



# FEDERICA GASPARI

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PhD in Geomatics at Politecnico di Milano (Italy), passionate about **Geographic Information Systems, Remote Sensing and Photogrammetric** innovative applications.

## EXPERIENCE

### MAY 2026 – NOW

#### POSTDOCTORAL RESEARCH FELLOW, POLITECNICO DI MILANO - [LABMGF](#)

Contribution to the TWINFALL project funded by Fondazione Cariplo with research activities on the analysis of the state of the art of landslide digital twin production and processing of preliminary or already available data and execution of field surveys. Contribution to the AHEAD European project for the design of the database model of a WebGIS dedicated to the mapping of damages and risk associated to cultural heritage.

### NOV 2022 – MAY 2026

#### PHD CANDIDATE, POLITECNICO DI MILANO - [LABMGF](#)

Research project: An open-source approach for geo data management in built and natural environments. Supervisor: Prof. Livio Pinto, Co-supervisor: Prof. Daniela Carrion. Graduated cum laude.

- Development of procedures and an integrated platform for monitoring and rapid mapping of the condition of civil infrastructures and the environment using approaches combining Geographical Information Systems (GIS), remote sensing, photogrammetry, and deep learning technologies.
- Contribution to the [EUthmappers](#) handbook preparation (lesson and exercise sessions) on collaborative web mapping topics, co-founded by the Erasmus+ Programme of the European Union.
- Collaboration with the Provinces of Piacenza and Brescia for developing effective web-based 3D geodata management systems of historical bridge data information.
- Digital documentation of urban cultural heritage of Piacenza city with innovative, open-source and crowdsourced technologies, with special focus on the cases of Farnese Castle, Ricci Oddi Museum and Benedictines Church.
- Teaching tutor for the surveying 2024 Summer School at Belvedere Glacier in Macugnaga (VB).
- Visiting PhD Candidate at SUPSI (CH) from March to September 2024.

### FEB – JUL 2025

#### VISITNG RESEARCHER, [TECNE – AUTOSTRADE PER L'ITALIA](#)

Analysis of database and software infrastructure requirements for a national scale assets management. Testing and scaling of 2D and 3D management open-source framework previously developed for provincial level assets management.

### NOV 2016 – NOW

#### FACULTY ADVISOR AND OFFICER, [POLIMAPPERS](#) - POLITECNICO DI MILANO

Active organising member of the volunteer mappers group based at PoliMi since 2016, currently with coordination duties. More detailed on the activities conducted, including training on OpenStreetMap, QGIS and other open-source tools can be found on the [WikiOSM page](#).

Some urban environment-related projects:

- Support to the organisation of the Politecnico di Milano Passion in Action course “[Collaborative and Humanitarian Mapping Course 2021](#)” dedicated to the promotion of FOSS4G (QGIS) and open-culture through laboratory and exercise sessions.
- Co-design and implementation of the research project on [urban informal slums upgrading in Bogota](#) as part of a joint collaboration with IMMDesignLab, YouthMappers and TECHO Colombia in the framework of a master thesis work.
- Design of a hybrid methodology for in-situ mapping and remote validation of urban Point of Interests in the city of Piacenza as part of the [Architecture for Smart City Course](#) during COVID-19 times in 2020.

## DEC 2020 – OCT 2022

### GRADUATE RESEARCH FELLOW, POLITECNICO DI MILANO - [LABMGE](#)

- Development and implementation of procedures in GIS environment for the management of geo-referenced information flows. SW used: QGIS, Agisoft Metashape, CloudCompare, Qfield, Potree, PostgreSQL. Support to the monitoring activities of bridges and webGIS Road Cadastre of Piacenza Province and dams' inspections in Calabria with topographic, laser scanning and drone surveys.
- Digitisation of urban planning GIS procedures in open-source environment for the Technical Office of Bobbio (PC) municipality, being responsible for the management and georeferencing of cadastral data and the implementation of a Python-based SW for automatic execution of "Zoning Verification Letter" (CDU).
- Teaching tutor for the surveying 2021 Summer School at Belvedere Glacier in Macugnaga (VB). Contribution to the [CIDMA](#) (Climate Change Induced Disaster Management in Africa) MOOC preparation (video-recordings of lesson and exercise sessions) on collaborative web mapping topics (OpenStreetMap and QGIS), co-founded by the Erasmus+ Programme of the European Union.

