Muhibullah Shahjahan

Research Assistant

Center for Health Innovation, Research, Action, and Learning - Bangladesh (CHIRAL Bangladesh)

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Qualification and Interest

I am currently pursuing my Bachelor Degree and interested to learning different new objectives. Programming is the most interesting part of my learning roadmap.

Education and Training

Jagannath University *Dhaka, Bangladesh*

Bachelor of Science in Microbiology *January 2016 - January 2019*

- Participated in a cutting-edge project focused on the application of bioinformatics techniques for profiling antibiotic resistance genes within complex metagenomic DNA sequences

Teaching Experience

Center for Bioinformatics Learning Advancement and Systematic Training(cBLAST) *Dhaka, Bangladesh*

Instructor, Health Data Analysis *August 2023 - Present*

- Designed and developed comprehensive curriculum for health data analysis courses, ensuring relevance to industry trends and best practices.
- Delivered engaging and informative lectures, workshops, and training sessions on health data analysis methodologies and tools.

Center for Health Innovation, Research, Action, and Learning - Bangladesh *Dhaka, Bangladesh*

Lead Instructor *June 2020 - Present*

- Led a team of instructors and educators, providing guidance and mentorship to ensure the delivery of high-quality education.
- Designed and developed comprehensive curriculum for health data analysis courses, ensuring relevance to industry trends and best practices.
- Delivered captivating and informative lectures, workshops, and training sessions on various healthcare topics, ensuring active student participation.

Jagannath University *Dhaka, Bangladesh*

Teaching Assistant, Public Health and Hygiene, Department of Microbiology *October 2022 - December 2022*

- Assisted in the delivery of undergraduate courses in Public Health and Hygiene within the Department of Microbiology.
- Supported faculty and researchers in ongoing public health and hygiene research projects.
- Mentored and advised students on academic and career-related matters, fostering a supportive learning environment.

Center for Health Innovation, Research, Action, and Learning - Bangladesh *Dhaka, Bangladesh*

Program Lead, Research Internship Program *January 2023 - Present*

- Designed a comprehensive curriculum that integrated research methodologies, practical skills, and professional development components.
- Led the recruitment and selection process for program participants, identifying individuals with the potential to excel in research and innovation.
- Mentored and supervised interns throughout their research projects, providing guidance on research methodologies, data analysis, and project management.

Technical Skills

Programming Languages: Python, R, SQL, Julia, JavaScript; **Data Science:** scikit-learn, PyCaret, Dask, PySpark; **GIS & Remote Sensing:** ArcGIS, Geopandas, Xarray, Giovani, Google Earth Engiine; **Analytics Softwares:** SPSS, PowerBI, Microsoft Excel; **Survey Tools:** RedCap, KoboToolBox, EpiCollect, Google Forms; **Academic Writing Tools:** Microsoft Word, LaTeX, Mendeley; **Bioinformatics:** BioPython, Bioconductor, BioPandas, Galaxy, NGS, RNASeq, ssRNASeq; **Miscellaneous Skills:** UNIX, Version Control(Git), Web Scraping, APIs

Publications

Hossain, M. J., Islam, M. W., Munni, U. R., Gulshan, R., Mukta, S. A., Miah, M. S., Sultana, S., Karmakar, M., Ferdous, J., & Islam, M. A. (2023). Health-related quality of life among thalassemia patients in bangladesh using the SF-36 questionnaire. Scientific Reports, 13(1). https://doi.org/10.1038/s41598-023-34205-9

Towhid, S. T., **Hossain, M. J.**, Sammo, M. A. S., & Akter, S. (2022). Perception of Students on Antibiotic Resis- tance and Prevention: An Online, Community-Based Case Study from Dhaka, Bangladesh. European Journal of Biology

and Biotechnology, 3(3), 14–19. https://doi.org/10.24018/ejbio.2022.3.3.341

Hossain, M.J., Towhid ST, Sultana S, Mukta SA, Gulshan R, Miah MS (2022). Knowledge and Attitudes towards Thalassemia among Public University Students in Bangladesh. Microbial Bioactives, 5(2), https://doi.org/ 10.25163/microbbioacts.526325.

