

# Manuel MADEIRA

## PERSONAL DATA

---

EMAIL: [manuel.madeira@epfl.ch](mailto:manuel.madeira@epfl.ch) CITIZENSHIP: Portugal  
WEBSITE: [manuelmlmadeira.github.io](http://manuelmlmadeira.github.io) GITHUB: [manuelmlmadeira](https://github.com/manuelmlmadeira)  
LINKEDIN: [manuel-madeira](https://www.linkedin.com/in/manuel-madeira) X: [@manuelmlmadeira](https://twitter.com/manuelmlmadeira)

## ABOUT ME

---

I am a PhD student at EPFL working under the supervision of [Pascal Frossard](#) and [Dorina Thanou](#). My research gravitates around generative modelling, graph deep learning, and how to leverage these to enable scientific discoveries, typically in the biomedical domain.

## EDUCATION

---

2022 - PHD. in MACHINE LEARNING  
PRESENT **École Polytechnique Fédérale de Lausanne**, Switzerland

2018 - 2019 Exchange student in COMPUTER SCIENCE  
(FALL) **Tsinghua University**, China

2018 - 2021 MSc. in BIOMEDICAL ENGINEERING  
**Instituto Superior Técnico**, Portugal  
GPA: 19 / 20 (1st in class), THESIS: 20/20

2015 - 2018 BSc. in BIOMEDICAL ENGINEERING  
**Instituto Superior Técnico**, Portugal  
GPA: 19 / 20 (1st in class and 1st ever to attain such grade)

## RESEARCH EXPERIENCE

---

SEP 2022 - PRESENT | **Doctoral Assistant** at EPFL  
Studying the incorporation of domain knowledge into graph diffusion models. My research addresses graph generative models and the development of generation evaluation metrics for digital pathology.

SEP 2021 - AUG 2022 | **Machine Learning Researcher** at [INDUCTIVA RESEARCH LABS](#)  
Conducted research on deep learning based approaches to solve partial differential equations. Deployed physics-informed neural networks to model heat diffusion and coastal dynamics and analysed their generalization to arbitrary domains.

MAR 2021 - JUN 2021 | **Research Internship** at [INSTITUTE FOR SYSTEMS AND ROBOTICS](#)  
ADVISORS: [Renato Negrinho](#), [João Xavier](#), and [Pedro Aguiar](#)  
Researched on  $L$ -smoothness exploitation for first-order stochastic optimization methods with theoretical developments on algorithmic analysis.

SEP 2019 - FEB 2020 | **Research Internship** at [IST-ID](#)  
Transcribed interviews on health technologies assessment in Portugal for the [MEDI-VALUE PROJECT](#).

## AWARDS AND HONORS

---

2022-23 **EDIC PhD Fellowship**, by EPFL

2016-18 **1st ranked student in Biomedical Engineering BSc**, by Instituto Superior Técnico

2015-20 **Diploma of Academic Excellence (Top 10%)**, by Instituto Superior Técnico

2009-15 **Best student in high school**, by Crédito Agrícola

## TEACHING EXPERIENCE

---

- Network Machine Learning
- Probability and Statistics
- Practice of Object-Oriented Programming
- Analysis I
- Histology

## SOFTWARE SKILLS

---

LANGUAGES: Python, Matlab, Java, Mathematica, R

FRAMEWORKS: PyTorch, Keras, Tensorflow, Pandas, Scikit-learn, NumPy, CVX, CVXPY/CVXOPT, Abaqus

MISC: Unix, Git, Conda, Colab, Tmux, Pueue

## PUBLICATIONS

---

- [1] MM, D. Thanou, and P. Frossard. **Tertiary Lymphoid Structures Generation through Graph-based Diffusion**. In: *GRAIL Workshop*. MICCAI. 2023.
- [2] S. Moalla\*, MM\*, L. Riccio\*, and J. Lee\*. **[Re] Reproducibility Study of Behavior Transformers**. In: *ML Reproducibility Challenge 2022*. Outstanding Paper Award (Honorable Mention). ReScience C. 2023.
- [3] MM, R. Negrinho, J. Xavier, and P. M. Aguiar. **COCO Denoiser: Using Co-Coercivity for Variance Reduction in Stochastic Convex Optimization**. In: *OPT2021 Workshop*. NeurIPS. 2021.

## EXTRACURRICULAR ACTIVITIES

---

- 2023 Attended Cambridge Ellis Unit Summer School on Probabilistic Machine Learning
- 2022- Co-organizer of [Deep Learning Sessiong Portugal](#)
- 2021 Attended Lisbon Machine Learning Summer School
- 2009-21 Competitive football player (national level)
- 2015 National finalist in Biology Olympiad

## LANGUAGES

---

- PORTUGUESE: Native
- ENGLISH: C2, TOEFL iBT: 114 / 120
- SPANISH: A2
- FRENCH: A2
- CHINESE: Elementary (Tsinghua course)

## PERSONAL INTERESTS

---

Football, CrossFit, Reading, Cinema