## MAR 2021 – NOW

### TEACHING SUPPORT, POLITECNICO DI MILANO

Teaching assistant for:

- "[Survey and 3D modelling for architecture](#)" with special focus on the use of Agisoft Metashape, CloudCompare, ReCap and AutoCAD for photogrammetric applications and 3D modelling. Preparation of training material. [a.y. 20/21, 21/22]
- "[GIS Applications](#)" dedicated to the basics of QGIS tools linked to vector and raster analysis for architectural landscape and urban planning application with an introduction to satellite imagery processing. [a.y. 21/22-24/25]
- "[Fundamental of GIS development](#)" focused on the use of QGIS and ArcGIS Pro for basic queries and elaborations with vector and raster data in the context of urban planning. Introduction to MySQL. [a.y. 22/23-23/24-24/25-25/26]
- "[Introduction to GIS](#)", basics of GIS software for environmental and land planning engineering with QGIS and ArcGIS Pro [a.y. 22/23-23/24-24/25-25/26]
- "[Digi-skills for urban representation in virtual environment](#)", introduction to GIS, CAD, Illustrator and InDesign for digital cartography with open geodata, contributing to the open mapping initiative of Chinese heritage in the province of Xian [a.y. 24/25]

## OCT 2020 – NOW

### OPENSTREETMAP EXPERT, [WIKIMEDIA ITALIA](#)

- Teacher and tutor for "OpenStreetMap: il database geografico collaborativo per la conoscenza del territorio" course focused on the training of secondary school teachers for teaching through webinars and workshops the use of the most common OSM and GIS tools (2020-2022)
- Tutor for middle high school in the framework of project founded by [WikiImparare](#) 2022 and 2024 funds by Wikimedia Italia, introducing students and guiding teachers to the ecosystem of Wikimedia and OpenStreetMap for mapping local urban heritage.
- Teacher for [DIGITARCH 2023](#) summer school organised by Alma Mater Studiorum dedicated to innovative strategies for cultural heritage mapping.

## AUG 2020 – OCT 2020

### GEOSPATIAL DATA QUALITY INTERN, [HUMANITARIAN OPENSTREETMAP TEAM](#)

Online internship program focused on the use and application of methodologies and instruments to ensure geospatial feature quality on QGIS and OpenStreetMap environment. Support to the COVID response and disaster preparedness activities in Africa and in the Caribbean area.

## EDUCATION

### SEP 2017 – OCT 2020

#### MASTER OF SCIENCE ENVIRONMENTAL AND LAND PLANNING ENGINEERING, POLITECNICO DI MILANO

From October 2019 to September 2020 – Thesis work: “Geolocated Twitter data as a proxy for the analysis of natural disasters: the Hurricane Florence case study”, social big data analyses in GIS environment (ArcGIS, QGIS, MATLAB, Python). Graduation Mark: 106/110 – [Full text](#)

**JAN 2019 – JUN 2019**

**ERASMUS EXCHANGE PROGRAMME, UNIVERSITE GRENOBLE ALPES**  
Genie Civil - Sciences de la terre et des planètes, environnement

**SEP 2014 – SEP 2017**

**BACHELOR OF SCIENCE ENVIRONMENTAL AND LAND PLANNING ENGINEERING,**  
POLITECNICO DI MILANO

Thesis work: "Social Media Geographic Information: Analisi geostatistiche sui dati di Instagram - Il caso di studio di EXPO Milano 2015" Social big data analyses in GIS environment (ArcGIS, QGIS).  
Graduation Mark: 93/110

