My professional experiences and a broad interest in machine learning related research activities have influenced me to pursue a Masters in computer science from University of Alberta. I am particularly interested in the application of machine learning algorithms to solve problems across inter-disciplinary fields.

Applying for graduate studies is the result of a quite intriguing transition of my career goals. Taking the decision to go for graduate studies is one I did not foresee even two years ago. It was an online course on machine learning, where for the first time I was introduced to the beauty and power of mathematics and it led me to rethink my career plans.

I obtained a B.Sc. in *Computer Science and Engineering* with my Organization of Islamic Cooperation Grant and Bangladesh Government Scholarship from Islamic University of Technology which is one of the top engineering universities in Bangladesh. During the first phase of my studies I was mostly involved in competitive programming as I found a career in software development to be very appealing. I have represented my university in numerous national programming contests as well as in the ACM ICPC Dhaka Regional – 2011. During the problem solving practice sessions, I would just sit in a chair for hours and hours dwelling on a single problem whenever I would get stuck. Looking back now, those were some of the happiest times of my life and they greatly taught me perseverance.

I love mathematics, applied statistics, and probability theory fascinated me. Inspired by such, I enrolled myself for the free online course on machine learning offered my Dr. Andrew Ng from Stanford near the end of 2011. I learned elegant techniques like support vector machines and neural networking that are being used in solving real life problems. I learned to apply neural networks to predict hand-written digits, and to design a spam classifier and was intrigued to find how Gaussian kernel with SVMs work. I completed the course with highest distinction and in the process also gained deeper practice of Matlab. My previous courses on data structures, algorithms, and numerical methods all started to make sense, and I realized the true power of artificial intelligence in deciphering or classifying information from huge dataset. I became certain about my intentions for graduate studies and started preparing for it. Consequently, the following year I took artificial intelligence, machine learning and pattern recognition courses at my undergrad university.

In my senior year thesis project, I designed a recommender system for social networking. The idea was to find an efficient way to suggest friends. We designed a probabilistic mathematical model to define cohesion among people in the network to rank the suggestions. The idea showed promising results with real data that have been collected from a certain social network. The thesis is currently in preparation for submission to a journal.

At present I am working as a software engineer at Samsung R&D Institute, Bangladesh. I am working in the TIZEN(https://www.tizen.org) project - an open source operating system for multiple devices. Linux foundation, Intel and Samsung is supporting its development . The significant projects I have worked on includes development of a industrial-strength benchmark tool for Tizen mobile platforms that measures performance with regards to graphics, memory, data access and web performance. I also worked on the development of a field test automation tool that pushes a mobile OS in its communication capability in different modes and tests the strength of its APIs. Both of these projects were in mostly C++. I have also been involved in writing industrial-strength Hardware Abstraction Layer and Native API test cases in C++ and Web API test cases in javascript. At Samsung, the engineers are also constantly inspired to propose new ideas for research. I have formulated numerous proposals during my one year of employment, of which one is currently being considered for commercialization. I also have some teaching experience as I have provided training on C++

programming and writing test cases for different platforms to many of my fellow engineers.

I am prepared to pursue my graduate studies and I want to do it from the University of Alberta. The research on innovation and application of novel machine learning algorithms on diverse fields here have really interested me. I am specially interested in developing machine learning algorithms to solve problems in bioinformatics and computational biology. While I know I do not have any background in bioinformatics, I always had a deep interest in biology since my high school days. To cover for my lack of bioinformatics experience I also have enrolled myself in the Bioinformatics Algorithms course offered by Dr. Pavel Pevzner of University of California, San Diego at Coursera(www.coursera.org). I believe my experience as a problem solver and a software engineer together with my intense motivation will be of great value tackling the most challenging problems in this field. I am also interested in aspects of large scale Software Engineering and Green Mining as well as developing software systems that utilize machine learning methods to solve problems in diverse fields. I believe, my undergraduate courses in applied statistics, analysis, numerical methods, machine learning, artificial intelligence, probability and pattern recognition will also greatly help me working in any of the above fields.

Ultimately, I want to prepare myself for a career in research. My long term goal would be to effectively utilize my professional and research skills in an intellectual upholding and render my services towards promoting new effective algorithms. I have motivation, education and skills. Therefore, I am certain that if given the opportunity I can significantly contribute to the university and the research community during my Masters and beyond. Thank you for your time and consideration.

Sincerely,
Md Nafiz Hamid