Daniele Lin

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Interested in applied cryptography, verifiable protocols, and the theoretical foundations of computing.

EDUCATION

BSc Engineering of Computing Systems Sep 2024 – Present
Politecnico di Milano | GPA: 27.93/30 | Best Freshmen Award (Feb 2026)

External Student — Graduate CS Courses (24 ECTS) Sep 2025 – Present
Università degli Studi di Milano | Principles of Programming Languages; Formal Languages & Automata; Computability & Complexity

Scientific High School Diploma — 100/100 2019 – 2024
Istituto Leone XIII, Milan

RESEARCH & PROJECTS

E-Ring Voting — Verifiable Anonymous E-Voting (research artifact, v0.4) GitHub

- Reference implementation of Scafuro & Zhang's *One-Time Traceable Ring Signatures* (ESORICS 2021) over **Ristretto255** with **RFC 9380** hash-to-curve, cffi-bound to libsodium for constant-time group arithmetic.
- Built and **empirically compared two system-layer architectures** on the same primitive: (i) a t-of-N threshold-signed, hash-chained **bulletin board** with a k-of-M **witness federation** for cohort equivocation (CT/Sigsum lineage); (ii) a Bitcoin-shaped **proof-of-work chain** with an eVote ledger and typed voting transactions. Wall-clock comparison at N=50: 1.1 s/324 KB (federated) vs 3.0 s/344 KB (chain).
- ≈5k LOC Python across `otrs/`, `voting/`, `chain/`; **127 tests** (unit, property under Hypothesis, threshold/witness, end-to-end, adversarial, on-chain double-vote detection); 16-page tech report engaging Park & Specter (2021) and a 25-page colleague-onboarding document covering both architectures from first principles.

Plynx — AI workbench for hardware makers Co-founder, Dec 2025 – Present

- Co-founded with N. Pagano. Unifies dashboard, firmware, wiring, PCB, 3D-case, and phone control into one project so an AI agent can generate end-to-end hardware from a single prompt. iOS app live on App Store since Dec 2025; **80+ weekly active users**, organic; 6 versions shipped in 4 months.
- **Fine-tuning Qwen2.5-Coder-32B** on agentic hardware-design tasks; built a derivative-data pipeline over open-source hardware projects — core technical bet of the company.
- Designed and shipped a **custom binary wire protocol** (TCP/SSL, OTA) across server, iOS, Android, and a C++ Arduino SDK. Supports 8 board families (ESP32/8266, STM32, RPi, Teensy, Particle, Arduino Uno/Mega) with mixed-board projects first-class.
- Early adopter of **Model Context Protocol (MCP)** for IoT — any MCP-compatible AI agent can speak to real boards through Plynx. Also exposes MQTT broker + HomeAssistant integration.
- Selected for TEF Ignition cohort (Bocconi, PoliMi, ION); €2k grant.

LEONAPP — School-Wide Digital Voucher Platform GitHub

- PHP/MySQL platform (with N. Pagano) replacing paper vouchers with QR-authenticated redemption, deployed across Istituto Leone XIII. Three surfaces: student portal (Google Workspace SSO), staff QR scanner, admin billing dashboard. Wrote governance charter for long-term handover.

Nextcloud Photo Fixer GitHub

- Bash/exiftool/jq pipeline resolving conflicting timestamps across mixed-source photo archives for self-hosted Nextcloud Photos. Idempotent, auditable. Endorsed by Nextcloud on LinkedIn.

Bus Wait Display GitHub

ESP8266 embedded display polling ATM Milano's real-time API, parsing JSON on-device, rendering on 16×2 I^2C LCD with diff-only writes. CC BY-NC-SA 4.0.

WORK EXPERIENCE

PCTO — Nokia (school–industry placement) Jul 2023

Italian high-school work placement: exposure to industry R&D workflows.

Event Volunteer — Milano Cortina 2026 Winter Olympics Jan – Feb 2026

Venue communications, Santagiulia Ice Hockey Arena, Event Management department.

HONOURS

Best Freshmen Award — Politecnico di Milano, engineering degrees Feb 2026
High School Diploma 100/100 — Istituto Leone XIII Jul 2024

SKILLS & LANGUAGES

Programming: Python, C/C++, Java, Bash, SQL, JavaScript, PHP, Swift · **Systems:** Linux, Django, Git, Arduino/ESP, MySQL
Crypto: traceable rings (Scafuro–Zhang / Ristretto255), hash-to-curve, threshold Ed25519, transparency logs, PoW, PKI/TLS
Languages: Italian & Chinese (native), English (C2)