Rafael Garcia-Dias

Machine-learning engineer / Data scientist, PhD in Astrophysics with more than 12 years of experience in machine-learning applications and interdisciplinary scientific research.

Contacts & Media

- rafaelagd@gmail.co
- @garciadias
- @garci-dias
- Rafael Garcia-Dias

Skills

Solid: 10+ years experience

- Python
- Unix/Bash/Shell
- Data Visualisation
- Data Analytics
- Academic Research
- Linux

Great: 5+ years experience

- Machine Learning
- Deep Neural Networks
- Unit Testing, TDD

Good: ~2 years experience

- AWS/GCP
- SQL/DBT/Looker
- Containerised Applications
- R

Academic records

- **Coauthor of an ML book**
- **17 articles at Q1 journals**
- **h-index: 18, i10: 23**
- **More than 3,800 citations**

Languages

- **Portuguese - Native**
- **English - Fluent**
- **Spanish - Fluent**

Visa status

Spouse/Partner, Work permitted, no sponsorship needed

Experience

Decision scientist
(Machine Learning Engineer at credit risk)
Monzo Bank Ltd

August 2022 - February 2023

Responsibilities:

- Development, monitoring and maintenance of multiple machine-learning models in production.
- Data management and analysis, using **BigQuery**, **SQL**, and **DBT** data models.
- Help stakeholders make decisions by summarising and presenting insights from the data analysis using **Jupyter notebooks** and **Looker** boards.

Achievements:

- Delivered and deployed a **GBM**-based model that substantially improved accuracy compared to previous models in the evaluation of overdraft applications using **Docker** containers and the **Google Cloud Platform.**
- Improved feature selection analysis, leading to the gain of new insights into customer behaviour and driving further feature engineering initiatives.
- Restructured the internal library to improve test coverage and ensure a more uniform monitoring approach.
- Standardised monitoring across Monzo products.
- Provided valuable insights into the behaviour of the models, especially on subgroups of customers, enabling better decision-making.
- Improved the creditworthiness evaluation process and helped Monzo provide better prices that could potentially impact the over 7 million customers at Monzo.

Postdoctoral Research Associate

King's College London

August 2018 - August 2022

Responsibilities:

- Technical leadership of the Neurofind.ai project.
- Hands-on development and implementation of machine learning tools With **MLFlow**, **Scikit-learn** and **TensorFlow.**
- Brain imaging research and statistical analysis.
- Data cleaning and preprocessing.
- Scientific reporting and supervision of MSc students.
- Creation of production-ready data visualisations**.**
- Development of secure and scalable AI solutions using **Docker** and **Kubernetes.**
- Design of an API using **Flask**, **Celery**, **Flower**, and **Redis.**

Achievements:

- Created Neuroharmony, a machine-learning tool aimed at mitigating bias across different scanners. This was a major contribution to bridging the gap between academic research and clinical implementation of machine learning.
- Authored an article on NeuroImage and co-authored five additional chapters in the book "Machine Learning: Methods and Applications to Brain Disorders", among other high-impact publications.
- Led the proposal which awarded £109,000 MRC research grant for the project "Using Artificial Intelligence to mitigate scanner bias in brain disorders". The project was selected among 195 applications.
- Designed and implemented the final visualisations in the final product of Neurofind.ai using **Matplotlib**, **Pandas** and **Numpy**.
- Delivered impactful results in the field of machine learning applied to mental health, publishing 15 articles in high-quality journals.

Education

PhD in Machine Learning Applied to Astrophysics

Instituto de Astrofísica de Canarias (IAC) - ULL

Awarded with a "Cum Laude", which is the maximum recognition in the institution.

MSc in Photometry and Spectroscopy of Stars

Universidade Federal do Rio Grande do Sul (UFRGS)

BSc in Physics

Universidade Federal do Rio Grande do Sul (UFRGS)

Recorded Public Talks

Talk at the PPGFSC physics seminars

2021 - *UFSC, Florianópolis, Brazil*

Title: Machine learning: potential and limitations

Talk at the Big Data London 2019

2019 - *London, England, United Kingdom*

Title: Why do some machine learning models fail?