

# Luca Cazzola

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🔗 Portfolio : LuCazzola.it

## Projects

### Low-Resources Few-Shot learning with VLMs | nov 2024 - dec 2024

- Explored innovative strategies for few-shot learning with VLMs (CLIP) in low-resource environments.
- Developed and benchmarked custom models for task-specific adaptation.
- Conducted failure case analysis and comprehensive evaluations to demonstrate competitive performances across diverse challenging datasets.

### Test Time Adaptation (TTA) | apr 2024 - aug 2024

- Implementation of TTA solutions to enhance image classification performance without traditional fine-tuning.
- Enhanced proficiency in Python and PyTorch through hands-on implementation of deep learning architectures.

### Robotic manipulator | feb 2023 - jul 2023

- Developed a pick-and-place system for a UR5 robotic arm, generating synthetic datasets to train a YOLO-based object detector.
- Designed a pose estimation system by interpolating point clouds for accurate object manipulation.

More projects and further details available in my [Portfolio](#) and [GitHub](#)

## Awards

### Industrial AI Challenge - 1st Place | sep 2024 - dec 2024

- Leader and member of the winning team in a unique two-month 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

## Experience

### Fondazione Bruno Kessler - Junior Researcher | mar 2023 - jul 2023

- Analysis of state of state of the art approaches to Dimension Reduction (DR).
- Use of DR to deal with *Big-p Little-n* contexts as the gene-expression analysis.
- Benchmarking of DR methods relative to their capacity at minimizing information loss & producing qualitative plots for EDA purposes

## 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

### Other software

- Blender

### Spoken languages

- Italian
- English