

# Eugenio Lomurno, PhD

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## About

I am a postdoctoral fellow in the AIRLab group at the Department of Electronics, Information and Bioengineering (DEIB), Politecnico di Milano, where I completed my PhD in Information Technology cum laude in 2025.

My research has grown within the H2020 **ESSENCE** and **AI-SPRINT** projects and the PNRR **FAIR** project, and continues today – in the Lombardy-funded PREDICT project – with cutting-edge generative techniques for synthesising and privately sharing medical images and data. I am also part of the **SEL** (Smart Eyewear Lab), a joint research platform of EssilorLuxottica and Politecnico di Milano, where I work on quantised neural architecture search for edge devices.

Within the scientific debate, I share the concerns of that part of the scientific community which questions the scenarios of artificial intelligence, advocating the necessity to develop strategies to address critical phenomena such as goal misalignment, self-replication, and uncontrolled self-improvement in advanced AI systems. I believe the purpose of artificial intelligence must be the prosperity and wellbeing of humanity, and that among its most urgent tasks is confronting the climate crisis.

## Education

### PhD in Information Technology (cum laude)

AIRLAB, DEIB, POLITECNICO DI MILANO  
2020 – 2025

**Thesis:** **Adversarial and Generative Deep Learning for Data Privacy in Human-Centered Artificial Intelligence**

Supervisor: Prof. Matteo Matteucci

### MSc in Computer Science and Engineering

POLITECNICO DI MILANO  
2017 – 2020

**Thesis:** **SR-MVS: Multi-View Stereo Enhancement Through Super-Resolution**

Supervisor: Prof. Matteo Matteucci

### BSc in Information Engineering

POLITECNICO DI MILANO  
2013 – 2017

## Overview

**h-index** **12 / 9**

Google Scholar / Scopus

**Citations** **340+**

Google Scholar

**Publications** **30 / 16**

Overall / A+ Conferences or Q1 Journals

**Research Projects** **5**

**Teaching Activities** **14 / 420+**

University or Corporate Courses / Teaching Hours

**Supervised Theses** **27**

25 MSc, 2 PhD

### Achievements and Awards

- ★ Leonardo Fibonacci Best Paper Award
- ★ PhD Awarded Cum Laude

## Experience

### Postdoctoral Fellow

AIRLAB, DEIB, POLITECNICO DI MILANO  
2025 – present

### AIRLab Social Media Manager

AIRLAB, DEIB, POLITECNICO DI MILANO  
2024 – present

**in** [airlab-polimi](#)    **@** [airlab\\_polimi](#)

### AIRLab Member

AIRLAB, DEIB, POLITECNICO DI MILANO  
2019 – present

# Journal Publications

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## A Filtered Mixture-of-Generators for Fully Synthetic Survival Training

INTERNATIONAL JOURNAL OF DATA SCIENCE AND ANALYTICS

Milan, Italy

August 2026

- Authors: N. M. Rizzi, E. Lomurno, A. Archetti, M. Matteucci
- Status: Under review
- Publisher: Springer

## ZO-DARTS++: An Efficient and Size-Variable Zeroth-Order Neural Architecture Search Algorithm

TRANSACTIONS ON EMERGING TOPICS IN COMPUTATIONAL INTELLIGENCE

Milan, Italy

November 2025

- Authors: L. Xie, E. Lomurno, M. Gambella, D. Ardagna, M. Roveri, M. Matteucci, Q. Shi
- Status: Under review
- Publisher: IEEE

## Your Image Generator Is Your New Private Dataset

IMAGE AND VISION COMPUTING

Milan, Italy

November 2025

- Authors: N. F. Resmini, E. Lomurno, C. Sbrolli, M. Matteucci
- DOI: <https://doi.org/10.1016/j.imavis.2025.105727>
- Publisher: Elsevier

## Federated Knowledge Recycling: Privacy-Preserving Synthetic Data Sharing

PATTERN RECOGNITION LETTERS

Milan, Italy

May 2025

- Authors: E. Lomurno, M. Matteucci
- DOI: <https://doi.org/10.1016/j.patrec.2025.02.030>
- Publisher: Elsevier

