

PAULO BRUNO SERAFIM

Conversational XAI Researcher | PhD Student @ GSSI

I am a PhD student working with Conversational Explainable AI, and with 5 years of experience in industry. Throughout my involvement in different projects, I have become a person who loves to solve challenging problems using my creativity, developing novel solutions to relevant and nontrivial tasks through innovation.

EDUCATION

PhD - Computer Science Nov/2022-Today

Gran Sasso Science Institute (GSSI)

Research on Conversational Explainable AI (XAI) through the use of Large Language Models.

MSc - Computer Science Mar/2016-Apr/2018

Federal University of Ceara (UFC)

Thesis: *Evaluating competition in training of Deep Reinforcement Learning agents in First-Person Shooter games (in Portuguese)*

BSc - Computer Science Jan/2013-Dec/2015

Federal University of Ceara (UFC)

Magna Cum Laude degree

SKILLS

Python 9 years

Numpy, Scikit, Pandas, Matplotlib, Ollama

C/C++ 8 years

Data-Oriented and Object-Oriented C/C++

Explainable AI 5 years

OmniXAI, XRL, Natural Language Explanations

Large Language Models 3 years

GPT (OpenAI API), Gemini, Llama 2

Deep Learning 6 years

TensorFlow and Keras in Python

Reinforcement Learning 8 years

Deep Q-Networks and Policy Gradients

LANGUAGES

PT Native Speaker

EN Full Professional Proficiency

IT Professional Working Proficiency


FR Elementary Proficiency

SOCIAL

 paulobruno.github.io

 linkedin.com/in/pbserafim

 github.com/paulobruno

 orcid.org/0000-0002-5980-8149

EXPERIENCE

PhD Student Nov. 2022 - Oct. 2026

Gran Sasso Science Institute

Research on Human-Centered Conversational Explainable AI, building tools to explain Machine Learning decisions for non-technical users. Explored the capabilities of LLMs to explain Decision Tree classifications (HHAI 2024). Developed a multi-agent architecture for generating simplified explanations for any tabular classifier (ECML PKDD 2025).

Research Engineer Apr. 2022 - Oct. 2022

INRIA Sophia Antipolis

Implemented a novel Locality-Sensitive Hashing algorithm developed in the group, performed benchmarks, and wrote reports of experiments on Machine Learning datasets. Started development of an internal package for Neural Network pruning. Lead programmer of WorldDynamics.jl, an open-source framework for world dynamics modeling and simulation written in Julia.

Senior Data Scientist May 2021 - Mar. 2022

Instituto Atlântico

Tech Lead of the Data Science branch of an R&D project for Dell EMC. I have worked with anomaly detection using unsupervised learning methods, classification using supervised learning methods, and development of BI dashboards to assist tactical and operational decision-making. Responsible for writing and presenting technical reports to Dell EMC managers.

Computer Vision Engineer Sep. 2020 - Apr. 2021

Instituto Atlântico

Worked on an R&D Computer Vision project for HP Inc., applying Deep Learning for human segmentation and image matting using TensorFlow. Worked on OCR methods applied to printed text documents. Developed a synthetic document generator using OpenCV. Co-leader of the Cognitive Computing study group, focused on CV, Image Processing, and RL.

SELECTED PUBLICATIONS

MAINLE: a Multi-Agent, Interactive, Natural Language Local Explainer of Classification Tasks Sep. 2025

ECML PKDD Research Track

Paulo Serafim, Rômulo Férrer, Stenio Freitas, Gizem Gezici, Fosca Giannotti, Franco Raimondi, Alexandre Santos

Exploring Large Language Models Capabilities to Explain Decision Trees Jun. 2024

Hybrid Human AI Systems for the Social Good (HHAI)

Paulo Serafim, Pierluigi Crescenzi, Gizem Gezici, Eleonora Cappuccio, Salvatore Rinzivillo, Fosca Giannotti

Generating Supports Nov. 2019

Patent WO2021107916A1

Jun Zeng, Paulo Bruno Serafim, Alyne Gomes Soares Cantal