

Giulia Martini

DATA SCIENTIST · RESEARCHER · BASKETBALL COACH AND PLAYER

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Summary

I have a breadth of professional interests ranging from statistics to global development and from machine learning to sustainability. My interest is driven by societal impact; I strongly believe that the use of data and technology should be for the betterment of society and people well-being. This belief, besides intellectual curiosity, makes me eager to extend my knowledge and skills also outside my field of study. I strive to reach my goals while being a team player. My biggest passion? Basketball!

Work Experience

Data Engineer

Rome, Italy

OCHA - CENTRE FOR HUMANITARIAN DATA - DATA SCIENCE TEAM

Oct 2024 - Present

Technical lead of HDX Signals.

Main responsibilities:

- project management and planning;
- development of new features;
- tool daily maintenance;
- project dissemination.

Data Scientist

Rome, Italy

UNITED NATIONS WORLD FOOD PROGRAMME- SUPPLY CHAIN DIVISION, SUPPLY CHAIN PLANNING BRANCH

Jan 2024 - Sep 2024

Main activities:

- Demand planning forecast through statistical and ML methods;
- IT infrastructure design and development;
- reporting and visualization.

Data Scientist

Rome, Italy

UNITED NATIONS WORLD FOOD PROGRAMME- RESEARCH ASSESSMENT AND MONITORING DIVISION, HUNGER MONITORING

Oct 2020 - Jan 2024

UNIT

Main activities:

- research on the relationship between food security and its drivers;
- food security modeling using machine learning and standard statistical methods;
- food security household survey data analysis;
- database and information management.

Data Scientist and Engineer

Panama city, Panama

UNITED NATIONS WORLD FOOD PROGRAMME- REGIONAL BUREAU PANAMA - TDY

March 2023 - June 2023

Main activities:

- research on the causal relationship between economic, social and weather shocks on food crisis;
- information management and database design;
- food security data analysis.

Research Fellow

Florence, Italy

UNIVERSITY OF STUDIES OF FLORENCE

May 2020 - May 2021

Researcher of the SWALK (Safe crossWALKs in urban areas: assessment of countermeasures to improve pedestrian safety) project.

Main activities:

- data manipulation and analysis;
- machine learning application;
- reports and papers writing;
- web development.

Researcher

NETHERLANDS ORGANIZATION FOR APPLIED SCIENTIFIC RESEARCH (TNO)

Delft, The Netherlands

Nov. 2019 - Oct. 2020

Main activities:

- research activities related to the applicability of machine learning to civil engineering issues;
- data manipulation;
- probabilistic analysis;
- machine learning application;
- reports and papers writing;
- spatial data analysis.

Data Scientist

PNGK

The Hague, The Netherlands

December 2018 - November 2019

Main activities:

- quantitative and qualitative research and analysis of humanitarian data;
- info-graphics;
- proposals and reports writing.

Main activities:

Computer Skills

PYTHON

Experience: 5+ years

- Numerical optimization, linear algebra, statistics, machine learning, Bayesian computational methods, surrogate modeling, visualization, web development, automated code documentation.
- numpy, scipy, sklearn, pandas, pyspark, matplotlib, pyMC3, nestle, keras, pytorch, xgboost, catboost, sphinx, mkdocs, jinja2, etc.,
- functional and object oriented programming

R

Experience: 5+ years

- Linear algebra, nonlinear numerical methods, Bayesian analysis and computational methods, basic and advanced statistics, visualization, interactive web applications.
- dplyr, rstan, brms, evd, parallel, shiny, ggplot2, leafletR, etc., functional and reactive programming.
- Implementation of comprehensive programs, algorithms to solve complex, computationally demanding engineering and statistical problems.
- Developing interactive websites for educational purpose and for research dissemination.

SOFTWARE ENGINEERING

- git, GitLab, GitHub.
- Unit testing, integration testing, automated code documentation, semantic versioning.
- Continuous integration and development (CI/CD).
- Package development: pypi in Python.

OTHER

- Tableau, PowerBI
- Kobo ToolBox
- Microsoft Office Suite, Adobe Illustrator
- LaTeX
- Database: SQL, PostgreSQL
- Web technologies: css, html, jekyll
- GIS (QGIS)
- Docker

Education

TU Delft

Delft, The Netherlands

M.Sc. IN STRUCTURAL ENGINEERING

2017 - 2019

- Thesis: "Predictive Modelling of Asphalt Concrete Functional Properties Using Multiple Linear Regression and Gradient Boosting."
- Thesis grade: 8/10.