## Synthetic Image Learning: Preserving Performance and Preventing Membership Inference Attacks

PATTERN RECOGNITION LETTERS

Milan, Italy

February 2025

- Authors: E. Lomurno, M. Matteucci
- DOI: <https://doi.org/10.1016/j.patrec.2025.02.003>
- Publisher: Elsevier

## Age Group Discrimination via Free Handwriting Indicators

JOURNAL OF BIOMEDICAL AND HEALTH INFORMATICS

Milan, Italy

August 2024

- Authors: E. Lomurno, S. Toffoli, D. Di Febbo, M. Matteucci, F. Lunardini, S. Ferrante
- DOI: <https://doi.org/10.1109/JBHI.2024.3444497>
- Publisher: IEEE

## Automatic spontaneous speech analysis for the detection of cognitive functional decline in the elderly: a multi-language study

JOURNAL OF MEDICAL INTERNET RESEARCH AGING

Milan, Italy

April 2024

- E. Ambrosini, C. Giangregorio, E. Lomurno, S. Moccia, M. Milis, C. Loizou, D. Azzolino, M. Cesari, M. Cid, C. Galan, J. Raja, N. Borghese, M. Matteucci, S. Ferrante
- DOI: <https://doi.org/10.2196/50537>
- Publisher: Digital Health and Science Ventures Inc

## Anticipate, Ensemble and Prune: Improving Convolutional Neural Networks via Aggregated Early Exits

PROCEDIA COMPUTER SCIENCE

Milan, Italy

August 2023

- Authors: S. Sarti, E. Lomurno, M. Matteucci
- DOI: <https://doi.org/10.1016/j.procs.2023.08.190>
- Publisher: Elsevier

**POPNASv3: a Pareto-Optimal Neural Architecture Search Solution for Image and Time Series Classification**

APPLIED SOFT COMPUTING

- A. Falanti, E. Lomurno, D. Ardagna, M. Matteucci
- DOI: <https://doi.org/10.1016/j.asoc.2023.110555>
- Publisher: Elsevier

*Milan, Italy*

*June 2023*

**Deep Learning and Procrustes Analysis for Early Dysgraphia Risk Detection with a Tablet Application**

LIFE

- E. Lomurno, L. G. Dui, M. Gatto, M. Bollettino, M. Matteucci, S. Ferrante
- DOI: <https://doi.org/10.3390/life13030598>
- Publisher: MDPI

*Milan, Italy*

*February 2023*

**Identification and characterization of learning weakness from drawing analysis at the pre-literacy stage**

SCIENTIFIC REPORTS

- L. G. Dui, E. Lomurno, F. Lunardini, C. Termine, A. Campi, M. Matteucci, S. Ferrante
- DOI: <https://doi.org/10.1038/s41598-022-26038-9>
- Publisher: Nature

*Milan, Italy*

*December 2022*

## Conference and Workshop Publications

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**A Structured Benchmark for Text-Guided Anomaly Detection: When Language Stops Conditioning the Decision**

BRITISH MACHINE VISION CONFERENCES (BMVC 2026)

- S. Samele, E. Lomurno, T. Jovanovic, S. S. Manohar, A. Crivellaro, M. Matteucci
- Status: Accepted
- Publisher: BMVA

*Lancaster, England*

*November 2026*

**Evidence-Based Text-Conditioned 3D CT Synthesis for Ovarian Cancer**

EUROPEAN CONFERENCE ON COMPUTER VISION (ECCV 2026) — ARTIFICIAL INTELLIGENCE FOR MEDICAL 3D VISION

WORKSHOP

- F. P. Panaccione, E. Lomurno, F. Fati, C. Pecchiari, M. Rosanu, L. De Vitis, L. Ribero, G. Schivardi, G. D. Aletti, N. Colombo, M. F. Spadea, F. Multinu, M. Matteucci, E. De Momi
- Status: Accepted
- Publisher: Springer

*Malmö, Sweden*

*September 2026*

**Knowledge-Guided 3D CT Generation: A Conditioning-Centric Taxonomy**

INTERNATIONAL JOINT CONFERENCE ON ARTIFICIAL INTELLIGENCE (IJCAI 2026)

- F. P. Panaccione, E. Lomurno, M. Matteucci
- Status: Accepted
- Publisher: IJCAI

