

Academic education and scientific degree



Gersende
FERNANDES

PhD student

Personal information

Nationality

French

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ORCID

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Languages

French

Mother tongue

English

Fluent

Portuguese

Intermediate

German

Beginner

Italian

Beginner

• PhD

LEHNA (ENTPE) and DEEP (INSA) laboratories, Lyon (France)

Since october 2020

PhD in Soil Physics, under the supervision of Dr. Laurent Lassabatere and Prof. Gislain Lipeme Kouyi, on "infiltrometry approaches and models for quantifying urban soil infiltration and filtration functions"

My thesis work is devoted to the **characterization of preferential flowpaths** and **transfer of colloidal pollutants** in soils during infiltration. The work aims to develop a non-destructive method with a Ground Penetrating Radar, a ring infiltrometer, and Nanotracers (SPIONs) to visualize colloidal pollutants transfer and characterize the soil's filtration function. We designed a specific large-ring infiltrometer with usual infiltrometers and showed the better representativeness of our device. Modelling of the infiltration experiments allows the identification of the role of macropores to flow pathways in the ground and water infiltration at surface.

• Civil engineering and Master degrees

ENTPE and University of Lyon

2017-2020

Specialized in Environment - Rivers, Coasts and Waterways (civil engineering degree), and in Industrial and Urban Environmental Sciences (Master degree)

• Preparatory Classes for Engineering Schools

Lycée Jeanne d'Albret, St Germain en Laye (France)

2015-2017

Preparatory classes for engineering school in mathematics, physics and engineering sciences (equivalent of the two first years of a Bachelor)

Professional experience

• Master 2 Internship

LEHNA (ENTPE), Lyon (France)

April to September 2020

Study of earthworms characteristics and physico-chemical parameters (including pollutants) in an infiltration basin, development of a statistical analysis of large dataset

• Master 1 Internship

Higher Institute of Agronomy, Lisbon (Portugal)

April to August 2019

Researches in agronomy, conception and development of protocols, communication abroad

Publications

• **Fernandes G**, Roques O, Lassabatère L, Sarles L, Venisseau A, Marchand P, Bedell J-P, 2022. Influence of edaphic conditions and persistent organic pollutants on earthworms in an infiltration basin. **Environmental Pollution** 304, 119192. <https://doi.org/10.1016/j.envpol.2022.119192>

• Di Prima S, **Fernandes G**, Marras E, Giadrossich F, Stewart R.D, Abou Najm M.R, Winiarski T, Mourier B, Angulo-Jaramillo R, Comegna A, del Camp A, Lassabatere L, 2023. Evaluating subsurface flow connectivity in a pine-covered hillslope with stemflow infiltration and ground-penetrating radar surveys. **Journal of Hydrology**. 129527. <https://doi.org/10.1016/j.jhydrol.2023.129527>

• **Fernandes G**, Di Prima S, Lipeme Kouyi G, Lassabatere L. Large ring infiltrometer and GPR-based SPIONS observations for infiltration and filtration functions of urban soils. **In preparation.**

• **Fernandes G**, Di Prima S, Traulle A, Lipeme Kouyi G, Saint-Louis SM, Lassabatere L. Infiltrometer's ring-size effect on representativeness of heterogeneous soils: an experimental and numerical study. **In preparation.**

• Participation in the open access IWA Publishing book: Asset Management of Urban Drainage systems without the hot air. Chapter 6. Coordination by Prof. Francois Clemens. **In preparation.**

Competences

Modelling

Hydrus

GPR data treatment and analysis

ReflexW
RockWorks
RGPR

Hydraulic data treatment and analysis

Excel and R
BEST method

Field experiments

Planification and realization

Statistics

R

Communication

Inkscape
Office Pack 2016
LateX

Others

Supervision

2 Master students

Teaching

Bachelor students

- stormwater management
- lake ecosystems
- scientific literature
- climate change's causes and consequences

Visiting scientist

University of Melbourne
WERG Laboratory (Australia)
January to June 2023

Sciences popularization

Cercle FSER - declics
Science & You
My Thesis in 180 seconds - 2nd price (Rhône)

Workshops

- ERIN2 (July 2021, Erquy, France)
- Science & You (November 2021, Metz, France)
- EJSW-UDS (May 2022, St Maurice de Valgaudemar, France)
- MULTISOURCE COST Action (July 2022, Lyon, France)

Conferences and Workshops presentations

Oral presentations

• Bedell J-P, **Fernandes G***, Roques O, Lassabatère L, 2021. Characterization of earthworms in an infiltration basin for maintaining water infiltration EGU21-7215. <https://doi.org/10.5194/egusphere-egu21-7215>
*presenter

• **Fernandes G**, Lassabatere L, Lipeme Kouyi G, A new method to determine infiltration of water in urban soils. Presented at the EJSW 2022. Saint Maurice en Valgaudemar, France, from 15 to 21 May 2022.

• **Fernandes G**, Di Prima S, Lipeme Kouyi G, Angulo-Jaramillo R, Martini M, Lassabatère L, 2022. A new method to determine filtration of pollutants in urban soils (No. EGU22-7174). Presented at the EGU22, Copernicus Meetings. <https://doi.org/10.5194/egusphere-egu22-7174>

• **Fernandes G**, Di Prima S, Lipeme Kouyi G, Angulo-Jaramillo R, Martini M, Donze D, Lassabatère L, "Développement d'une méthode pour la caractérisation de la filtration des polluants dans les sols urbains". Presented at the JDHU 2022, Lyon, France, 18 and 19 October 2022. **Award for the best presentation.**

• **Fernandes G**, Di Prima S, Lipeme Kouyi G, Angulo-Jaramillo R, Martini M, Lassabatère L. Development of a probability approach to determine water and colloidal pollutant behavior in urban heterogeneous soils (No. EGU23-1164). Will be presented at the EGU23, Copernicus Meetings. <https://doi.org/10.5194/egusphere-egu23-1164>

• **Fernandes G**, Di Prima S, Lipeme Kouyi G, Fletcher T, Lassabatère L. Caractérisation des fonctions infiltration et filtration d'un ouvrage de gestion des eaux pluviales à la source. Will be presented at Novatech 2023.

Poster

• **Fernandes G**. Infiltration des eaux pluviales et filtration des polluants dans les sols urbains : une nouvelle approche. Presented at the ERIN2 Workshop, 4-9 July 2021, Erquy, France.