Luca Cazzola

AI student focused on closing the gap between simulation and reality through perception, learning, and intelligent systems.

Italy | luca.cazzola.2001@gmail.com | +39 350 032 36 41 | Luca Cazzola | LuCazzola | Portfolio

Experience

CESI Lineact - Researcher // Nice - Côte d'Azur - France // Apr 2025 - present

- Working on integrating few-shot, text-conditioned motion generation to augment human action recognition datasets, a novel combination not previously explored in the literature.
- Preparing a first-author publication demonstrating the coherence and effectiveness of my proposal, with potential applications in digital twin systems and human-centric simulation.

Fondazione Bruno Kessler - Researcher // Trento - Italy // Mar 2023 - Jul 2023

- Applied dimension reduction techniques to biomedical data (e.g., gene expressions) to support early detection of diseases such as lung cancer.
- Evaluated state-of-the-art dimension reduction methods in the context of the *Big-p Little-n* dilemma, benchmarking their ability to preserve information and support exploratory data analysis through qualitative visualization.

Awards

Industrial AI Challenge - 1st Place // Trento - Italy // Sep 2024 - Dec 2024

- Leader of the winning team in a competition sponsored by *AWS*, tackling industrial challenges from real companies and recognized as an exceptional initiative in Italy.
- Competed with *Terna* in this year's edition, with past editions featuring other industry giants like *Pirelli* and *Melinda*.
- Implementation of a multi-stage optimization pipeline for industrial scheduling, including integer constraint programming and genetic search.

Projects

Robotic manipulator // Feb 2023 - Jul 2023

- Built a pick-and-place system for a UR5 arm combining 6D object perception, pose estimation, and robotic motion control.
- Built a pipeline inside Blender to automatically generate and annotate synthetic data, enabling YOLO training with strong real-world transfer, achieving over 90% accuracy.
- Designed a custom pose estimation pipeline by interpolating point clouds, enabling precise object handling.

Low-Resources Few-Shot learning with VLMs // Nov 2024 - Dec 2024

- Adapted vision-language models (VLMs) for few-shot classification in low-resource settings, including challenging domains such as satellite imagery (EuroSAT).
- Conducted extensive failure-case analysis to assess the limitations and potential of selected adaptation techniques.

More projects and further details available in my Portfolio and GitHub

Education

Master's degree - Artificial Intelligence Systems

- University of Trento, Italy // Sep 2023 - ongoing

Bachelor's degree - Computer Science

- University of Trento, Italy // Sep 2020 - Jul 2023

Skills

AI & Computer Science

- Machine learning
- Deep learning
- Computer vision
- Algorithms & Data structures

Programming languages

- Python
- C, C++

Frameworks

- Pytorch
- OpenCV
- ROS
- CUDA
- Google Or-Tools

Tools & Software

- Git
- Blender
- LaTex

Spoken languages

- Italian (native)
- English (professional)

Interests

- Digital Twin
- Augmented Reality
- Virtual Reality
- Simulation
- Virtual Environments
- Synthetic Data Generation

Nice - Côte d'Azur - France, June 2025.