*Bremen, Germany*

*August 2026*

**Inference-Time Refinement Closes the Synthetic-Real Gap in Tabular Diffusion**

CONFERENCE ON NEURAL INFORMATION PROCESSING SYSTEMS (NEURIPS 2026)

- E. Lomurno, F. Balzarini, F. Benelle, F. P. Panaccione, M. Matteucci
- Status: Under Review
- Publisher: Curran Associates

*Paris, France*

*May 2026*

### **PolyGen: Fully Synthetic Vision-Language Training via Multi-Generator Ensembles**

CONFERENCE ON NEURAL INFORMATION PROCESSING SYSTEMS (NEURIPS 2026)

*Paris, France*

*May 2026*

- L. Brusini, C. Sbrolli, E. Lomurno, T. Yamasaki, M. Matteucci
- Status: Under Review
- Publisher: Curran Associates

### **Deep Variational Contrastive Learning for Joint Risk Stratification and Time-to-Event Estimation**

INTERNATIONAL JOINT CONFERENCE ON NEURAL NETWORKS (IJCNN 2026)

*Maastricht, Netherlands*

*January 2026*

- P. Erbil, A. Archetti, E. Lomurno, M. Matteucci
- Status: Accepted
- Publisher: IEEE

### **FPBoost: Fully Parametric Gradient Boosting for Survival Analysis**

EUROPEAN CONFERENCE ON ARTIFICIAL INTELLIGENCE (ECAI 2025)

*Bologna, Italy*

*October 2025*

- A. Archetti, E. Lomurno, D. Piccinotti, M. Matteucci
- DOI: <https://ebooks.iospress.nl/volumearticle/75955>
- Publisher: IOS Press

### **Neuro-Symbolic Scene Graph Conditioning for Synthetic Image Dataset Generation**

INTERNATIONAL CONFERENCE ON MACHINE LEARNING, OPTIMIZATION, AND DATA SCIENCE (LOD 2025)

*Grosseto, Italy*

*September 2025*

- G. Savazzi, E. Lomurno, C. Sbrolli, A. Chiatti, M. Matteucci
- DOI: [https://doi.org/10.1007/978-3-032-21480-5\\_27](https://doi.org/10.1007/978-3-032-21480-5_27)
- Publisher: Springer

### **POMONAG: Pareto-Optimal Many-Objective Neural Architecture Generator**

PROCEEDINGS OF THE GENETIC AND EVOLUTIONARY COMPUTATION CONFERENCE COMPANION (GECCO 2025)

*Malaga, Spain*

*July 2025*

- E. Lomurno, S. mariani, M. Monti, M. Matteucci
- DOI: <https://doi.org/10.3233/FAIA251019>
- Publisher: ACM

### **Neural Architecture Transfer 2: A Paradigm for Improving Efficiency in Multi-Objective Neural Architecture Search**

INTERNATIONAL CONFERENCE ON PATTERN RECOGNITION (ICPR 2024) — WORKSHOP ON SUSTAINABLE PATTERN

*Kolkata, India*

*May 2025*

RECOGNITION AND COMPUTER VISION DEVELOPMENTS

- S. Sarti, E. Lomurno, M. Matteucci
- DOI: [https://doi.org/10.1007/978-3-031-88220-3\\_20](https://doi.org/10.1007/978-3-031-88220-3_20)
- Publisher: ACM

### **An Efficient Neural Architecture Search Model for Medical Image Classification**

EUROPEAN SYMPOSIUM ON ARTIFICIAL NEURAL NETWORKS, COMPUTATIONAL INTELLIGENCE AND MACHINE LEARNING

*Bruges, Belgium*

*October 2024*

(ESANN 2024)

- Authors: L. Xie, E. Lomurno, M. Gambella, D. Ardagna, M. Roveri, M. Matteucci, Q. Shi
- DOI: <https://dx.doi.org/10.14428/esann/2024.ES2024-119>
- Publisher: Springer

### **Stable Diffusion Dataset Generation for Downstream Classification Tasks**

EUROPEAN SYMPOSIUM ON ARTIFICIAL NEURAL NETWORKS, COMPUTATIONAL INTELLIGENCE AND MACHINE LEARNING

*Bruges, Belgium*

*October 2024*

(ESANN 2024)

