Asif Mustafa Hassan

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Research Interest

Systems, Computer Graphics, Machine Learning.

Education

Bangladesh University of Engineering and Technology March 2018 – May 2023
Bachelor of Science in Computer Science and Engineering

- **GPA:** 3.86/4.0
- **Notable Coursework:** Operating System, Computer Architecture, Compiler Design, Microprocessors, Microcontrollers & Embedded Systems, Computer Graphics, Graph Theory, Algorithms, Data Structures and Algorithms, Machine Learning, Artificial Intelligence, Software Engineering

Notre Dame College June 2015 - May 2017
Higher Secondary School Certificate in Science

St. Gregory's High School 2015
Secondary School Certificate in Science

Research Experience

Independent Research on Attention-Based Deep Learning Model for Crime Prediction August 2025 - Present

- Under the supervision of **Dr. Tanzima Hashem**, focusing on impact of spatial and categorical correlations of crime data
- Using **AIST: An Interpretable Attention-Based Deep Learning Model for Crime Prediction** as a base model

Final Year Thesis Work, Bangladesh University of Engineering and Technology June 2022 - May 2023

- Under the supervision of **Dr. A.K.M. Ashikur Rahman**, investigated the effect of smile on face recognition accuracy
- Proposed a handful of novel features to capture the effect of smile on faces
- Preprocessed video datasets, extracting optimal still frames to create a comprehensive dataset of both smiling and neutral facial images
- Applied several machine learning algorithms to the dataset to show that face recognition algorithms should be developed with smile-based features in mind
- Presented the research at IEEE SMC 2023

Publications

Effect of smile on facial landmark based face recognition Jan 2024

Asif Mustafa Hassan, Md. Musharaf Hossain, Swapnil Dey, Ashikur Rahman, and Tamima Tarin

IEEE International Conference on Systems, Man, and Cybernetics (SMC), 2023

DOI: 10.1109/SMC53992.2023.10394510.

Work Experience

Software Developer — Dhaka, Bangladesh
IQVIA — June 2023 – Present

- Member of the Core team, contributing to the development and maintenance of the authentication and core part of Orchestrated Analytics.
- Writing API, unit tests, code review, preparing design documents and performance improvement
- Maintaining front end applications, upgrading versions and implementing new features

Honors & Awards

- **Silver Award** in the **IQVIA IMPACT Program**, 2025 — August 2025
- **Conference Speaker**, 2023 IEEE International Conference on Systems, Man and Cybernetics (SMC) — October 2023
- **University Dean's List Award**, on four of the four academic years — 2018 - 2023
- **National Cyber Drill 2021**, a jeopardy-style Capture The Flag competition organized by BGD e-GOV CIRT, placed among the top 20 teams — October 2021
- Two times **Regional Physics Olympiad** and One-time **Regional Math Olympiad** winner — 2013 - 2016

Technical Skills

Programming Languages: C, C++, C#, Assembly, Java, JavaScript, TypeScript, Bash, Latex, JQuery

Libraries: OpenCV, TensorFlow, Matplotlib, NumPy, Pandas, YOLO

Frameworks: NodeJs, ExpressJs, Django, Angular, JavaFX, JSwing, Spring Boot

Databases: Oracle, PostgreSQL, MySQL, Cassandra

Tools: AWS, Git, Docker, Kubernetes, WordPress, RabbitMQ, Flex, Bison, Google Colab, Google App Script, Swagger, Postman, OpenGL, xv6

Hardware: Atmega32, Arduino

Projects

TetrisMasterAI — Github
Python, Pytorch, Numpy

- Implemented Deep Reinforcement Learning using Q learning and fully connected layers to master Tetris.
- Utilized replay memory, and custom environment for effective training.

Bengali Digit Recognition using CNN — Github
Python, Numpy

- A CNN model was built from scratch using only the NumPy library that was used to recognize bengali digits.

University Management System — Github
Kubernetes, Docker, Cassandra, React, ExpressJS

- Developed and implemented a user-friendly University Management System
- Designed and integrated a distributed database using Cassandra to improve system efficiency and scalability.

C++ Compiler — Github
Yacc, Flex & Bison, C++

- Developed a C++ compiler utilizing Flex, Bison, C++, and Yacc for lexical analysis, syntax parsing, and code generation.

Rubik's Cube Solver Github Video
ATmega32, Arduino, Servo Motor, Color Sensor

- Designed and implemented a Rubik's Cube Solver using Atmega32 and Arduino.
- Implemented the algorithm to solve the Rubik's Cube, including cube detection, orientation, and solving steps

Ray Tracing Github
C++, OpenGL

- Built a environment that renders through ray tracing using OpenGL.

PICNOTE Github Video
Django, Python, MySQL

- Built a project called Picnote using Django, a photo-sharing platform similar to Instagram.
- Designed and implemented features such as user authentication, image upload, and commenting system.

References

Dr. A.K.M. Ashikur Rahman
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