## SKILLS

### LANGUAGES

**ITALIAN** Native language

#### ENGLISH

Listening, Reading, Speaking, Writing: Level C1  
*Certificate:* [First Certificate in English](#) (2014)

#### FRENCH

Listening, Reading, Speaking, Writing: Level B2  
*Certificate:* [Français Langue étrangère](#) (2019) – [OLS Assessment](#) (2019)

### COMMUNICATION & ORGANIZATION

Team-work and problem solving attitude; good writing abilities; active listener and confident speaker; learning attitude for new and challenging activities

### DIGITAL

#### GIS&CAD ENVIRONMENT

ArcGIS – QGIS: Proficient User  
SAGA-GIS - AutoCAD – ReCap : Intermediate User

#### PHOTOGRAMMETRY & REMOTE SENSING

ENVI – Agisoft Metashape – CloudCompare:  
Experienced User

#### PROGRAMMING AND DATA ANALYSIS

MATLAB – Python (Numpy, GeoPandas, PyQGIS) – PostGIS – HTML – CSS -  
JavaScript: Intermediate User  
R - PHP: Basic understanding

#### OSM EDITOR & TOOLS

iD – JOSM – Go Map ! – Mapillary –  
MapRoulette – OSMCha – OverpassTurbo –  
Field Papers - [WikiOSM](#): Proficient User

#### EDITING, PRESENTATION AND GRAPHICS

Microsoft Office Suite: Proficient User  
*Certificate:* [ECDL](#) (2012)  
Blender – Inkscape: Basic understanding

## ACTIVITIES

### PUBLICATIONS

- **Gaspari, F.**, Fascia, R., Barbieri, F., Roman, O., Carrion, D., & Pinto, L. (2025). A 3D WebGIS Open-Source Prototype for Bridge Inspection Data Management. *Geomatics*, 5(4), 68, <https://doi.org/10.3390/geomatics5040068>
- **Gaspari, F.**, Barbieri, F., Fascia, R., & Pinto, L. (2025) Opportunities and challenges of Crowdsourced Indoor Geographic and Semantic Data for Built Heritage, *Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, XLVIII-M-9-2025, 525–531, <https://doi.org/10.5194/isprs-archives-XLVIII-M-9-2025-525-2025>
- **Gaspari, F.**, Barbieri, F., Fascia, R., & Pinto, L. (2025). Collaborative defect annotation on 3D seamless open-source framework, *Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, XLVIII-G-2025, 505–511, <https://doi.org/10.5194/isprs-archives-XLVIII-G-2025-505-2025>
- Fajardo Turner, S., **Gaspari, F.**, & Migliaccio, F. (2025). GlacioTools: Streamlining Glacier Feature Monitoring and Reporting in QGIS, *Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, XLVIII-G-2025, 439–444, <https://doi.org/10.5194/isprs-archives-XLVIII-G-2025-439-2025>
- Bianchi, E., **Gaspari, F.**, & Migliaccio, F. (2025). An open source WebGIS approach to empower glacier research with scalability and reproducibility, *Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, XLVIII-4/W13-2025, 73–78, <https://doi.org/10.5194/isprs-archives-XLVIII-4-W13-2025-73-2025>
- **Gaspari, F.**, Barbieri, F., Fascia, R., Ioli, F., Pinto, L., & Migliaccio, F. (2025). Strategies for Glacier Retreat Communication with 3D Geovisualization and Open Data Sharing. *ISPRS International Journal of Geo-Information*, 14(2), 75, <https://doi.org/10.3390/ijgi14020075>

