**Statement of Purpose**

My lifelong goal is to constantly learn new knowledge, use that knowledge for the development of science and technology, and contribute to the lives of mass people on a large scale. I feel the thirst to learn more and believe that to have perfect growth; I need to pursue my Ph.D. in Computer Science. I want to start my research career by obtaining a Ph.D. degree from the **University of Texas Dallas**. I am motivated to conduct my research in the fields of Data Mining, applications of machine learning, data mining, NLP, embedded systems, HCI, security, and Robotics.

Through the state of the art undergraduate program and highly effective learning environment, I completed my Bachelor of Science degree from Bangladesh University of Engineering & Technology (BUET) with a 3.67/4.00 CGPA, achieving the Dean’s List Award in the last two years for my outstanding academic performance. I completed my undergraduate thesis work successfully and continued my research after my graduation. I have worked in Samsung Research & Development, Bangladesh for five months and have been working as a lecturer in the department of CSE of the University of Asia Pacific (UAP), Bangladesh. Parallel to my teaching work, I am continuing my research with my professors from BUET and also supervising my students at UAP in different research projects. Motivated by my passion for research and education, I am determined to pursue a graduate degree at the **University of Texas Dallas**.

I have always been fascinated with science and technology since my childhood. I thought deeply about the science working behind every event and dreamt about becoming a scientist. At the age of eight, I saw a computer in front of me for the first time, which was an intel Pentium one generation and I was very quick to learn the interface of that computer. But as it was my uncle’s computer, I got a very short amount of time to spend with it. In my junior year of high school, I got introduced to computer programming and I was highly amazed by the fact how all intelligent technologies are run by computer algorithms and codes. This intrigued me to become a computer scientist and programmer. After high school graduation, I got myself admitted to BUET, the most reputed university for engineering in Bangladesh through a very competitive admission test. From the first year to the present time, my passion for computer science only increased as I got introduced to different sectors of computer science gradually.

During my university life, I used to watch different tutorial videos and tech videos on YouTube. I slowly noticed that videos that would interest me were automatically recommended by the system. The same thing I noticed on Facebook. When I reacted to a cat video, more posts with cats started to appear on my news feed. At that time, I got to know about the recommendation system and how YouTube and Facebook were learning about me from my user data. It was very interesting and I got highly motivated about how machine learning can solve complex problems only by learning from data. In my fourth year first semester, I had two courses- Machine learning and pattern recognition. In those courses, I got to learn and implement various machine learning algorithms, such as Decision Tree, Principal Component Analysis, Regressions, Clustering, CNN, etc. Assignments were given on these topics and I had to implement these algorithms from scratch. For my term project, I worked on a self-driving car that would learn from cloning the training data. Frames of roadsides e.g. front view, left view and right view along with corresponding steering angles were generated from a simulation software and given to a CNN model as training data. The model then learned to predict the steering angle for a car on a new roadside image. My interest in machine learning grew stronger with every course assignment I completed and also from the term project.

At the same time, I got my interest in Big Data, Data Mining, Embedded Systems and Robotics. By applying machine learning to a large amount of data, we can learn a lot about a particular behavior and use that knowledge for various beneficiary purposes. In my third year of undergrad study, I got to work with a huge amount of Twitter data (10 GB) in my database project. I fed this data to a database and ran queries to learn about different opinions of people about Messi VS Cristiano Ronaldo through different times. These experiences motivated me to work on applying machine learning to huge amounts of data and data mining. I also worked a number of hardware projects during my undergrad study and also my time being as a lecture. Where most of the CS students find it difficult to work with hardwares, I find it very suitable for me to work with hardware systems.

I got introduced to research in my final year thesis work under Professor [Dr. A. B. M. Alim Al Islam](https://sites.google.com/site/abmalimalislam/home) where I worked on identifying human traits from human brainwaves. We collected brainwaves from our participants and asked them to collect their traits from a survey. Then we tried to correlate their brainwaves with their traits applying machine learning (ML) to their brainwave data. After my graduation, I continued on this work and was engaged in another project under my supervisor, which was similar to it. This time, we went to the Rohingya camp and collected their brainwave data to identify the presence of any negative emotions. I am also working on another project, which is a collaboration with Monash University, Australia. Here we study the mismanagement of the Rohingya medical data from the security perspective and propose some models on how the data should be managed. I have another project where I worked with Professor [Dr. A. B. M. Alim Al Islam](https://sites.google.com/site/abmalimalislam/home) and Professor [Dr. Mahmuda Naznin](https://sites.google.com/site/mahmudanaznin). We identified human traits based on their head movements and we found a suitable correlation between them. The work is published as a conference paper “As you are, so shall you move your head: a system-level analysis between head movements and corresponding traits and emotions.” – in the 6th International Conference on Networking, Systems, and Security, 2019 (NSysS 2019). These research work have also developed my interest to apply machine learning in the field of HCI, Security, and Data Mining.

During my undergrad studies, I received Dean’s Merit List award for consecutive years for outstanding academic performance. I receive the first runners-up award in an Artificial Intelligence competition in my final year where I had to design to AI bot to play a game against other bots. In 2019, I was awarded the National ICT Award for my undergrad thesis work.

After my graduation, I have been working as a lecturer at the University of Asia Pacific. Here I have conducted courses- Machine Learning, Competitive Programing, Data communication, Structured programming, and Digital Logic and System Design lab. As a graduate student, I expect myself to continuously learn new skills and use those skills in my research work. I expect myself to be able to address the state of the art problems with novel solutions. As a member of the profession, if I get a teaching assistantship, I hope my two years of teaching experience in UAP will make me a perfect fit for the job, and getting a research assistantship, will help me give my full focus to my research.

I am interested to work with **Professor Dr. Latifur Khan**. His work research work aligns with my interest to work with big data and data mining. I am also interested to work in Speech Processing Lab and Intelligent Robotics and Vision Lab.