Submitted

Islam, M.W., Shahjahan, M., Azad, A.K., **Hossain, M.J.** Factors contributing to antibiotic misuse among parents of school-going children in Dhaka City, Bangladesh

Hossain, M.J., Towhid, S. T., Akter, S., Shahjahan, M., Roy, T., Akter, B., & Nodee, T. A. Self-Management of Diabetic Patients from the Urban Areas in Bangladesh.

Hossain, M.J., Das, M.,Shahjahan, M.,Islam, M.W., Towhid, S.T. Clinical and hematological manifestation of dengue patients in 2022 outbreak: A tertiary care hospital-based study

Hossain, M.J., Towhid, S. T., M., Islam, M. W., Shahjahan. The role of community par- ticipation and social engagement in the prevention and control of dengue fever in Dhaka City.

Akter, MM., **Hossain, M.J.** Food consumption patterns and sedentary behaviours among the university students: a cross-sectional study

In Preparation

Hossain, M.J., Das, M., Maruf, M.F., Akter, MM., Towhid, S.T. Premarital Screening for Thalassemia Prevention: A KAP Study in Bangladesh

Hossain, M.J.,Shahariar, M., Barsha, L.H, Sheikh, M.K, Towhid, S.T. Lack of knowledge and training about antibiotic resistance among community pharmacists

Hossain, M.J., Azad,A.K.,Shahid, M.S.B., Shahjahan,M. Prevalence, Antibiotic Resistance Pattern for Bacteriuria from Patients with Urinary Tract Infections.

Hossain, M.J., Azad, A.K, Sammo, A.S. A KAP Study on the Impact of C-section on Infant Gut Microbiota among Public University Students in Bangladesh

Conferences Presentations

Nayeem,M.U.,Mrittika,M.A.,**Hossain, M.J.**, Azad,A.K.,Ferdous,J.,Ahmed,S.,Sanyal,S.K., Towhid,S.T. Quantitative Microbial Risk Assessment from Vancomycin-resistant Enterococcus faecalis and Enterococcus faecium from a specific neighbourhood in Dhaka City,Bangladesh. 36th Bangladesh Society of Microbiologists Annual Conference, SUST, Sylhet, Bangladesh, January 2023

Shahid,M.S.B., Azad,A.K.,Ferdous,J.,Towhid,S.T., **Hossain, M.J.** Prevalence, Antibiotic Resistance Pattern for Bacteriuria from Patients with Urinary Track Infections. 36th Bangladesh Society of Microbiologists Annual Conference, SUST, Sylhet, Bangladesh, January 2023

Das,M., Azad,A.K.,Barman,A.K.,Holy,N.A.,Akter,N., **Hossain, M.J.** Experiences and Side Effects Following COVID-19 Vaccination in Bangladesh: a cross-sectional community-based e-survey. 36th Bangladesh Society of Microbiologists Annual Conference, SUST, Sylhet, Bangladesh, January 2023

Akter, S.,**Hossain, M. J.**, Towhid, S. T., Sammo, M. A. S.(2022). Perception of Students on Antibiotic Resistance and Prevention: An Online, Community-Based Case Study from Dhaka, Bangladesh. 36th Bangladesh Society of Microbiologists Annual Conference, SUST, Sylhet, Bangladesh, January 2023

Hossain, M. J., Mim, N.A., Howlader, G., Mazumder, E.,Bhattacharjee, A. Investigating the Factors Behind the Surge in Dengue Outbreaks in Bangladesh: A Comprehensive Analysis. 9th International Public Health Conference, 2023 (Submitted)

Projects

For a complete list of projects see my *Github*

1. **Calories Burnt Prediction using Machine Learning**

- The Gradient Boosting Regressor model provides 99% accuracy in prediction of Calories Burn.

2. **Heart Disease Analysis and Prediction Using Machine Learning**

- The Naive Bayes model achieves a 90% accuracy, precision, and recall rate in the prediction of heart disease detection, demonstrating its effectiveness in the field of machine learning.

3. **Hepatitis Mortality Prediction using Machine Learning**

- The Decision Tree Classifier model provides a prediction accuracy of 90% in determining hepatitis mortality, highlighting its strong performance in the domain of machine learning.

