Madson Aragão

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Summary

I am a bioinformatician with experience in Genomics, Molecular Biology, and Machine Learning. I have expertise in advanced computational methods, including generative neural networks and data pipelines, to transform complex biological information into practical solutions. I have hands-on experience in molecular modeling, analyzing large datasets, and developing bioinformatics tools. My goal is to drive innovation in diagnostics and personalized therapies, with a focus on accurate diagnosis and tailored treatment approaches.

Education

PhD in Bioinformatics (ongoing)
Federal University of Minas Gerais (UFMG), Belo Horizonte, Brazil
- Focus on machine learning for the identification of antimicrobial compounds and analysis of biological interactions.

MSc in Genetics and Molecular Biology
Federal University of Pernambuco (UFPE), Recife, Brazil
- Development of AMP-Identifier, a machine learning-based tool for genome mining aimed at discovering bioactive molecules.

Postgraduate in Data Science and Analytics (ongoing)
Pontifical Catholic University of Rio de Janeiro, Rio de Janeiro, Brazil
- Advanced machine learning, data engineering and governance, strategic analysis.

BSc in Biomedicine
Federal University of Pernambuco (UFPE), Recife, Brazil
- Research in clinical and hospital settings focusing on bioinformatics and genetics.

Professional Experience

Researcher and Development Analyst
PickCells
October 2020 - August 2022
- Developed IoT solutions and validated clinical systems using computer vision.
- Implemented MVPs and gathered feedback for continuous improvements.
- Created machine learning models applied to clinical diagnostics.

- Collaborated with multidisciplinary teams to optimize hospital workflows and drive technological innovation.

Academic Researcher
2015 - Present
FIOCRUZ – Aggeu Magalhães Research Center
- Molecular modeling of proteins for diagnostics and vaccines.
- Development of computational methods for characterizing viral proteins.

LIKA – Keizo Asami Immunopathology Laboratory
- Research in Human Genetics and Bioinformatics, focusing on Forensic Genetics, ancestry markers, and phenotype prediction.
- Conducted molecular analyses in collaboration with the Forensic Genetics Institute of Pernambuco.

Department of Genetics, Federal University of Pernambuco (UFPE)
- Developed bioinformatics tools for discovering antimicrobial peptides and characterizing molecules in plant species.
- Conducted omics analyses to identify plant defense mechanisms against pathogens.

Institute of Biological Sciences, Federal University of Minas Gerais (UFMG)
- Researched machine learning and computational modeling applied to the discovery of antimicrobial compounds.
- Developed pipelines for analyzing genomic and structural data.

Technical Skills

Bioinformatics: Development of pipelines, NGS analysis, molecular modeling, biomarker prediction.
Machine Learning: Generative neural networks, supervised and unsupervised learning.
Programming: Python, R, Shell Script.
Data Management: Integration of omics data, cleaning, and transformation of large datasets.
Operating Systems: Advanced knowledge in Linux (Debian, Ubuntu, RedHat).
Structural Analysis: Computational chemistry, protein modeling, molecular dynamics simulations.

Certifications and Licenses

Advanced Gemini for Developers (Google DeepMind, Dec 2024)
Skills: Generative Neural Networks, Patterns, Market Research, Google Gemini.
Career Essentials in GitHub Professional Certificate (GitHub, Dec 2024)
Skills: Continuous Integration, Python, Versioning, Backlog Management.
Project Management: Preventing Scope Creep (PMI, Dec 2024)
Skills: Agile Management, Product Development, Lifecycle Analysis.
Certified Peer Reviewer (Elsevier, Nov 2024)

Skills: Scientific Writing and Review, Technical Reports.
Python Programming from Basic to Advanced (Udemy, Jun 2022)
Skills: Computational Genomics, Generative Networks, Bioinformatics.
Bioinformatics with Python (Udemy, May 2022)
Skills: Structural Bioinformatics, Machine Learning, Computational Chemistry.
NGS Data Analysis (Next-Generation Sequencing) (UFPE, Sep 2016)
Skills: Computational Genomics, Biotechnology.

Awards and Recognitions

Honorable Mention – *Human and Forensic Genetics (CNPq/UFPE)*
Young Geneticist Award of the Northeast *(XXI Northeast Genetics Meeting - ENGNE)*
Honorable Mention – *Postgraduate Genetics Journey (UFPE)*
Best Poster Award – *XIII Journey of the Genetics and Molecular Biology Program*
Travel Grant Award*, AI for Protein Design (AI4PD) – The Protein Society*
Certificate of Excellence *in the Peer Reviewing – Elservier*

Languages

Portuguese (Native)
English (Intermediate/Professional)