



# Filippo Bocchino

Nationality: Italian Place of birth: Italy Gender: Male  Email address: [filippobocchino9@gmail.com](mailto:filippobocchino9@gmail.com)

## PROFESSIONAL SUMMARY

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### Earth Observation Engineer

Earth Observation engineer with proven experience in the development of EO-based applications and pre-operational services for flood and drought monitoring and for assessing impacts on the agricultural sector. Skilled in supporting evidence-based tools for post-event assessment and compensation schemes adopted by public authorities. Extensive experience with Copernicus data, geospatial analysis and scalable EO processing workflows using Google Earth Engine, Python, QGIS and machine learning techniques for the integration of satellite and in-situ data. Proven ability to collaborate with institutional stakeholders, including the Institute of Service for the Agricultural and Food Market, the Central Apennines River Basin Authority, the Italian Space Agency, and the Ministry of the Environment and Energy Security, contributing to the definition of user requirements and development of EO products for operational deployment. Strongly motivated to work between research and institutional initiatives, with the aim of advancing EO capabilities from pilot and demonstration activities towards operational services.

## WORK EXPERIENCE

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### Kuaternion srl

#### Geomatic Professional Collaboration

[ 2025 ]

- Supervision and validation of geomatics-related surveys and subsequent data processing, in relation to the subcontracting agreement dated 10/05/2025, within the framework agreement for the provision of specialized support services for the Digital Transformation of the Public Administration (Ed. 2) – ID 2536 (Lot 7) – Executive Contract CIG B3411AD0BD;
- Preparation of technical and scientific reports related to the aforementioned supervision and validation activities.

## EDUCATION AND TRAINING

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### National PhD in Earth Observation

*Sapienza University of Rome and Istituto di Servizi per il Mercato Agricolo Alimentare, Italy* [ 01/11/2022 – 30/01/2026 ]

Thesis: Earth Observation for Agricultural Extreme Events: Drought Monitoring and Flood Damage Assessment

#### PhD research period abroad:

04/2025 – 07/2025. Leibniz Centre for Agricultural Landscape Research (ZALF), Müncheberg, Germany

04/2024 – 07/2024. TU Delft. Netherlands

### Master's degree in Environmental Engineering

*Sapienza University of Rome, Italy* [ 30/09/2020 – 21/10/2022 ]

Final grade: 110/110 Cum laude | Thesis: Monitoring of water reservoir through Google Earth Engine: application to Sentinel and Landsat imagery

### Bachelor's degree in Environmental Engineering

*Sapienza University of Rome, Italy* [ 09/10/2017 – 02/11/2020 ]

Final grade: 101/110 | Thesis: 3D modeling of a bridge using photogrammetric techniques to support infrastructure monitoring

## PUBLICATIONS

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### Crop Flood Damage Assessment Integrating Sentinel-2 Imagery and In Situ Data: The 2023 Emilia-Romagna Case

Bocchino, F., Belloni, V., Ravanelli R., Zaccarini C., Crespi, M., Lindenbergh R. Remote Sensing Applications: Society and Environment

**A Hierarchical Robust Combined Index for Agricultural Drought Detection and Monitoring Using Earth Observation Big Data and Google Earth Engine: Application to a Case Study in Southern Italy**

Bocchino, F., Graldi, G., Zaccarini, C., Tapete, D., Ursi, A., Virelli, M., Sacco, P., Belloni, V., Ravanelli, R., Crespi M. IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing

### **Monitoring water reservoirs extent with Segment Anything Model applied to Sentinel imagery**

Sergi, G., Bocchino, F., Ravanelli, R., & Crespi, M. (2025). European Journal of Remote Sensing, 58(1), 2527248.

### **Integration of Remote Sensing, Ground Data and Meteo-Climatic Variables for Agricultural Drought Monitoring: First Results of a Data-Driven Approach**

Bocchino, F., Contu, R., Ranaldi, L., Denaro, A., Rosatelli, L., Zaccarini, C., ... & Crespi, M. (2024). IGARSS 2024-2024 IEEE International Geoscience and Remote Sensing Symposium (pp. 1890-4894). IEEE.

