I was exposed to AI at the onset of the ML boom through Dr. Andrew Ng's Stanford Online course. As a result, I started getting excited about applications of ML from a young age. At that time, my exposure to self-driving cars and recommender systems made me feel like I knew all there was to know about this field. But five years later, I found myself in a world that got consumed by AI, and it exploded so fast I could hardly keep up.

I come from a country that ranks high on the poverty index, with 76% of the population living on under $5.5 a day. As a result, the technology boom was slow to reach us back home. I believe Google came to Bangladesh in 2012, and a dedicated broadband connection became a reality in my house only in 2015. Even now, technology hasn't properly reached most parts of Bangladesh, and being computer savvy still means knowing Microsoft Word and Excel, and your prospects are great if you can land a government job where you do exactly that all day.

However, that wasn't enough for me. I've always had bigger dreams, and they have forever compelled me to strive to be the best version of myself. A pursuit for better higher education has led me from Bangladesh to Germany, and now from Germany to the US. My passions have enabled me to stay strong and motivated as I churned through a strenuous engineering degree, and they helped me secure an internship and gather industry experience at Bosch, which is one of the largest tech giants in the world and a leader in cutting-edge engineering research and technology.

Throughout my undergraduate career, I have focused on taking actions that would prepare me for the next stage in this journey – research. I have accumulated knowledge in topics such as Computer Vision, Information Theory, Robotics, Control Systems, Digital Signal Processing and much more. For my internship, I worked as a Software Engineer for the Motorsport Data Acquisition Team at Bosch Engineering GmbH, where I largely dealt with Formula 1 car technology. At Bosch, I developed a framework for Syslog Analysis for F1 car devices, which provided me experience in dealing with large, tangled datasets. Moreover, working in data-oriented framework development strengthened my background in tools such as Python, C++, OOP, Pandas, Flask, QT, and Linux. At Drexel, I have expanded my knowledge in domains such as Transfer Learning, Reinforcement Learning and Natural Language Processing, and learned how to implement basic algorithms like GRU, DQN, LSTM, RNN, GAN etc. using keras, tensorflow, tf-agents and scikitlearn – and to cope with limited compute power, I also acquired understanding in the usage of Google Cloud Platform with some mentoring from my professors.

With some hard work and dedication, I was also able to secure a research opportunity with Bosch Motorsport for my thesis. I will start next semester, and my research will involve developing strategies for the optimization of the Bosch Telemetry system. Using a predictor model and a network simulator, I will be simulating the signal chain telemetry around the racetrack, which would provide me information on bandwidth (data throughput) and network delay. Using this information and some priority specifications, I will be able to analyze the efficacy of existing algorithms for data transfer such as backfilling, reordering, prioritization, low-priority data decimation and their combinations thereof. This will allow me to choose the best algorithmic combination to maximize gain and minimize effort based on user-defined priorities, which is the goal of my thesis.

In terms of personal development, I learned a lot about managing expectations, and I've realized that my biggest competition in life can only be one person: Me. As a result, the most important goal for me on a given week is to be better than the person I was last week. When I take an exam, I don't do it for the A, but rather to assess where I stand, how much I know, and where in my knowledge I could fill the gaps. When I apply for a job, I think of the people I'll meet and the experiences I'll create.

That is why I am applying to John's Hopkins University for my graduate school. JHU contains the faculty, opportunities, and resources I require to obtain outstanding mentorship and become an expert researcher. It has a beautiful campus populated with brilliant students that I would like to surround my life with. Furthermore, my own interests align very well with some of the excellent research being conducted at JHU. That is why I want JHU to be the next chapter in my book.