- Authors: E. Lomurno, M. D'Oria, M. Matteucci
- DOI: <https://dx.doi.org/10.14428/esann/2024.ES2024-100>
- Publisher: Springer

## **Harnessing the Computing Continuum across Personalized Healthcare, Maintenance and Inspection, and Farming 4.0**

*Angers, France*

INTERNATIONAL CONFERENCE ON CLOUD COMPUTING AND SERVICES SCIENCE (CLOSER 2024)

*March 2024*

- Authors: F. Baghdadi, D. Cirillo, D. Lezzi, F. Lordan, F. Vazquez, E. Lomurno, A. Archetti, D. Ardagna, M. Matteucci
- DOI: <http://dx.doi.org/10.5220/0012739700003711>
- Publisher: SCITEPRESS

## **Two Steps Forward and One Behind: Rethinking Time Series Forecasting with Deep Learning**

*Grasmere, England*

INTERNATIONAL CONFERENCE ON MACHINE LEARNING, OPTIMIZATION, AND DATA SCIENCE (LOD 2023)

*February 2024*

- Authors: R. Ughi, E. Lomurno, M. Matteucci
- DOI: [https://doi.org/10.1007/978-3-031-53969-5\\_34](https://doi.org/10.1007/978-3-031-53969-5_34)
- Publisher: Springer

## **Bridging the Gap: Enhancing the Utility of Synthetic Data via Post-Processing Techniques**

*Aberdeen, Scotland*

BRITISH MACHINE VISION CONFERENCES (BMVC 2023)

*November 2023*

- Authors: A. Lampis, E. Lomurno, M. Matteucci
- Proceedings: <https://proceedings.bmvc2023.org/715>
- Publisher: BMVA

## **Discriminative Adversarial Privacy: Balancing Accuracy and Membership Privacy in Neural Networks**

*Aberdeen, Scotland*

BRITISH MACHINE VISION CONFERENCE (BMVC 2023)

*November 2023*

- Authors: E. Lomurno, F. Ausonio, A. Archetti, M. Matteucci
- Proceedings: <https://proceedings.bmvc2023.org/799>
- Publisher: BMVA

## **Enhancing Once-For-All: A Study on Parallel Blocks, Skip Connections and Early Exits**

*Gold Coast, Australia*

INTERNATIONAL JOINT CONFERENCE ON NEURAL NETWORKS (IJCNN 2023)

*August 2023*

- Authors: S. Sarti, E. Lomurno, A. Falanti, M. Matteucci
- DOI: <https://doi.org/10.1109/IJCNN54540.2023.10191144>
- Publisher: IEEE

## **Heterogeneous Datasets for Federated Survival Analysis Simulation**

*Coimbra, Portugal*

INTERNATIONAL CONFERENCE ON PERFORMANCE ENGINEERING (ICPE 2023)

*April 2023*

- Authors: A. Archetti, E. Lomurno, F. Lattari, A. Martin, M. Matteucci
- DOI: <https://doi.org/10.1145/3578245.3584935>
- Publisher: ACM

## **SGDE: Secure Generative Data Exchange for Cross-Silo Federated Learning**

*Xiamen, China*

INTERNATIONAL CONFERENCE ON ARTIFICIAL INTELLIGENCE AND PATTERN RECOGNITION (AIPR 2022)

*September 2022*

- Authors: E. Lomurno, A. Archetti, L. Cazzella, S. Samele, L. Di Perna, M. Matteucci
- DOI: <https://doi.org/10.1145/3573942.3573974>
- Publisher: ACM

## **On the utility and protection of optimization with differential privacy and classic regularization techniques**

*Siena, Italy*

INTERNATIONAL CONFERENCE ON MACHINE LEARNING, OPTIMIZATION, AND DATA SCIENCE (LOD 2022)

*September 2022*

- Authors: E. Lomurno, M. Matteucci
- DOI: [https://doi.org/10.1007/978-3-031-25599-1\\_17](https://doi.org/10.1007/978-3-031-25599-1_17)
- Publisher: Springer

### POPNASv2: An Efficient Multi-Objective Neural Architecture Search Technique

INTERNATIONAL JOINT CONFERENCE ON NEURAL NETWORKS (IJCNN 2022)

