AFRIDA RAHMAN

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PERSONAL SUMMARY

Being a graduate with a background in computer science, has a great interest in artificial intelligence and has worked as a research candidate for the Machine Learning Research Group. Recently joined MyMedicalHUB Bangladesh as Jr. AI Developer and now working on AI Learned Therapy project. Gathered 2 years research experience on Sequence analysis, Feature analysis, Model development and Computational proteomics. Experimentalized on different types of protein Post-Translational Modification (PTM) sites individually and simultaneously using several feature selection and extraction methods along with Sequence Analysis and Machine Learning Algorithms. Completed some web development and android projects using Python, Docker, Django,Tensorflow, Kotlin.

EDUCATION

Bachelor of Science (BSc.) in Computer Science and Engineering (CSE), 2021
Institute : Rajshahi University of Engineering and Technology
Result: 3.51 (Last 4 semesters)

Higher Secondary School Certificate (HSC) in Science, 2015
Institute : Rajshahi College
Result: 5.00

Secondary School Certificate (SSC) in Science, 2013
Institute : Govt. P.N Girls' High School
Result: 5.00

WORK EXPERIENCE

MyMedicalHUB – Jr. AI Developer (February 2021 – Present)

- Working on AI Learned therapy project where virtual measurements and movements capturing of human musculoskeletal assessment have been delivered through telemedicine interface.
- Worked on real time audio detection for better prediction for voice command sub-project in AI Learned Therapy project. In this sub-project, audio data analysis with appropriate feature construction, deep learning model with deployment are the key elements.

iNeuron.ai – Trainee (June 2020 – Present)

- Acquiring the basic knowledge of OOP concepts along with python core, exception handling, database programming, data analysis and visualization, rest API, SQL, statistics, exploratory data analysis,

machine learning algorithms with end to end development.

Banglamedic – Trainee (October 2020 – December 2020)

- Learning the usage & implementation of Docker, Containerization, Kubernetes, Devops.

Machine Learning Research Lab - Research Candidate (August 2019 – Present)

- Analizing and exploring the relevant fields of Computational proteomics.

IEEE – Student Member (December 2019 – Present)

- Communicating with the professional world and building networks for future goals.

Innovation Society of RUET (ISR) – General Member (2018 – 2020)

- Collecting innovative ideas and maintaining relationship with creative people.

Bangladesh Betar – Lead singer (2009 – 2014)

- Maintaing a leading role in different cultural activities.

PROJECTS & PUBLICATIONS

Publications:

Journal Articles:

1. Sabit Ahmed, **Afrida Rahman**, Md. Al Mehedi Hasan, Shamim Ahmed and S.M Shovan, "Computational identifcation of multiple lysine PTM sites by analyzing the instance hardness and feature importance." **(Published** in **Scientific Reports - Nature) (I.F : 5.133)** 2021

2. Sabit Ahmed, **Afrida Rahman**, Md. Al Mehedi Hasan, Md Khaled Ben Islam , Julia Rahman and Shamim Ahmad, "predPhogly-Site: Predicting phosphoglycerylation sites with the incorporation of sequence-coupling information into Chou's general PseAAC." **(Published** in **PLOS ONE) (I.F : 3.24)** 2021

3. Sabit Ahmed, **Afrida Rahman**, Md. Al Mehedi Hasan, Md Khaled Ben Islam , Julia Rahman and Shamim Ahmad, "predML-Site: Predicting Multiple Lysine PTM Sites with Optimal Feature Representation and Data Imbalance Minimization." **(Published** in **IEEE/ACM Transactions on Computational Biology and Bioinformatic) (I.F : 3.015)** 2021

4. **Afrida Rahman**, Sabit Ahmed, Md. Al Mehedi Hasan, Abdollah Dehzangi and Shamim Ahmad, " Predicting Nitrosylated Tyrosine Sites by Incorporating Probabilistic Sequence-coupling information into PseAAC and Addressing Data Imbalance." **(Under Revision** in **Gene) (I.F : 3.688)** 2021

Conferences:

1. **Afrida Rahman**, Sabit Ahmed, Julia Rahman and Md. Al Mehedi Hasan, "Prediction of Formylation Sites by Incorporating Sequence Coupling into General PseAAC." **(Published** in **IEEE Region 10 Symposium (TENSYMP))** 2020

Projects:

- **EMMA - Learned Therapy Project - (Android version) : (August 2021)**

  - Efficient Musculoskeletal Medical Assistant (EMMA) is a cross-platform system that aims to provide AI driven musculoskeletal solution. A new integrated part of it is the virtual learned therapist. It assists the patient with proper guidance to perform exercises. It is a current project.

