Abu Adnan Sadi

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RESEARCH INTEREST

- Machine Learning
- Deep Learning
- Artificial Intelligence
- Natural Language Processing
- Computer Vision

EDUCATIONAL QUALIFICATION

North South University, Dhaka, Bangladesh

Bachelor of Science in Computer Science and Engineering (BSCSE) | 2019 - 2022
CGPA: 3.82 (out of 4.0)

EXPERIENCE

Research Assistant
North South University, Supervisor: Dr. Mohammad Ashrafuzzaman Khan | September 2023 - Present

- Conducting research related to the application of NLP in the medical domain.
- Cleaned a large and hard-to-analyze JSON dataset of full-text medical research articles by converting it to an SQLite database.
- Currently working on a project that aims to improve medical disease diagnosis from medical text by utilizing transformer-based architectures.

PROJECTS

LMFLOSS: A Hybrid Loss For Imbalanced Medical Image Classification. Preprint
Undergraduate Thesis | Supervised by: Dr. Nabeel Mohammed

- Developed and implemented a novel hybrid loss framework (LMFLOSS) to handle the imbalance issue in medical image classification.
- Compared and analyzed the performance of different existing loss functions for imbalanced classification on multiple CNN network architectures.
- Extracted features from deep neural networks and generated attention maps, t-SNE, and UMAP projections for further analysis and understanding of the results.

An end-to-end pollution analysis and detection system using artificial intelligence and object detection algorithms. Journal Article, Conference Paper
Supervised by: Dr. Mohammad Rashedur Rahman

- Created a custom 'Visual Pollutant Dataset' by collecting images from Google Street View.
- Annotated the image data and trained object detection models for the task of visual pollution detection.
- Published our preliminary findings under the title "Visual Pollution Detection Using Google Street View and YOLO" at the **2021 IEEE 12th Annual Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON).**
- An extension study of the conference article with the title "An end-to-end pollution analysis and detection system using artificial intelligence and object detection algorithms" was later published in the **Decision Analytics Journal.**

A Comparative Study on Plant Diseases Using Object Detection Models.
Supervised by: Dr. Ziaul Hossain

- Performed detailed comparative analysis of the performance of different object detection models, for plant disease detection.
- Preprocessed and annotated image data from two datasets to prepare a hybrid dataset suitable for the study.
- Trained multiple variants of YOLO(You Only Look Once), such as YOLOv5-s, YOLOv5-x, and Scaled YOLOv4.
- A paper based on this study was recently accepted at the **12th Computing Conference 2024.**

PUBLICATIONS

- Md Yearat Hossain, Ifran Rahman Nijhum, **Abu Adnan Sadi**, Md Tazin Morshed Shad, and Rashedur M. Rahman, "Visual Pollution Detection Using Google Street View and YOLO," 2021 IEEE 12th Annual Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON), New York, NY, USA, 2021, pp. 0433-0440, doi: 10.1109/UEMCON53757.2021.9666654.
- Md Yearat Hossain, Ifran Rahman Nijhum, Md Tazin Morshed Shad, **Abu Adnan Sadi**, Md Mahmudul Kabir Peyal, and Rashedur M. Rahman, “An end-to-end pollution analysis and detection system using artificial intelligence and object detection algorithms,” Decision Analytics Journal, vol. 8, p. 100283, 2023, doi: https://doi.org/10.1016/j.dajour.2023.100283.

Accepted:

- **Abu Adnan Sadi**, Ziaul Hossain, Ashfaq Uddin Ahmed, and Md. Tazin Morshed Shad. “A Comparative Study on Plant Diseases Using Object Detection Models,” In 12th Computing Conference 2024, London, UK.

MAJOR UNDERGRADUATE COURSES

Artificial Intelligence, Data Mining, Natural Language Processing (Special Topics), Data Structure & Algorithm, Design and Analysis of Algorithms, Introduction to Theory of Computation, Database Management System, Digital Logic, Discrete Mathematics, Computer Organization and Architecture, Operating Systems Design, Software Engineering, Concepts of Programming Language, Microprocessor Interfacing & Embedded System

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TECHNICAL SKILLS

Languages: Python, Java, PHP, Javascript, C, C++
Frameworks: PyTorch, Laravel, Tensorflow
Python and ML Libraries: Scikit-learn, Hugging Face, OpenCV, Numpy, Pandas, Matplotlib
Database: MySQL, SQLite
Version Control: Git, Github
Project Management Tools: Trello, Slack, Overleaf

TEST RESULTS

TOEFL iBT: 107

- Reading: 30, Listening: 24, Speaking: 28, Writing: 25

GRE: 305

- Quantitative Reasoning: 154, Verbal Reasoning: 151, Analytical Writing: 4