Felipe Alexandre Santana Barbosa

Applied Data Scientist | Bioinformatics & Machine Learning

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PROFESSIONAL SUMMARY

Applied scientist with strong experience in **large-scale data analysis, bioinformatics, and statistical modeling**. Focused on building **reproducible pipelines**, integrating heterogeneous datasets, and applying **machine learning** to generate actionable insights from complex biological and environmental systems.

SKILLS

Programming	R (advanced), Bash (advanced), Python (intermediate)
Data & ML	Random Forest, PCA, CCA, PERMANOVA, multivariate statistics
Bioinformatics	Metagenomics, taxonomic classification, custom reference databases
Pipelines	Workflow automation, reproducibility, HPC, containerized environments
Languages	Portuguese (native), English (advanced), Spanish (intermediate)

PROFESSIONAL EXPERIENCE

Research Associate — Bioinformatics & Data Science   2019 – Present

- Designed and maintained **end-to-end bioinformatics pipelines**, from raw sequence retrieval to statistical modeling.
- Processed and analyzed **thousands of samples** (TB-scale data) using automated and reproducible workflows.
- Built and curated **custom taxonomic databases**, increasing the detection of rare and underrepresented taxa.
- Applied **machine learning** and multivariate statistics to disentangle biological signals from technical bias.
- Delivered analysis-ready datasets and visualizations supporting data-driven decision making and peer-reviewed publications.

SELECTED PUBLICATIONS

Rare Phyla, Such as CPR and DPANN, Shape Ecosystem-Level Microbial Community Structure Dissimilarities
Microbial Ecology, 2025
Role: Led the **bioinformatics and statistical analyses**, including full computational pipeline development.

Ecological landscape explains aquifers microbial structure
Science of the Total Environment, 2023

Integrating Computational Methods to Investigate the Macroecology of Microbiomes
Frontiers in Genetics, 2020
Role: Computational data integration and macroecological modeling.

EDUCATION

2022 – 2024   **M.Sc. in Microbiology** — Federal University of Bahia
2017 – 2022   **B.Sc. in Biological Sciences** — Federal University of Bahia