University of studies of Florence

Florence, Italy

B.Sc. IN CIVIL ENGINEERING

2013 - 2017

- Thesis: "The photo-voltaic road surfaces: an analytical study of different patented solutions"
- Grade 109/110.

Continuing Education

UNDSS

SSAFE COURSE FOR SURGE DEPLOYMENT

Turin, IT

Nov 2023

WeLearn WFP

EMERGENCY BASICS (EMBA)

Online

Feb 2023

eCornell

MACHINE LEARNING CERTIFICATE

Online

Jan 2022 - Dec 2022

HarvardX

HUMANITARIAN RESPONSE TO CONFLICT AND DISASTER

Online

June 2019 - July 2019

DataCamp

FUNDAMENTALS OF BAYESIAN DATA ANALYSIS IN R

Online

February 2019

DataCamp

MACHINE LEARNING WITH TREE-BASED MODELS IN PYTHON

Online

February 2019

HarvardX

DATA SCIENCE: LINEAR REGRESSION

Online

Jan 2019

HarvardX

DATA SCIENCE: PROBABILITY

Online

Jan 2019

Language skills

English Full professional proficiency

French Limited working proficiency

Spanish Limited working proficiency

Italian Native or bilingual proficiency

Publications

JOURNAL PAPERS

- Voukelaou, V., Tang, K., Lauzana, I., Jangid, M., **Martini, G.**, de Pee, S., ... Piovani, D. (2025). Bridging data gaps: Predicting inadequate micronutrient intake with machine learning. *bioRxiv*. doi:[10.1101/2025.04.08.647715](https://doi.org/10.1101/2025.04.08.647715). eprint: <https://www.biorxiv.org/content/early/2025/04/10/2025.04.08.647715.full.pdf>
- Fiandrino, S., Dowd, C., **Martini, G.**, Mejova, Y., Omodei, E., Paolotti, D., & Tizzani, M. (2023). Impact of food-related conflicts on self-reported food insecurity. *Frontiers in Sustainable Food Systems*, 7. doi:[10.3389/fsufs.2023.1239992](https://doi.org/10.3389/fsufs.2023.1239992)
- Foini, P., Tizzoni, M., **Martini, G.**, Paolotti, D., & Omodei, E. (2023). On the forecastability of food insecurity. *Scientific Reports*. doi:[10.1101/2021.07.09.21260276](https://doi.org/10.1101/2021.07.09.21260276). eprint: <https://www.nature.com/articles/s41598-023-29700-y>
- Herteux, J., Räth, C., Baha, A., **Martini, G.**, & Piovani, D. (2023). Forecasting trends in food security: A reservoir computing approach. *arXiv*: [2312.00626 \[cs.LG\]](https://arxiv.org/abs/2312.00626). Retrieved from <https://doi.org/10.48550/arXiv.2312.00626>
- Reichstein, M., Benson, V., & **Martini, G.** (2023). early warning of complex climate risk with integrated artificial intelligence. Submitted for publication to *Nature* December 2023.
- Martini, G.**, Bracci, A., Jaiswal, S., Corea, M., Riches, L., Rivers, J., & Omodei, E. (2022). Machine learning can guide food security efforts when primary data are not available. *medRxiv*. doi:[10.1038/s43016-022-00587-8](https://doi.org/10.1038/s43016-022-00587-8). eprint: <https://www.medrxiv.org/content/early/2021/07/02/2021.06.23.21259419.full.pdf>
- Rózsás, Á., Slobbe, A., Jansen, R., **Martini, G.**, & Allaix, D. L. (2022). Structural and load parameter estimation of a real-world reinforced concrete slab bridge using measurements and Bayesian statistics. *Structural Concrete*. doi:[http://doi.org/10.1002/suco.202100913](https://doi.org/10.1002/suco.202100913)
- Meocci, M., Branzi, V., **Martini, G.**, Arrighi, R., & Petrizzo, I. (2021). A predictive pedestrian crash model based on artificial intelligence techniques. *Applied Sciences*, 11(23). doi:[10.3390/app112311364](https://doi.org/10.3390/app112311364)