**Statement of Purpose**

It was a chilly winter morning when I first stepped into my unversity, very excited, as I had the opportunity to do my undergratuate in Computer Science and Engineering, something which I have always wanted to be. I would be mendacious if I say that I expected to be interested in fields like computer vision and machine learning at that time. Infact, my preconceived notion about Computer Science, when I got admitted, was that it is all about developing softwares and games. However, as I had the opportunity to be closely acquainted with these fields later on, I found them so intriguing and nuanced that I made up my mind in building my career and conduct research in these fields. Years from now, I would like to visualize myself as a researcher in research institutes that work with computer vision and intelligent systems.

My father being an electrical engineer, I grew up in an environment full of tools and electrical and electronic equipment. I used to watch my dad with awe working on circuits and fixing things. He also introduced me to computers and taught me how to use it. He used to show me different hardware components and how they are assembled. As I grew up using computers, I was so amazed and fascinated by the wide variety of things that could be done that I aspired to have a career in Computer Science and Engineering. My dream turned into reality when I got an opportunity to be admitted in the department of Computer Science and Engineering in Islamic University of Technology, one of the leading universities in Bangladesh. Only few students, having top results, can have the opportunity to get an admission after sitting for a highly competitive admission test, where only 235 students are selected out of 2000. Throughout my undergraduate studies I was put through intense academic pressure, having to take 181.5 credits, despite which I was able to successfully complete my undergraduate courses, obtaining high grades. My university provided me the appropriate platform to nurture my knowledge and skills.

During my undergraduate studies, I found keen interest in subjects like Algorithm, Machine Learning, Artificial Intelligence and Image Processing. I was introduced to the course of Machine Learning in my junior years. I was deeply motivated by the idea that computers can be made to “learn” things just like ordinary people and that computers can use the knowledge gained from learning to solve complex problems. Hence I dived into the details of this field and did an online course conducted by Andrew Ng, Associate Professor in the department of Computer Science at Stanford University. It was really amazing to see how the algorithms applied in AI and Machine Learning can give rise to the impression that the machines are behaving intelligently, logically responding to inputs. Later on during my senior years I came across the course of Image Processing and it drew my attention. It was really interesting to see how digital images can be processed to produce enhanced images and it drove me in exploring the field in more details and to work on it. I have also had several courses in Programming and Database Systems. The projects which I did in those courses were highly appreciated by my course instructors and earned me highest grades. The projects helped me to bolster my knowledge on programming and database concepts.

I elected to do my bachelor thesis in medical image processing because I felt it was one of the ways of contributing to medical science that can affect the lives of many people. I proposed a mechanism for automatically detecting lung tumors from the CT images of lungs using textural features after segmenting the lung parenchyma. While doing my undergraduate thesis I came to know about Computer Vision, a field that intertwines Machine Learning and Image Processing. My thesis required some application of computer vision since I needed to train my method so that it can classify the tumorous parts from the lung CT image. Research for my thesis required me to devote hours in reading many published papers on medical imaging and textural features. I would keep on perusing the papers until I can completely comprehend them. I would spend a bulk of the time trying to analyze the solutions proposed. I would ponder over any shortcomings in the papers and try to come up with a solution of my own. Overall, my thesis inspired me to think of a career in research. It taught me how to conduct research properly and improved my breadth knowledge on Image Processing and Machine Learning. At the end of the final year, my thesis was well appreciated by the panel of professors to whom I defended it and I obtained the highest grade for my thesis. I presented my work in a workshop of ‘Asian Conference on Computer Vision 2014’ and it will be published in the Springer Lecture Notes on Computer Science (LNCS) series.

Besides my academics, I was also one of the executive members of the IUT Computer Society. Every year the IUT Computer Society organizes ICT fest, hosted in IUT, where students from different universities all over the country come and participate in many ICT based contests like programming contest, project showcasing etc. As one of the Secretary of the committee, I was in charge of managing the programming contest and IT Business Idea contest in the ICT fest that took place in 2013. This experience of organizing a major event helped me develop my organizational and interpersonal relationship skills. I also participated in several programming contests during my undergraduate studies. I participated in IUT Inter Departmental Programming Contest, a contest organized by CSE department of IUT, three times and obtained 1st place in 2012. I also participated in National ICPC in the same year.

After completing my Bachelor’s degree, securing 2nd position in a highly competitive class of 47, I joined Islamic University of Technology (IUT) as a lecturer in December 2013. I have conducted courses on Numerical Analysis and Database Management Systems and have also instructed the corresponding labs. I have also conducted labs on Database Concepts and Programming, Office Automation, Visual Programming and Pattern Recognition. A career in teaching has provided me a glaring opportunity to gather a work experience in teaching and to be in an environment that is congenial to research.

It was in this vein, that I decided to advance my career in research and it prompted my interest in the PhD. program at the department of Computer Science in Stony Brook University. I am aware that the Stony Brook University is a top university and that it is one of the best research centers for Computer Science. Computer Vision is the field in which I am interested the most, since this is close to the field in which I have conducted my Bachelor's thesis and in which I have the most experience in research. I am also interested in Artificial Intelligence and Machine Learning as these fields are closely related to computer vision. I am well aware that admission into this university is highly competitive, but I would like to consider myself as a potential candidate for the program because of my enthusiasm and zeal in conducting research in the respective fields and my eagerness to work hard.

I am very eager to work under and with some of the finest minds in Computer Science so that I may be able to conduct valuable research and increase the depth of my knowledge. I wish to earn a Ph.D. and follow this with a career in research. I hope that my background and qualifications would be suitable to enroll me into the Ph.D. program of Computer Science at Stony Brook University.