



## Alvaro Diego

Data Scientist

### Programming

C, C++	10+ yrs.
Python	5+ yrs.
Java, C#	5+ yrs.

### Technologies

Excel	10+ yrs.
Power BI	1 yrs.
Git	3+ yrs.
Jupyter	2+ yrs.

### Skills

Mathematics	10+ yrs.
Statistics	10+ yrs.
Physics	10+ yrs.
Machine Learning	2+ yrs.

### Languages

Portuguese

English

French

## About

I am an experienced experimental physicist with large experience in data recovery/procurement, treatment and analysis. Now, I employ my wide range knowledge of machine learning methods, mathematics and statistics in the field of data science applied to business solutions and project finance.

Through my masters and PhD programmes I worked on improving quantum devices and complex systems. To that end, I employed automation processes, advanced mathematical models and data analysis using machine learning methods.

I also have advanced knowledge in programming, with about 10+ years experience in different languages, including C, C++, C#, Python and Java.

At moment I'm improving my data display skills for business intelligence with technologies like Power BI, Dash and Plotly.

## 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 Brasília, Brasília University, Brasília, Brazil

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

## Experience

### PhD Researcher

2017 - 2018

Universidade de Brasília, Brasília, Brazil

- Leadership 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.

## Contact

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in alvarodiego

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### PhD Researcher

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

2014 - 2016

- Leadership 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

- Leadership 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

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

2013 - 2014

- Leadership 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.

## Projects

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### Data Scientist and Machine learning

2020 - Today

- Creation and implementation of Machine Learning models.

**Photovoltaic power station****2017 - 2019**

- Leadership 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.

Brasilia, 10th October 2022

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Alvaro Diego Maia