

Gorica Bratic

✉ gorica.bratic@polimi.it 🌐 Gorica Bratić

📍 Piazza Leondardo da Vinci 32 / Milan / Italy / 20141



PERSONAL SUMMARY

I am pursuing a Ph.D. degree in Environmental and Infrastructure Engineering (research line: Geomatics) at Politecnico di Milano. During my research fellowship at Politecnico di Milano in the past 4+ years, I had the pleasure to work on different projects such as ESA CCI HRLC and giCASES international projects, SIMILE Interreg project between Switzerland and Italy, and project of national interest for Italy - Urban Geo Big Data. My activities included various aspects of geospatial data management, from data collection and preparation for web visualization to statistical analyses and processing of big data. I consider myself lucky to also have opportunities to be a teaching assistant, and seminar and webinar lecturer because I care about knowledge sharing.

CAREER HISTORY

Employed

Research fellow @ Politecnico di Milano

Jul 1 2019 - Dec 15 2022

Research title - **Cooperation Programme Interreg between Italy and Switzerland: SIMILE - New Monitoring Tools and Methods: Citizen Science**

The scope of the SIMILE project is to improve the analysis of lake water quality, integrating data from sensors, satellite images, and information provided by the public.

Activities:

→ Statistical analyses of the lake water quality parameters (chlorophyll, surface temperature, and total suspended solids) derived from satellite imagery

→ Revision of currently available apps for citizen participation (citizen science) in lake water quality monitoring and identification of functionalities for SIMILE app

→ Testing and validation of the apps developed for citizen science.

→ Preparation of dissemination/communication materials

→ Reporting

Employed

YouthMappers Research Fellowship @ YouthMappers

Apr 1 2021 - Oct 31 2021

Research title - **Cross-continental YouthMapping for deforestation in the Amazon region**

The scope of the research was to develop a methodology for detecting areas subject to deforestation in the Amazon rainforest that is in proximity to indigenous land and threaten to endanger indigenous communities.

Activities:

→ Organization of crowdsourcing event for collection of training data for land cover classification on OSM with JOSM software

→ Training data refinement

→ Classification of Sentinel-2 imagery using GoogleEarthEngine

→ Reporting

SKILLS

→ Python (intermediate level)

→ Windows

→ Linux

→ QGIS software (expert)

→ ArcGIS PRO software (expert)

→ ArcMap software (expert)

→ PostgreSQL (intermediate)

→ PostGIS (intermediate level)

→ JOSM (expert)

→ Google Earth Engine (beginner)

→ Microsoft 365 (Excel, Word, PowerPoint)

→ Knowledge-sharing

→ Technical reporting

LANGUAGES

→ Serbian (native)

→ English (advanced)

→ Italian (intermediate)

Employed

Research fellow @ Politecnico di Milano

Jun 15 2018 - Jun 15 2019

The research was done in the context of national and international projects: giCASES and PRIN - Urban Geo-Big Data, dedicated to teaching and co-creation of knowledge.

Activities:

→ Investigation of relevant cases of innovative geomatics solutions for the management of open urban geo big data. The focus was on solutions that can be implemented through the use of desktop and web open-source GIS software and Python programming language.

Employed

Teaching activities @ Politecnico di Milano

[Sep 2020 - Feb 2022] Teaching assistant of practical lessons of ArcGIS and QGIS in M.Sc course of Geographic Information Systems

[Sep 2021 - Feb 2022] Tutor of practical lessons of Postgres and PostGIS, GeoServer, and OpenLayers in M.Sc course of Geographic Information Systems

[27. April; 11. May 2021] Workshop instructor -Satellite data analysis and machine learning classification with QGIS, AI for Good webinars.

[15. May 2019] Workshop instructor - Climate Mapathon @LPS - Deforestation, Living Planet Symposium, Milan, Italy

[1. October 2018] Workshop instructor - Capacity Building for High Resolution Land Cover Inter-comparison and Validation, Geo Delft Conferences 2018, Delft, Netherlands

EDUCATION HISTORY

Education

Doctorate : PhD in Environmental and Infrastructure Engineering @ Politecnico di Milano, Italy

Current from: Nov 1 2018

Research topic: Reusing existing land cover maps to reinforce reference data for future land cover maps production

The research is done in the context of the CCI HRLC (Climate Change Initiative High-Resolution Land Cover) project of the European Space Agency. The project aims to identify the impact of the higher resolution of land cover data on climate research.

Activities:

The intersection of multiple existing **high-resolution land cover data** to extract areas in which they agree in order to use them as training data for producing new land cover data. The data processing consists of the harmonization of data with different characteristics and the intersection/combining of such data.

This activity consists of the deployment of **free and open-source software** for processing **big raster data** (more than 200 GB). This is done by means of the deployment of **GRASS GIS** in combination with **Python** on a **high-performance computer** on the GALILEO100 infrastructure of CINECA.

Education

Masters : Master's degree in Environmental and Geomatic Engineering @ Politecnico di Milano, Italy

Sep 21 2015 - Apr 18 2018

LIST OF PUBLICATIONS

List of all publicationZis available at <https://re.public.polimi.it/cris/rp/rp79513#>

Thesis in Remote Sensing and GIS on the topic "**Validation of the high-resolution global land cover maps in Lombardy**" which includes analysis of accuracy, low-resolution bias, and spatial autocorrelation of the errors of the high-resolution global maps with free and open-source software (**QGIS** and **GRASS GIS**). The new tool was developed by using Python programming language for the computation of multiple accuracy indexes, as well as a tool for low-resolution bias.

Education

**Bachelors : Bachelor's degree in Environmental Engineering @
University of Novi Sad, Novi Sad, Serbia**

Sep 1 2011 - Jul 7 2015