

# Lorenzo Silvello

COMPUTER SCIENCE STUDENT · CA' FOSCARI - UNIVERSITY OF VENICE

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## Work Experience

### Atom AI

AI ENGINEER FREELANCER

- Enhanced a large-scale semantic search platform using AI and NLP models, improving accuracy and efficiency across millions of patents.
- Designed new AI-driven features and optimized data processing pipelines to ensure scalability and high performance while integrating innovative AI solutions.

Remote · London, United Kingdom

October 2025 – Present

### Inferentia SL

AI CONSULTANT / DATA SCIENTIST (FREELANCER)

- Developed and deployed end-to-end AI solutions for enterprise clients, including NLP models and real-time Computer Vision systems.
- Built complete ML pipelines and led the development of a Siamese Network-based undercarriage verification system achieving around 90% accuracy on unseen vehicle image pairs. Finetune object detection models (YOLO and RF-DETR) to detect dangerous objects attached in the undercarriage.

Remote / Madrid, Spain

March 2024 – Present

### National Research Council of Italy (CNR)

MACHINE LEARNING RESEARCH INTERN

- Developed and trained Reinforcement Learning models (PPO, DQN) to optimize production processes in an Industry 4.0 setting, using both simulation environments and real data to refine policy gradients and reward strategies.
- Improved the efficiency and reduced downtime of a food-packaging machinery system by designing intelligent control policies and continuously iterating on model performance.

Italy

January 2024 – May 2024

## Projects

### AI System for Visual Analysis of Under-Vehicle Images

Dic 2024 – Feb 2025

UNSUPERVISED LEARNING AND COMPUTER VISION FOR VEHICLE INSPECTION

- Developed an under-vehicle Computer Vision system using CNN-based feature extraction and dimensionality reduction (PCA, t-SNE) to cluster and analyze high-resolution images. Built an unsupervised learning pipeline to visualize structural patterns and support real-world security needs. Implemented a graph-based similarity network with community detection and PageRank to highlight key clusters and outliers.

### Innovative Text Extraction and Error Detection System for Product Packaging

Aug 2024 – Oct 2024

AI-POWERED DOCUMENT ANALYSIS FOR PACKAGING

- Developed an AI system that autonomously extracts and analyzes text from packaging images (PDFs), combining Roboflow object detection with Azure Cognitive Services OCR for accurate text-region segmentation. Built a post-processing pipeline powered by the Claude 3.5 LLM to detect and score lexical, syntactic, and formatting errors. Achieved significant reduction of errors.

### A Compact Vision Transformer for Image Patch Reassembly

April 2025 - June 2025

TRANSFORMER-BASED PUZZLE SOLVER

- Developed a self-supervised compact Vision Transformer for 3x3 image patch reassembly, achieving over 95% accuracy on STL-10 and CIFAR-10 using advanced training strategies.

## Education

### Ca' Foscari - University of Venice

Venice, Italy

MASTER'S DEGREE IN ARTIFICIAL INTELLIGENCE AND DATA ENGINEERING

Sep 2024 - Expected nov 2026

### Ca' Foscari - University of Venice

Venice, Italy

BACHELOR'S DEGREE IN COMPUTER SCIENCE

Sep 2021 - Jul 2024

## Skills & Technologies

### Machine Learning & AI

PyTorch, TensorFlow, scikit-learn, OpenCV, Hugging Face, GradCAM, Reinforcement Learning, Computer Vision, NLP, Document analysis, NetworkX, Graph Algorithms, Computer Vision, Unsupervised Learning

### Technologies and programming languages

Python, Docker, Azure, AWS

### Other Skills

Content Creator on LinkedIn & TikTok (AI education and tech insights), Private Tutoring, Public Speaking

## Honors & Awards

2025

**Seeds for the Future 2025**, Selected among top 10 Italian students for Huawei's flagship program on AI, 5G, Cloud and Digital Power (full scholarship)

Shenzhen & Dongguan, China

2021

**Ca'foscari Scholarship**, Merit-Based Scholarship, awarded to students graduated with a final score of more than 90/100 (Diploma)

Venice, Italy