Padova, Italy

July 2022

- Authors: A. Falanti, E. Lomurno, S. Samele, D. Ardagna, M. Matteucci
- DOI: <https://doi.org/10.1109/IJCNN55064.2022.9892073>
- Publisher: IEEE

### Improving Multi-View Stereo via Super-Resolution

INTERNATIONAL CONFERENCE ON IMAGE ANALYSIS AND PROCESSING (ICIAP 2022)

Lecce, Italy

May 2022

- Authors: E. Lomurno, A. Romanoni, M. Matteucci
- DOI: [https://doi.org/10.1007/978-3-031-06430-2\\_9](https://doi.org/10.1007/978-3-031-06430-2_9)
- Publisher: Springer

### Pareto-Optimal Progressive Neural Architecture Search

PROCEEDINGS OF THE GENETIC AND EVOLUTIONARY COMPUTATION CONFERENCE COMPANION (GECCO 2021)

Lille, France

July 2021

- Authors: E. Lomurno, S. Samele, M. Matteucci, D. Ardagna
- DOI: <https://doi.org/10.1145/3449726.3463146>
- Publisher: ACM

## Awards and Achievements

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### Leonardo Fibonacci Best Paper Award

THE 11TH INTERNATIONAL CONFERENCE ON MACHINE LEARNING, OPTIMIZATION, AND DATA SCIENCE

Grosseto, Italy

September 2025

- Paper: Neuro-Symbolic Scene Graph Conditioning for Synthetic Image Dataset Generation
- DOI: [https://doi.org/10.1007/978-3-032-21480-5\\_27](https://doi.org/10.1007/978-3-032-21480-5_27)

### PhD Awarded *Cum Laude*

POLITECNICO DI MILANO

Milan, Italy

May 2025

- Thesis: Adversarial and Generative Deep Learning for Data Privacy in Human-Centered Artificial Intelligence
- Link: <https://www.politesi.polimi.it/handle/10589/238117>

## Projects

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### SEL - EssilorLuxottica

SMART EYEWEAR LAB

Milan, Italy

February 2026 - In progress

- Role: Research Track Lead — Neural Architecture Search × Edge Devices
- Framework: Joint Research Platform (JRP) between Politecnico di Milano and EssilorLuxottica
- Project Homepage: <https://www.essilorluxottica.com/it/careers/smart-eyewear-lab/>

### PREDICT - Fondazione Regionale per la Ricerca Biomedica (Regione Lombardia)

PREDICTIVE RESPONSE AND DISEASE EVALUATION IN OVARIAN CANCER WITH GENERATIVE AI

Milan, Italy

February 2026 - In progress

- Role: AI Scientific Lead
- Project ID: 012024R0055
- Project Homepage: <https://nearlab.polimi.it/neuroengineering-and-medical-robotics/medical/predict/>

### FAIR - PNRR

FUTURE ARTIFICIAL INTELLIGENCE RESEARCH

Milan, Italy

January 2024 - January 2026

- Role: Research Track Lead — Generative AI
- MUR Announcement No. 341 of 15/03/2022 ID: PE00000013
- Project Homepage: <https://www.fondazione-fair.it/>

## AI-SPRINT - Horizon 2020

ARTIFICIAL INTELLIGENCE IN SECURE PRIVACY-PRESERVING COMPUTING CONTINUUM

- Role: AI Scientific Lead
- Grant Agreement ID: 101016577
- DOI: <https://doi.org/10.3030/101016577>

Milan, Italy

January 2021 - December 2023

## ESSENCE - Horizon 2020

EMPATHIC PLATFORM TO PERSONALLY MONITOR, STIMULATE, ENRICH, AND ASSIST ELDERS AND CHILDREN IN THEIR ENVIRONMENT

- Role: AI Scientific Lead
- Grant Agreement ID: 101016112
- DOI: <https://doi.org/10.3030/101016112>

Milan, Italy

November 2020 - April 2023

# Teaching Activities

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## Intelligenza Artificiale

BSC COURSE

- Politecnico di Milano
- Teaching Assistant, 1 Edition | Professor: A. Bonarini
- Total teaching hours: 6h

Milan, Italy

2026 – present

## Advanced Deep Learning

MSC COURSE

- Politecnico di Milano
- Teaching Assistant, 1 Edition | Professor: M. Matteucci
- Total teaching hours: 10h

