

CONTACT

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in Rodolfo Rani

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SKILLS

Office suite 6+ yrs

QGIS & ArcMap 4+ yrs

GeoStudio (Slope) 2 yrs

MATLAB 2+ yrs

Python 1+ yrs

InkScape 3 yrs

Metashape 1+ yrs

FLAC 1 yrs

RODOLFO RANI

Researcher - Geoscience (landslide hazard)

EDUCATION

Ph. D. - Applied geology

2022 - 2025

BiGeA - University of Bologna (Italy)

Landslide susceptibility mapping and modelling (WoE, GAM, TNN, CNN)

Geology and Territory (Hydrogeological hazard and environmental protection)

2019 - 2022

Alma Mater Studiorum (UNIBO) - Bologna (BO), Italy

Passed with **110/110 L** with a thesis work on Slope stability in seismic conditions with the Newmark method

Geological Sciences

2016 - 2019

Alma Mater Studiorum (UNIBO) - Bologna (BO), Italy

Passed with **101/110** with a thesis project on Geotechnical and Geomorphological Study of the landslide in San Clemente (BO)

PUBLICATIONS

Landslide susceptibility methodology for railway planning: a comparative analysis of statistical and machine learning methods in a case study of Marche region, Italy. *Transportation Geotechnics*

Sep 2025

Rani, R., Sciarra, M., Rodani, S., Benedetti, G., & Berti, M.

Status: Published - DOI: <https://doi.org/10.1016/j.trgeo.2025.101731>

Risk-based prioritisation for the installation of debris flow early warning systems in drainage catchments. *9th International Symposium on Geotechnical Safety and Risk (ISGSR)*

Aug 2025

Redaelli, M., Rani, R., Ioriatti, E., & Berti, M.

Status: Published - Conference proceedings

RER2023: the landslide inventory dataset of the May 2023 Emilia-Romagna meteorological event. *Earth System Science Data*

Berti, M., Pizziolo, M., Scaroni, M., Generali, M., Critelli, V., Mulas, M., Tondo, M., Lelli, F., Fabbiani, C., Ronchetti, F., Ciccarese, G., Dal Seno, N., Ioriatti, E., Rani, R., Zuccarini, A., Simonelli, T., & Corsini, A.

Status: Published - DOI: <https://doi.org/10.5194/essd-17-1055-2025>

Mar 2025

Transformer, more than meets the eye: A deep learning approach to integrate rainfall time-series in multi-type landslide probability modelling *Geoscience Frontiers*

Rani, R., Dahal, A., Berti, M., & Lombardo, L.

Status: Accepted - under 2nd revision

In progress

CONFERENCES

EGU General Assembly 2025, Vienna (Austria): Unveiling the Complex Relationship Between Rainfall and Landslide Types Using a Transformer Neural Network by Rani, R., Dahal, A., Lombardo, L., Hakan, T., & Berti, M.

Oral presentation at session NH3.6, abstract EGU25-6943

May 2025

8° Congresso Nazionale dell'Associazione Italiana Geologia Applicata e Ambientale (AIGAA), Naples (Italy): Towards pragmatic landslide susceptibility mapping for railway planning in Serra San Quirico, Marche (Italy) by Rani, R., Sciarra, M., Rodani, S., & Berti, M.

Poster presentation at session "Stabilità di versante"

Jun 2024

EGU General Assembly 2024, Vienna (Austria): Toward Pragmatic Landslide Susceptibility Mapping for Railway Planning: A Comparative Analysis of Statistical and Machine Learning Methods - The Case Study of the Marche Region, Italy by Rani, R., Sciarra, M., Rodani, S., & Berti, M.

Oral presentation at session NH3.10, abstract EGU23-10842

Apr 2024

World Landslide Forum (WLF) 2023, Florence (Italy): The difficult prediction of earthquake-induced landslide displacements: the case of Gaggio Montano (northern Apennines, Italy) by Rani, R., Di Paola, G., Lattanzi, G., Castellaro, S., & Berti, M.

Nov 2023

Oral presentation at session 5.5 - Advances in earthquake-induced landslide research (part II)

EGU General Assembly 2023, Vienna (Austria): Stability of a rock slope overlying a weak clay: the difficult case of Balze di Verghereto (Italy) by Rani, R., Benini, A., Foschi, A., & Berti, M.

Apr 2023

Poster presentation at session NH3.8, abstract EGU23-7815

WORK EXPERIENCE

**Geophysical investigations in soils
SOCOTEC, Avellino (Italy)**

Jun - Sep 2021

Practical execution of a geophysical test campaign (MASW and HVSR with Tromino); direct processing of the data acquired in the countryside, using software ZOND and Grilla.

**Undergraduate Internship
CNR (ISMAR), Bologna (Italy)**

Jan - Jul 2018

Preliminary procedures for analysis of an Antarctic marine sediment core drilling