

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

Delft, The Netherlands

NETHERLANDS ORGANIZATION FOR APPLIED SCIENTIFIC RESEARCH (TNO)

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

The Hague, The Netherlands

PNGK

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, bmlr, 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

Voukelatou, 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. 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

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. eprint: <https://www.nature.com/articles/s41598-023-29700-y>

Herteux, J., R  th, C., Baha, A., **Martini, G.**, & Piovani, D. (2023). Forecasting trends in food security: A reservoir computing approach. arXiv: 2312.00626 [cs.LG]. 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. eprint: <https://www.medrxiv.org/content/early/2021/07/02/2021.06.23.21259419.full.pdf>

R  zs  s,   ., 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>

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