# Simone **Massaro**

Data Scientist · Forest Researcher · Software Engineer

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## Experience

**Interim Chief Technology Officer**                                    44moles GmbH, Göttingen, Germany
**Head of Data Science**                                                               Oct 2023 - Present
**Data Scientist**

Forest measurements using Terrestrial Laser Scanning

- Design and implement deep learning models for point cloud processing to perform semantic segmentation, instance segmentation, and species classification.
- Created algorithmic models to identify trees in terrestrial point clouds using a custom C++ library.
- Developed a pipeline for automated parallel processing of point clouds using a custom Python implementation on a Ray backend and PostgreSQL database, integrated with an internal dashboard.
- Developed machine learning models for quality control of pipeline outputs.
- Manage a data science team of five, including recruiting and onboarding new employees.
- Develop the company's technology strategy and oversee the web development team.

**Research Assistant**                               Università degli Studi della Tuscia, Viterbo, Italy
                                                                                              Jan 2025 - Present

- Integrate conversational AI and large language models for smart food processing. Development of AI Agent using the cheshire-cat-ai platform to control drying processes.

**Data Analyst Intern**                                                         Arbonaut Oy, Joensuu, Finland
Forest measurements using Aerial Laser Scanning                                    Apr 2023 - Sept 2023

- Developed Deep Learning model for single tree species classification using orthophotos and LiDAR.
- Estimated thinning volume using remote sensing for the entire country of Finland.
- Conducted spatial analysis of large-scale remote sensing data and field measurements.

**Research and Teaching Assistant**                            Georg-August-Universität Göttingen, Germany
                                                                                            Oct 2021 - Mar 2023

- Teaching assistant for the courses: Advanced R, Ecosystem and Analysis Processing, Introduction to R.
- Conducted a literature review of AI research papers for an ecosystem resilience project.

**Research Assistant**                               Università degli Studi della Tuscia, Viterbo, Italy
                                                                                            Jan 2019 - Oct 2020

- Developed Convolutional Neural Networks (CNN) for classification and segmentation of fruit samples in smart air drying processes.
- Published: Moscetti, R., Massaro, S., Chillemi, G., Sanna, N., Sturm, B., Chakravatula, S. S. N., & Massantini, R. (2019). Recognition of inlet wet food into the drying process through a deep learning approach. EuroDrying 2019 Torino.

**Executive Secretary**
**Vice President**
**Head of Web**

International Forestry Students' Association

Aug 2018 - Aug 2022

INTERNATIONL ASSOCIATION WITH OVER 10000 MEMBERS

- General coordination and supervise governance, finance and administration of the organization, involving over 50 volunteers.
- Fundraising and ERASMUS+ grant application.
- Coordinated internal and membership department.
- Supported engement with high-level external partners.
- Developmed and mantained of association website.

## Education

**MSc Forest and Ecosystem Sciences**

Georg-August-Universität Göttingen, Germany

ECOSYSTEM ANALYSIS AND MODELLING

Nov 2020 - Mar 2023

- Main subjects: Statistics and Data Analysis, Remote Sensing, Ecosystem Modelling, Bioclimatology.
- Master Thesis: "Evaluation of Kalman Filter for meteorological time series imputation for Eddy Covariance applications".
- Final grade: 1.1/1.0 with distinction.

**BSc Forest and Nature Sciences**

Università degli Studi della Tuscia, Viterbo, Italy

Oct 2017 - Sept 2020

- Main subjects: Forest Ecology, Forest Management, Nature Conservation.
- Bachelor thesis: "Evaluation of low-cost anemometers for micrometeorological applications".
- Final grade 110/110 cum laude.

## Skills

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| **Programming Languages** | Python (advanced), R (advanced), C++ (intermediate), SQL (intermediate), PHP (intermediate), JavaScript (intermediate), Rust (intermediate), Julia (beginner) |
| **Libraries** | Pandas, Numpy, Polars, Tidyverse, Geopandas, Scikit-learn, PyTorch, Fastai, Fastcore, Ray, Matplotlib, Seaborn, Plotnine |
| **Technical skills** | Linux sysadmin, QGIS, PostgreSQL, Docker, Docker Compose, Cloud infrastructure, DevOps |
| **Leadership** | Team Management, Project Management |
| **Languages** | Italian (native), English (C2), German (A2), Spanish (A2) |