

# Qiongjie Xu

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## Education

### Politecnico di Milano

Milan, Lombardy, Italy

MASTER OF SCIENCE IN GEOINFORMATICS ENGINEERING

Sep 2020 - May 2023

- Mark: 110L/110
- Core Modules: Earth Observation, Geographic Information Systems, Geospatial Data Analysis, Machine Learning, Distributed Systems, Data Bases, Software Engineering.
- Dissertation: "Landslide susceptibility mapping using ensemble methods: a case study in Lombardy, northern Italy" (This study in Lombardy, Northern Italy, evaluates ensemble methods for landslide susceptibility mapping, identifying Neural Network models as the most effective, with a final model achieving 93% accuracy. )

### Sun Yat-sen University

Guangzhou, Guangdong, China

BACHELOR OF NETWORK ENGINEERING

Sep. 2009 - Jun 2013

- GPA: 3.7/4.0
- Core Modules: Computer Programming, Data Structure and Algorithms, Principles of Operating Systems, Computer Networks, Software Engineering, Database Systems, Principles and Practice of Compilers.

## Experience

### Politecnico di Milano

Milan, Lombardy, Italy

RESEARCH FELLOW

Jun 2024 - Present

- Engaged in the benchmarking part of the ESA CCI+ HRLC Project

### Politecnico di Milano

Milan, Lombardy, Italy

RESEARCH FELLOW (INTERN)

Jun 2023 - Nov 2023

- Engaged in research on co-registration techniques for PRISMA satellite imagery with a focus on the AOI in Yen Bai, Vietnam.
- Drafted a paper titled "Co-registration of PRISMA Hyperspectral Imagery for Accurate Land Cover Classification" for the GIS-IDEAS 2023 Conference in Vietnam.
- Contributed to research on utilizing PRISMA satellite imagery from Yen Bai, Vietnam, for Land Use and Land Cover (LULC) classification using machine learning techniques.

### JPush Information Consultation (Shenzhen) Co., Ltd.

Shenzhen, Guangdong, China

SOFTWARE ENGINEER

Mar 2016 - Nov 2019

- Worked as a designer, developer, and maintainer of message-pushing service. The service enables server-side messages to be pushed to end-user mobile phones on time and can handle a peak rate of 2.6 million requests per minute.
- Refactored two-thirds of message pushing API interface using Golang, saving 50% of total servers and offering a 7x API performance increase.
- Evaluated and designed solutions for new requirements.
- Assisted technical support to troubleshoot online problems.

### Huawei Technologies Co., Ltd.

Shenzhen, Guangdong, China

SOFTWARE ENGINEER

Aug 2013 - Nov 2015

- Worked as a system engineer of the product named Provision in Ethio Telecom Expansion Project for analyzing, developing, and delivering with little information known and to offer 4G support.
- Worked as developer and maintainer of Provision in Maxis Telecom Project, Bravo Telecom Project, etc.
- Assisted the release of customized versions of Provision.
- Created a website to display and search Provision knowledge and case base.

## Publications

Co-registration of PRISMA Hyperspectral Imagery for Accurate Land Cover

Classification

DOI

PREPRINT

2023

- This study emphasizes the importance of precise land cover categorization for effective land resource planning, management, and risk reduction. It highlights the significance of hyperspectral satellite imagery like PRISMA for analyzing environmental changes, despite inherent registration errors.
- By employing a local co-registration method based on optical flow estimation and utilizing Sentinel-2 / Landsat 8-9 images as references, the study demonstrates improved co-registration accuracy. The integration of advanced machine learning techniques further enhances the usability and accuracy of PRISMA products, making them invaluable for applications in land management and thematic hazard studies, such as flood monitoring and landslide analysis.

Landslide susceptibility mapping using ensemble machine learning methods: a case study in Lombardy, Northern Italy

DOI

PUBLISHED

2024

- This study evaluates ensemble machine learning methods (stacking, blending, and soft voting) for Landslide susceptibility mapping (LSM) in Lombardy, Northern Italy.
- It introduces an innovative concept, the "No Landslide Zone," and develops Machine Learning classifiers using open-source software.
- The best-performing model, a Neural Network trained with data from three basins, achieves 0.93 accuracy and reveals 37% of Lombardy as highly susceptible to landslides.
- The study emphasizes the importance of openness in advancing LSM methodology and promoting knowledge-sharing within the scientific community.

Datasets

ZENODO

2023

- Xu, Q., Amici, L., Yordanov, V., & Brovelli, M. A. (2023). Estimated No Landslide Zone for the Lombardy region, Italy [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.8185907>
- Xu, Q., Yordanov, V., & Brovelli, M. A. (2023). The best performing landslide susceptibility maps using ensemble machine learning models and precipitation data on basin and regional level in Lombardy, Italy [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.8185887>
- Xu, Q., Yordanov, V., & Brovelli, M. A. (2023). Landslide susceptibility maps using ensemble machine learning models on basin and regional level in Lombardy, Italy [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.8185870>
- Xu, Q., Yordanov, V., & Brovelli, M. A. (2023). Landslide susceptibility maps using base machine learning models on basin and regional level in Lombardy, Italy [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.8185806>

In Proceedings

2023

- Xu, Q., Yordanov, V., Tran, X.T., Truong, Q.X., Biagi, L., Brovelli, M.A. (2023). Co-registration of PRISMA hyperspectral imagery for accurate land cover classification. In Proceedings: Geospatial Integrated Technologies for Natural Hazards and Environmental Problems, GIS-Ideas 2023, HUNRE, Hanoi, Vietnam. ISBN: 978-604-357-207-0, [https://hoithao.hunre.edu.vn/attachment/hoithao/news/2024/01/15/161542\\_Proceedings%20GIS%202023.pdf](https://hoithao.hunre.edu.vn/attachment/hoithao/news/2024/01/15/161542_Proceedings%20GIS%202023.pdf)

Skills

Programming Languages	Python, Golang
GIS Tools	QGIS, Google Earth Engine (GEE)
Machine Learning and Geospatial Python Libraries	Scikit-learn, Geopandas, Rasterio, Pandas, Numpy, TensorFlow
Storage	Redis, PostgreSQL
Other technologies	Restful API, JavaScript, Lua
Languages	English, Mandarin

Presentation

Workshop for the Geoinformatics and Earth Observation for Landslide Monitoring (GEOLMIV) project

Italy and Vietnam

PRESENTER FOR <LANDSLIDE SUSCEPTIBILITY MAPPING USING ENSEMBLE METHODS A CASE STUDY IN LOMBARDY, NORTHERN ITALY> (ONLINE)

Mar. 2023

- Introduced the workflow and evaluation results of applying the basic Ensemble methods to the smaller regions (Val Tartano/Upper Valtellina/Val Chiavenna) in Lombardy, Italy.

Awards

2015	<b>Future Star and Software Star</b> , Huawei Technologies Co., Ltd.	<i>Shenzhen, China</i>
2012	<b>Anita Borg Memorial Scholarship</b> , Google	<i>Shanghai, China</i>
2012	<b>Excellent Second-class Scholarship</b> , Sun Yat-sent University	<i>Guangzhou, China</i>

## Activities

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2014	<b>Business Trip to Addis Ababa, Ethiopia to complete telecommunication service delivery</b> , Huawei Technologies Co., Ltd.	<i>Addis Ababa, Ethiopia</i>
2012	<b>Participation in the National University Student Information Security Competition in</b> , Sun Yat-sent University	<i>Zhengzhou, Henan, China</i>