Fatema Khan

✉ fatemakhan3199@gmail.com | ⧉ fatema31 | ⬛ fatema-khan | ⬢ Fatema-Khan

RESEARCH INTEREST

Artificial Intelligence, Machine Learning, Natural Language Processing, Computer Vision, and Human Computer Interaction

EDUCATIONAL QUALIFICATION

Jahangirnagar University, Dhaka, Bangladesh　　　　　　　　　　　　　　**July 2022 – August 2023**
M.Sc. in Computer Science and Engineering　　　　　　　　　　　　**CGPA: 3.95/4.00 (Rank: 3/50)**
Thesis Title: Stability Analysis of Fuzzy and Shannon Entropy of Image under Noisy Environment

Jahangirnagar University, Dhaka, Bangladesh　　　　　　　　　　　　　　**March 2017 – June 2022**
B.Sc. in Computer Science and Engineering　　　　　　　　　　　　**CGPA: 3.70/4.00 (Rank: 3/65)**
Project Title: An Automated Approach for Fruit Leaf Disease Recognition ⧉

WORK EXPERIENCE

Lecturer, Department of Computer Science and Engineering　　　　　　**October 2023 – Present**
University of Liberal Arts Bangladesh ⧉

Lecturer, Department of Computer Science and Engineering　　　**September 2022 – September 2023**
Green University of Bangladesh ⧉

PUBLICATIONS

Conference Proceedings (Published: 1)

- Discovering and Tracking Query Oriented Topical Clusters in Online Social Networks. Tanjim Taharat Aurpa, **Fatema Khan**, Md Musfique Anwar. Published in the **2020 IEEE Region 10 Symposium (TENSYMP)**. June, 2020. **(Best Paper Award)** | [Paper]

Journal Articles (Under review: 2)

- Enhancing Classification Robustness: Stability Analysis of Fuzzy and Shannon Entropy of Image under Noisy Environment. **Fatema Khan,** Md. Imdadul Islam, Sarwar Jahan. Submitted to the **Journal of Visual Communication and Image Representation**. | [Under Review]
- Multi-BERT Ensemble Approach for the Recognition of Bangla Medical Entity. Tanjim Taharat Aurpa, Farzana Akter, Md. Mehedi Hasan, Shakil Ahmed, Shifat Ara Rafiq, and **Fatema Khan.** Submitted to the **ACM Transactions on Asian and Low-Resource Language Information Processing.** | [Under Review]

POSTER PRESENTATION

- Discovering and Tracking Query Oriented Topical Clusters in Online Social Networks. **Fatema Khan**, Tanjim Taharat Aurpa, Md Musfique Anwar. At the **6th International Conference on Networking, Systems and Security (NSysS)**. December,2019. [Poster]

SELECTED PROJECTS

- **Real-Time Traffic Object Monitoring at Dhaka's Road Intersections** ⧉ | Computer Vision　　**2024**
  Python | Frameworks & library: Darknet, OpenCV, NumPy, Pandas
  – A system that uses YOLOv8 and a tracking algorithm to detect, track, and calculate vehicle counts and speeds in real-time from traffic footage in Dhaka and stores the data in CSV files for analysis.
- **Sentiment Analysis of Amazon Magazine Reviews Using NLP Models** ⧉ | NLP　　**2023**
  Python | Frameworks & library: Keras & Tensorflow

- – Analyzes and classifies sentiment of customers in Amazon magazine reviews by comparing BERT, Bi-LSTM, LSTM and RNN models.
- **Bugs and Flowers Detection and Classification** ⬈ **|** Computer Vision   **2021**
  Python | Frameworks & library: OpenCV, Pandas, NumPy
  – An application using YOLOv3 to detect whether a given image contains flowers or bugs.
- **Movie Recommendation System |** Machine Learning   **2021**
  Python | Frameworks & library: Pandas, Scikit-learn
  – A recommendation system to suggest movies to users based on user-based collaborative filtering
- **SecurityCat: A Simple Ultrasonic Radar System** ⬈ **|** Embedded Systems and IoT   **2020**
  Arduino & Processing | Arduino IDE and Processing IDE
  – An ultrasonic radar system to detect objects at different distances and angles, tell how far they are, and give auditory alerts for objects that are too close.
- **Obstacle Avoiding Robot |** Robotics   **2017**
  – A robot using Arduino Uno can sense an obstacle in front of it and change its path.

AWARDS AND ACHIEVEMENTS

- **Best Paper Award:** IEEE Region 10 Symposium (Tensymp) 2020
- **National Science and Technology (NST) Fellowship:** Awarded by Ministry of Information and Communication Technology, Bangladesh to facilitate M.Sc. Thesis dissertation. (2022)
- **Yearly Academic Scholarship for academic excellence** awarded by Jahangirnagar University from session 2017 to 2022.

PROFESSIONAL TRAINING & COURSE CERTIFICATIONS

Training Program
- **Certifications in Teaching and Learning**, The Center of Excellence for Teaching and Learning (CETL), Green University of Bangladesh   **Sept. 2022- Jan 2023**
- **Induction Training for Tertiary Teachers,**   **Oct. 2023 - Present**
  The Center of Excellence for Teaching and Learning (CETL), University of Liberal Arts Bangladesh

Course Certifications
- Capstone: Retrieving, Processing, and Visualizing Data with Python ⬈
- Neural Networks and Deep Learning ⬈
- Programming for Everybody (Getting Started with Python) ⬈
- Web Application Technologies and Django ⬈
- Using Databases with Python ⬈
- Using Python to Access Web Data ⬈

TECHNICAL SKILLS

Programming language:	Python, C, C++, Java
Database & Web Development:	MySQL, SQLite, HTML, CSS, JavaScript
Frameworks & Libraries:	OpenCV, Matplotlib, NumPy, Pandas, Scikit-learn, Keras, TensorFlow, Darknet
Developer Tools:	NetBeans, IntelliJ, Android Studio, Google Collab, Jupyter Notebook, Spyder, MATLAB
Others:	LaTex, Git, Overleaf

MISCELLANEOUS & EXTRA CURRICULAR

- **Curriculum Committee Member**, Department of Computer Science and Engineering, University of Liberal Arts Bangladesh   **November 2023 - Present**
- **Student Mentorship and Advising**, Department of Computer Science and Engineering, University of Liberal Arts Bangladesh   **November 2023 - Present**
- **Associate Programme Secretary,** Jahangirnagar University Computer Club   **July 2018 - April 2022**
- **Organizing Committee Member**, JU CSE Fest 2019   **October 18-19, 2019**
- **Machine Learning and Artificial Intelligence Research Cell Member,** Green University of Bangladesh   **March 2022 - September 2022**