

Francesca Despini

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Professional Profile

Environmental Engineer (Ph.D.) and Research Technician at the Geophysical Observatory of Modena (University of Modena and Reggio Emilia).

Expert in remote sensing and climatology, with extensive experience in analyzing satellite and airborne data for environmental and urban monitoring. At the Geophysical Observatory, she focuses on studies addressing local and regional climate change. Her research includes applications in urban heat island (UHI) analysis, asbestos surface mapping, and greenhouse monitoring using multispectral and hyperspectral data. Specialized in image processing from sensors such as PRISMA, Sentinel, and Landsat, she applies advanced techniques of atmospheric correction and data fusion. Since 2017, she has also been engaged in sustainability initiatives at the University of Modena and Reggio Emilia, contributing to European projects such as U-Green and UNI-Green.

Professional Experience

- University of Modena and Reggio Emilia – Department of Engineering “Enzo Ferrari”

Research Technician — Nov 2020 – Present

Permanent position as research technician at the Geophysical Observatory and involved in university sustainability projects.

Research Fellow — Jan 2018 – Dec 2020

Research project: “Object-oriented satellite image processing for the identification of asbestos-cement surfaces.” Work focused on remote sensing and environmental engineering applications.

Member of State Examination Committee — 2017 & 2010

Expert member for the State Exam Board for the Civil/Environmental Engineering profession.

Freelance Consultant in Environmental Acoustics — 2013–2018

Occasional assignments on acoustic impact assessment, noise barrier design, and sound climate verification.

University Tutor — 2008–2009

Tutoring and exercises for undergraduate courses in Mathematics, Physics, and Geometry.

Education

Ph.D. in “High Mechanics and Automotive Design & Technology” — 2014

University of Modena and Reggio Emilia

Thesis: “Improving the spatial and spectral resolution of remote sensing images, focusing on thermal infrared and pan-sharpening techniques.”

M.Sc. in Environmental Sustainability Engineering — 2009

University of Modena and Reggio Emilia — 110/110 cum laude

B.Sc. in Environmental Engineering — 2006

University of Modena and Reggio Emilia — 108/110

High School Diploma (Linguistic-Scientific Track) — 2003

Liceo A.F. Formigini, Sassuolo — 88/100

Qualifications and Training

- Professional training course for Technical Meteorologists (AMPRO – Italian Professional Meteorologists Association), 2023.
- Registered Environmental Acoustics Technician (Province of Modena, 2013)
- Technical course in Building and Environmental Acoustics (ASSFORM, 2011–2013)
- ESA Summer School on Earth Observation, Frascati (Rome), 2010

Teaching and Other Activities

- Lecturer in courses on environmental acoustics, land management, and environmental monitoring.
- Member of the State Exam Board for Civil/Environmental Engineering (various years).
- Participation in national and international conferences presenting research activities and papers.