- **Gaspari, F.**, Ioli, F., Barbieri, F., Bonora, S., Fascia, R., Pinto, L., and Migliaccio, F. (2024) Bridging geomatics theory to real-world applications in alpine surveys through an innovative summer school teaching program, *Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, XLVIII-4/W12-2024, 59–66, <https://doi.org/10.5194/isprs-archives-XLVIII-4-W12-2024-59-2024>
- Fascia, R., Barbieri, F., **Gaspari, F.**, Ioli, F., Pinto, L. (2024) PONTI: An open WebGL-based tool in support to defect analysis and 3D visualisation of bridges, *Bridge Maintenance, Safety, Management, Digitalization and Sustainability*, 2353-2361, <http://dx.doi.org/10.1201/9781003483755>
- Fascia, R., Barbieri, F., **Gaspari, F.**, Ioli, F., and Pinto, L. (2024), From 3D survey to digital reality of a complex architecture: a digital workflow for cultural heritage promotion, *Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, XLVIII-2/W4-2024, 205–212, <https://doi.org/10.5194/isprs-archives-XLVIII-2-W4-2024-205-2024>
- Morelli, L., Mazzacca, G., Trybala, P., **Gaspari, F.**, Ioli, F., Ma, Z., Remondino, F., Challis, K., Poad, A., Turner, A., and Mills, J. P. (2024) The Legacy of Sycamore Gap: The Potential of Photogrammetric AI for Reverse Engineering Lost Heritage with Crowdsourced Data, *Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, XLVIII-2-2024, 281–288, <https://doi.org/10.5194/isprs-archives-XLVIII-2-2024-281-2024>
- **Gaspari, F.**, Barbieri, F., Fascia, R., Ioli, F., Pinto, L. (2024), An Open-Source Web Platform for 3D Documentation and Storytelling of Hidden Cultural Heritage, *Heritage*, 7, 517-536. <https://doi.org/10.3390/heritage7020025>
- Ioli, F., Barbieri, F., **Gaspari, F.**, Nex, F., Pinto, L. (2023). ICEpy4D: a Python Toolkit for Advanced Multi-Epoch Glacier Monitoring with Deep-Learning Photogrammetry. *Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, 48, 1037-1044, <https://doi.org/10.5194/isprs-archives-XLVIII-1-W2-2023-1037-2023>
- **Gaspari, F.**, Ioli, F., Barbieri, F., Rivieri, C., Dondi, M., Pinto, L. (2023). Rediscovering cultural heritage sites by interactive 3D exploration: A practical review of open-source WebGL tools. *Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, 48, 661-668, <https://doi.org/10.5194/isprs-archives-XLVIII-M-2-2023-661-2023>
- Gentile, M., **Gaspari, F.**, Tornatore, V., Migliaccio, F. (2023). A Free and Open-access GIS for the documentation and monitoring of urban transformations in the area of the EXPO 2015 exhibition in Milan, *Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, XLVIII-4/W7-2023, 67–74, <https://doi.org/10.5194/isprs-archives-XLVIII-4-W7-2023-67-2023>
- **Gaspari, F.**, Barbieri, F., Demnati, I., Ioli, F., Pinto, L., Toscani, V. (2023). Mobile mapping solutions for the update and management of traffic signs in a road cadastre Free Open-Source GIS architecture. *Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, 48, 61-66, <https://doi.org/10.5194/isprs-archives-XLVIII-4-W7-2023-61-2023>
- **Gaspari, F.**, Barbieri, F., Duque, J. P., Fascia, R., Ioli, F., Zani, G., Carrion, D., Pinto, L. (2023). A geo-database for 3D-aided multi-epoch documentation of bridge inspections. *Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, 48, 299-306, <https://doi.org/10.5194/isprs-archives-XLVIII-1-W2-2023-299-2023>
- Ruzindana, E., **Gaspari, F.**, Ntakobangize, E., Ponti, C., Biraghi, C. A., Kilsedar, C. E., Tadi, M., Muindi, Z., Agenga, P., Mugeha, L. (2022). Open Data Addressing Challenges Associated with Informal Settlements in the Global South. In: Solís, P., Zeballos, M. (eds) *Open Mapping towards Sustainable Development Goals. Sustainable Development Goals Series*. Springer, Cham. [https://doi.org/10.1007/978-3-031-05182-1\\_2](https://doi.org/10.1007/978-3-031-05182-1_2)
- Raviscioni, S., Bolanos, R., **Gaspari, F.**, Ponti, C., Biraghi, C. A., Tadi, M. (2022). Collaborative mapping strategy in support of slum upgrading: the case of Bogota. *Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, 43, 273-280, <https://doi.org/10.5194/isprs-archives-XLIII-B4-2022-273-2022>
- **Gaspari, F.**, Ioli, F., Barbieri, F., Belcore, E., Pinto, L. (2022). Integration of UAV-LIDAR and UAV-photogrammetry for infrastructure monitoring and bridge assessment. *Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, 43, 995-1002, <https://doi.org/10.5194/isprs-archives-XLIII-B2-2022-995-2022>
- **Gaspari, F.**, Stucchi, L., Bratic, G., Jovanovic, D., Ponti, C., Biagi, L. G. A., Brovelli, M. A. (2021). Innovation in teaching: the PoliMappers collaborative and humanitarian mapping course at Politecnico di Milano. *Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, 46, 63-69, <https://doi.org/10.5194/isprs-archives-XLVI-4-W2-2021-63-2021>
- Migliaccio, F., Pagliari, D., Carrion, D., **Gaspari, F.** (2018). Geostatistical and temporal analysis of Instagram data. In *The 7th International Virtual Conference on Informatics and Management Sciences* (pp. 101-105).

