Università di Genova

Leonardo Maria Lalicata

Assistant Professor in Geotechnical Engineering (RtD-A)

EDUCATION AND TRAINING

May 2020
Associate Fellow in Advance Higher Education.
City, University of London

November 2014 – March 2018
PhD in Geotechnical Engineering.
Dissertation: *Effect of degree of saturation on the behaviour of laterally loaded piles.*
Design and perform novel testing procedure to study interaction problems by means of geotechnical centrifuge. Set up of a three-dimensional numerical model to analyse the experimental results.
"Sapienza" University of Rome – Department of Structural and Geotechnical Engineering (DISG).

October 2014
Master's degree, Civil Engineering.
Thesis: *Effect of gravitational slope movements on underground structures.*
Finite Element simulations to investigate the key aspects of the interaction between slope movement and tunnel liner detected by field measurements.
"Sapienza" University of Rome.

December 2011
Bachelor's degree, Civil Engineering.
"Sapienza" University of Rome.

PROFESSIONAL HISTORY

February 2022 – Present
Assistant Professor (Rtd-A) in Geotechnical Engineering
Research Project: *MATER.*
Theoretical and numerical modelling of earthen building material materials to reduce the carbon footprint.
Other Research Interests: Slope stability under unsaturated soil conditions. Centrifuge modelling of thermal piles in overconsolidated clay. Theoretical and physical modelling of laterally loaded piles in unsaturated soils.
Department of Civil, Chemical and Environmental Engineering (DICCA), University of Genova.

March 2019 – January 2022
Post-Doctoral Researcher in Geotechnical Engineering
Research Project: *HIPER: Hollow, Impression enhanced, Precast, Energy generating and Re-useable Pile.*
Physical modelling of novel deep foundations in the geotechnical centrifuge. Numerical and Theoretical modelling of high-capacity piles. Active support in the planning of the site investigation. Design and analysis of field tests on piles.

Università di Genova

Other Research Interests: Slope stability under unsaturated soil conditions. Centrifuge modelling of thermal piles in overconsolidated clay. Centrifuge modelling of long-term behaviour of shallow tunnel in clay.
School of Mathematics, Computer Science and Engineering (SMCSE), City, University of London.

February 2018 – February 2019
Research Fellow in Geotechnical Engineering
Research Project: *Numerical modelling of laterally loaded piles in unsaturated soils*. Design optimisation criteria for piled foundations in partially saturated soils by means of fully coupled three-dimensional analysis.
Other Research Interests: Tunnels excavation in slopes, numerical investigation of the effects on ground displacements and potential instability mechanisms.
"Sapienza" University of Rome – Department of Structural and Geotechnical Engineering (DISG).

TEACHING ACTIVITY

2023 – Present
Rock Engineering
Master's Degree in Civil Engineering (LM-23) at the University of Genova.

2025 – Present
Structure Design: Geotechnical Aspects
Master's Degree in Building Engineering (LM-24) at the University of Genova.

2023 – 2024
Geotechnics 101
Bachelor's Degree in Technologies for building and territory (LP-01) at the University of Genova.

2016 – Present
Supervision of 10 student projects (Bachelor's and Master's) in geotechnical engineering
University of Genova; City, University of London; University of Rome Tor Vergata; University of Rome La Sapienza.

ACADEMIC APPOINTMENTS

June 2025 - Present
Course Scheduling Coordinator for the Master's Degree Programme in Civil Engineering
University of Genova

February 2022 - Present
Member of the Curriculum Committee in the Structural and Geotechnical Engineering, Materials and Structures PhD programme
University of Genova

June 2023 – September 2024
Member of the QA Board (Commissione Assicurazione Qualità) in the Bachelor's Degree in Tecnologie per l'edilizia e il territorio (LP-01)
University of Genova

Università di Genova

EXPERIENCE

MAIN SEMINARS

22 October 2025 Pile behaviour in partially saturated soils: towards a resilient design in a changing climate.
University College London

12 September 2025 A numerical insight into the hygrothermal behaviour of earthen building materials.
Universitè Libre de Bruxelles

12 September 2025 Piled foundations in partially saturated soils.
Universitè Libre de Bruxelles

10 January 2025 Towards a more resilient building engineering: an experimental and numerical thermo-hydro-mechanical approach.
University Gustave Eiffel

10 August 2023 Earthen Structures: a possible Answer to Climate Change? 50th anniversary of Construction Engineering School at the Costa Rica Institute of Technology.
Costa Rica Institute of Technology (online)

23 February 2023 Verso l'inclusione della Parziale Saturazione dei terreni nella Progettazione dei Pali di Fondazione.
Gruppo Geotecnici a Roma.

