

Bolívar Aponte Rolón

PH.D. CANDIDATE

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Funga PBC

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1612 CANTERBURY STREET

AUSTIN, TX 78702

Application for: Ecological Data Scientist

Head of Data Science and Hiring committee,

I am delighted to apply for the position of Ecology Data Scientist at Funga. My name is Bolívar Aponte Rolón, and I am a PhD student in the Van Bael Lab at Tulane University. I am an ecologist with a keen interest in utilizing genomic data to address questions related to microbial community ecology, particularly focusing on symbiotic fungi in plants.

During my Master's I asked how sustainable agriculture can host high levels of ant biodiversity and applied standard forest ecology practices (e.g. DBH, leaf litter biomass measures, soil core sampling) to asses how shade tree species in a 45 hectare plot in an organic coffee farms in Mexico can contribute to the biodiversity we see leaf litter ant colonies. My focus to smaller entities, specifically fungi and microbes, prompting my pursuit of a PhD.

For my dissertation, I seek to understand the role of leaf functional traits and their impact on foliar fungal endophytes—symbiotic fungi residing inside leaves—in both tropical and alpine ecosystems. In the tropics, I explore how endophytes assemble in tropical trees under the influence of environmental filters imposed by leaf functional traits. I investigate how the acquired fungal community within host leaves influences the host's response to herbivory and pathogen damage. My subsequent research projects in alpine ecosystems in the Sierra Nevada involve studying endophytes in yellow monkey-flowers. My methodologies include field surveys and reciprocal transplant experiments to decipher the endophytes in yellow monkey-flowers and identify associated genes.

Through my research projects I have honed strong analytical skills applied to genomic and ecological data sets. I have designed experiments that collect environmental data and biological samples for metagenomic analyses. To achieve this I have extracted DNA from leaf tissue of tropical trees and yellow monkeyflowers and prepared fungal amplicon libraries for high throughput sequencing. I use open-source and reproducible bioinformatic pipelines (i.e. DADA2) and tools (e.g. cutadapt, Trimmomatic) in R and Python programming languages to explore creatively the underpinnings of fungal communities and their correlations with the environment. For this I use general linear mixed models and ordination techniques to understand plant-fungal symbioses. My proficiency in statistics coupled with my hands-on experience in field biology positions me as a valuable asset to Funga's objective of comprehending treatment effect sizes and correlations in inoculation experiments. I am well-equipped to contribute to the development of innovative strategies for sustainable forestry practices.

In addition, I have developed strong communication and teams skills as a Product Developer for the Connolly Alexander Institute for Data Science at Tulane University. I collaborate in a team designing and employing data literacy workshops, impacting 20 participants per instance. In this capacity I bridge the technical side of data science and communicate with our stakeholders to ensure the team's objectives and products meet the organizational needs.

Thank you for considering my application. I am excited about the prospect of contributing to Funga's impactful work, and I look forward to the possibility of discussing how my skills align with your team's vision.

Sincerely,

Bolívar Aponte Rolón

Attached: Curriculum Vitae