

GuilhermePires [ML Engineer]

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skills & tools

very confident: python, pytorch, pandas, sklearn, numpy, bash, unix, docker
confident: sql, k8s, azure, aws, golang, c, dask, ray, ansible, terraform
beginner: scala, nlp techniques, mesos, rabbitmq, gcp

technical interests

ml theory, probabilistic modelling, optimization, group theory, causality, scientific ml, geometric dl

personal interests

science, technology, hackathons, climate change, economy, philosophy, the meaning of life, music, running

education

PhD student | IST - Lisboa
Electrical and Computer Engineering

Feb 2023 - present

MSc student | IST - Lisboa
Electrical and Computer Engineering

Sep 2012 - Nov 2019

ERASMUS - exchange program | KIT - Karlsruhe
Computer Science

Oct 2015 - Feb 2016

experience

Allen Institute for Cell Science | Scientific ML Engineer

Jan 2021 - present

In the beginning of 2021, I joined the Modelling team at the Allen Institute for Cell Science. Working with high-throughput microscopy data, I interact with world-class scientists on a daily basis, and try to empower them with ML-based tools that enable new scientific discoveries in fundamental cell biology research. Keywords: machine learning, image processing, computational biology, research

Escrutin.io | ML Engineer

Jun 2020 - present

In the summer of 2020, together with friends, I started a personal side-project which in an attempt to promote democracy and civic participation, aims to enable portuguese citizens with the ability to navigate and explore the activity of the portuguese parliament. This started with me developing a scraper the transcripts of all the plenary sessions, and parse their contents to extract insights about the topics discussed by each MP, the similarity between MPs, among other information. This project however is still in development and unreleased. Keywords: machine learning, natural language processing, democracy, parliament

Freelancing | ML Engineer

Oct 2019 - Jan 2021

Parallel to my work at DareData, I also started working on some freelance projects. This required me to practice negotiation skills, as well as time-management and delegation skills, aside from the technical aspects of the projects I developed. One project I worked on involved helping a video-game company leverage Deep Learning techniques to perform monocular depth-estimation on video frames. Keywords: machine learning, deep learning, freelance

DareData | ML Engineer / Data Scientist

Oct 2019 - Sep 2020

In October 2019 I joined DareData. We're working on a broad set of problems, from simple forecasting to complex modelling scenarios. Here I had the chance to not only work on the technical aspect of data-science projects, but also work closely with clients to scope and translate business requirements into technical specifications. Clients included portuguese government agencies, as well as players in banking and industry. Keywords: data science, machine learning, time-series, root cause analysis, forecasting, probabilistic modelling

Jungle | ML Engineer

Sep 2017 - Apr 2019

From Sep-2017 to Apr-2019 I was a full time **ML Engineer**. I've worked with diverse **multivariate time-series** datasets, with data sources spanning from **heavy industry**, to **utilities** and **renewables**. Keywords: machine learning, time-series, root cause analysis, forecasting, probabilistic modelling

Jungle | Data Engineering Intern

Jul - Sep 2017

I started at Jungle as a **Data Engineering** intern. During my internship I worked on assembling an **infrastructure** to enable Machine Learning at scale. To do so, I looked into and gained experience with technologies such as **Mesos**, **Marathon**, **Kubernetes**, **Dask**, **Docker**. I also built a PoC of a job scheduler, see [here](#)

Snowplow | Data Engineering Intern

Jan - Mar 2017

I was a remote "winter" at Snowplow for about 3 months in 2017. I helped them extend some of their tech to **Google Cloud Platform**, having gained introductory experience with **Scala**, and GCP along the way. See the resulting blogpost [here](#)

Quidgest | SW Engineering Intern

Aug - Oct 2013

My first job in software was a summer internship at Quidgest. I spent my time there review code and refactoring an internal tool, at the R&D department. I worked with C, C#, C++, SQL

projects

CytoData 2022 hackathon infrastructure | Terraform, Kubernetes, Cloud, DevOps

The Allen Institute for Cell Science hosted the 2022 CytoData symposium, which included a hackathon with the goal of giving participants a hands-on first experience in applying ML/DL to cell-biological problems. I scoped and helped implement the infrastructure to support the hackathon, which involved a JupyterHub instance backed by a (managed) Kubernetes cluster on AWS, allowing users with little to no experience to access large scale data and compute resources.

serotiny | Python

With the goal of helping to streamline the lifecycle of ML projects at the Allen Institute for Cell Science, I've been working on serotiny - a "framework" and set of tools to standardize ML projects, such that general tooling can be easily developed, and best practices easily adopted.

MSc thesis: Variational Mixture of Normalizing Flows | Python

I worked with deep models for probability density estimation. In particular, I leveraged recent ideas around Normalizing Flows and applied them in a mixture model, with the goal of tackling multi modality

PoC of a job scheduler | Python

During my summer internship at Jungle, I built a PoC of a job scheduler, using RabbitMQ for task queues, and Redis for logging. The goal was to have the concept of Recipes - which would be descriptions of tasks. Basically, to create a Recipe you'd implement a subclass of the AbstractRecipe class. The worker spawners are also abstract, to allow workers of different natures. I only implemented a CPUSpawner which creates workers in different processes.

Scraper for politifact.com claim checks | Python

I was working on an automated claim checking project, and needed a dataset, so I built a scraper for politifact.com

Betfair scraper and automated betting bot | Python

Some friends came up with a soccer betting strategy, based on metrics calculated from live statistics of soccer matches. I scraped Betfair and some other websites, and built a bot that computed the metrics and placed bets according to the strategy.

Dynamic Bayesian Network learning | Java

Implemented a program to learn DBNs from data. See project assignment [here](#)

SATPLAN system | Python

Implemented a SATPLAN system for an AI course. It worked by translating a planning problem into a SAT problem, solving the SAT problem, and translating the solution into the planning semantics. See [here](#) [here](#)

PoC of a distributed "e-mail" system | Go

Implemented a distributed system for nodes to send private messages. It's a combination of a distributed hashtable, to store messages in the network, and an onion routing circuit, so that the node who stores the message is not the node who wants to send it. See [here](#)

PoC of a distributed hashtable | C

Implemented a skeleton for a distributed hashtable.

MAXSAT solver - serial, parallel, distributed | C

Implemented three versions of a MAXSAT solver: serial, parallel (OpenMP), and distributed (MPI). See [here](#)