Since childhood, I have had a keen fascination for Mathematics and have taken the initiative to explore several subtopics in this subject. I went on to study Engineering in my Bachelors as I see this as the practical version of Mathematics through which the basic theoretical concepts of the subject can be applied to large-scale manufacturing and production processes. Although I studied Mechatronics in my Bachelors, my work experience at Cognizant Technology Solutions was the key factor in motivating me to pursue Industrial Engineering as I realized the inefficiency of the existing industrial and operational processes. I started implementing small changes in my workplace and this drove me to further understand the optimization of industrial processes. I now wish to pursue my Masters in Industrial Engineering and Operations Research / Industrial Engineering and Systems Engineering in order to acquire in-depth knowledge and an industry-relevant skill set for my future endeavors.

As Mathematics has been one of my strong subjects in High School, I decided to choose an Engineering stream for my Bachelors. Also, I wanted to become proficient in Mechanical, Electrical, and Computer Science Engineering, and so I chose Mechatronics Engineering for my undergraduate specialization as this would give me an overview of all the three fields. During this period, there were several courses that I found really interesting and these included C Programming, Object-Oriented Programming, Statistics and Numerical Methods, and Total Quality Management. These subjects challenged my adeptness in mathematics and helped me increase my knowledge base in mechatronics. I also gained a lot of practical skills through my laboratory courses on C Programming, Computing Practices, and Computer-Aided Drafting and Modeling, which proved extremely helpful in my subsequent projects.

My undergraduate coursework had kindled my curiosity about robotic and other mechanical systems, and I was eager for an opportunity to deepen my knowledge about this field. So, I was overjoyed to get the chance to participate in a Go-Kart event, where I designed and fabricated the steering system of a Go-Kart vehicle. Initially, I undertook an extensive research of the various steering systems, and I finally decided to go with the rack and pinion system for steering our vehicle. My main reason for using this system was that is has a greater feedback and lesser backlash. Our vehicle successfully reached the final round of the competition conducted by ISIE and we were awarded a special prize for the cost optimization of our model. Through this experience, I gained in-depth knowledge of the structural features of automobiles and I learnt how to effectively work in a team for the success of the project.

This competition gave me the confidence to take up a more technically challenging project for my final year thesis and so I decided to undertake the Design and Fabrication of a Writing Robot. The objective of this project was to help people write, sign checks, and draw pictures, and the applications of this robot could be extrapolated to industries such as Biology, Medicine, and Research. For developing the writing robot, I used an Arduino microcontroller, servo motors, microphone, Python Google Speech API, and a MicroPython compiler. The microphone would provide the input which would be processed by the instrumentation amplifier and low pass filter, after which it would be sent across to Python with the help of Google speech API. A speech-to-text conversion algorithm would convert the analog signal into text which would be sent to the Arduino microcontroller, and the servo motor would direct the angular movement of the robot to write the text. This project was both exciting as well as immensely educational, and I was able to gain proficiency in coding in Python and Google Speech API. Also, as I was

the team leader for this project, I was able to work on my leadership and team management skills, and I developed strategies for enhancing myself as a leader.

By this time, I had a limited amount of exposure to industrial manufacturing and production processes. My curiosity about the entire system got the better of me and I decided to do an internship at Servall Engineering Works Pvt Ltd to understand the various processes involved in the making of paper, starting from pulp generation to final paper making processes. This experience gave me an opportunity to understand the various processes and equipment used for large-scale paper production and I was given the task to try and reduce the power consumption in the drying phase of paper making. The company had previously estimated that this phase accounted for about two thirds of the total power consumption and I proposed the use of PLC to reduce the power consumption while drying. In the existing system, the same amount of steam pressure was applied to both the dryer cylinders and I proposed lowering the steam pressure for the first cylinder as compared to the second cylinder. My proposed method not only lowered the total power consumption but also helped in speeding up the entire drying process. This internship, aside from providing me with technical information about paper production, helped me understand the entire functioning of a large-scale production industry and how to identify and address technical issues to optimize the entire process and, consequently, the system's profitability.

Besides this internship, I earned my Diploma in Industrial Automation, in order to understand how these techniques can be used for increasing the efficiency of industrial processes with minimal requirements of human supervision. This course helped me acquire hands-on experience in using PLC, SCADA, and a six-axis Nachi Robot. I also completed a certification course on Creo Modeling in order to awaken my creative abilities and apply it in a broader context in my subsequent projects.

After completing my undergraduate studies, I decided to start working in the field of Artificial Intelligence and Big Data, as I found these to be the most promising for future innovations in various sectors. Hence, I took up a job at Cognizant Technology Solutions, where, after the initial training on Java programming and MySQL, I started working on a UK-based support project for the British Gas company. The objective here was to ensure the smooth and regular flow of data through all gateways and to identify high-risk IPs trying to hack into the client network and block their access. The most interesting part about this project was that it kept me on my toes with the constant flow of issues that I needed to address and my learning was immense in terms of how to identify and address problems in order to make sure that the client's data was safe and well-guarded.

One of the things that I enjoyed about my workplace was that it provided me with the flexibility to introduce systems and workflows that could potentially optimize my projects and enable me to work smarter. In pursuit of better optimization procedures, I developed a program using Python where I could automatically prepare reports and upload it in the portal. This got me thinking about the large-scale consequences of my optimization efforts and how I could target manual procedures that were time-consuming and inefficient. Hence, in order to build my knowledge base and skill set in this domain, I decided to pursue my Masters in Industrial Engineering and Operations Research / Industrial Engineering and Systems Engineering. After completing my postgraduate education, I intend to take up a job in this field and persevere endlessly to reach the highest managerial position in my company. I particularly want to focus on improving the quality of the products as per international standards and attempt to eradicate wastage in my company. Eventually, I would like to establish my own business

where I will use my prior experience and education in developing innovative optimization strategies for large-scale industrial processes.

A postgraduate education in Industrial Engineering and Operations Research / Industrial Engineering and Systems Engineering from your University will help me understand the nuances of the field and existing gaps in the market. I particularly intend to concentrate on increasing the overall efficiency of industrial operations through well-thought and customized optimization strategies. I also want to focus on learning new technologies by taking up as many projects and internships as possible. Your University will help me acquire an international exposure in my field that will give me a global picture of current market trends and demands. I am aware of the quality of research that is regularly published from your University and I long to be a part of your skilled team of researchers. Being guided by exceptionally talented faculty at your premises will help me gain a better perspective of the field and a successful direction for my future endeavors.

Given my inherent passion for optimization of industrial procedures and my deeply technical knowledge of artificial intelligence systems and data management, I feel that I am sufficiently geared up for exploring the field of Industrial Engineering in order to enhance my professional profile in this domain.