  Tools: Kotlin, Android Studio.
  Github: https://github.com/Afrida-Rahman/Virtual-Learned-Therapist/tree/master

- **Detection on Android using TensorflowLite: (July 2021)**

  - There are three types of detection on android application using TFLite. They are: Real time flower detection, object detection, pose estimation.

  Tools: Kotlin, Android Studio.
  Github: https://github.com/AfridaRSam/Detection-on-Android-using-TensorFlow-Lite

- **Speech Recognition Model: (April 2021)**

  - Real time speech recognition & prediction system which can take commands from user and predict that speech or words and execute instructions according to it. A little part of the model is allowed to upload in github.

  Tools: Python, Django, Javascript.
  Github: https://github.com/AfridaRSam/Speech-Recogniser-model

- **Dockerized Crud API: (October 2020)**

  - A simple Flask crud api by which data can be inserted, deleted, updated based on sending json response and stored data in MongoDB (same procedure is applied on PostgreSQL database) and then containerized the whole application for deployment procedure.

  Tools: Docker, Flask, MongoDB, Postman, PostgreSQL
  Github: https://github.com/AfridaRSam/Docker-Implementation
  https://github.com/AfridaRSam/Docker-Containerization-Practise

- **Web Scraping API: (September 2020)**

  - **Review Scraper**: It is an application where customer reviews of a website (i.e. Flipcart) are scrapped using Flask and the gained customer reviews are stored automatically in MongoDB and lastly, the deployment has been completed using Heroku server.
  - **Image Scraper**: It is another Flask application by which images can be scrapped from different website based on user requirement.

  Tools: Flask, HTML, CSS, Python, MongoDB.
  Github: https://github.com/AfridaRSam/Data-Analysis-Implementation/tree/master/reviewScrapper
  https://github.com/AfridaRSam/Data-Analysis-Implementation/tree/master/imageScrapper

- **Hospital management system: (March 2019 – June 2019)**

Tools: HTML, CSS, Core PHP, Laravel, MySQL, Mailtrap.io
Github: https://github.com/AfridaRSam/Laravel-Project-3-2

➢ **Research Projects** :

Post Translational Modification: (January 2020 - Present)

- The goal of this project is to identify post-translational modifications in proteins.

Several post-translational modifications (PTMs) are experimented :

- **Single predicted sites:** Formylation, Phosphoglycerylation, Nitrotyrosine sites. (Individually).
  - Prediction of predPhogly-Site : https://github.com/Sabit-Ahmed/predPhogly-Site
  - Single PTM predicted server: a) http://103.99.176.239/predPhogly-Site
    b) http://103.99.176.239/PredNitro

- **Multiple predicted sites:** Acetylation, Gluterylation, Malonylation, Succinylation, Crotonylation, Glutarylation sites. (simultaneously)
  - Two web-servers are deployed to predict these multiple PTM sites:
    a) http://103.99.176.239/predML-Site
    b) http://103.99.176.239/iMul-kSite

Tools: Python, Matlab, Scikit-learn, Pandas, Numpy, Django, HTML, CSS.
Researchgate: https://www.researchgate.net/project/Post-translational-Modifications

SKILLS

Data science and machine learning based:

- Data analysis, Protein sequence analysis, Feature analysis, Basic statistics,Classification techniques.
- Linear regression, Deep learning, Hyper parameter tuning, Transfer learning, Model development.

Library based: Tensorflow, Tensorflow.js, Scikit-Learn, OpenCV, Numpy, Pandas, Scipy.

Visualization based: Dataframe, Matplotlib, Seaborn, Plotly.

Programming language based: Python, C++, C, HTML, CSS, Matlab.

Database based: SQLite, NoSQL(MongoDB), PostgreSQL, MySQL.

Framework based: Django, Flask, Vue.js, Kotlin.

Deployment based: Docker, Docker-compose, Kubernetes.

Others: Microsoft Word, Excel, Powerpoint, git, linux command lines.

CERTIFICATES

IEEE Region 10 Symposium 2020 -

- Certificate of appreciation for a successful presentation on “Prediction of Formylation Sites by Incorporating Sequence Coupling into General PseAAC”

Coursera -

- Programming for Everybody (Getting Started with Python)

- Python Data Structures
- Using Databases with Python
- Using Python to Access Web Data

REFERENCES

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