

Danilo Filardi

Applied AI & Software Engineer: computer vision, AI agents, industrial instruments

Rome, Italy · daniloluca293@gmail.com · github.com/Daniloflex596 · linkedin.com/in/danilo-filardi-724a55251 · danilofilardi.pages.dev [placeholder]

Summary

Applied AI and software engineer in Rome, computer science undergraduate. At Simitecno I work on 3D digital microscopes, metrology instruments and cobots at the bench, and write the software that makes them inspect and measure on their own: one inspection system learned from good parts only and caught 23 of 24 real defects. I write production code in Python and TypeScript, I am trained in blockchain management (160-hour Master Lab) and I direct AI coding agents like a team: spec and rules first, done only when a test or a measurement proves it.

Experience

Simitecno S.r.l. · Software Development & Technical Assistance

Jun 2026 – present

Apprenticeship · Rome · Industrial microscopy and metrology company, exclusive Italian distributor of HIROX 3D digital microscopes.

- At the bench: prepare, configure and test the PCs, drivers and vendor software that run the instruments; assemble, check and pack instruments and kits for demos, shipments and trade fairs; troubleshoot faults by elimination.
- Built an offline AI inspection system for semiconductor probe tips that learns from good parts only (frozen DINOv2 features, patch memory): 23 of 24 real defects caught on customer data, false rejects cut by 37% at equal detection.
- Automated PCB cross-section metrology with explainable classical vision (OpenCV, sub-pixel edges, fail-closed): 13/13 images self-calibrated from their scale bar, within 1.0–3.8% of the customer's manual measurements.
- Built the Python control layer for a HIROX 3D digital microscope (native DLL via ctypes, closed command catalogue, audit chain, REST API) so cobots and PCs can drive scans; validated on the real instrument, 536 test functions.
- Built the external control service for a COMAU collaborative robot and the software of a cobot cell for microfluidic chips delivered to a research institute.
- Designed a privacy-first company second brain: parallel AI reader agents turned 52,839 files into 10,281 source-cited facts; built the video engine for the BIMU 2026 trade-fair series and staffed the booth.

Freelance · Web developer for local businesses

Jul 2026 – present

Rome · Websites and booking systems for local businesses, delivered as anonymous case studies.

- Built booking platforms on Cloudflare Workers and D1 (atomic slot checks, reminders, Stripe payments, an iPad staff agenda) for a hair salon, a personal trainer and a tarot reader.
- Shipped immersive WebGL and scroll-driven sites that still score 100 in Lighthouse for accessibility, best practices and SEO, plus a phone-first 3D configurator for custom caps.
- Work from discovery to handover: brand from real evidence, one signature 3D or motion moment per site, screenshot-film QA, deploy and documentation for the owner.

Jobs while studying · Hospitality, events and retail

Aug 2019 – present

Rome area. Worked through school and university: lifeguard, cashier, baker, delivery rider, waiter, assistant barman at the 2023 Ryder Cup, floor lead at a world medical congress, catering lead.

Selected projects

Social Farm: automated short-video studio · Team of two · in production

Pipeline that plans, scripts, voices, edits and posts short videos to 10 Instagram, TikTok and YouTube channels, 30 posts a day, in production on Railway. In a team of two (159 of 242 commits): publishing engine, scheduler, editorial direction and deploy. Python, FastAPI, FFmpeg, Railway.

Atelier: demo-site engine for local venues · Own product

Agent pipeline that finds local businesses without a website and builds them a brand-true demo site; 1,152 text/background pairs checked across 192 palettes, none below WCAG AA; two full implementations in 4 days (Codex, then Claude Code). Node.js, Three.js, SQLite, node:test.

Hair salon: immersive site and booking · Client · case study

WebGL salon site with its own booking engine on Cloudflare D1, email reminders and an iPad staff agenda; Lighthouse 100 for accessibility, best practices and SEO; 3D ready on a phone in 1.7 s instead of 6.9 s after tuning. Astro, Three.js, Cloudflare D1, Workers.

Custom caps: 3D configurator · Client · case study

Phone-first 3D studio where customers design rhinestone hats in real millimetres; placing 6,000 stones along an edge went from 315 to 21 ms per step; local prototype with store and back-office. TypeScript, Three.js, Astro, Cloudflare.

Immersive Web Director: agent skill with evals · Agent tooling

Portable skill for Codex and Claude Code that turns real business evidence into verified websites: 11 JSON Schemas, a project validator and evals that took 3 test cases from 9, 7 and 5 out of 10 to 10/10. JSON Schema, Python, JavaScript, evals.

Skills

Languages: Python, JavaScript, TypeScript, SQL, PowerShell / Batch, GLSL shaders

AI & computer vision: Classical computer vision (OpenCV), PyTorch, Foundation-model embeddings (DINOv2, CLIP), Anomaly detection (few-shot / one-class), Generative media (Higgsfield, Veo, Flux/LoRA), Speech (Whisper, TTS)

Agents & LLMs: Claude Code (skills, subagents, hooks), LLM APIs (Anthropic, OpenRouter, Gemini, Groq), OpenAI Codex / OpenCode, Multi-agent orchestration

Instruments & robotics: Instrument integration (native DLL via ctypes), Industrial cameras (GenICam)

Backend & data: NumPy / SciPy / pandas, SQLite, FastAPI, REST API design, Document automation (docx, pptx, xlsx, PDF), Knowledge bases (Obsidian, graphs), Flask, ORMs (Drizzle, Prisma)

Frontend & 3D: React, Astro, Lenis smooth scroll, Three.js / WebGL, Vite, Tailwind CSS, Motion (Framer Motion), GSAP + ScrollTrigger, Canvas 2D & Web Animations, Next.js

Cloud & DevOps: Cloudflare (Pages, Workers, D1, R2), Stripe & transactional email (Resend), GitHub Actions / Pages, Vercel / Netlify, Docker, Railway / Render

Testing & automation: Automated testing (pytest, Vitest), Playwright (QA & capture), FFmpeg media pipelines

Education & certifications

BSc Computer Science (in progress) · University of Rome Tor Vergata

Blockchain Management: Master Lab in Blockchain Technology & Management (160 h) · The Blockchain Management School, Fondazione Ateneo Impresa, Rome

Feb–May 2024

Certificate of qualification, issued as an NFT on Polygon; project work on blockchain for healthcare and for artists' royalties

Digital Lab in Rome: robotics, game development, Arduino · Ericsson

May 2019

Certificate of completion

Languages

Italian: native · English: professional working use, technical documentation