Md Sajid Ahmed

Former AI Engineer · Independent Researcher

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| Deep Learning | Computer Vision | NLP

Education

BSc in CSE - North South University

Dhaka, Bangladesh

Specialization: Computer Vision, Biomedical Signal Processing

Jan. 2016 – Aug. 2019

- Relevant Coursework: Pattern Recognition, NLP, Computer Architecture, Data Mining
- Thesis: Road Crack Segmentation with Driving Assistance and Real-time Feedback System
- Supervisor: Dr. Mohammad Ashrafuzzaman Khan, *Associate Professor, CSE, NSU*

Work Experience

AI Engineer - Altersene Limited

Dhaka, Bangladesh

Led Computer Vision-based HAR model development for the Garment Industry

Oct. 2022 - July 2024

- Proposed and designed an overall service architecture for industrial process automation systems in the RMG sector.
- Developed multiple machine learning models for RMG worker's activity monitoring and improved the average precision accuracy by 30 %.
- Developed a continuous CI/CD ML model validation pipeline to ensure the trained model's reliability and scalability in production.
- Built and tested semi-automated ML pipelines on distributed servers for containerized applications using Docker and Kubernetes

Lab Instructor - North South University

Dhaka, Bangladesh

Undergraduate Lab Course Instructor at the Dept. of CSE

Sep. 2019 - Dec. 2022

- Prepared and delivered lab manuals for each course to conduct lab assessments in every class
- Delivered lectures on topics to grasp the knowledge of lab sessions better
- Courses Taught - Database Systems Lab, Computer Architecture Lab, Digital Logic Design Lab, Object Oriented Programming Lab

Research Assistant Intern - TnR Lab

Dhaka, Bangladesh

BioMedical Research Group, North South University with Prof. Tanzilur Rahman

Nov. 2019 - Dec 2020

- Proposed a Smartphone video-based Blood Glucose level prediction model with PPG signal processing and Biomedical Feature Engineering.
- Developed a PPG signal-based Feature Engineering algorithm to generate relevant features for the blood glucose level prediction model.
- Built a machine learning model to predict blood glucose level from human fingertip video collected from a regular smartphone camera (Paper accepted in MDPI Applied Sciences'21)

Volunteer Research Experiences

Fellow Researcher at The Fatima Fellowship, Sponsored by HuggingFace

Massachusetts, USA (Remote)

Led a project on Emerging Number Systems in ML Systems with Dr. Abdulrahman Mahmoud

June. 2022 - August 2023

- Proposed a new application towards emerging number formats in DNN Accelerators
- Improved performance on object detection-based networks ML runtime performance over fault injections

Student Researcher - ECE Department

Dhaka, Bangladesh

ECE Department, North South University with Prof. Mohammad Ashrafuzzaman Khan

Aug. 2018 - April 2019

- Proposed a FCN-based Road Segmentation Model with real-time web interface and mobile application
- Improved performance over model's accuracy with a fine-tuned ResNet50 backbone pre-trained on ImageNet
- Modified pre-trained VGG16 model and used transpose convolution to upsample the images like an encoder-decoder architecture.

Selected Publications

[1]. Moghis Fereidouni, **Md Sajid Ahmed***, Adib Mosharrof, and A.B. Siddique. 2025. **Improving Multi-turn Task Completion in Task-Oriented Dialog Systems via Prompt Chaining and Fine-Grained Feedback.** *(ArXiv preprint)*

[2]. **Md Sajid Ahmed***, Tanvir Tazul Islam*, Md Hassanuzzaman, Syed Athar Bin Amir, and Tanzilur Rahman. 2021. **Blood Glucose Level Regression for Smartphone PPG Signals Using Machine Learning.** *Applied Sciences, Vol. 11, Issue 2, pp. 618, MDPI.*