4. **Machine Learning-Based Prediction of Chronic Kidney Disease: An Analysis of Risk Factors**

- The Random Forest Classifier model accurately detects chronic kidney disease (CKD) with 100% accuracy by considering important risk factors and patient information. This helps in identifying CKD at an early stage and designing personalized treatment plans for patients.

5. **Improved Breast Cancer Detection using Machine Learning**

- The Extra Trees Classifier model achieves an impressive accuracy of 95% in predicting breast cancer, making it a highly reliable tool for identifying potential cases of the disease.

6. **Machine Learning-Based Liver Disorder Prediction: Towards Early Detection and Diagnosis**

- The Logistic Regression model demonstrates a satisfactory accuracy of 78% in predicting liver disorders, indicating its effectiveness as a tool for identifying potential cases of liver-related conditions.

Dashboards

1. **Dengue Situation Dashboard for Bangladesh**

- Designed and deployed a comprehensive Dengue situation dashboard tailored for Bangladesh, facilitating timely and informed decision-making in dengue outbreak management.
- Integrated data visualization tools to present critical information on dengue cases, hotspots, and preventive measures, enhancing public health response efforts.

2. **Nipah Virus Transmission in Bangladesh**

- Developed an interactive Nipah virus transmission dashboard for monitoring and analyzing outbreak data in Bangladesh.
- Implemented data visualization techniques to provide real-time insights and support decision-making in public health emergencies.

Courses and Workshops

For my courses and workshops visit my personal website.

2022-23 **R for Research**: Instructor (CHIRAL, Bangladesh)
The purpose of this course is to provide a practical introduction to the programming language R for researchers in any field.

2022-23 **R for Bioinformatics**: Instructor (CHIRAL, Bangladesh)
In this course, participants will explore the application of the R programming language in the field of bioinformatics.

2022-23 **Clinical Reporting Using gtsummary**: Instructor (CHIRAL Bangladesh, Bangladesh)
One day workshop on publication-ready tables using gtsummary package in R.

2023 **Building Dashboard with R**: Instructor (CHIRAL Bangladesh, Bangladesh)
Four day workshop for creating interactive and informative dashboards using the R programming language.

2023 **Machine Learning for Bioinformatics with Python**: Instructor (CHIRAL Bangladesh, Bangladesh)
The course equips participants with essential machine learning skills to solve bioinformatics problems.

2020-23 **Python for Health Data Analysis**: Instructor (cBLAST, Bangladesh)
This comprehensive 12-week course was designed to equip participants with essential skills to analyze health data using Python.

2020-23 **Data Analysis with R**: Instructor (CHIRAL Bangladesh, Bangladesh)
The purpose of this course is to provide a practical introduction to the programming language R for researchers in any field.

2023 **RNA-seq Data Aanalysis with R**: Instructor (CHIRAL Bangladesh, Bangladesh)
This course empowers participants to proficiently analyze and interpret RNA-seq data using R.

2023 **Single-Cell RNA-Seq Analysis with R**: Instructor (CHIRAL Bangladesh, Bangladesh)
This course caters to researchers and bioinformaticians aiming to unlock insights from single-cell transcriptomics data using R.

2023 **TCGA Data Analysis with R**: Instructor (CHIRAL Bangladesh, Bangladesh)
This course equips participants with the skills to analyze and interpret The Cancer Genome Atlas (TCGA) data using R.

2022-23 **Research Data Analysis with SPSS**: Instructor (CHIRAL Bangladesh, Bangladesh)
This bootcamp provides a hands-on learning experience, encompassing sequence analysis, genomics, proteomics, and data analysis with widely used bioinformatics tools and software.

2022-23 **Bioinformatics BootCamp**: Instructor (CHIRAL Bangladesh, Bangladesh)
This course is tailored for researchers, analysts, and students seeking a strong foundation in utilizing SPSS for data analysis in research projects.

2022-23 **Applied Machine Learning for Healthcare**: Instructor (CHIRAL Bangladesh, Bangladesh)
Ten day course on applied machine learning using Python focusing on healthcare problems.