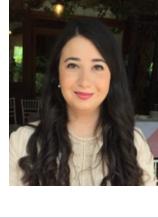


# Elena Dodaro

Ph.D. student

## CONTACT INFORMATION

**Email:** elena.dodaro2@unibo.it  
**Address:** Viale Risorgimento 2, 40136, Bologna, Italy  
**Phone:** 3466307980  
**Date of birth:** 28 Dec, 1992  
**Nationality:** Italian  
**Link:** <https://www.unibo.it/sitoweb/elena.dodaro2>



## ACADEMIC POSITION

(2019–today) **Ph.D. student** of XXXV cycle in Geotechnical Engineering, Alma Mater Studiorum - University of Bologna, Department of Civil, Chemical, Environmental and Materials Engineering

## EDUCATION

2015 - 2018

**Master Degree in Structural Civil Engineering**  
Alma Mater Studiorum - University of Bologna

Thesis title: 'Valutazione della probabilità di collasso di un argine fluviale tramite l'applicazione del metodo probabilistico FOSM a modelli numerici FEM di risposta idro-meccanica'.

Advisor: Prof. Guido Gottardi  
Co-Advisor: Eng. Carmine Gerardo Gragnano  
Grade: **110/110 with honours**

2011 - 2014

**Bachelor Degree in Civil Engineering**  
Alma Mater Studiorum - University of Bologna

Thesis title: 'Analisi degli interventi di manutenzione innovativi in ambito urbano'.

Advisor: Prof. Giulio Dondi  
Co-Advisors: Prof. Andrea Simone, Eng. Riccardo Lamperti  
Grade: **108/110**

2006 - 2011

**Secondary school diploma**  
Scientific High School Enrico Fermi, Cosenza

Grade: **100/100**

## RESEARCH PROJECTS

### Research Topics

- Slope stability assessment of river embankments in transient seepage conditions, through numerical FEM modelling;

- Investigation on the hydro-mechanical behaviour of unsaturated soils, by means of standard and advanced suction-controlled laboratory tests;

- Interpretation and back-analysis of centrifuge tests on small-scale physical models, aimed at calibrating site testing equipments.

### Projects

(2023) - **GEOLAB - RES FLUCTIS** (*Assessing River Embankments Stability to Floods through Unsaturated Centrifuge Testing In transient Seepage conditions*), funded by the European Union H2020 Research and Innovation Programme.

The research project aims at contributing to a better understanding of the effect of time-dependent hydraulic loadings on the stability of river embankments through a series of centrifuge tests.

Hosting facility: Schofield Centre for Geotechnical Process and Construction Modelling (University of Cambridge, UK).

Group Leader: Eng. Dodaro, E. (University of Bologna).

Group Members: Dr. Eng. Gragnano, C. (University of Bologna) Professor Gottardi, G. (University of Bologna), Geol. Bassi, A. (Interregional Agency for the Po River - AIPO)

(2019–today) - **PRIN 2017 - RedReef** (*Risk Assessment of Earth Dams and River Embankments to Earthquakes and Floods*), funded by the Italian Ministry of Education, University and Research (grant number 2017YPMBWJ).

The aim of the project is the development of diagnostic and operational tools finalized to assess the resistance of earth dams and river embankments to earthquakes and flood waves and to support local governments to draw their resilience action plans.

Principal Investigator: Professor Mancuso, C. (University of Naples, Federico II).

Associated Investigators: Professors Gottardi, G. (University of Bologna), Rampello, S. (University of Rome, La Sapienza), Gabrieli, F., (University of Padua), Fioravante, V. (University of Ferrara), Cascone, E. (University of Messina).

### Scientific experiences

(March 2022–today) - **Visiting Ph.D. student at NRFIS** (National Research Facility for Infrastructure Sensing), University of Cambridge.