## GRANTS AND AWARDS

- **FOSS4G EU 2024 Tartu** and **2025 Mostar** travel grants by OSGeo
- **ISPRS GeoSpatial Week 2023 Cairo** and **2025 Dubai** travel grants by ISPRS Foundation.
- **EGU 2023 Higher Education teaching grant** as part of the laboratory team that was awarded with the grant for the preparation of learning resources for the "Design and implementation of topographic surveys for territorial monitoring in mountain environments" in the context of the 2023 Summer School for Environmental and Civil Engineering students at Politecnico di Milano.
- **Open Data Day 2024** mini-grant by Open Knowledge Foundation for the organization of a webinar for open geodata release and dissemination of glacier monitoring research.
- **Open Data Day 2021** mini-grant by Open Knowledge Foundation for PoliMappers webinar dedicated to open and collaborative mapping for humanitarian purposes

## NETWORKS AND MEMBERSHIPS

- *Charter Member* of the [Open Source Geospatial Foundation](#) (OSGeo) since 2022 thanks to documented involvement in community engagement through QGIS and OSM trainings and event organization.
- *Faculty Advisor* and *co-founder* of [PoliMappers](#), volunteer students' association based at Politecnico di Milano.
- *Ordinary Member* of [ISPRS Students Consortium](#).
- *Member* of AVIS, Association of volunteered Italian blood donors, since 2013.
- *Active mapper member* of [OpenStreetMap](#) Foundation, *Member of the Comms groups* of [State of the Map](#) and [HOT Summit](#) working groups. *Co-founder* of the diversity&inclusion group [cOSMopolIT](#) from the OSM Italian local chapter. Social media committee co-chair for [FOSS4G 2022](#), member of the organiser team for FOSS4G EU 2024 Tartu and 2025 Mostar. Member of the local team of [State of the Map 2022 Firenze](#). Organiser of OSMit (Italian OSM conference) since 2023 in Bari and Padova.

## LICENCES

Italian driving licences AM, A1, B, [Prova di completamento della Formazione online UAS Open A1-A3](#) (July 2021) - ENAC

## HOBBIES

Cinema and tv series enthusiast. Piano player. Curious about new and innovative technologies for modern challenges. Swimmer and tennis & padel player.

*In compliance with the GDPR and the Italian Legislative Decree no. 196 dated 30/06/2003, I hereby authorize you to use and process my personal details contained in this document.*