

GABRIEL FABIANO DE SOUZA

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SUMMARY

Data Scientist with a strong foundation in Physics and a Master's degree in Astrophysics from the University of São Paulo (USP). Over 5 years of experience applying machine learning, statistical modeling, Bayesian inference, and large-scale data analysis to solve complex problems. Proven expertise in developing predictive models, A/B testing, experimentation, and building efficient data pipelines. Highly skilled in Python, SQL, processing large datasets (100,000+ entries), and collaborating in international research environments. Passionate about transforming data into actionable insights and developing scalable solutions.

SKILLS

Programming & Data Science: Python (Pandas, NumPy, Scikit-learn), SQL, Bayesian Inference, Statistical Modeling, Machine Learning, Data Preprocessing, Exploratory Data Analysis (EDA).

Advanced ML & Experimentation: A/B Testing & Experiment Design, Algorithms & Data Structures, Deep Learning (PyTorch, TensorFlow - beginner).

Data Visualization: Matplotlib, Seaborn.

Tools & Version Control: Git, Jupyter Notebooks, Google Colab, Linux OS.

Soft Skills: Complex Problem Solving, Analytical Thinking, Interdisciplinary Collaboration, Technical Communication, Adaptability.

WORK EXPERIENCE

Researcher in Data Science & Astrophysics | Mar 2020 - Present

University of São Paulo (USP) | São Paulo, Brazil

Processed and analyzed 100,000+ galaxy spectra using Bayesian methods, MCMC, and parametric/non-parametric models.

Built Python pipelines for data cleaning, feature extraction, and visualization (NumPy, pandas, matplotlib, seaborn).

Applied statistical modeling to determine ages and metallicities of 100+ newly discovered stellar clusters.

Collaborated with an 8-member international team, benchmarking 7 different ML/statistical methods for galaxy parameter estimation.

Conducted large-scale analysis of 400+ star clusters in the Magellanic Clouds.

Undergraduate Research | Aug 2017 - Feb 2020

University of São Paulo (USP) | São Paulo, Brazil

Analyzed S-PLUS telescope data to determine physical parameters of 20+ stellar clusters, improving accuracy in cluster characterization.

EDUCATION

PhD in Astronomy (in progress) – University of São Paulo (USP) (2022 – Present)

MSc in Astronomy – USP (2020 – 2022)

BSc in Physics – USP (2017 – 2019)

AWARDS & PUBLICATIONS

Award: Best Master's Thesis Award - XV Graduate Symposium, USP (2024).

Publication: Souza, G.F., Westera, P. Ages and metallicities of stellar clusters using S-PLUS narrow-band integrated photometry: the Small Magellanic Cloud. MNRAS, 527(2), 1733-1744, 2024.

LANGUAGES

Portuguese: Native

English: Advanced (fluent in technical writing & presentations)

Spanish: Intermediate

German: Basic