(July 2021) - **Assistance in the preparation and execution of a geotechnical centrifuge test** on a small-scale physical model of a river embankment. ISMGEO Laboratory (Istituto Sperimentale Modelli Geotecnici S.r.l.), Seriate (BG).

(2020–today) - **Geotechnical laboratory training** at LIGS (Structural and Geotechnical Engineering Laboratory), University of Bologna.

## CERTIFICATES & COURSES

(September 2022) - **'Il laboratorio Geotecnico: attività sperimentali convenzionali e non'**, Doctoral School IARG 2022, Caserta, Professors d'Onofrio, A., Olivares, L.

(June - July 2022) - **'Coupled hydro-mechanics of unsaturated soils'**, III level Course, Polytechnic University of Milan, Prof. Jommi, C.

(May 2022) - **'Lecture Series on Advancements in Geotechnical Engineering: from Research to Practice'**, AGERP, International Workshop on Unsaturated Soils, Dr. Mishra, P.N., Prof. Das, S.K., Mr. Tiwari, S.

(October 2021) - **'Advances in Spatial Data Handling and GIS'**, Prof. Lambertini, A., III level Course, University of Bologna.

(September 2021) - **'LARAM (LAndslide Risk Assessment and Mitigation) International School 2021'**, III level Course, University of Salerno.

(June 2021) - **'Analisi e gestione delle acque interstiziali nei pendii in materiale sciolto'**, CISM (International Centre For Mechanical Sciences), Udine, Professors Cola, S., Segalini, A., Calvello, M., Cotecchia, F.

(May 2021) - **'Enrollment in the Register of Civil and Environmental Engineers'**, Order of Engineers of Cosenza.

(April 2021) - **'Soil-structure interaction'**, III level Course, University of Rome La Sapienza, Prof. Callisto, L.

(March 2021) - **'Comportamento idromeccanico delle argille naturali e compatte alla scala micro e macro: analisi sperimentale e modellazione numerica'**, GNIG (Gruppo Nazionale di Ingegneria Geotecnica), Winter Doctoral School, Professors Cotecchia, F., Jommi, C., Nocilla, A., Vassallo, R.

(September 2020) - **'Particle based continuum methods in Geomechanics'**, ALERT (The Alliance of Laboratories in Europe for Education, Research and Technology) Doctoral School, Aussois, France, Professors Pastor, M., Wu, W.

(July 2020) - **'Qualification to the Profession of Civil and Environmental Engineer, Section A** (State examination of professional abilitation), with the grade of 58/60, University of Calabria.

(July 2020) - **'Some basics of the analysis and mitigation of landslides risk'**, III level Course, Polytechnic of Turin, Professors Barbero, M., Castelli, M.

(June 2020) - **'24-hour Academic English course at level Advanced'**, Language Center of Atheneum (CLA), University of Bologna, Prof. Millward, M. J.

(July 2016) - **'Medium risk safety course'**, General part, Part 1 and Part 2, University of Bologna

(August 2010) - **'First Certificate in English (FCE)'**, ESOL Examination, University of Cambridge.

## HONOURS & AWARDS

(October 2021) - **'Winner of the Marco Polo Scholarship'** for a period of research at National Research Facility for Infrastructure Sensing (NRFIS) - University of Cambridge.

(July 2021) - **'Admission to LARAM (LAndslide Risk Assessment and Mitigation) School 2021'**, following an international selection, University of Salerno.

(July 2020) - **'Certificate of merit for the presentation Risk mitigation strategies - Hazard reduction'**, given in the context of the III level Course 'Some basics of the analysis and mitigation of landslides risk', Polytechnic of Turin.

(July 2010) - **'Admission to University Orientation Course by Scuola Normale Superiore of Pisa'**, following a national selection, Camigliatello Silano (CS).

(2008–2009) - **'Scholarship for High School Merit'**, Province of Cosenza.

