Francisco Madaleno

PhD Candidate @ MLSM DTU

Education

Technical University of Denmark (DTU)

PhD Candidate @ **Machine Learning for Smart Mobility (MLSM)**

October 2024 - Present, Copenhagen, Denmark

PhD Topic: Active Learning Causal Discovery on Simulators for Climate Change Policy Making

Instituto Superior Técnico / MSc Aerospace Engineering

2014 - 2019, Lisbon, Portugal, GPA: 16/20

MSc Thesis: "Flying Tourist Problem: An Integer Linear Programming Approach" as a Research Student at **INESC-ID, Lisbon**. Optimization tool to find the best schedule and route for a multi-city flight trip with real-time data integrated in a web application. Mark: 18/20

Athens Programme 2019: Operations Research in the Airline Industry, **Mines Paristech**
Ten day intensive course with **AirFrance KLM** Operations Research/Data Science Team.

Summer Course 2018: Experimental Aerodynamics, **University of Southern Denmark**
Optimization project of a wind turbine blade for **LM Wind Power**.

Polytechnic University of Catalonia, UPC - ESEIAAT / Erasmus

2017 - 2018, Barcelona, Spain

Erasmus exchange programme: Specialization in Optimization and Operations Research.

Experience

Zalando SE / Applied Scientist

September 2021 - August 2024, Berlin, Germany

Logistics and Algorithms. Developed strategies and algorithms for logistics networks to solve assignment and flow problems. Built and managed micro-service infrastructure to run highly-parallelizable algorithms. Contributed to Zalando's open- and inner-source projects as well as to the company's data science community.

Presented in GOR Workshop 2022: Applied Methods from Mathematical Optimization and Machine Learning for e-commerce. "Mathematical Optimization Meets Machine Learning to Optimize Stock Distribution at Zalando"

Zalando SE / Intern Applied Scientist

April 2021 - September 2021, Berlin, Germany

Pricing and forecasting. Collaborated on a MIP tool that consumes a forecast of over 500k items across 14 markets to recommend discounts over the period of 26 weeks.

Developed an heuristic that defines feasible target ranges as bounds for the MIP tool.

von Karman Institute / INOV Contacto 2020

February 2020 - September 2020, Brussels, Belgium

Participated in the programme INOV Contacto 2020 funded by AICEP Portugal in which I worked for **von Karman Institute for Fluid Dynamics** as a Research Intern Engineer.

At von Karman I was responsible for building a computational model and simulation tool to optimize a system of a turbine for **Safran Group.**

Volunteering

ReDI School of Digital Integration

October 2023 - October 2024, Berlin, Germany

Teacher Assistant in Introduction to Computer Science. Taught Python fundamentals and assisted students in their first semester final project.

ReDI is a non-profit tech school providing migrants and marginalized locals free and equitable access to digital education.

Publications

BHIP: Bayesian Hierarchical Invariant Prediction (under review), 2025

Improving Zalando's Warehouse Efficiency by Relocating Items, International Conference on Operations Research, 2022

FTP: An Integer Linear Programming Approach, 2019