Milan, Italy

2026 – present

## AI Bootcamp – TechCamp

SUMMER SCHOOL

- Politecnico di Milano
- Teaching Assistant, 3 Editions | Professor: M. Matteucci
- Total teaching hours: 45h

Milan, Italy

2024 – present

## Artificial Neural Networks and Deep Learning

MSC COURSE

- Politecnico di Milano
- Teaching Assistant, 5 Editions | Professor: M. Matteucci, G. Boracchi
- Total teaching hours: 107h

Milan, Italy

2021 – present

## Artificial Intelligence

CORPORATE COURSE

- Guber Banca S.p.A.
- Teacher, 2 Editions
- Total teaching hours: 80h

Milan, Italy

2025 – 2026

## AI Product Management Bootcamp

CORPORATE COURSE

- CEFRIEL
- Teaching Assistant, 1 Edition
- Total teaching hours: 6h

Milan, Italy

2025

## Generative AI: Methods and Practice

CORPORATE COURSE

- MADE, M.I.A. Lombardia EDIH
- Teacher, 1 Edition
- Total teaching hours: 4h

Milan, Italy  
2025

## Computer Vision and Image Processing

MSC COURSE

- Università Bocconi
- Teaching Assistant, 2 Editions | Professor: G. Boracchi
- Total teaching hours: 52h

Milan, Italy  
2024 – 2025

## Deep Learning for Computer Vision

MSC COURSE

- Università Bocconi
- Teaching Assistant, 2 Editions | Professor: G. Boracchi
- Total teaching hours: 50h

Milan, Italy  
2023 – 2024

## Deep Learning

CORPORATE COURSE

- CEFRIEL, Master in Data Science & AI
- Teacher, 1 Edition
- Total teaching hours: 24h

Milan, Italy  
2023

## Advanced Topics in Deep Learning: The Rise of Transformers

PHD COURSE

- Politecnico di Milano
- Teaching Assistant, 1 Edition | Professor: M. Matteucci
- Total teaching hours: 12h

Milan, Italy  
2023

## Generative Adversarial Networks

CORPORATE COURSE

- CEFRIEL, NOKIA Master AI&ML
- Teacher, 1 Edition
- Total teaching hours: 16h

Milan, Italy  
2022

## Deep Learning and Neural Networks

CORPORATE COURSE

- CEFRIEL, SIAE Master AI&ML
- Teaching Assistant, 1 Edition | Professor: M. Matteucci
- Total teaching hours: 12h

Milan, Italy  
2022

## Advanced Deep Learning Models and Methods

PHD COURSE

- Politecnico di Milano
- Teaching Assistant, 1 Edition | Professor: M. Matteucci
- Total teaching hours: 2h

Milan, Italy  
2022

# Supervisions

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## Advanced Generative Deep Learning for Healthcare

FRANCESCA PIA PANACCIONE

- PhD thesis | Co-advisor
- Keywords: Generative Deep Learning, Medical Imaging, Healthcare AI

Milan, Italy  
2025 – present

## Advanced Generative Deep Learning for Synthetic Data Utility Enrichment

LEONARDO BRUSINI

- PhD thesis | Co-advisor
- Keywords: Generative Deep Learning, Synthetic Data, Data Utility

Milan, Italy

2026 – present

## What Shapes a Synthetic CT? On Multimodal 3D CT Generation and Conditioning

SILVIA MOMBELLI

- MSc thesis | Co-advisor
- Keywords: Medical Imaging, 3D CT Generation, Multimodal Conditioning

Milan, Italy

2026 – present

## Who's in the Noise? Counterfactual vs Predictive Approaches to Longitudinal CT Synthesis

JIE CHEN

- MSc thesis | Co-advisor
- Keywords: Counterfactual Generation, Longitudinal Imaging, CT Synthesis

Milan, Italy

2026 – present

## Compressing Without Compromising? On Knowledge Distillation for Quantization-Aware Training

GIACOMO BOSSI

- MSc thesis | Co-advisor
- Keywords: Knowledge Distillation, Quantisation-Aware Training, Model Compression

