From: Langara | Applied Research Center
To: Janaina Brusco
Cc: Applied Research
Subject: Thank you for submitting your ARC Final Report
Date: Thursday, February 6, 2025 10:31:31 AM

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Thank you for submitting

ARC Final Report

Our team may reach out to you with follow-up requests for clarification regarding your submission.

Review your submission responses below:

Researcher First Name: Janaina

Researcher Last Name: Brusco

Department: Biology

Other Department:

Project Title: Optimizing Cancer Treatment: A Computational Framework for Analyzing Immunohistochemistry Images to Identify Promising Drug Candidates

Start semester: 5/1/2024

End Semester: 2/6/2025

Introduction - Please introduce yourself and include pertinent background information as it relates to your

project's research area. In am Jana, a faculty in the Biology Department with a PhD in Neuroscience.

Please discuss your educational background and your work experience as it relates to this project. If possible, include a quote that helps define your interest in the project. To obtain my PhD, I spent months, and months running image analysis, something I believe can be facilitated by computers.

Please summarize your project in plain language that others not in your field could understand. Following the Canadian Cancer Statistics of 2023, I learned that the probability of developing cancer over a lifetime is 45%. Further research, taught me that drug development takes 10-15 years from development to the market. A significant portion of the time (thus resources) is spent on image analysis. After talking with colleagues on drug discovery, I learned that Immunohistochemistry (IHC) would be a good starting point.

Identify the project goals and objectives. Explain how the results may be used to solve a problem or inform further research in the field. Our project had the goal to speed up image analysis of IHC to aid in research due to time and money constraints in pharma companies and other institutions.

Briefly explain the steps taken (methods used) to conduct the research, and describe the key findings. Our future goals are to develop Machine Learning to originate better tissue recognition (threshold creation), and to originate automated analyses to differentiate necrotic and healthy cells.

Who was involved in this project (eg. faculty, students, community partners)? How did their involvement contribute to the project's success? Were there any challenges to overcome? The images were obtained from our partner (Admare Bioinnovations), and the analysis was possible thanks to the Langara Students Phuoc Loc Doan (data analytics) and Gavin Ieong (Bioinformatics).

Please share any personal stories that made this research experience memorable/valuable.
This research experience is intensely valuable because it is my first research experience at Langara. The team learned a lot!

What are the next steps for this project and for you as a researcher?
On our project we automated image processing using Python and compared potential speed factors, such as the use of CPU and GPU. To validate our data, we compared our results with industry partners which resulted on a ESTABLISHED FASTER NONBIASED IHC IMAGE ANALYSIS FOR DRUG SCREENING.

Please upload any images that will help to showcase your project.

By submitting, I consent to uploading my ARC Fund final report to the Langara Institutional Repository (The LaIR). True

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