Golam **Jilani**

Dhaka, Bangladesh

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Research Interests

Machine Learning; Computer Vision; Natural Language Processing; Data Mining

Academic Background

Shahjalal University of Science & Technology *Sylhet, Bangladesh.*

Bachelor of Science in Computer Science & Engineering; GPA: 3.51/4.00 (**3.73** in the last two years) *March 2023*

Research Experience

Reasearch Assistant *Nov 2022 - Feb 2023*

Department of Computer Science & Engineering, SHAHJALAL UNIVERSITY OF SCIENCE & TECHNOLOGY *Sylhet, Bangladesh*

Supervisor: **Dr. Sadia Sultana**

- Collaborated with four other researchers in a funded university research project to create an acted facial expression dataset by native Bangladeshi participants.
- Preprocessed the data (annotation, cropping, and resizing) using OpenCV and face detection using RetinaFace.
- Performed cross-cultural experiments using deep learning models to explore the cultural differences in expressions across regions.

Undergraduate Thesis *Jan 2022 - Mar 23*

Department of Computer Science & Engineering, SHAHJALAL UNIVERSITY OF SCIENCE & TECHNOLOGY *Sylhet, Bangladesh*

Development of an Ensemble Learning system for Facial Expression Recognition using smaller CNN models with Transfer Learning

Supervisor: **Dr. Sadia Sultana**

- Developed and trained an efficient Facial Expression Recognition ensemble learning system using smaller CNN models with transfer learning, which achieved 97.55% accuracy on the benchmark dataset KDEF.
- Used transfer learning and advanced data augmentation to deal with overfitting problems and assessed the performance of Mixup and CutMix data augmentation on our benchmark datasets.
- Validated the effectiveness of our ensemble model with other existing state-of-the-art methods.

Collaborative Research *Ongoing*

SHAHJALAL UNIVERSITY OF SCIENCE & TECHNOLOGY | The University of Texas at El Paso *Sylhet, Bangladesh | Texas, USA*

DepressionTrend: Using Dynamic Word Embeddings to Analyze the Trends of Depression

Supervisor: **Prof. Moqsadur Rahman**

- Collected a bulk amount of depression-related data (1M posts) crawling from Reddit and used NLTK for text processing.
- Preprocessed the data in a time-based approach: Incremental Window and Sliding Window.
- Used pre-trained word embeddings like Skip-gram and GloVe for analyzing trends related to depression utilizing semantic relationships encoded in word vectors.
- Monitored the changes in word embeddings using temporal data.

Publications

- Sadia Sultana, Saiful Sagor, **Golam Jilani,** Al Masum, and Samara Paul
  "SUFEDB: An acted facial expression database for emotion recognition" (under review in one of the IEEE Transactions journals)

- **Golam Jilani,** Samara Paul, and Sadia Sultana
  "Using smaller CNN models in Ensemble with Transfer Learning and Data Augmentation for Facial Expression Recognition"
  (manuscript under preparation)

Skills

Languages: **Python, C, Java, JavaScript**
Databases: **MySQL, SQLite, MongoDB**
Frameworks: **PyTorch, Keras, Numpy, Pandas, scikit-learn, OpenCV, NLTK**

Test Scores

IELTS: 7.5 (L-8.5, R-8.5, W-6.5, S-7)

Licenses & Certifications

2022 **Neural Networks and Deep Learning**, course offered by Coursera.
2022 **AWS Cloud Foundations**, course offered by AWS.
2020 **Python Data Structures**, course offered by Coursera.
2020 **Using Python to Access Web Data**, course offered by Coursera.

Selected Projects

La-Tienda: A web based E-commerce Application *2022*

Academic Project

An E-commerce platform implemented by microservices architecture for three different users, i.e., customers, sellers, and admin, where MERN stack (MongoDB, Express.js, React.js, and Node.js) was used for building frontend and three APIs (Bank-API, E-commerce-API, and Supplier-API).

Result Processing System (RPS): A web application for result processing *2021*

Academic Project

A web-based application implemented for interactions between teachers and students, where students can view their academic results and download the tabulation sheet, and teachers can view, enter, and edit the marks and generate the tabulation sheet. JavaScript, Django framework, and SQLite3 were used to develop this application.

Awards & Achievements

National Higher Secondary Education Scholarship *2017*

Issued by Board of Intermediate & Secondary Education

- Awarded every year for outstanding performance in a nationwide Higher Secondary exam by the Government of Bangladesh.

National Secondary Education Scholarship *2015*

Issued by Board of Intermediate & Secondary Education

- Awarded by the Government of Bangladesh every year for outstanding performance in a very competitive nationwide exam.

Relevant Courses

CS and ML Courses:
Machine Learning, Artificial Intelligence, Digital Signal Processing, Data Science, Data Structures and Algorithms, Computer Architecture, Computer Networks, Operating System, Cloud Computing, and Discrete Mathematics.

Math Courses:
Linear Algebra, Calculus, Complex Analysis, Statistics & Probability, Complex Variables, Laplace Transforms, and Fourier Series.

Extracurricular Activities

2018-2022 **Member**, CSE Society (SUST) *Sylhet, Bangladesh*
2021 **Participated in First Aid Training Program**, Jafrabad Medical Camp, Global Relief Trust (GRT) *Sylhet, Bangladesh*

References

Dr. Sadia Sultana
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Prof. Maruf Ahmed Mridul
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