Milan, Italy

2026 – present

## Less is More? On Network Pruning and Low-Rank Approximation for Edge AI

ANDREA SANVITO

- MSc thesis | Co-advisor
- Keywords: Network Pruning, Low-Rank Approximation, Edge AI

Milan, Italy

2026 – present

## "P. Sherman, 42 Wallaby Way, Sydney": Investigating When LLMs Forget What They Were Talking About

FABIOLA RIBOLSI

- MSc thesis | Co-advisor
- Keywords: Large Language Models, Long-Context Memory, Context Degradation

Milan, Italy

2026 – present

## A Multimodal Benchmark for Text-Guided Anomaly Detection

TEODORA JOVANOVIĆ - [\[LINK\]](#)

- MSc thesis | Co-advisor
- Keywords: Anomaly Detection, Vision-Language Models, Industrial Inspection

Milan, Italy

2025 – 2026

## TARDIS: Tabular Distillation and Inference-time Sampling framework

FILIPPO BALZARINI & FRANCESCO BENELLE

- MSc thesis | Co-advisor
- Keywords: Tabular Data, Knowledge Distillation, Inference-Time Sampling

Milan, Italy

2025 – 2026

## CONVERSE: Discovering Patient Groups in Survival Data via Deep Latent Clustering

PINAR ERBIL

- MSc thesis | Co-advisor
- Keywords: Survival Analysis, Deep Latent Clustering, Patient Stratification

Milan, Italy

2025 – 2026

## Generating ovarian cancer CT volumes via multimodal conditioning

CARLOTTA PECCHIARI

- MSc thesis | Co-advisor
- Keywords: Medical Imaging, 3D Generation, Multimodal Conditioning

Milan, Italy

2024 – 2026

### Enhancing Contrastive Learning with Synthetic Data from Text-to-Image Models

LEONARDO BRUSINI - [\[LINK\]](#)

Milan, Italy

2024 – 2025

- MSc thesis | Co-advisor
- Keywords: Contrastive Learning, Synthetic Data, Text-to-Image Models

### A Generative Pipeline for High-Quality Synthetic Survival Datasets

NICCOLÒ MARIA RIZZI - [\[LINK\]](#)

Milan, Italy

2024 – 2025

- MSc thesis | Co-advisor
- Keywords: Synthetic Datasets, Survival Analysis, Generative Deep Learning

### Neuro-Symbolic Conditioning for Synthetic Dataset Generation via GANs and Stable Diffusion

GIACOMO SAVAZZI - [\[LINK\]](#)

Milan, Italy

2024 – 2025

- MSc thesis | Co-advisor
- Keywords: Neuro-Symbolic Models, Scene Graph Generation, Latent Diffusion

### Text-Conditioned Knowledge Recycling: A Synthetic Dataset Generation Pipeline

NICOLÒ FRANCESCO RESMINI - [\[LINK\]](#)

Milan, Italy

2024 – 2025

- MSc thesis | Co-advisor
- Keywords: Text-Conditioned Diffusion, Knowledge Distillation, Membership Inference

### POMONAG: Pareto Optimal Many-Objective Neural Architecture Generator

SAMUELE MARIANI & MATTEO MONTI - [\[LINK\]](#)

Milan, Italy

2023 – 2024

- MSc thesis | Co-advisor
- Keywords: Neural Architecture Search, Pareto Optimality, Diffusion Models

### Stable Diffusion Adaptation for Generation and Total Replacement of Real Data

MATTEO D'ORIA - [\[LINK\]](#)

Milan, Italy

2023 – 2024

- MSc thesis | Co-advisor
- Keywords: Stable Diffusion, Dataset Synthesis, Classification Accuracy Score

### A Journey to Improve Neural Architecture Search: Neural Architecture Transfer and Once-For-All

SIMONE SARTI - [\[LINK\]](#)

Milan, Italy

2022 – 2023

- MSc thesis | Co-advisor
- Keywords: Neural Architecture Transfer, Once-For-All, Image Classification

### Adversarial Privacy: Balancing Accuracy and Security in Deep Neural Networks

FRANCESCA AUSONIO - [\[LINK\]](#)

Milan, Italy

2022 – 2023

- MSc thesis | Co-advisor
- Keywords: Differential Privacy, Regularisation, Membership Inference

