Uwaise Ibna Islam
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Research Focus

My research centers on developing cutting-edge methodologies that integrate advanced machine learning with intricate biological data modeling. I focus on addressing complex bioinformatics challenges by harnessing the potential of AI to analyze and extract valuable insights from extensive and diverse biological datasets. By proposing novel algorithms, I aim to push the boundaries of computational biology and genomics, uncovering hidden patterns and relationships that drive biological systems. My ultimate goal is to bridge the gap between computational techniques and biological science, fostering transformative applications in genomics, systems biology, and evolutionary studies, thereby advancing our understanding of life at a molecular level.

Publications

Google Scholar citation count: **35**

- ***Islam U.I.*** , Campelo dos Santos AL, Kanjilal R, and Assis R., Learning genotype-phenotype associations from gaps in multi-species sequence alignments, **Briefings in Bioinformatics**, 2025
- ***Islam U.I.*** , Sarker I.H., Haque E., Hoque M.M., A Machine Learning Model for Predicting Individual Substance Abuse with Associated Risk-Factors, Annals of Data Science, 2022
- ***Islam U.I.*** , Sarker I.H., Haque E., Hoque M.M., Predicting Individual Substance Abuse Vulnerability Using Machine Learning Techniques. 20th International Conference on Hybrid Intelligent Systems, 2020 (online)
- Munir U.B., Siddiqui F.H., ***Islam U.I.*** , Kaiser M.S., Machine Learning Classification Algorithms for Predicting Depressive Students in Bangladesh, 3rd International Conference on Trends in Computational and Cognitive Engineering, 2021

Experience

Graduate Research Assistant | *Florida Atlantic University* *August 2022 – Present*
- Designed a novel deep learning framework to predict cross-species genotype-phenotype associations with 100% cross-validated prediction accuracy on the empirical sequence and trait association.
- Implemented software based on deep learning to solve important evolutionary biological problems and demonstrated binary trait prediction on henceforth unknown traits in 59 species. Performed a simulation study to generate multi-species sequence data with indel parameters and associated binary phenotype from simulated gene trees to validate model efficacy.
- Analysis of high-volume genetic data using state-of-the-art computational biology tools, large-genetic data preparation, shell scripting, and adaptation and enhancement of parallel computing to expedite runtime by 7x for downstream tasks.
- Developed novel algorithm to extract evolutionary features from species tree, and worked on cross-tissue gene expression dataset to examine expression divergence across traits.

Graduate Teaching Assistant | *Florida Atlantic University* *January 2024 – May 2024*
- Teaching assistant for CAP 6635 Artificial Intelligence course, delivering sessions on Python programming fundamentals.
- Provided bi-weekly TA support sessions, offering personalized guidance to students navigating programming tasks and theoretical topics.
- Performed grading for assignments in a large class of 150+ students, ensuring fair assessment and feedback.

Software Quality Assurance Engineer | *Enosis Solutions* *August 2021 – July 2022*
- Led primary testing efforts in two software (ASP.NET and React), preparing and implementing manual and automation test cases to ensure adherence to requirements.
- Automated roughly 63% of test cases using Selenium to enhance efficiency and streamline the software testing process.
- Improved average API response time by 82% by identifying slow-responding APIs using Jmeter load testing.

Education

Florida Atlantic University	**PhD in Computer Science** | GPA : 3.98	*August 2022 – July 2027*
Florida Atlantic University	**MS in Computer Science** | GPA : 3.97	*August 2022 – May 2024*
Chittagong Uni. of Eng. & Tech.	**BS in Computer Science** | GPA: 3.02 (3.42 last 2 years)	*February 2016 – June 2021*

Technical Skills

Languages : ***Python, C++, SQL*** (Postgres, MySQL), ***R*** , C#, Java, JavaScript, HTML
Frameworks : ASP.NET (.NET Core), Flask, Django
DevOps and API Tools : ***Git, Docker*** , Kubernetes, Azure DevOps, Postman, ***Jmeter***
Cloud : IBM Cloud, ***Google Cloud*** , SQL Server, Linux (Configuring and Managing)
Artifical Intelligence : Supervised learning, Neural networks, Tensorflow, Keras, PyTorch

Projects

Research Project Software | *R, Rstudio, Git, Neural Network, BigData, AI* *August 2024*

- Implemented the research project verifying the association between phenotype and genomic regions, as a R software package.
- R package implemented and maintained on Github, featuring functions leveraging parallel computing, ANN2, and tidyverse packages extensively.
- Modular implementation with adjustable parameters, enhancing flexibility and customization for users as an added convenience.

Human body-weight estimator | *Python, PyTorch, Detectron2, Densepose, CNN* *June 2024*

- Implemented a pipeline to estimate human body-weights from 2400 random *reddit* selfie images.
- Utilized Meta AI tool *Densepose2*, to segment top 4 weight-impacting parts within human body map density for model training.
- Implemented a 7-layered CNN model on PyTorch to predict weights of the human body on the segmented images.

Personal Image Repository | *Python, Google Cloud, SQL, UserAuth, CSS, HTML, Flask, CI/CD, YAML* *Fall 2023*

- Implemented a Python-based Flask application facilitating user-authenticated image storage, viewing, and deletion on Google Cloud as a server-less instance
- Utilized Google Cloud Bucket as the image repository and maintained a SQL instance for user authentication data
- Implemented Continuous Integration/Continuous Deployment (CI/CD) using Google Cloud Build to build and deploy the codebase from GitHub, with deployment managed through the Google Cloud Run function; securely stored credentials using Google Secret Key Manager

Speech-based virtual assistant for Windows OS | *Python, Tkinter, SpeechtoText* *December 2020*

- Built a Python personal assistant application with speech recognition and synthesis capabilities, enabling voice-controlled tasks like Wikipedia searches, joke delivery, YouTube playback, and emailing.
- Designed a Tkinter GUI interface for user interaction, enhancing accessibility and incorporating additional functionalities for information management and app launching.

Awards and Certifications

- FAU Presidential Fellowship.
- IBM Data Science Professional Certificate.
- FAU Academic Excellence Award 2023, 2024.
- Organizer, CUET CSE FEST 2020.

Relevant Graduate Coursework

- CAP 6619 Deep Learning
- CAP 6635 Artificial Intelligence
- CAP 6640 Natural Language Processing
- CAP 6629 Reinforcement Learning

Test Scores

- GRE 321 Q. 161 V. 160 AWA 4.0
- TOEFL 113 L. 30 S. 26 R. 30 W. 27