

PEDRO MOREL ROSA

Looking for a Data/AI Research Position

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EDUCATION

Diplome d'Ingénieur

ENSTA Paris - Institut Polytechnique de Paris

September 2020 – September 2023 France, Palaiseau

- Data + AI Specialization Track (2022)
- Major in Mechanics, Minor in Modeling (2020)

M2 - Fluid Mechanics

Institut Polytechnique de Paris

September 2021 – September 2022 France, Palaiseau

Mechanical Engineering Degree

UFRJ - Universidade Federal do Rio de Janeiro

January 2017 – Ongoing Brazil, Rio de Janeiro

WORK EXPERIENCE

Qantev

Machine Learning Engineer Intern

April 2023 – Ongoing Paris, France

- Worked on designing, training and improving multimodal models for Document AI.
- Researched and implemented different medical code inference techniques.
- Developed solutions based on LLM powered agents for data interaction and extraction.

Python Deep Learning LangChain LLMs NLP Azure

ONERA

Master Internship

March 2022 – August 2022 Meudon, France

- Data-driven turbulence modeling for the aeroelasticity of laminar wings.
- Obtained improved turbulence models through data-driven optimization constrained by the Navier-Stokes equation.
- Generalized these models through Deep Learning (MLPs).

C Python PyTorch Deep Learning Optimization CFD

PMMH Laboratory - ESPCI

Research Internship

May 2021 – August 2021 Paris, France

- Worked with numerical and theoretical modeling of bubble ascent and interfacial dynamics, in a gravity field that varies rapidly with time.

Basilisk C Gnuplot Interfacial Dynamics CFD

Wikki Brasil

Software Engineer Intern

July 2019 – March 2020 Rio de Janeiro, Brazil

- Responsible for numerical simulations of well-reservoir coupling.
- Assisted in the development of a biphasic solver for porous media.

C/C++ OpenFOAM Python ParaView CFD

NIDF - Interdisciplinary Center for Fluid Dynamics

Research Internship

July 2018 – July 2019 Rio de Janeiro, Brazil

- Implemented several data science techniques to obtain statistical models for an accurate description of the multiphase erosion phenomenon.
- Developed an erosive wear simulator using a CGI framework.

Python Gaussian Processes Regression Models JavaScript

SKILLS

Programming Skills

- C/C++
- Python
- Bash
- R
- LaTeX
- JavaScript
- Git
- SQL
- Node.js

Softwares / Frameworks

- PyTorch
- Keras
- LangChain
- Mathematica
- Matlab
- Ansys

Languages

- French - C2
- English - C2
- Spanish - C1
- Portuguese

COURSES

IMPA - 60 Hours

- Machine Learning Theory.

DeepLearning.AI + AWS

- Generative AI with LLMs.

DeepLearning.AI + AWS

- MLOps Specialization.

DeepLearning.AI - 30 Hours

- NLP Specialization.

PROJECTS

Document Layout Analysis

Data Scientist

September 2022 - March 2023

- Student project between BNP Paribas and ENSTA Paris focused on Deep Learning-based document layout analysis and segmentation.

DALL·E ENSTA

Data Scientist

August 2022 - March 2023

- Project focused on the development of a VQ-VAE and an autoregressive transformer for text-to-image translation, inspired by the architecture of DALL·E.

CFD Brasil

Founding Member

June 2021 - In progress

- Group of 100 participants dedicated to the dissemination of techniques and methods related to the field of fluid mechanics and computer simulation.

REFERENCES

- Vincent Mons - Researcher at ONERA
vincent.mons@onera.fr
- Rodrigo Dias - Wikki Brasil CEO
rodrigo.dias@wikki.com.br
- Atila Freire - NIDF Coordinator
atila@mecanica.ufrj.br

HOBBIES

Piano Photography Mathematical Art