

NICOLA ZOMER

Research engineer in applied data science and AI
Interested in optimization, stochastic models, and machine learning

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ABOUT ME


I am an Italian physicist and engineer with a strong interest in applied sciences and optimization problems. Beyond my academic and professional pursuits, I am also a passionate handbalancer! This unique circus discipline allows me to deeply experience the mechanisms of human learning, which I find extremely fascinating. In my spare time, I also enjoy hiking, walking, and in general exploring.

LANGUAGES


Italian: Native Speaker
English: Full professional proficiency, Cambridge Certificate B2 (First)
Spanish: Limited working proficiency

EXPERIENCE


Research Engineer, *Marine Weather Intelligence (MWI)* C++ Python Auray (FR)

 Sep 2024 – Present
Study and development of weather routing algorithms, involving stochastic models, multi-objective optimization techniques, and advanced machine learning methods. Integration of such algorithms into MWI applications.
One of these algorithms has been employed in the Vendée Globe 2024 to provide routing to the Race Direction.

Research Intern in Network Modeling, *Central European University* Python R Vienna (AT)


 Apr 2023 – Jun 2023
Master's internship under the supervision of Prof. Tiago P. Peixoto. We applied generative network models and Bayesian inference to understand and model the behavior of platforms in the Fediverse, analyzing 4.2 million historical data obtained by scraping. Development of an ad-hoc Minorize-Maximization algorithm to efficiently perform maximum likelihood estimation with 50k parameters.

Alba CubeSat Unipd, Mission Analysis team, *University of Padua* Matlab Padua (IT)


 Oct 2020 – Jun 2022
Team of students who is building a CubeSat, joining the "Fly Your Satellite" Program by ESA. Tasks I helped with include determining the orbital parameters, estimating the lifetime, and performing risk assessment from radiation and debris.

EDUCATION


M.Sc. in Physics of Data, *University of Padua*

 Oct 2021 – April 2024
Final grade: 110/110 cum laude (GPA: 29.9/30)
Thesis title: "Swarm intelligence in interacting language model agents" (@ComuneLab, led by Manlio de Domenico).
Relevant courses: Laboratory of Computational Physics, Management and Analysis of Physics Datasets, Information Theory and Inference, Neural Networks and Deep Learning.

B.Sc. in Aerospace Engineering, *University of Padua*

 Oct 2018 – Sept 2021
Final grade: 110/110 cum laude (GPA: 29.1/30)
Thesis title: "A study of the Levi-Civita regularization of the gravity field".

HONORS

 **Mentee at LeadTheFuture (LTF)**
Among the few Italian students selected to be mentees for LTF, a leading mentorship non-profit organization for students in STEM, with acceptance rate below 20%.



Scholarship "*Mille e una lode*", University of Padua

Scholarship based on GPA for top 3% students of each degree course.
A.Y. 2018/2019, 2019/2020, 2020/2021



National finalist in the Team Mathematical Olympiad

Qualified for the national final of the Team Mathematical Olympiad.
A.Y. 2017/2018

PUBLICATIONS

Margherita Bertè, Rashid Ibrahimli, Lars Koopmans, Pablo Valgañón, Nicola Zomer, Davide Colombi. **Enhancing stop location detection for incomplete urban mobility datasets.** in arXiv, 2024. [↗](#)