Asif Mustafa Hassan

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in asif-mustafa-hassan ⌨ asif-41 🎓 google-scholar

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
- ○ **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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