Samuele Dell'Erba

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EDUCATION

B.Sc. in Computer Engineering, University of Florence *Sep 2023 – Jul 2026*
GPA: 30/30 with honors.
Core Coursework: Algorithms & Data Structures, Theoretical CS, Operating Systems,
Calculus & Linear Algebra, Probability & Statistics.

École 42 Firenze *Oct 2023 – Jul 2026*
Peer-to-peer coding curriculum centered on collaborative problem-solving and self-directed learning. *Pursued strictly in parallel with University studies.*
· RNCP-7 Specialization *(Aug 2025 – Jul 2026)*: EQF Level 7 Professional Certification.
 Advanced track in Data & AI.
· Software Engineering Common Core *(Oct 2023 – Aug 2025)*: Focused on low-level C/C++, Unix System Programming, Concurrency, and memory management.
 First student of the cohort to complete the curriculum.

Scientific High School Diploma, Liceo Scientifico L. da Vinci, Florence Sep *2018 – Jul 2023*
Final Grade: 100/100.

RESEARCH EXPERIENCE

Student Researcher — MICC (Media Integration and Communication Center), *Sep 2025 – Nov 2025*
University of Florence. Supervisor: Prof. Andrew D. Bagdanov.
Conducted research on a training-free method leveraging Optimization-based Visual
Inversion (OVI) to replace diffusion priors in text-to-image models.
Technical Report: *Training-Free Diffusion Priors for Text-to-Image Generation via Optimization-based Visual Inversion* (2025). S. Dell'Erba, A. D. Bagdanov.
Preprint available on arXiv.

PROFESSIONAL EXPERIENCE

AI Developer — NYOUS (news aggregation startup) *Apr 2025 – Present*
Design and implementation of AI pipelines for news summarization, audio generation,
and avatar-based video news anchors. Engineered the Avatar subsystem, focusing on
audio-driven lip sync and body animation.

HONORS & AWARDS

Selected for 42 Global Games, Paris *Oct 2025*
Chosen as one of the top 4 students to represent 42 Firenze, based on technical scores
and community engagement. *Granted full travel and accommodation funding.*

Best Idea Award — Hack Attack Hackathon (Nana Bianca × 42) *Jul 2024*
Awarded for designing a noise-pollution awareness social network where captured
photos are algorithmically distorted in real-time based on ambient decibel levels.

Carta del Merito *Jan 2024*
Monetary award granted by the Italian Ministry of Education and Merit to students
achieving the maximum score (100/100) in the national high school leaving examination
(Esame di Stato).

LEADERSHIP, ACADEMIC SERVICE & VOLUNTEERING

Student Board Member, European University for Well-Being (EUniWell) *Oct 2025 – Present*
Elected to represent the University of Florence within the alliance, focusing on social well-being and environmental sustainability.
Appointed as Grant Reviewer for the Seed Funding Programme, evaluating international project proposals based on scientific merit, feasibility and funding eligibility.

Elected Course Representative, University of Florence *May 2025 – Present*
Representative for Computer Engineering & AI programs.
Member of the Teaching and Learning Center Working Group, organizing institutional events on Academic Quality Assurance.

Mentor & Admissions Support, École 42 Firenze *Jul 2025 – Present*
Selected to guide candidates during multiple *Piscine* (4-week intensive selection bootcamps).

Piano Teacher (Volunteering), Centro Internazionale Studenti Giorgio La Pira *Jul 2025 – Present*
Teaching piano by ear (in English/French) to international students.

SELECTED TECHNICAL PROJECTS

Systems Programming	Re-implemented standard library functions and built systems in C/C++: · Unix Shell (process control, signals, manual memory management); · Ray-Tracer (linear algebra engine, Phong illumination, multi-spot lighting using a minimal graphics library restricted to single-pixel manipulation); · IRC Server (non-blocking TCP/IP sockets, I/O multiplexing).
Distributed Systems Engineering	Microservices Full-stack Platform: Engineered a scalable web app using Docker & Kubernetes, integrating Redis for caching and Grafana/Prometheus for monitoring. Implemented OAuth2/2FA and real-time WebSockets for the PvP game engine.
AI & ML	Logistic Regression & Data Analysis: Built a multi-class classifier (One-vs-All) purely in Python/NumPy (no high-level ML libraries), leveraging Batch and Stochastic Gradient Descent with Cross-Entropy Loss. Developed a custom statistical and visualization toolkit to analyze feature correlations.

TECHNICAL SKILLS

Languages	C, C++, Python, Rust, Assembly, C#, SQL, JavaScript, Bash
AI & ML	Computer Vision, Diffusion Models, PyTorch, NumPy, Pandas.
Backend & DevOps	Django, Docker, Kubernetes, Microservices, Git, Linux, Makefiles.
Other	Unity, MATLAB/Octave, LaTeX.

LANGUAGES & INTERESTS

Languages	Italian (Native), English (C1, IELTS 7.5), French (B2)
Interests	Piano & Composition *(perfect pitch)*, Chess