FEMS Research and Training Grant 2023 – Recipients Articles

1. Robson Parmezan Bonidia


Robson P. Bonidia

I'm Robson Parmezan Bonidia, a Ph.D. candidate in Computer Science and Computational Mathematics at the University of São Paulo (USP), Brazil, under the guidance of Dr. André de Carvalho. I also hold a degree in Information Security Technology from Faculdade Estadual de Tecnologia de Ourinhos - SP (FATEC). Additionally, I earned a Master's degree in Bioinformatics from the Federal University of Technology - Paraná (UTFPR), Brazil. I have experience in Computer Science, with an emphasis on artificial intelligence, bioinformatics, pattern recognition, metaheuristics, computational biology, and data mining.

My objectives are to contribute to society by generating Artificial Intelligence (AI) solutions that directly impact the lives of people who need them. Currently, I have been working on building solutions to democratize AI, specifically Machine Learning (ML) in biology. So far, our studies have generated results applicable to the analysis of biological sequences, demonstrating the considerable potential for substantially decreasing the expertise needed to operate AI/ML pipelines. This support aids researchers in addressing diverse issues, including diseases that profoundly affect human lives, giving biologists and other stakeholders an opportunity for the widespread use of these techniques.

Moreover, our studies have achieved awards, grants, and publications in high-impact journals. In 2021, our project called BioAutoML was elected by LARA-Google among the 24 most promising ideas in Latin America (24 awarded projects from a base of 700 submissions), winning the Google Latin America Research Awards (LARA), promoted by Google. The same project was a finalist (Top 15 of 82) in the Ideas Contest, Falling Walls Lab Brazil 2022, promoted by the Falling Walls Foundation (DAAD - German Center for Science and Innovation).

In 2023, I had the honor of receiving a Research & Training Grant awarded by the Federation of European Microbiological Societies (FEMS). In that same year, our project, AutoAI-Pandemics, which seeks to democratize AI for pandemic control, was selected as one of the most promising proposals (out of a total of 221 submissions from 47 countries) in a global competition organized by the Global South Artificial Intelligence for Pandemic and Epidemic Preparedness and

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Response Network – AI4PEP. During my time in Germany at the Helmholtz Centre for Environmental Research - UFZ, Leipzig, under the guidance of Dr. Ulisses da Rocha, I continued to refine the BioAutoML project. I conducted tests using real-world problems to fine-tune its functionalities, adapting them to address the practical challenges encountered by biologists, microbiologists, and virologists in their everyday work. Supported by the Research & Training Grant from FEMS, I had the valuable opportunity to immerse myself in laboratory settings, working with authentic data and tangible issues. This hands-on experience not only significantly enriched my technical and scientific skills, but also led to the development of a tool that promises to make AI and ML accessible to biologists, microbiologists, virologists, and other stakeholders who lack specialized knowledge in computing, mathematics, and programming.

Website: https://bonidia.github.io/BioAutoML-WP/; UFZ: https://helmholtz.software/software/bioautoml; Github: https://github.com/Bonidia/BioAutoML; Documentation: https://bonidia.github.io/BioAutoML/; Personal Page - Robson: https://bonidia.github.io/website/

2. Dr. Charity Ndidi Obum-Nnadi


Charity N. Obum-Nnadi

I'm Dr. Charity Ndidi Obum-Nnadi, a Postdoctoral Research Fellow of Veritas University, Abuja, Nigeria; a Medical Laboratory Scientist and academic researcher who is very passionate about the field of Medical Microbiology and Infectious Diseases, its impact in our society and how early Medical Laboratory diagnosis can be used to cure diseases and save lives from biodeterioration of health. I earned a PhD in Medical Microbiology from Nnamdi Azikiwe University Awka, Anambra State, Nigeria. My Masters and Bachelor of Science degree was from Imo State University Owerri, Nigeria. I was trained and licensed as a Medical Laboratory Scientist in the University of Port-Harcourt Teaching Hospital, by School of Medical Laboratory Science Council of Nigeria.

As a young Scientists, I have helped in the establishment of a Medical Laboratory section of Supreme faith hospital Odo-Ado in Ado-Ekiti, Ekiti State and also helped in expanding the scope of Step 1 Medical Laboratory and Diagnostic Services Limited Owerri, Imo State by establishing and managing a branch of the laboratory in Mbaitolu, Imo State. I have developed and founded Gilead-Balm Medical Laboratory and Diagnostic Services in Kpaduma Village in Asokoro, Abuja which is serving as a tool to enlightening, educating and saving neglected lives who could have died in ignorance in Abuja rural community. This brain child of mine (Gilead-Balm Medical laboratory) is the first and only health facility known for medical diagnosis in the area.

I have been researching on infectious diseases and antimicrobial resistance.

The impact of my research has contributed in shaping some policies which relates to tackling infectious disease, discovering of susceptible alternative antimicrobial agent, the irrational cum rational use of antibiotics and other antimicrobial agents in Nigeria and beyond. My involvement