# Alvaro Franco Martins

Data Scientist

## EDUCATION

#### PhD in Physics

State University of Maringá

- Performed predictive tasks (regression, classification and clustering) in criminal networks.
- These tasks included prediction and classification of vertices and edges.
- Applied algorithms such as *k*-nearest neighbors and logistic regression, in addition to a deep learning approach.

MSc in Physics

State University of Maringá

- Performed statistical analysis concerning dynamical and structural aspects of political corruption networks.
- Discovered that political corruption networks share universal properties.
- Developed a computational model to simulate these networks.

BSc in Physics State University of Maringá

- Applied a new parameter to analyze time series from several sources.
- Used this approach to find periodic behaviors in noisy signals.

## EXPERIENCE

**Data analysis and statistics consultant** 2021 – 2023 Toxicological Information and Assistance Center (CIATox)

- Performed descriptive statistical analysis and hypothesis testing.
- Investigated patterns and trends in the data.
- Created graphs and charts to describe and interpret the results.
- Offered support to researchers related to statistical analysis techniques.

#### PUBLICATIONS

- 2018 The dynamical structure of political corruption networks. Oxford Academic (115 citations).
- 2022 Universality of political corruption networks. Nature (9 citations).
- 2022 Machine learning partners in criminal networks. Nature (7 citations).
- 2023 Deep learning criminal networks. Chaos, Solitons & Fractals. (2 citations).

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#### SKILLS

- Python (7+ years of experience).
- Pandas. Numpy. Matplotlib. Scipy. Scikit-Learn.
- Data Visualization.
- Jupyter Notebook.
- Data Science.
- Mathematics.
- Statistics.
- MySQL.
- Linux.

# SOFT SKILLS

- Creativity.
- Communication.
- Analytical Thinking.

## LANGUAGES

- Portuguese.
- English.

2021 - 2023

2018 - 2021

2014 - 2018