



Alessio Olivieri

Carta d'identità: | Data di nascita: | Luogo di nascita: | Nazionalità: |
Numero di telefono: | LinkedIn: |
Indirizzo:

PRESENTAZIONE

Hello Europeans! This is my **mostly** academic CV.

I am a passionate and curious individual with a strong interest in Artificial Intelligence and advanced mathematics. I enjoy tackling complex challenges and continuously seek opportunities to deepen my knowledge. My academic focus is complemented by a creative side, in my free time, I enjoy painting miniatures and building with LEGO.

ISTRUZIONE E FORMAZIONE

17/09/2024 – ATTUALE Roma

ARTIFICIAL INTELLIGENCE AND ROBOTICS Sapienza università di Roma, Roma, Italia

Notable courses: Robotics, Machine Learning, A.I., Deep Learning, Natural language processing, Neural Networks, Optimization, H.P.C.

Sito Internet <https://corsidilaurea.uniroma1.it/en/course/33514>

15/09/2021 – 19/01/2025

APPLIED COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE Sapienza università di Roma, Roma, Italia

Notable Courses: Physics, Discrete Math, Linear Programming, , Linear Algebra, Machine Learning, Computer Vision, Data Analysis, Cybersecurity, OS, Networking, Algorithms, Probability, Statistics, Calculus1&2, Python, Java.

Campo di studio Informatica, Artificial Intelligence, Computer Science, Ingegneria | **Tipo di crediti** CFU | **Numero di crediti** 180 |

Tesi Implementing Swing Collective Algorithm on NCCL

Link <https://acsai.di.uniroma1.it/>

15/09/2015 – 17/07/2020 Roma, Italia

DIPLOMA LICEO SCIENTIFICO SCIENZE APPLICATE I.S.S. Enzo Ferrari

10/10 a programmazione

PROGETTI

01/06/2025 – 19/06/2025

Vision Transformer Pruning via Mechanistic Interpretability

- Implemented ACDC algorithm in PyTorch to identify and prune redundant components in a ViT using causal analysis and activation patching.
- Identified a sparse sub-network by removing 85% of attention heads and 94% of computational graph.
- Trained the pruned architecture from scratch, achieving a 2x inference speedup on CPU with only a 9% drop in accuracy compared to the dense model.

01/07/2024 – 19/01/2025

NCCL Swing Collective Algorithm Implementation

- Implementing a new GPU collective algorithm on NCCL utilizing MSCCLANG.
- Measured an average of 50% to a maximum of 200% speedup on torus networks.
- Running tests on Leonardo supercomputer.

Ingredients Analysis

- Scraped 6000+ recipes from famous italian website Giallo Zafferano.
- Analyzed networks of recipes linked by common ingredients.
- Identified favorite ingredients among Italians.

Forest surveillance cameras: real-time A.I. fire detection

- Achieved 0.1FPS to 60FPS by rewriting the entire codebase in NumPy.
- Improved detection accuracy to 95% using background subtraction.

Social platform developer (Full-stack)

- Designed backend, frontend, DB of a social platform, including core features like posts, follows and bans.
- Created a RESTful API adhering to OpenAPI specification.
- Tech stack: Go, Vue.js, SQLite, Docker.

A.I. Orders chatbot

- Utilized prompt engineering with llama8b/70b to interpret user questions and generate SQL queries.
- Deployed using Streamlit.

ESPERIENZA LAVORATIVA

PROGRAMMING TUTOR - 01/11/2023 - 31/01/2024

- Tutored students of engineering, AI, statistics and economics departments
- Enhanced educational materials and communicated feedback to department heads.

COMPETENZE LINGUISTICHE

Lingua madre: **ITALIANO**

Altre lingue:

	COMPRESIONE		ESPRESSIONE ORALE		SCRITTURA
	Ascolto	Lettura	Produzione orale	Interazione orale	
INGLESE	C1	C1	C1	C1	C1

Livelli: A1 e A2: Livello elementare B1 e B2: Livello intermedio C1 e C2: Livello avanzato

COMPETENZE

Programming Languages

Python | Java | Git | Assembly RISC-V | C, C++ C# | HTML | CSS | R | Vue.js | GOLANG | Nix/NixOS

Frameworks/Libraries

Framework Deep Learning: Pytorch | Numpy | PyTorch Geometric | SLURM | Cuda | POSIX Threads | MPI

Soft Skills

Problem Solving | Team Work | Communication

Autorizzo il trattamento dei miei dati personali presenti nel CV ai sensi dell'art. 13 d. lgs. 30 giugno 2003 n. 196 - "Codice in materia di protezione dei dati personali" e dell'art. 13 GDPR 679/16 - "Regolamento europeo sulla protezione dei dati personali".