

Mariana Meireles

Systems Engineer and Cooperative AI Researcher

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PROFESSIONAL EXPERIENCE

MAX PLANCK INSTITUTE FOR EVOLUTIONARY BIOLOGY

Remote, Plön, GE

Researcher Software Engineer

MAY 2024 - PRESENT

- Create a [LLM interface to interact with the ontologies using FOL](#)
 - Paper in progress: [Leveraging the Power of Complex Logical Query Answering with Natural Language](#)
- Develop a graph ontology database for biological systems by creating an unifying software to download various formats from different sources and unify them under the RDF
- Apply [Graph Neural Net algorithms to extract insights from ontological data](#)
- Create FAIR standards to improve data sharing
- Collaborate in ongoing theoretical evolutionary biology research at the institute

BARFUSS LAB, UNIVERSITY OF BONN

Remote

Researcher

JAN 2024 - PRESENT

- Exploring what are the underlying factors that promote cooperation in Reinforcement Learning systems with heterogeneous agents
 - Paper in progress: [Learning to Cooperate with Intelligence Inequality: A Complexity Science Exploration](#)
- Maintaining the open-source [Python package on Collective Reinforcement Learning Dynamics](#) (CRLD)

IMPACT ACADEMY

Remote, Bangalore, IN

Research Fellow

OCT 2023 - Apr 2023

- Researching Cooperative AI and AI Alignment

RADAR

Remote

Generative AI and Alignment Research Engineer (Contract)

SEP 2023 - Nov 2023

- RADAR is a research collective that is looking into ways of democratizing research. I have collaborated on a research report that explores the implications of artificial intelligence on our future
- Developing an Open Source [Framework](#) for Aligning LLMs

ANACONDA

Remote, Berlin, GE

Software Engineer III

MAY 2022 - MAY 2023

- Engineered and improved various aspects of PyScript's API, including the output system, core Python code re-architecture, WASM integration and Python multithreading in the browser, implemented the initial testing infrastructure and several aspects of the CI system
- Led early efforts in community building for PyScript. Built bridges with external projects like JetBrains, Jupyter, Pyodide and other contributors
- Organized an international, cross-project group with 8 organizations and 20+ contributors to establish a centralized set of protocols for Python web development

NASA	Remote
Subject Matter Expert (Contract)	JUN 2022 - AUG 2023
<ul style="list-style-type: none"> Presented the state of the art of the open science research ecosystem to the group of researchers Collaborated in building the chapter on the “Ethos of Open Science” for NASA’s Open Science 101 course 	
QUANTSTACK	Remote, Berlin, GE
Scientific Software Engineer	FEB 2020 - APR 2022
<ul style="list-style-type: none"> Integrated the Cytoscape interactive graph library into the Jupyter ecosystem as a widget. Developed Jupyter kernels to support major SQL languages and implemented data visualization capabilities for SQL query outputs within the notebook environment. Added a new visualization mode to Jupyter notebooks. Created a deprecation finder for Bloomberg software and contributed it to the Jupyter project Authored several aspects of the Mamba and Micromamba APIs and developed R bindings, resulting in a package manager system 25x faster than CRAN. Released and maintained several different packages in the conda-forge ecosystem 	
THE QT COMPANY	Berlin, GE
Desktop GUI Software Engineer (Contract)	SEP 2019 - DEC 2019
<ul style="list-style-type: none"> Responsible for maintaining and building new features for PySide (the Python bindings for Qt) Added support functionalities for PySide on Qt Creator Developed a voice and text assistant for the Berlin Qt Conference 2019 	
MOZILLA	Remote, Orlando, US
Web Performance Intern	DEZ 2018 - FEB 2019
<ul style="list-style-type: none"> Cut the average loading time of the Webcompat website by 35% through the implementation of server-side rendering, HTTP/2, enhanced compression algorithms, and the removal and reimplementaion of libraries Employed Selenium-designed tests to track down some performance bottlenecks and decrease the page load time by 1s in low-speed mobile connections Worked on small patches for Firefox, available on my bugzilla profile 	
Open Source Contributor	AUG 2018 - MAY 2019
<ul style="list-style-type: none"> Added simple features to the Firefox test system Translated part of The Rust Book and workshop materials Promoted and organized Rust events in the Brazilian Rust community 	
CLOUDIA	Belo Horizonte, BR
Full Stack Developer	JUL 2018 - OCT 2018
<ul style="list-style-type: none"> Integrated the company's chatbot system with the official Whatsapp API and several unofficial APIs Added new functionalities to the chatbot Designed and implemented a metrics dashboard Created API endpoints to add new features to the dashboard system 	
COMPUTER SCIENCE DEP. - UFMG	Belo Horizonte, BR
Undergraduate Researcher	MAR 2018 - JUN 2018

- Collaborated with Dr. Flavio Figueiredo to investigate potential correlations between language use and gender using NLP and big data analytics

EDUCATION

MACHINE LEARNING FOR GOOD

Topics covered: mechanistic interpretability

Gnevkow, GE

SEP 2024 - OCT 2024

CAMBRIDGE AI SAFETY HUB

Cambridge Machine Learning for Alignment Bootcamp

Topics covered: einops, CNNs, ResNets, Variational Autoencoders, Transformers from Scratch, Mechanistic Interpretability, Reinforcement Learning and RLHF

