

Virginia Verna

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Education

PhD in Operations Research

UNIVERSITY OF BOLOGNA

Bologna, Italy

Nov. 2025 - ongoing

Master's Degree in Mathematics

UNIVERSITY OF BOLOGNA

Bologna, Italy

Sep. 2022 - Dec. 2024

- **Thesis:** Gradient-phase retrieval from spectrogram measurements. Score: 110/110 cum laude
Supervisor: Serena Morigi, Co-supervisor: Frank Dieter-Filbir
The thesis, discussed in english, aims to develop a model for reconstructing the gradient of the phase of an image or signal from ptychographic measurements. Recovering the phase gradient is crucial, as it provides valuable insights into the structure of an object. The proposed approach is validated through numerical experiments on synthetic data.

Bachelor's Degree in Mathematics

UNIVERSITY OF BOLOGNA

Bologna, Italy

Sep. 2018 - Mar. 2022

- **Thesis:** The one-dimensional Stefan problem. Score: 90/110
Supervisor: Fausto Ferrari
The thesis investigates the one-dimensional Stefan problem, a free boundary problem that models phase change phenomena, such as melting and solidification. The problem is governed by the heat equation and an energy balance condition at the moving boundary. First, an explicit solution is derived, followed by a proof of existence and uniqueness.

High School Degree

LICEO CLASSICO G. NOLFI

Fano, Italy

Sep. 2013 - Jul. 2018

- Score: 98/100

Working Experience

Helmholtz Research Center - Munich

UNDERGRADUATE RESEARCH ASSISTANT

Munich, Germany

Jun. 2024 - Nov. 2024

- I engaged in oriented research focusing on a mathematical model for phase retrieval and gradient-phase retrieval under the supervision of Professor Frank Dieter Filbir, Head of Research Group "Mathematical Imaging and Data Analysis". At the same time, I worked independently, reading academic papers and references to build a solid understanding of the project's theoretical foundations. This experience strengthened my problem-solving and critical thinking skills, while also enhancing my ability to independently acquire new knowledge.

Educational Center "Matemagia", Forma Mentis Group

TEACHER

Bologna, Italy

Jan. 2022 - Jun. 2022

- I have given lessons to high school students in mathematics and physics. I've improved my communication skills by teaching mathematical and physical concepts to high school students in a clear and accessible way, adapting to their diverse learning needs, while also strengthening my organizational and time management abilities through lesson planning and student assessment during a fixed-term contract.

Teaching and Tutoring

University of Bologna

TUTOR OF FOUNDATIONS OF OPERATIONS RESEARCH

Bologna

Oct. 2025 - Jan 2026

Studies and Experiences Abroad

Technical University of Munich (TUM)

ERASMUS+

Munich, Germany

Oct. 2023 - Dec. 2024

- For study purposes: during the first six months, I attended courses and took the respective exams.
- For thesis preparation: I extended my study period in Munich to work on my Master's Thesis. The project was carried out in collaboration with the Helmholtz Research Center in Munich, where I was employed as an Undergraduate Research Assistant. I worked under the supervision of Professor Frank Dieter Filbir and collaborated with the research group "Mathematical Imaging and Data Analysis".

Malta National Aquarium

STAGE

Malta, Italy

Jul. 2016 - Aug. 2016

- A two-month experience as a guide and assistant in all the organizational areas.

Languages

Italian Native
English Fluent
German Basic
Spanish Basic

Programming

Languages Matlab, Python, Julia

Certifications

Coursera certificate

Machine Learning Specialization

Online

Jun 2025

ESOL

Cambridge Assessment English, Level B2

Liceo Classico G. Nolfi, Fano

Apr. 2017

Other

Participation to the competition "Premio per la Traduzione, VI Edizione" at "Scuola Superiore per Mediatori Linguistici San Pellegrino"

Rimini, Italy

May 2017