) **TypeScript** frontend served by a high-performance **Rust** backend on **Axum** (**Tokio** async runtime), with **PostgreSQL (SQLx)**, **Cloudflare R2** object storage via signed URLs, all containerized with **Docker**.
- Rewrote the API in **Rust** for **type safety** and **performance**, leaning on the compiler to eliminate whole classes of runtime bugs and to serve video-heavy workloads with a lean memory footprint.
- Integrated the **Claude API** (structured tool_use) to transform raw class notes into actionable feedback, powering a personalized **SM-2 spaced-repetition** scheduler that adapts to each dancer's progress.
- Owned the entire product loop — **user research**, design, **iterative shipping**, and support — evolving the app directly from real dancers' feedback.

Full-Stack Music Streaming Platform - Web Technologies Project (30/30) 2025

- Solo-built a music streaming platform with a **JavaScript SPA** frontend (client-side routing via History API, **JWT authentication**, drag-and-drop playlists, optimistic UI) and a backend exposing **RESTful APIs** with multipart file handling and complex **SQL** operations.
- Deployed via **Docker** on **Tomcat/MySQL** implemented framework-level components (validation, DB connection pooling) from scratch to demonstrate deep web fundamentals.

Distributed Board Game Platform - Software Engineering Project (30/30) (github.com/TheCaptainCraken/IS24-AM26) 2024

- **Team lead** for a 4-person team building a distributed **Java** application with **MVC architecture**, dual network protocols (**RMI/Socket**), and **TUI/JavaFX** UIs supporting concurrent multiplayer sessions.
- Owned backend architecture and core game logic, coordinated the team, and delivered **unit tests**, UML diagrams, and protocol specs — achieving the highest grade.

Automated Content Generation System (OpenAI Agents) (github.com/TheCaptainCraken/exploiting-my-girl-friends-internship-for-fun-and-profit) 2025

- Built a **Python** multi-agent automation system on the **OpenAI Agents API** with specialized roles, error handling, and quality control; documented the architecture and trade-offs in a technical blog post.

Pietro's Tavern | Technical Writing Blog (pietroagnoli.com) 2022 - Present

- Built and maintain a responsive blog covering AI and software engineering, demonstrating **web development**, **SEO**, and the ability to **communicate complex technical concepts** to a broad audience.

EXTRACURRICULAR ACTIVITIES

AI ❤ Maths - Reply Student Tech Clash (Team Lead, 2nd Place in batch) Nov 2024

- Led “Cocodrilli Croccanti” to build “AI ❤ Maths”, an **OpenAI API + game engine** platform letting teachers instantly generate personalized educational games for students with learning difficulties (15% of Italian students). Owned **team leadership**, technical architecture, and **rapid prototyping**, and delivered the winning pitch — **second place in our group**.

Code Challenge: Advent of Code 2021 - Present

- Solved algorithmic challenges over multiple years in **Rust**, **Haskell**, and **C** — showcasing **continuous learning** and sharp problem-solving across graph theory, dynamic programming, and parsing.

Winter Olympics Volunteer - Milano-Cortina 2026 Jan 2026 — Feb 2026

- Selected as one of 18,000 volunteers from 120,000 applicants. Worked spectator services across two Milan venues, strengthening **communication** and teamwork under pressure.

IELTS - General Training (Overall Band 8.0 equivalent C1/C2), British Council Sep 2025

IELTS - Academic Training (Overall Band 8.0 equivalent C1/C2), British Council March 2026

STARTUPXPERIENCE, Politecnico di Milano Apr 2024