Cambridge, UK

APR 2024 - APR 2024

BLUE IMPACT

AI Safety Fundamentals

Remote

MAR 2024 - MAY 2024

SANTA FE INSTITUTE

Santa Fé Institute - Complexity Interactive

Short abstract: [How Does Polarization and Inequality Scale with Spatial and Population Size](#)

Remote

OCT 2023 - Nov 2023

RECURSE CENTER

Complex systems and LLM ABM [software projects](#)

New York City, US

JUN 2023 - SEP 2023

MIT

Micro Masters Program in Data, Economics and Development Policy

Remote

MAY 2023 - HIATUS

UNIVERSIDADE FEDERAL DE MINAS GERAIS

Bachelor of Engineering, Major in Electrical Engineering; Minor in Computer Science (Incomplete)

Belo Horizonte, BR

2015 - 2018

AWARDS

- “[Jupyter Distinguished Contributor](#)” award 2022
- Impact Academy Prize for best research project 2024

OPEN SCIENCE COMMUNITY SERVICES

- **Open Knowledge Foundation [Expert](#)** (2023 - Present): Offering workshops, delivering talks and mentoring people into the open movement.
- **Internet Society Member** (2023 - Present): Brazilian Chapter, [Rural Development Community and Affordable Internet Access SIG](#).
- **Women of Color Code Organizer** (2021 - Present): Software mentor and co-organizer. The project seeks to unite members of minoritized groups in educational institutions and industry settings. Here I have delivered several software and open science classes to graduate students of various backgrounds.
- **PyLadies Berlin Organizer** (2018 - Present): Organizer of PyLadies Berlin, facilitating [workshops and talks](#). Organizer of the Machine Learning Group for 6 months in which I held weekly meetings to teach and learn ML.
- **DISC NumFOCUS Steering Council Member** (2022 - 2024): Responsible for organizing the NumFOCUS Unconference 2023, updating the NumFOCUS DISCOVER [Cookbook](#) and [developing integration programs](#) aimed at enabling participation from individuals of underprivileged communities into the open science ecosystem.
- **Jupyter Widgets Committee Member** (2022 - 2024): Community maintenance and governance stewardship.

INVITED TALKS AND WORKSHOPS

- Knowledge Graph Summer School 2024: [Poster: Leveraging the Power of Complex Logical Query Answering with Natural Language](#)
- CooperativeAI Summer School 2024, Machine + Behavior 2024, ELLIS CoGenAI Summer School 2024: [Poster: Learning to Cooperate With Intelligence Inequality: A Complexity Science Exploration](#)
- Impact Academy Summit 2024: [Talk: Understanding Machine and Human Cooperation](#)
- PythonPizza Hamburg 2024: [Talk: How to Build a Universe From Scratch](#)
- WCC Summer School 2023: [Workshop: Environments and Packaging](#)
- WCC Summer School 2023: [Workshop: Pytest + Github Actions: How to Set Up an Environment](#)
- WCC Summer School 2023: [Workshop: Python Packaging: How to Release Your Own Python Package in Pypi and Conda](#)
- Women of Code Summer School 2023: [Workshop: Thoughts on Software Engineering: Software Design and Architecture](#)
- PyLadies Berlin 2023: [Talk: Jupyter Internals: Jupyter's Implementation Details and How to Contribute](#)
- Scipy 2022: [Tutorial: Ipywidgets](#)
- WCC Summer School 2022: [Workshop: Introduction to Qt for Python](#)
- WCC Summer School 2022: [Tutorial: The Git Survival Guide: Basic to Advanced Git](#)
- Scipy 2021: [Tutorial: Ipywidgets](#)
- PyCon Brasil 2021: [Talk: As Luas de Jupyter](#)
- WCC Summer School 2021: [Tutorial: How to Build Your Academic Website Profile](#)
- QtCon Brasil 2020: [Talk: Uma Introdução a PySide](#)
- JupyterCon 2020: [Talk: Ipycytoscape: An Interactive Graph Library for Jupyter](#)
- JupyterCon 2020: [Talk: Xeus: Multiple Languages Within Jupyter](#)
- JupyterCon 2020: [Talk: Memestra: A Deprecation Warning Tool](#)
- QtCon 2020: [Talk: Leveraging DeepLearning with PySide](#)
- Universidade Federal de Minas Gerais Summer School 2020: [Tutorial: Guia de Sobrevivência Git](#)

LECTURES

- **NASA (2023):** Open science [EDx class](#)
- **Guest Lecturer by the LSSTC-DSFP at Harvard (2022):** [Instructed graduate students in Astronomy](#) on topics such as Object-Oriented Programming (OOP), performance optimization for scientific software, as well as open science and reproducible research practices.

MENTORSHIP

- **Open Life Science Mentor (2023):** [Mentored](#) an undergraduate computer scientist in the development of a program designed to integrate young research software engineers into the field. This project is affiliated with UK-RSE.

ACADEMIC SERVICES

- US-RSE 2024 Reviewer

VOLUNTARY WORK

- DoeBem researcher: DoeBem is the equivalent to GiveWell in Brazil. I helped them to write an analysis specifying what are the specific needs of people living with food insecurity.