[3]. Mahbuba Tasmin*, Taoseef Ishtiak*, Sharif Uddin Ruman, Arif Ur Rahaman Chowdhury Suhan, NM Shihab Islam, Sifat Jahan, **Md Sajid Ahmed***, Md Shahnawaz Zulminan, Abdur Raufus Saleheen, and Rashedur M. Rahman. 2020. **A Comparative Study of Classifiers on Human Activity Recognition by Different Feature Engineering Techniques.** *2020 IEEE 10th International Conference on Intelligent Systems (IS)*

[4]. **Md Sajid Ahmed***, Taoseef Ishtiak*, Mehreen Hossain Anila, and Tanjila Farah. 2019. **A Convolutional Neural Network Approach for Road Anomalies Detection in Bangladesh with Image Thresholding.** *2019 Third World Conference on Smart Trends in Systems Security and Sustainability (WorldS4)*

*** denotes equal contribution**

Teaching

Undergraduate Teaching Assistant (UGA) — *Dhaka, Bangladesh*

Department of ECE, North South University — *Feb. 2019 - Aug. 2019*

- Assisting faculty members in the Digital Logic Design and Computer Architecture Course.
- Conducting tutorial sessions for students.
- Performing invigilation in exam halls.
- Evaluating home-works, assignments, and projects.

Tutorial Instructor — *Dhaka, Bangladesh*

ACM R&D Group, NSU — *Jun. 2018 - Dec. 2018*

- Conducted weekly tutorial and lecture sessions for R&D group members and assisted students and members in their projects and presentations.

Skills

Programming	Python, C/C++, Java, Bash-Script, Github, LaTeX, Markdown
Framework	PyTorch, Huggingface, OpenCV, NumPy, Pandas, SciPy, PIL, Matplotlib, Seaborn, Scikit-learn, Streamlet, NLTK
Web	Backend: FastAPI, REST Framework, Databases: Redis Stream, MySQL, MongoDB, Scraping: Beautiful-Soap, Selenium, Broker: ZMQ, Kafka
Utilities	Git, Docker, FFMPEG, Redis-Insight, Label-Studio, MS Office, Draw.io
Languages	English, Benglai, Hindi

Selected Projects

Roads360 V2: Real-Time Road Crack Detection Using Instance Segmentation [Code] — *Dhaka, Bangladesh*

Bachelor's Capstone Project — *Summer 2019*

- Developed a real-time road crack and anomaly detection system using a fine-tuned YOLACT++ instance segmentation model
- Optimized the base model for faster inference with the smaller parameter model, enabling deployment in web-based platform for monitoring live road conditions

Dialo-GOT: Game of Thrones Dialogue Generation with GPT-2 Language Model [Code] — *Dhaka, Bangladesh*

NLP Course Project — *Summer 2019*

- Proposed a fined-tuned GPT-2 language model to generate conversations for popular TV series named The Game of Thrones
- Generated most relevant conversations between characters that are less likely to interact in the real TV shows and achived a 30% improvement over the regular dialogues.

FoodAI: Real-Time Food Detection with Faster-RCNN Model [Code] — *Dhaka, Bangladesh*

Pattern Recognition Course Project — *Spring 2019*

- Proposed an object detection model to detect different types of Bangladeshi dishes from social media platforms.
- Used TensorFlow object detection API for developing the model from scratch with live video playback.

Sensor Data-based Human Activity Recognition with various Feature Engineering Techniques [Code] — *Dhaka, Bangladesh*

Data Mining Course Project — *Fall 2018*

- Developed a classification model for human activity recognition using time-series sensor data.
- Developed multiple Feature Engineering techniques and achieved a **96.5%** classification accuracy on the UCI HAR test set

Honors & Awards

2019 **Champion NSU ACM SC Capstone Innovation Challenge Season 8**,

2018 **2nd Runner up IEEE PES 2018 Project Showcase Competition**,

2017 **50% tuition fee waiver recipient in recognition of outstanding academic record for sophomore year**,