18 May 2021 Optimising the Impression Pile: Enhancing shaft friction to reduce material volume & waste. HIPER PILE -Decarbonising Construction Symposium.
Institution of Civil Engineers: ICE, London, UK.

SCIENTIFIC RESPONSIBILITY FOR RESEARCH PROJECTS ACCEPTED FOR FUNDING ON THE BASIS OF COMPETITIVE CALLS INVOLVING PEER REVIEW

January 2024 - Present Pi.LAT.US (Piles under LATeral loading in Unsaturated Soils)
GEOLAB Third Call for proposal in the HORIZON 2020 framework.
Centrifuge testing of piles for solar panel foundations under partially saturated soil conditions.
Partners: University of Genova, University of Rome Tor Vergata, Enel Green Power
Position: Principal Investigator
University of Genova

2018 - 2020 Studio Numerico del comportamento di pali soggetti ad azioni orizzontali in terreni parzialmente saturi
Position: Principal Investigator
University of Rome, La Sapienza

2015 Caratterizzazione idro-meccanica della Pozzolana Rossa Romana
Position: Principal Investigator
University of Rome, La Sapienza

Università di Genova

RESEARCH POSITIONS (FELLOWSHIPS) AT FOREIGN UNIVERSITIES AND RESEARCH INSTITUTES

March 2019 – January 2022 Post-Doctoral Researcher in Geotechnical Engineering
Research Project: HIPER: Hollow, Impression enhanced, Precast, Energy generating and Re-useable Pile.
School of Mathematics, Computer Science and Engineering (SMCSE), City, University of London.

April 2017 – July 2017 Visiting researcher
Research Project: GEO-TRANSALP
Experimental observation of the role of soil partial saturation of the behaviour of laterally loaded piles via centrifuge testing.
"IFSTTAR" Institut français des sciences et technologies des transports, de l'aménagement et des réseaux – Nantes (FR).

April 2016 – July 2016 Visiting researcher
Research Project: GEO-TRANSALP
Experimental observation of the role of soil partial saturation of the behaviour of laterally loaded piles via centrifuge testing.
"IFSTTAR" Institut français des sciences et technologies des transports, de l'aménagement et des réseaux – Nantes (FR).

PRIZES AND ACCOLADES FOR SCIENTIFIC ACTIVITY, INCLUDING MEMBERSHIP OF ACADEMIES

2025 ISSMGE Foundation Award
International Society of Soil Mechanics and Geotechnical Engineering.

2023 Hygro-Thermal Modelling of Earthen Materials for Building Applications
1 out of 5 best conference papers
8th Italian Conference of Researchers in Geotechnical Engineering, CNRIG 2023. Palermo, Italy.

2023 ISSMGE Foundation Award
International Society of Soil Mechanics and Geotechnical Engineering.

2022 - Present Member of the Associazione Geotecnica Italiana (AGI)

2022 Best Equipment
"HIPER Piles – DfMA in large diameter piling"
Link(s): https://www.keltbray.com/2022/09/20/keltbray-wins-prestigious-ge-award/ https://www.geplus.co.uk/events/ge-awards-2022-award-for-equipment-innovation-winner-04-11-2022/
Ground Engineering Awards 2022.

2022 Ground Engineering Awards 2022 – Sustainability Award Highly Commended
"Design and Installation of HIPER Piles for structural and geothermal capacity"
Link(s): https://www.geplus.co.uk/events/ge-awards-2022-sustainability-award-winner-04-11-2022/
Ground Engineering Awards 2022.

2022 Finalist
"A heat-exchange piled foundation solution at the Euston station welfare facility for HS2"
Link(s): https://www.britishgeotech.org/prizes/fleming-award.
Fleming Award 2022.

Università di Genova

2022 Best Innovation
HIPER Pile
Construction News Awards 2022.

2015 - Present Chartered Engineer (Ordine degli Ingegneri di Roma)

OTHER EXPERIENCES

2025 Chair at the 5th European Conference on Unsaturated Soils, EUNSAT2025
Session: Constitutive Models
Lisbon, Portugal

2020 - Present Reviewer for 8 leading international journals on geotechnical engineering

2018 - Present Participation and Presentation in 14 National and International conferences on geotechnical engineering