## TEACHING ACTIVITIES

(Sept.2020–today) - **Assistant** - Geotechnical Works (Opere Geotecniche), Master Course of Civil Engineering, Alma Mater Studiorum - University of Bologna, taught by Prof. Laura Tonni

(Sept.2021–today) - **Assistant** - Principles of Geotechnics (Fondamenti di Geotecnica), Bachelor Course of Civil Engineering, Alma Mater Studiorum - University of Bologna, taught by Prof. Guido Gottardi

(2020) - **Bachelor assistant supervisor of the thesis** - 'Caratterizzazione geotecnica di miscele sabbia-argilla per modelli fisici di rilevati arginali', supervisor Prof. Guido Gottardi.

(2021) - **Bachelor assistant supervisor of the thesis** - 'Indagini geotecniche di laboratorio su terreni caratteristici delle arginature del fiume Po e dei suoi affluenti', supervisor Prof. Guido Gottardi.

## REVIEW ACTIVITIES

(Dec. 2021) - **'Supporting Reviewer** of the 5th International Symposium on Cone Penetration Testing, CPT'22', Bologna (Italy), 8–10 June 2022.

## CONFERENCE ACTIVITIES

(Nov. 2021) - **'Speaker at the Incontro Annuale dei Ricercatori di Geotecnica 2021 (IARG 2021\_online)**, Session 5: Opere e Sistemi Geotecnici' - Gruppo Nazionale di Ingegneria Geotecnica, *Analisi predittive del comportamento idro-meccanico di un modello di argine fluviale in condizioni di flusso transitorio*.

(Jun. 2022) - **'Speaker at the NGI (Norwegian Geotechnical Institute) Workshop on Infrastructure Geotechnics (NRFIS, University of Cambridge - UK)'** *Experimental and numerical investigations on the stability of unsaturated river embankments in transient seepage conditions*.

(Sept. 2022) - **'Speaker at the Incontro Annuale dei Ricercatori di Geotecnica 2022 (IARG 2022, Caserta)**, Session 1: Sperimentazione di laboratorio e modellazione costitutiva' - Gruppo Nazionale di Ingegneria Geotecnica, *Effetto della suzione e tensione di confinamento sulla resistenza a taglio di una miscela sabbio-limoso costipata*.

(Sept. 2022) - **'Speaker at the 10th International Conference on Physical Modelling in Geotechnics 2022 - KAIST, Daejeon, Korea**, Session Dams and embankments', *On the hydro-mechanical behavior of an unsaturated river embankment: Centrifuge testing and numerical analysis*.

## COMPUTER TECHNOLOGY

Intermediate - **Office, MATLAB, SAP2000, Straus7, Autocad**

Advanced - **SEEP/W, SIGMA/W, SLOPE/W, PLAXIS 2D, OPTUM G2**

## LANGUAGES

Elementary - **French**

Advanced - **English**

Mother tongue - **Italian**

## PUBLICATIONS

### Papers on peer reviewed journals

[1] Ventini R.; Dodaro E.; Gragnano C.G.; Giretti D.; Pirone M. (2021). Experimental and numerical investigations of a river embankment model under transient seepage conditions, *Geosciences*, 11, pp. 1-22.

### Papers in international conference proceedings

[2] Fioravante, V., Giretti, D., Dodaro, E., Gragnano, C.G., Gottardi, G. (2022). CPTU calibration in centrifuge: effect of partial saturation on cone resistance, 5th International Symposium on Cone Penetration Testing, Bologna, Italy, 8–10 June 2022.

[3] Dodaro, E., Ventini, R., Pirone, M., Gragnano, C.G., Giretti, D., Gottardi, G., Mancuso, C., Fioravante, V. (2022). On the hydro-mechanical behaviour of an unsaturated river embankment: centrifuge testing and numerical analysis, 10th International Conference on Physical Modelling in Geotechnics, Daejeon, Korea, 19 - 23 September 2022.

