



Teresa Tonelli

Work : Via Beirut 2, 34151, Trieste, Italy



Gender: Female **Nationality:** Italian

ABOUT ME

I'm a PhD student in data science and artificial intelligence at OGS (Institute of oceanography and experimental geophysics), in collaboration with the University of Trieste. My PhD program is focused on machine-learning techniques for prediction and data fusion. In particular, my current work focuses on the reconstruction of a model for chlorophyll in the whole Mediterranean Sea.

EDUCATION AND TRAINING

[09/2013 - 06/2018]

High school scientific diploma

Liceo Michelangelo Grigoletti, Pordenone <https://www.liceogrigoletti.edu.it/>

City: Pordenone | **Country:** Italy | **Level in EQF:** EQF level 4

[09/2018 - 07/2021]

Bachelor degree in mathematics

University of Trieste <https://portale.units.it/it>

City: Trieste | **Country:** Italy | **Field(s) of study:** Mathematics | **Final grade:** 100 L
Level in EQF: EQF level 6 | **Thesis:** Moti geodetici su gruppi di Lie

[09/2021 - 09/2023]

Master degree in mathematics

University of Trieste <https://portale.units.it/it>

City: Trieste | **Country:** Italy | **Field(s) of study:** Applied mathematics, deep learning, optimization | **Final grade:** 110 L | **Level in EQF:** EQF level 7 | **Thesis:** Genetic programming to reconstruct alkalinity distribution in Mediterranean sea

My thesis project uses evolutionary computation for modeling purposes: in particular, I tried to reconstruct a model for the alkalinity inside the Mediterranean Sea that improves the salinity-alkalinity relation widely used for its prediction. Results suggest wide applicability and high-quality results for this technique in the oceanographic field, which is still new.

[09/2023 - Current]

PhD in data science and artificial intelligence

OGS, University of Trieste <https://www.ogs.it/it>

City: Trieste | **Country:** Italy | **Field(s) of study:** Machine learning in marine science: model and data fusion for prediction, interpolation and extrapolation | **Level in EQF:** EQF level 8

The field of my PhD program is the study and development of machine learning and deep learning techniques for analyzing and predicting some biogeochemical phenomena that affect the Mediterranean Sea. In particular, I'm now focusing on the implementation of Convolutional Neural Network architecture for the reconstruction of the chlorophyll behavior inside the whole 3d Mediterranean Sea, merging different types of data.

CONFERENCES AND SEMINARS

[14/07/2024 - 18/07/2024]

Gecco-2024: The Genetic and Evolutionary Computation Conference Melbourne - Australia

At Gecco 2024 I presented a student workshop entitled "Genetic Programming for the Reconstruction

of Delay Differential Equations in Economics", which presents an innovative approach for the reconstruction of delay differential equations (DDEs). This approach consists of a modification of genetic programming algorithm, that encodes the structure of a DDE.

Link: <https://dl.acm.org/doi/10.1145/3638530.3664164>

[15/07/2024 - 19/07/2024]

DeepLearn2024: 11th International School on Deep Learning Oporto - Portugal

Summer school that offers a wide range of courses in different fields of deep learning and its applications (neural networks for environmental problems, language models, data-mining, explainable-AI)

PUBLICATIONS

[2024]

Genetic Programming for the Reconstruction of Delay Differential Equations in Economics

Reference: T. Tonelli et al. July 2024, ACM (Association for Computing Machinery) DOI: 10.1145/3638530.3664164

The article "Genetic Programming for the Reconstruction of Delay Differential Equations in Economics" presents an innovative approach for the reconstruction of delay differential equations (DDEs). This approach consists of a modification of genetic programming algorithm, that encodes the structure of a DDE.

Link: <https://dl.acm.org/doi/10.1145/3638530.3664164>

LANGUAGE SKILLS

Mother tongue(s): Italian

Other language(s):

English

LISTENING B2 READING C1 WRITING C1

SPOKEN PRODUCTION B2 SPOKEN INTERACTION B2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

DIGITAL SKILLS

My Digital Skills

Python Programming Language (advanced) | Java language: intermediate knowledge | C++ Language: Basic | C language(Basic) | R: basic knowledge | Matlab - intermediate knowledge | Microsoft Office package: Microsoft Word, Excel, PowerPoint, Access

HOBBIES AND INTERESTS

Violin studies

I have studied violin since I was 6. During these years, I joined different master's schools, in particular with Prof. Franco Mezzena and with prof. Maia Cabeza. I also took exams in the conservatory of Trieste and played in different orchestras.