RAYMOND LEMAYANA LESIYON

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EDUCATION

Michigan State University-East Lansing, MI. May 2023

- M.Eng in Computational Mathematics Science and Engineering (CMSE) GPA: 3.94/4.0
- B.S. Biosystems Engineering | Minor in CMSE GPA: 3.92/4.0
- MasterCard Foundation Scholar Program Recipient | MSU Dean's List Fall 2017 – May 2021
- **Key coursework:** Statistical Genetics (Analysis done in **R**), Genomic Data Handling: **Unix** and **Python,** Genomics and Sequencing Analysis, RNA-Seq Data Analysis, Data Mining, Mathematical Foundation for Data Science, Numerical Linear Algebra, and Numerical Methods in Differential Equations

Technical SKILLS

Software/computing skills: Python, R, Git, Unix/Linux, FastQC, samtools, High Power Performing Computing.
Machine Learning: Linear & Logistic Regression, Support Vector Machines (SVM)
Deep Learning: Neural Networks, Transformers
Dimensional Reduction: Principal Component Analysis (PCA), Multi-dimensional Scaling (MDS)
Data analysis & Visualization: Pandas, tidyverse, Numpy, ggplot2, matplotlib

WORK EXPERIENCE

Informatics Professional – Aurora, Colorado Aug 2023 – Present

Projects 1: Evolution of Bacterial Traits in Relations to its Host Association and Pathogenicity.

- Enhanced data integration pipeline by leveraging tidyverse libraries in R to efficiently merge 26 datasets of bacterial and archaea strains, significantly improving data quality, and accessibility for downstream analysis.
- Boosted database accuracy by integrating BacDive, and BugPhyzz elevating data completeness from 20% to 50% and enabling superior research outcomes through expert data management.
- Refined species traits database by integrating key pathogen datasets like BV-BRC, improving data quality and increase research utility
- Streamlined phylogenetic regression analysis by developing an efficient modular workflow, significantly accelerating over 200 models iterations and enhancing the understanding of bacterial phenotypes associated with hosts, and their pathogenicity.
- Implemented advanced statistical analysis to evaluate phylogenetic generalized linear models against standard linear models, leveraging AIC criteria. This process optimized our approach to phylogenetic regression, enhancing the accuracy and reliability of our evolutionary biology research outcomes.
- Effectively worked with 3 Principal Investigators to take the project from an ideation to a fully fledge robust bacterial traits analysis; and resulting to publications in preparation.

Graduate Teaching Assistant at MSU– East Lansing, MI Aug 2021 – May 2023

- Led and mentored students through a complete lifecycle of machine learning — from data explorations to choosing models— improving their skills and achieving realistic, robust predictive models.
- Guided students through the feature engineering, training, testing, and evaluation of their Machine Learning systems resulting to comprehensive experience in running Machine Learning.

Software Development Engineering (SDE) Intern at Amazon – Seattle, WA May 2022 – Aug 2022

- Collaborated with cross-functional teams, including project managers, and IT professionals, to architect and document a strategic plan for a key feature, leveraging existing infrastructure for seamless integrations.
- Developed a streamlined single-page application with React and Typescript, centralizing a key features to enhance user experience and improve site navigation efficiency.
- Designed and implemented a GraphQL schema with data resolvers, for efficient data querying and retrieval from OpenSearch, leading to a more robust and a scalable data management framework.

Technical Aide at Steibel Juan Lab – East Lansing, MI June 2021 – Aug 2021

- Leveraged Slurm workload manager for running LSTM deep learning algorithms on high-performance computing clusters, achieving optimized resource utilization, and computational efficiency.
- Optimized hyper-parameters for enhanced LSTM deep learning model performance.

Biosensor Intern at Fraunhofer USA Inc. – East Lansing, MI Aug 2020 – Apr 2021

- Designed and implemented a data visualization dashboard using Tkinter and Pandas libraries in python, enabling efficient analysis of 37 distinct experiments. This tools significantly streamlined the data analysis process, enhancing decision-making and insights.
- Functionalized antibody biosensor using NHS chemistry immobilization technique for the purpose of detecting COVID-19 spike protein
- Involved in testing immobilized antibody biosensor using electrochemical techniques to ascertain detection of the antigen

LEADERSHIP

Maji Safi ni Uhai (Clean Water Equals Life) – Bomet, Kenya Oct 2019 - Present

- Co-founded Maji Safi ni Uhai initiative for bringing water to communities with insufficient water
- Secured a funding of $4000 to drill the first borehole at Kapkures community.