MOHAMMAD MAHMUDUL ALAM

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OBJECTIVES: I am extremely passionate about solving challenging problems in computer vision using machine learning. Thereby I want to pursue my Ph.D. in a related field where I will have the opportunity to learn and develop new algorithms to solve the most challenging problems.

GRE SCORE: 312 (AWA: 3.5, Quant: 163, Verbal: 149)
TOEFL SCORE: 99 (R: 27, L: 24, S:23, W:25)

EDUCATION

BSc — Bangladesh University of Engineering and Technology — Feb 2015 – Apr 2019
Dhaka, Bangladesh
Electrical and Electronic Engineering
CGPA: 3.59/4.00

RESEARCH EXPERTISE

- ✓ Pattern Recognition, Machine Learning
- ✓ Human-Computer Interaction
- ✓ Video and Image Processing
- ✓ Biomedical Data Analysis

TECHNICAL SKILLS

Languages	Python, C/C++
Machine Learning Tools	Keras, TensorFlow
Scripting	LaTeX
Data Analysis	MATLAB
Image Processing Tool	OpenCV
Microsoft Office	Word, PowerPoint, Excel
Design Tool	AutoCAD

UNDERGRADUATE RESEARCH (THESIS)

Bangladesh University of Engineering and Technology — Apr 2018 – Apr 2019
Supervisor: Dr. S. M. Mahbubur Rahman — Email: mahbubur@eee.buet.ac.bd

- Developed deep learning-based interactive system to interact with a virtual object in a virtual environment using Unity, C#, and Python
- Developed unified convolutional neural network approach for classification of hand gestures and regression of fingertips
- Developed single object localization (SOLO) multi-class object detection algorithm

PUBLICATIONS

[3] **Mohammad Mahmudul Alam**, Mohammad Tariqul Islam, and S. M. Mahbubur Rahman, "*Unified Approach of Hand Gesture Recognition and Fingertip Detection Using CNN*", Pattern Recognition, Elsevier Science Publishers. [In Progress]

Pre-Print GitHub Dataset

[2] **Mohammad Mahmudul Alam**, and S. M. Mahbubur Rahman, "*Detection and Tracking of Fingertips for Geometric Transformation of Objects in Virtual Environment*", In 16th ACS/IEEE International Conference on Computer Systems and Applications (AICCSA), November 2019, Abu Dhabi, UAE.

Pre-Print GitHub Dataset

[1] **Mohammad Mahmudul Alam**, and Mohammad Tariqul Islam, "*Machine Learning Approach of Automatic Identification and Counting of Blood Cells*", In Healthcare Technology Letters, IET, vol. 6, no. 4, pp. 103-108, 2019.

PDF IET-DigiLib GitHub Dataset

PRESENTATION

- Presented paper titled "*Detection and Tracking of Fingertips for Geometric Transformation of Objects in Virtual Environment*" in the 16th ACS/IEEE International Conference on Computer Systems and Applications (AICCSA), 2019, Abu Dhabi, UAE.

ACADEMIC PROJECTS

- **Image Classification Using CNN:** Report GitHub

Designed a CNN to classify images using the CIFAR-10 dataset. Besides, pre-trained weights of "you only look once" (YOLO) algorithm was employed for the object detection task.

- **Probability Distribution Using GUI:** Report GitHub

Implemented numerical techniques and designed GUI to calculate and visualize the probability distribution of univariate and bivariate data directly loaded from an excel file in MATLAB.

- **Digital Communication System:** Report GitHub

Built the simulation of an entire digital communication system with different modulation scheme to transmit and receive text messages in MATLAB.

- **Eye Blink Controlled Robot:** Report

Design the hardware using Arduino and program the robot to control it using the counting of eye blinks.

OTHER PROJECTS

- **Heart Rate Tracking:** GitHub

Implemented window method and template matching methods to calculate and track the heart rate and compare their performance.

- **Microputer:** Website

Designed, built, and programmed Arduino based small programmable computer.

ONLINE COURSES

- "*Introduction to Programming Using Python*", in edx instructed by Professor Dr. Farhad Kamangar from The University of Texas at Arlington
- "*Neural Networks and Deep Learning*", in coursera instructed by Professor Dr. Andrew Ng from Stanford University
- "*Improving Deep Neural Networks: Hyperparameter tuning, Regularization, and Optimization*", in coursera instructed by Professor Dr. Andrew Ng from Stanford University
- "*Structuring Machine Learning Projects*", in coursera instructed by Professor Dr. Andrew Ng from Stanford University
- "*Convolutional Neural Networks*", in coursera instructed by Professor Dr. Andrew Ng from Stanford University

AWARDS AND ACHIEVEMENTS

- Student Grant from 16th ACS/IEEE International Conference on Computer Systems and Applications 2019
- Dean's List Award in the second year of the undergraduate program 2017
- Awarded 100% Attendance Prize from National Ideal College for attending all of the classes and tests 2014
- General Scholarship award based on the result of the Higher Secondary School Certificate Examination 2014
- Talent pool Scholarship award based on the result of the Primary Scholarship Examination 2006