### Bridging the Gap: Improving Classification Accuracy through Post-Processing Techniques

ANDREA LAMPIS - [\[LINK\]](#)

Milan, Italy

2022 – 2023

- MSc thesis | Co-advisor
- Keywords: Generative Models, Classification Accuracy Score, Synthetic Images

### Longitudinal Monitoring of Graphical Abilities, Towards the Early Diagnosis of Dysgraphia

MADHURII GATTO & MATTEO BOLLETTINO - [\[LINK\]](#)

Milan, Italy

2021 – 2022

- MSc thesis | Co-advisor
- Keywords: Dysgraphia, Longitudinal Monitoring, Time-Series Embeddings

### On Dysgraphia Diagnosis Support via the Automation of the BVSCO Test Scoring – KTH

RICCARDO SOMMARUGA - [\[LINK\]](#)

Milan, Italy

2021 – 2022

- MSc thesis | Co-advisor
- Keywords: Dysgraphia Screening, Handwriting Analysis, Automated Scoring

## Machine Learning-Based Analysis of Spontaneous Speech to Monitor Cognitive Decline

CHIARA GIANREGGORGIO - [\[LINK\]](#)

- MSc thesis | Co-advisor
- Keywords: Acoustic Features, Cognitive Decline, Speech Analysis

Milan, Italy

2021 – 2022

## Deep Neural Networks for Time Series Forecasting Beyond Transformers

RICCARDO UGHI - [\[LINK\]](#)

- MSc thesis | Co-advisor
- Keywords: Time-Series Forecasting, Transformers, Deep Learning

Milan, Italy

2021 – 2022

## Unsupervised Activities and Age Monitoring via Smart Ink Pen

MARIA PAOLA D'ERCOLE - [\[LINK\]](#)

- MSc thesis | Co-advisor
- Keywords: Handwriting Analysis, Ageing, Smart Ink Pen

Milan, Italy

2021 – 2022

## POPNASv2: Efficient Neural Architecture Search Through Time-Accuracy Optimization

ANDREA FALANTI - [\[LINK\]](#)

- MSc thesis | Co-advisor
- Keywords: Neural Architecture Search, Pareto Optimality, Image Classification

Milan, Italy

2021 – 2022

## On the Resilience and Protection of Regularization Techniques in Differential Privacy

MARCO GIAMMARRESI - [\[LINK\]](#)

- MSc thesis | Co-advisor
- Keywords: Differential Privacy, Regularisation, Privacy Attacks

Milan, Italy

2021 – 2022

# Competitions

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## The Mostly AI Prize

GENERATE THE BEST SYNTHETIC DATA - MOSTLY AI

- Generative Deep Learning
- **Bronze medal:** 3/98 position on Mostly AI leaderboard

Milan, Italy

June 2025 - July 2025

## 2nd Genhack Hackathon – Climate Change Risk Modelling

SIMULATE POTENTIAL FUTURE OCEAN TEMPERATURE - ÉCOLE POLYTECHNIQUE, BNP PARIBAS

- Generative Deep Learning
- **Bronze medal:** 3/36 position on Genhack leaderboard

Paris, France

February 2023

## ACE Datathon 2019 – Odometer Mileage

DETECT MILEAGE VALUE FROM ODOMETER IMAGES - ETH ZURICH, BOSH

- Deep Learning - Image Analysis - Multiclass Classification
- **Gold medal:** 1/11 position on Kaggle leaderboard

Zurich, Switzerland

November 2019

## Polimi-Vodafone Challenge

FIND THE RIGHT IOT PRODUCT FOR THE CUSTOMERS - POLITECNICO DI MILANO, VODAFONE

- Machine Learning - Data Mining - Multiclass Classification
- **Gold medal:** 1/18 position on Kaggle leaderboard

Milan, Italy

May 2018

Autorizzo al trattamento dati ai sensi del GDPR 2016/679 del 27 aprile 2016 (Regolamento Europeo relativo alla protezione delle persone fisiche per quanto riguarda il trattamento dei dati personali).

Autorizzo la pubblicazione del Curriculum Vitae sul sito istituzionale del Politecnico di Milano (sez. Amministrazione Trasparente) in ottemperanza al D. Lgs n. 33 del 14 marzo 2013 (e s.m.i.).