

HAFIZ MUHAMMAD ADNAN TARIQ

Bioinformatician/NGS Data Analyst

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EDUCATION

MS Bioinformatics 09/2022-08/2024

National University of Sciences and Technology (NUST)

BS Bioinformatics 09/2017-09/2021

Quaid-i-Azam University (QAU)

RESEARCH EXPERIENCE

Individual Projects:

Identification of Key Taxonomic and Metabolic Players in the Gut Metagenome of T2D Patients, NUST University (MS-Thesis Project) 07/2023-08/2024

- Identified exclusive CAZyme proteins, and Taxa associated with T2D patients.
- Employed NGS Techniques, Metagenome Analysis, Linux & Bash Scripting, and Gene Family Prediction.

Projects In Collaboration:

Machine learning identifies microbial biomarkers of environmental antibiotic exposure in zebrafish gut metagenomes, Shanghai Jiao Tong University, China 08/2023-06/2024

- Metagenomics Analysis, Machine Learning, and R to identify the environmental antimicrobial resistance genes.

Gut Microbial Strains - Non-Small Cell Lung Cancer Treatment: Decoding the Connection, NUST University 05/2023-08/2024

- Developed statistical and machine learning models to associate variants and strains with treatment responses.

PUBLICATIONS

Tariq, H.M.A., Khan, N.Y., Manzoor, H., & Kayani, M.U.R. Exploring the Impact of Type 2 Diabetes and Glucose-Lowering Drugs on Gut Microbiome Dynamics. Springer Nature Discover Medicine. 02/2025

DOI: <https://doi.org/10.1007/s44337-025-00241-9>

Raziq, M.F., Tariq, H.M.A., Khan, N., Manzoor, H., Rafiq, M., Rasool, S., Kayani, M.U.R., & Huang, L. Prioritizing gut microbial SNPs linked to immunotherapy outcomes in NSCLC patients by integrative bioinformatics analysis. Journal of Translational Medicine. 03/2025

DOI: <https://doi.org/10.1186/s12967-025-06370-0>

Hafiz Muhammad Adnan Tariq; Masood Ur Rehman Kayani, "Key Taxonomic and Metabolic Players in the Gut Metagenome of T2D Patients: Insights from Machine Learning and Association Analysis" (Submitted) 2024

TECHNICAL SKILLS

- NGS & Omics Analysis: MetaPhlAn, HUMAnN, Single-cell RNA-seq, Functional Profiling
- Big Data & Cloud Computing: HPC, AWS, Multi-omics data integration
- Programming & Data Analysis: Python, R, Bash Scripting, Linux, Cloud computing – AWS, HPC
- Machine Learning & AI: sci-kit-learn, Tensor Flow, Statistical modeling, LLMs

RESEARCH INTERESTS

- NGS, Computational Genomics & Metagenomics
- Machine Learning & AI in Bioinformatics
- Microbiome & Human Health
- Big Data & Cloud Computing in Bioinformatics

ADDITIONAL EXPERIENCE

Machine Learning Trainee, IntelliWareTech, Islamabad	03/2022-09/2022
<ul style="list-style-type: none">• Bio Python• Designing, Developing, and Maintaining ML Algorithms	
Chemistry and Biology Teacher, The British School and Academy	09/2021-09/2022
<ul style="list-style-type: none">• Taught Chemistry and Biology to 9th and 10th Grade students.• Developed lesson plans, conducted assessments, and enhanced student engagement through interactive teaching methods.	
Biology Teacher, The Sigma Academy, Islamabad	10/2021-08/2022
<ul style="list-style-type: none">• Taught Biology to 9th and 10th Grade (Part Time).	
Research Intern Computational Biology Lab, National Centre for Bioinformatics – QAU Islamabad	06/2021-09/2021
<ul style="list-style-type: none">• In Silico Study of Compounds• RNA Binding Proteins Inhibition for Treating Diverse Kidney Disorders	
Internship Nishter Medical University, Multan	06/2019-09/2019
<ul style="list-style-type: none">• Organizing and Preparing Samples, Test using Lab Equipment.• Biochemistry, Microbiology, and Virology Lab work.	

ADDITIONAL CERTIFICATIONS

Introduction to Genomic Technologies, Coursera

Johns Hopkins University

Algorithms For DNA Sequencing, Coursera

Johns Hopkins University

Python For Genomic Data Science, Coursera

Johns Hopkins University

SOFT SKILLS

- Effective communicator and collaborator.
- Extremely hardworking, organized, and detail-oriented.
- Highly adaptable and friendly.

HONORS AND AWARDS

Best Director of the Year NBPK - National University of Sciences and Technology	2022-2023
QAU Merit Scholarship Quaid-i-Azam University	2018-2021
Urdu Speech Declamation Quaid-i-Azam University	2018
PEEF Scholarship Government of Punjab, Pakistan	2009

LANGUAGES

ENGLISH	Advanced User
URDU	Native Language

VOLUNTEER SERVICES

Lead Outreach International Society for Computational Biology (ISCB) Student Council – RSG-Pakistan	2023-Present
Director Outreach NUST Bazm – e – Pakistan	2022-2023

REFERENCES

Prof. Ishrat Jabeen Professor Email: ishrat.jabeen@sines.nust.edu.pk School of Interdisciplinary Engineering & Sciences (SINES), National University of Sciences & Technology (NUST), Islamabad, Pakistan.	Dr. Masood Ur Rehman Kayani Assistant Professor Email: m.kayani@sines.nust.edu.pk School of Interdisciplinary Engineering & Sciences (SINES), National University of Sciences & Technology (NUST), Islamabad, Pakistan.
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