



## Alvaro Diego

Data Scientist

## Contact

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London, UK

## Programming

Python, C 10+ yrs.

SQL 3+ yrs.

C++, Java, C# 5+ yrs.

## Technologies

Jupyter, Databricks 5+ yrs.

Pandas, Spark 2+ yrs.

Git 4+ yrs.

Excel 10+ yrs.

Dash, Plotly, Power BI 1+ yrs.

## About

I am a data scientist with a background as a semiconductor physicist and extensive experience in data handling and analysis applied to complex research. My current projects are in the field of data science using machine learning and statistical methods that can be useful for scientific investigations, business solutions and project funding. Through research, I have worked on improving quantum devices and complex systems. To do this, I used automation processes, advanced mathematical models and data analysis using machine learning methods.

I am fluent in several programming languages including Python, SQL, C++ and Java. During my 10+ years of experience, I have used my programming skills to develop automation processes, advanced mathematical models and data analysis using machine learning methods.

My recent projects have involved the development of time series models for forecasting fuel demand and demand for metro trains in the metropolitan transport system of the city of São Paulo/Brazil.

## Experience

### Radix Engineering & Software

2023 - 2023

Data Scientist

- Time series modeling for fuel and metro trains demand.
- This project made it possible to forecast passenger demand for metropolitan trains.
- Accuracy analysis in demand forecasts for business decisions.
- Model performance explainability.
- Railway Technology and Development Award for innovative work.

### Self employed

2021 - 2023

Data Scientist consultant

- During this time I assisted with various research projects involving automation and data analysis.
- Implementation of machine learning methods for business.
- Creating dashboards for data reporting and forecasting for business decisions.

### Paternity leave

2020 - 2021

Full time father

- Caring for my son in the hope of a better world.

### PhD Researcher

2017 - 2019

Universidade de Brasilia, Brasilia, Brazil

- Spearheading of scientific projects related to manufacture of organic solar cells.
- Software engineering in data acquisition automation.
- Acquisition and analysis of performance data of the organic solar cells response.
- Optimization of procedures for manufacturing quantum devices.

## Skills

Mathematics	10+ yrs.
Statistics	10+ yrs.
Physics	10+ yrs.
Machine Learning	10+ yrs.

## Languages

Portuguese

English

French

### Project Manager

NowGo Energy, Brasilia, Brazil

2017 - 2018

- Team leader of projects related to the feasibility study and installation of solar power plants.
- Project finance of the feasibility of the power plant.
- Performance simulation and capacity factor.
- Simulation of company structure and business risks.
- Business intelligence.
- Costs, revenues and taxation.

### PhD Researcher

Alcatel Thales III-V Lab, Alcatel, Paris, France

2014 - 2016

- Spearheading of scientific projects related to the manufacture of devices for world wide communication.
- Manufacture of lasers and optical modulators.
- Mathematical and statistical modeling.
- Exploratory data analysis from experimental data from several sources.

### PhD Researcher

Sorbonne Université Campus Pierre et Marie Curie, Paris, France

2014 - 2016

- Spearheading of scientific projects related to the mathematical modeling of the manufacture of lasers and optical modulators.
- Acquisition and analysis of performance data of lasers and optical modulators.
- Optimization of procedures for manufacturing quantum devices.
- Software development.

### PhD Researcher

Pontificia Universidade Católica do Rio de Janeiro, PUC-Rio, Rio De Janeiro, Brazil

2013 - 2014

- Spearheading of scientific projects related to the manufacture of quantum devices.
- Mathematical and statistical modeling of the device performance.
- Exploratory data analysis from several source of formats of data.
- Software engineering in data acquisition automation.

## Awards

### 10th Prêmio Tecnologia & Desenvolvimento Metroviários

São Paulo, Brazil

2023

**Title:** Optimising the efficiency of the metro rail system: operational analysis with data science.

**Relevant Coursework:** Data acquisition, data processing, structuring of cloud service, data analysis, development of methodology for passenger load sizing, time series models, pipeline deployment.

**Links:**

- Event website.
- Certificate.

## Education

**PhD in physics****2007 - 2012**

Universidade de São Paulo, USP, São Paulo, Brazil

**Title:** Growth, fabrication and test of quantum dots infrared photodetectors.**Relevant Coursework:** Quantum devices fabrication, Software engineering, Systems automation, Data Acquisition, Data analysis, Software Development, Physics, Math, Statistics.**Master's degree in physics****2005 - 2007**

Universidade de São Paulo, USP, São Paulo, Brazil

**Title:** Spin Effects in Wide Quantum Well.**Relevant Coursework:** Data Acquisition, Data analysis, Software Development, Physics, Math, Statistics.**Undergraduate Physics****2001 - 2005**

University of Brasilia, Brasilia University, Brasilia, Brazil

**Relevant Coursework:** Data Acquisition, Data analysis, Software Development, Physics, Math, Statistics.

## Projects

**Data Scientist and Machine learning****2020 - Today**

- Creation and implementation of Machine Learning and Deep Learning models.
- Developing visualization dashboards for data reporting.

London, 10th December 2024