### **Water reservoirs monitoring through Google Earth Engine: application to Sentinel and Landsat imagery**

Bocchino, F., Ravanelli, R., Belloni, V., Mazzucchelli, P., & Crespi, M. (2023). International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, 48(M-1-2023), 41-47.

## **PROJECTS**

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[ 30/07/2025 – Current ]

**Creation of the Italian Digital Terrain Model from airborne LiDAR surveys and of the Italian gravimetric database and gravity field model.** Worked on the national project for the creation of Italy's Digital Terrain Model using airborne LiDAR data and for the development of the national gravimetric database and gravity field model. Activities support the generation of high-resolution LiDAR-based DTM/DSM products and the acquisition of a new homogeneous aerogravimetric dataset for geoid modeling, hydro-geological risk assessment, hydraulic simulations, and national territorial planning. Personal activities included verifying the completeness of delivered datasets, performing quality and consistency checks on LiDAR and aerogravimetric data, and reviewing technical documentation.

[ 14/04/2025 – 13/07/2025 ]

**Collaboration in the EOAgriTwin project: Earth Observation based Digital Twin for Resilient Agriculture under Multiple Stressors.** The EOAgriTwin project is an ESA Digital Twin Earth initiative carried out in collaboration with the ZALF Institute. The project seeks to improve the understanding of cropping system responses to biotic and abiotic stresses and to deliver actionable insights supporting sustainable food production and global food security. My contribution, conducted during my research period abroad, focused on the development of a Random Forest-based classification model to assess drought impacts on wheat in the Province of Foggia, integrating Sentinel-2 spectral indices, Landsat land surface temperature data, and wheat masks derived from EUCROPMAP.

[ 27/11/2023 – 27/05/2025 ]

**Geomatics for Resilience Against Water scarcity (GRAW)** Conducted research within the GRAW project, funded by ASI. The project aims to develop EO-based tools for monitoring hydrological and agricultural droughts. Collaborated with institutional stakeholders to integrate in situ data and co-design operational products supporting national drought management. Personal activities focused on agricultural drought analysis, using PRISMA hyperspectral data to detect differences in spectral signatures between drought-affected and non-affected fields, Sentinel-2 to monitor crop vigor, and MODIS products, combined with SPEI and ERA5 soil moisture, to derive a Hierarchical Robust Combined Drought Index.

## **CONFERENCES AND SEMINARS**

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[ 24/11/2025 – 25/11/2025 ] Cascina, Pisa

**Quantum gravimeter installation at the European Gravitational Observatory: Hands-on User Training e Data Analysis**

[ 29/09/2025 – 03/10/2025 ] Thessaloniki, Greece

**14th Advanced ESA Training Course on Land Remote Sensing - Agriculture**

[ 08/05/2024 – 14/05/2024 ] R&D Institute of Transilvania University of Brasov

**AI4AGRI Spring School 2024**

[ 23/09/2024 – 26/09/2024 ] Google Dublin

**Geo For Good Mini Summit**

[ 14/12/2023 – 15/12/2023 ] Polytechnic University of Turin

**GeoAI 2023: Artificial Intelligence for Geospatial data**

## CERTIFICATIONS

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**Authorization to practice as Civil and Environmental Engineer (Italy, Section A).**

## SKILLS

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Google ( Google Meet, Google Docs, Google Classroom, Google Forms, etc.) / Office package: Word, Excel, PowerPoint / Basic MatLab / Python / Photogrammetry software (Pix4D, Agisoft) / QGIS / Google Earth Engine

## LANGUAGE SKILLS

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**Other language(s):**

**English**

**LISTENING C1 READING C1 WRITING C1**

**SPOKEN PRODUCTION C1 SPOKEN INTERACTION C1**

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

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*Autorizzo il trattamento dei miei dati personali presenti nel CV ai sensi dell'art. 13 d. lgs. 30 giugno 2003 n. 196 - "Codice in materia di protezione dei dati personali" e dell'art. 13 GDPR 679/16 - "Regolamento europeo sulla protezione dei dati personali".*