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 UNIT
Oct 2020 - Jan 2024

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, bmle, 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 *Turin, IT*
SSAFE course for Surge Deployment *Nov 2023*

WeLearn WFP *Online*
Emergency Basics (EmBa) *Feb 2023*

eCornell *Online*
Machine Learning Certificate *Jan 2022 - Dec 2022*

HarvardX *Online*
Humanitarian Response to Conflict and Disaster *June 2019 - July 2019*

DataCamp *Online*
Fundamentals of Bayesian Data Analysis in R *February 2019*

DataCamp *Online*
Machine Learning with Tree-Based models in Python *February 2019*

HarvardX *Online*
Data Science: Linear Regression *Jan 2019*

HarvardX *Online*
Data Science: Probability *Jan 2019*

Language skills

English   Full professional proficiency

French   Limited working proficiency

Spanish   Limited working proficiency

Italian   Native or bilingual proficiency

Publications

Journal papers

Reichstein, M., Benson, V., Blunk, J., Camps-Valls, G., Creutzig, F., Fearnley, C. J., … Weldemariam, K. (2025). Early warning of complex climate risk with integrated artificial intelligence. *Nature Communications*, *16*(1), 2564. doi:10.1038/s41467-025-57640-w

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

Herteux, J., Raeth, C., **Martini**, **G.**, Baha, A., Koupparis, K., Lauzana, I., & Piovani, D. (2024). Forecasting trends in food security with real time data. *Communications Earth & Environment*, *5*(1), 611. doi:10.1038/s43247-024-01698-9

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

Martini, **G.**, Bracci, A., Riches, L., Jaiswal, S., Corea, M., Rivers, J., … Omodei, E. (2022). Machine learning can guide food security efforts when primary data are not available. *Nature Food*, *3*(9), 716–728. doi:10.1038/s43016-022-00587-8

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

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