

# Rodrigo Neves

## MACHINE LEARNING ENGINEER

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*“Only a few know how much one must know to know how little one knows”*

## Summary

Currently working as a contractor to a consultant company as a Machine Learning engineer consultant, with previous experience (4 years) working as a Software/Machine Learning engineer at a start-up with a focus on building predictive solutions for the energy and industry sector. Started working on a pure data scientist position, but steady and slowly started to earn more responsibility and work in different positions and tasks like developing production-ready software, designing and building internal and external dashboards, developing and building CI/CD pipelines to automate several tasks, pushing MLOps good practices, deploying and managing workflows over a Kubernetes cluster and working on the frontend and backend of the core product. That led me to learn skills from different fields like machine learning, software, and full-stack engineering. This exposure to many areas of the software cycle allows me to understand how they interact and impact each other, which I consider really important in a fast-paced environment like it is the software field nowadays. Nevertheless, I know that I still have a lot to learn and every day it seems that I know even less than the day before. The development pace of new technologies, frameworks, and tools can be daunting and terrifying, but you will have to face it as new opportunities and excitement. Above positions and/or titles what I love most about my daily work is to feel challenged and uncomfortable. I consider myself as someone who is eager to learn, loves a good challenge, likes to ask questions, does not like inefficiencies, aims for excellence, and is always ready to help.

## Work Experience

### Daredata Engineering

*Lisbon, Portugal*

MACHINE LEARNING ENGINEER

*June 2021 - Present*

- Migrated cross-selling models from R into Python, further improving them with new feature engineering and models architectures and implementing distributed hyperparameter optimization on Spark with Hyperopt. Pushed best practices from MLOps perspective to easily operationalize the newly developed models, using Mlflow, Databricks, and AzureML on Azure platform.
- Built and deployed an MLOps based pipeline to deploy and schedule GPU-ready models on Google Cloud Platform using a Kubernetes cluster and Airflow. The main use-case was to run several deep learning NLP models to populate an Elasticsearch database with documentation summarization and entity recognition/extraction.
- Planned and developed a proof of concept solution for a big utility company to create an automatic and interactive solution to calculate solar potential through satellite images. Implemented a computer vision pipeline using Pytorch and OpenCV to generate all the artifacts and data needed to integrate with the GIS-based systems. As a second phase, a machine learning model was developed to calculate the probability of a customer buying solar panels, based on the output of the first phase.

### Jungle AI

*Lisbon, Portugal*

SOFTWARE/MACHINE LEARNING ENGINEER

*May 2018 - June 2021*

- Researched and implemented Jungle's core approach to predictive modelling with an emphasis on recurrent models and time series data implementing from scratch most of the modules using Pytorch.
- Active member of 5+ projects within the energy and heavy industry sector with the main purpose of showing Jungle's predictive solutions. This work would evolve to gather, process and analyze data to apply Jungle's predictive maintenance pipeline and presenting the result to the clients.
- Designed, developed and build internal and production-ready software and deployments. Tasks like ORM definition for production databases, software to process essential high-volume data analysis or the development of a backend infrastructure to manage production deployments using FastAPI, among others.
- Designed and implemented a database architecture (Postgres and TimescaleDB) refactor to allow for a scalable, high-performing and cost-effective solution.
- Built an automated data collection and cleaning workflow (AWS S3 and Prefect) to process daily 2k+ sensors with a millisecond frequency.
- Built a CRUD RESTful API in Node.js for TimescaleDB and PostgreSQL database to be used by Jungle product.
- Implemented, deployed and maintained several high-performing, scalable and distributed workflows using Argo and Kubernetes making use of several CI/CD pipelines to help on automation.
- Designed, built and managed internal dashboards and data warehouse solutions using InfluxDB and Grafana to allow for high-volume data analysis.

### Jungle AI

*Lisbon, Portugal*

MASTER THESIS INTERNSHIP

*August 2018 - May 2018*

- Had the opportunity to do my master thesis work in a professional environment. The main research goal was to study, implement and test the performance of different deep learning models and architectures applied to time-series problems, specifically in the area of predictive maintenance and forecasting. This allowed me to be an active member of Jungle's daily projects to establish their technology.

## Technical Skills

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<b>Programming Language</b>	Python, Javascript, SQL
<b>Machine Learning Stack</b>	Pytorch, Tensorflow, Scikit-learn, XGBoost, LightGBM, MLFlow
<b>Data Analysis Stack</b>	Pandas, Numpy, Dask, (Py)Spark, Scipy, Ray, IPython, Holoviews, Bokeh, Plotly, Matplotlib, OpenCV, Shapely
<b>Workflow Orchestration</b>	Docker, Kubernetes, Argo, Prefect, Airflow
<b>Fullstack Technologies</b>	PostgreSQL, TimescaleDB, InfluxDB, Node.js, Flask, FastAPI, ReactJS, Gatsby, SQLAlchemy
<b>Software development</b>	Git, CI/CD, Unit-testing, Agile, MLOps, GCP, Azure, Databricks, Distributed Computing

## Education

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### Instituto Superior Tecnico - University of Lisbon

*Lisbon, Portugal*

MSC. IN ELECTRICAL AND COMPUTER ENGINEERING

*Sept. 2012 - June. 2018*

- Masther thesis - "An overview of deep learning strategies for time-series prediction". Work done in collaboration with Jungle AI.