



# Danilo Pezzi

*Postdoctoral Researcher*

Mathematician specialized in numerical optimization and machine learning, with expertise in data-driven and explainable models for imaging. I develop algorithms that combine classical optimization methods with modern machine learning techniques. I leverage my scientific background to design robust and interpretable solutions. I am seeking opportunities outside academia to apply these skills to real-world problems and impactful applications.

**Personal Page:**  
[danilopezzi.github.io](https://danilopezzi.github.io) 

## Work Experience

---

- Postdoctoral Research Fellow** – University of Modena and Reggio Emilia. December 2023 - Present
- Research in the field of numerical optimization, inverse problems in imaging (denoising, deblurring, super-resolution) and machine learning. Design and implementation of the experimental part for scientific publications, with responsibility for writing and presenting the results.
  - Contributed to an industrial project on autonomous driving, eventually taking technical leadership of the thermal imaging workstream focused on object detection and semantic segmentation. Evaluation, benchmarking, and optimization of state-of-the-art algorithms. Development of generative AI techniques for data synthesis and training data augmentation.
  - Presentation of research work at international conferences and national events. Organization of two special sessions at SIMAI 2025.
  - Served as a reviewer for international scientific journals: evaluation of scientific content, experimental validity, and clarity of presentation.
  - Scientific outreach with interactive presentations on machine learning and artificial intelligence at public engagement events.
  - Over 200 hours of mathematics teaching experience for students at various levels.

## Education

---

- Ph.D. in Mathematics** – University of Parma. November 2020 - March 2024
- Thesis: Learning Variational Models via Bilevel Optimization and Unfolded Algorithms.
  - Three-month research stay at the i3S laboratory (Université Côte d'Azur, France). Collaboration on imaging problems for microscopy.
- Master's Degree in Mathematics** – University of Modena and Reggio Emilia October 2018 - July 2020
- Thesis: Convex Analysis and Optimization: Splitting Methods.
  - Final grade: 110/110 cum laude.
- Bachelor's Degree in Mathematics** – University of Modena and Reggio Emilia October 2015 - July 2018
- Thesis: Reed-Solomon Codes in Compact Discs.
  - Final grade: 110/110 cum laude.

## Skills

---

**Programming languages:** MATLAB, Python (Pytorch, Numpy, Scipy).

**Tools:** LaTeX, Git (familiarity).

**Research topics:** numerical optimization, inverse problems, imaging, machine learning, deep learning.