[4] Gragnano, C.G., Pirone, M., Giretti, D., Dodaro, E., Ventini, R., Fioravante, V., Mancuso, C., Gottardi, G. (2022). Numerical investigations of a transient seepage process in the design and validation of a river embankment centrifuge test, 10th International Conference on Physical Modelling in Geotechnics, Daejeon, Korea, 19–23 September 2022.

[5] Giretti, D., Pirone, M., Dodaro, E., Ventini, R., Gragnano, C.G., Fioravante, V., Mancuso, C., Gottardi, G. (2022). Centrifuge modelling of a river embankment subjected to transient seepage conditions, 10th International Conference on Physical Modelling in Geotechnics, Daejeon, Korea, 19–23 September 2022.

[6] Girardi, V., Dodaro, E., Ventini, R., Pirone, M., Gragnano, C.G., Giretti, D., Zarattini, F., Gabrieli, F. (2022). Numerical study of uplift induced levee failure for the design of a centrifuge test, 5th International Conference on New Developments in Soil Mechanics and Geotechnical Engineering, Nicosia, North Cyprus, 30 June - 2 July 2022.

[7] Ventini, R., Dodaro, E., Zarattini, F., Giretti, D., Gragnano, C., Pirone, M., Fioravante, V., Gabrieli, F., Gottardi, G., Mancuso, C. (2023). Analysis of transient seepage through a river embankment by means of centrifuge modelling, 8th International Conference on Unsaturated Soils, UNSAT 2023, Milos Island, Greece, 2–5 May 2023. [Submitted Conference paper]

[8] Dodaro, E., Viggiani, G.M.B., Gottardi, G. (2023). An integrated experimental and numerical approach for diffusive physical and numerical modelling of river embankments to floodings. *Geo-Resilience 2023*, Cardiff, United Kingdom, 28–29 March 2023. [Submitted Conference paper]

### Papers in national conference proceedings

[9] Ventini, R., Giretti, D., Dodaro, E., Gragnano, C.G., Zarattini, F., Pirone, M., Fioravante, V., Gabrieli, F., Gottardi, G., Mancuso, C., Simonini, P. (2021). Analisi sperimentale per lo studio del comportamento idromeccanico di un terreno costipato, Incontro Annuale dei Ricercatori di Geotecnica 2021, IARG 2021 online, 28 September 2021.

[10] Dodaro, E., Pirone, M., Gragnano, C.G., Ventini, R., Giretti, D., Zarattini, F., Fioravante, V., Gabrieli, F., Gottardi, G., Mancuso, C., Simonini, P. (2021). Analisi predittive del comportamento idro-meccanico di un modello di argine fluviale in condizioni di flusso transitorio, Incontro Annuale dei Ricercatori di Geotecnica 2021, IARG 2021 online, 29 November 2021.

[11] Dodaro, E., Sorrentino, G., Ventini, R., Viggiani, G.M.B., Gottardi, G. (2022). Effetto della suzione e tensione di confinamento sulla resistenza a taglio di una miscela sabbio-limoso costipata, Incontro Annuale dei Ricercatori di Geotecnica 2022, IARG 2022, Caserta, Italy, 7–9 September 2022.

[12] Ventini, R., Giretti, D., Pirone, M., Dodaro, E., Gragnano, C.G., Girardi, V., Zarattini, F., Fioravante, V., Gabrieli, F., Gottardi, G., Simonini, P., Mancuso, C. (2022). Modellazione fisica in centrifuga di un argine fluviale soggetto a carichi idraulici variabili, Incontro Annuale dei Ricercatori di Geotecnica 2021, IARG 2022, Caserta, Italy, 7–9 September 2022.

[13] Ventini, R., Dodaro, E., Pirone, M., Giretti, G., Gragnano, C.G., Fioravante, V., Gottardi, G., Mancuso, C. (2023). Integrated physical and numerical modelling to study the hydro-mechanical response of a river embankment, VIII Convegno Nazionale dei Ricercatori di Ingegneria Geotecnica, Palermo, Italy, 5–7 July 2023. [Submitted Conference paper].