

Xiangyang Song

Curriculum Vitae

PERSONAL INFORMATION

Surname: **Song**
Name: **Xiangyang**
E-mail: xiangyang.song@polimi.it and xiangyang.song@uniroma1.it
Homepage: <https://www.xiangyangsong.com>
ORCID: <https://orcid.org/0009-0005-4355-2264>
LinkedIn: <https://it.linkedin.com/in/xiangyang-song-a97aba262>

EDUCATION

Sapienza Università di Roma (National PhD candidate)	Nov. 2024-present
Earth Observation	
Politecnico di Milano (Master of Science)	Feb. 2020-Dec. 2022
Geoinformatics Engineering	
North China University of Science and Technology (Bachelor of Science)	Sep. 2015-Jun. 2019
Geographic Information Science	

RESEARCH EXPERIENCE

PhD activities at Geomatics and Earth Observation laboratory (GEOlab) inside Department of Civil and Environmental Engineering (DICA), Politecnico di Milano (POLIMI) and Geomatics Research & Development s.r.l, spin-off of POLIMI

Nov. 2024-present

Defined a covariance model for atmospheric water vapor refractivity and the corresponding slant wet delays. Processed Global Navigation Satellite Systems (GNSS) raw data using the goGPS MATLAB software and derived the refractivity from drone-borne radiosondes measurements and numerical weather prediction model data.

Research Fellow for the Intense Convective Rainfall Events Nowcasting (ICREN) Progetti di Ricerca di Rilevante Interesse Nazionale (PRIN) Project at GEOlab, DICA, POLIMI

Nov. 2023-Oct. 2024

The goal of the project is to improve the short-term forecasting (10 minutes-3 hours) of intense convective events.

Research Internship at GEOlab, DICA, POLIMI

Mar. 2023-Oct. 2023

Worked on the augmented iterative tropospheric decomposition strategy used to derive tropospheric delay maps based on GNSS estimates. This work was reported in the paper <https://doi.org/10.1016/j.envsoft.2025.106669>.

Master Thesis in Geoinformatics Engineering at POLIMI

Mar. 2022-Dec. 2022

The title of thesis is High Resolution Zenith Total Delay Map from Meteorological Models and GNSS Estimates by Using the Iterative Tropospheric Decomposition Model. Implemented the iterative tropospheric decomposition strategy to spatially predict GNSS Zenith Total Delays (ZTDs) and ERA5 ZTDs on a given high-resolution Digital Elevation Model (DEM). The derived maps were validated against Differential Synthetic Aperture Radar Interferometry (DInSAR) atmospheric phase screens.

THESIS SUPERVISOR AND TEACHING ACTIVITIES

Co-supervisor of the following M.Sc. theses:

(2025) Co-supervisor of the M.Sc. thesis “A dual deep learning system for early-stage convective storms identification and short-term evolution prediction” by F. Alqrinawi, supervisor Prof. Giovanna Venuti, Geoinformatics Engineering, Politecnico di Milano.

(2024) Co-supervisor of the M.Sc. thesis “Innovative LSTM models for predicting precipitation and convective storm trajectories in Seveso Basin Area” by S. Li, supervisor Prof. Giovanna Venuti, Geoinformatics Engineering, Politecnico di Milano.

Teaching assistant of the following courses:

(2025) Geospatial Data Analysis [MOD. A], 2025/2026, Geoinformatics Engineering, Politecnico di Milano.

PUBLICATIONS

Paper:

Song, X., Venuti, G., Monti-Guarnieri, A.V., Manzoni, M., 2025. Augmented iterative tropospheric decomposition strategy for GNSS-based zenith tropospheric delay map generation. *Environmental Modelling & Software* 194, 106669. <https://doi.org/10.1016/j.envsoft.2025.106669>

Conference posters:

Federico, S., Realini, E., Torcasio, R. C., Transerici, C., Venuti, G., Song, X., and Crespi, M.: Assimilation of GNSS data over Italy: the results of ICREN and NEW-ARGENT projects, EMS Annual Meeting 2025, Ljubljana, Slovenia, 7–12 Sep 2025, EMS2025-520, <https://doi.org/10.5194/ems2025-520>, 2025.

Venuti, G., Song, X., Federico, S., Guariso, G., Sangiorgio, M., Pasquero, C., Hassantabar Bozroudi, S. H., Mohamed, A. B. E. A., Zaf, R. D., Luini, L., Nebuloni, R., and Realini, E.: Ensemble Convective Rainfall Nowcasting by integrating Numerical Weather Prediction models and Neural Networks: the ICREN project, EGU General Assembly 2025, Vienna, Austria, 27 Apr–2 May 2025, EGU25-15639, <https://doi.org/10.5194/egusphere-egu25-15639>, 2025.

ATTENDED COURSES

Statistical And Numerical Methods, Monte Carlo-Markov Chains Statistical Methods, Advanced Deep Learning, Geospatial Data Analysis, Earth Observation, Geographic Information Systems, Positioning And Location Based Services, Machine Learning.

SCHOLARSHIPS

SAPIENZA PhD Scholarship	Nov. 2024 - Oct. 2026
POLIMI Research Fellowship	Nov. 2023 - Oct. 2024
POLIMI Internship Scholarship	Mar. 2023 - Oct. 2023