I have always been fascinated with what goes on behind the scenes – the internal mechanisms, inherent patterns behind a process, and technologies on which computing systems operate. This curiosity was the reason I pursued my undergraduate studies in Mechanical Engineering. While growing up, I often used to wonder how large companies minimize risk in their decision making processes and analyze their performance in the market. I got a glimpse of this when I was pursuing my postgraduate studies at UIC where I learned about Data Science and its impact on businesses and large industries. Being interested in how things worked, I began exploring the field of data analytics which further led me to the amazing domain of Artificial Intelligence. Wanting to acquire advanced knowledge about these fields, I pursued an internship in the area of Machine Learning apart from several online courses that allowed me to expand my knowledge in these areas. Soon after completing my Masters, I started working in the area of Computer Vision in a US-based startup where I learned about the most recent technologies that are increasingly being used to address real world problems. As most of my learning has been due to my own undertakings, I consider myself a self-taught Data Scientist; however, I feel the lack of a holistic approach to my work that comes with formal training in subjects. Furthermore, I wish to make use of artificial intelligence to develop smart business solutions and I feel that a degree in Business Analysis will help me gain technical expertise as well as management knowledge. Hence, in order to get an overview of the applications of Data Science in business problem-solving processes, I would like to pursue a doctoral degree in Business Analysis.

Having been passionate about understanding the mechanism and dynamics of systems since childhood, I wanted to explore my interests after completing high school, and so, I decided to pursue my undergraduate studies in Mechanical Engineering from BITS Pilani, Dubai. In order to get a complete overview of how systems work starting from technical aspects to marketing and packaging, I enthusiastically learned subjects such as Operation Management, Quality Engineering, Design Engineering, Thermodynamics, and Mechatronics. Not wanting to limit myself to knowledge of mechanical engineering, I pursued management electives such as Data Science, and Calculus for understanding complex mathematics behind technologies. Among my practical courses, I deeply enjoyed my workshops where I acquired hands-on experience with tools and equipment that were covered in my theoretical classes. To complement these skills, I acquired expertise in software such as AutoCAD, ADAMS, ANSYS, and MATLAB for technical design and simulation through my course on Computer Aided Technologies.

Eager to implement my design and fabrication skills practically, I participated in BAJA 2014, where my team designed a car suspension. For this, I used software such as AutoCAD and ADAMS giving me immense technical expertise and troubleshooting knowledge of these tools. Through this project, I was able to go beyond my coursework and demonstrate my expertise and design skills in competitions. Also, working with juniors and helping them with several stages of the project gave me immense insights into my work along with essential leadership skills.

As an inquisitive child, I have always wondered why my refrigerator that is used to cool things is hot from the outside. When I learned subjects such as Heat Transfer, and Refrigeration and Cooling, I was able to comprehend the internal mechanism of operation of a refrigerator. This also led me to

perform an in-depth analysis of the District Cooling Plant and understand its loads at different timepoints in a year.

Interested in understanding the management aspects of manufacturing industries, I worked in collaboration with Intercoil Mattresses, a local company, to help them optimize their floor layout with the objective of increasing production. Utilizing theoretical concepts that I had learned in my Engineering Optimization course, I managed to increase their mattress production by 40% and reduced their cloth wastage by 10%. This project challenged my business and management skills while giving me exposure in the domain of optimizing manufacturing plant processes. I also learned the software Arena Simulation in the process and acquired skills in technical report writing by regularly sending reports to supervisors about the progress of the project.

For my final year undergraduate project, I didn't want to limit myself to a highly technical project as I believed that a balance of core and business knowledge is essential to survive in the industrial sector. Hence, I decided to do my project in an MNC in Dubai, Emerson, where I worked as a Quality/Manufacturing Engineer in the Quality Control Department. During this period, I served as a bridge between the production and sales team and acquired the skills of explaining complex technical concepts in an easy-to-understand language. I specifically worked on resolving issues in service level orders of my company for which I conducted regular meetings to carry out a root cause analysis of non-conformance at the service level. Working in this environment, I understood the significance of professionalism and punctuality apart from acquiring expert knowledge of Microsoft Excel.

Wanting to acquire further insights into the sales aspects of manufacturing companies, I worked as a Sales Engineer Intern at Grundfos, one of the largest pump manufacturers globally. Here, I understood the interplay between the research engineering teams and the management teams for executing the manufacturing of innovative products. This was the time I realized my inclination towards business management, and my enthusiasm in working with the sales and marketing teams of the company. I worked on both technical and non-technical projects on the Grundfos centrifugal pump and market research respectively. For my final project, I researched the competitors of the Grundfos horizontal split-case pump, analyzed their respective marketing strategies, and proposed ways by which Grundfos could stay ahead of the competition. This internship gave me immense insights into business processes and the use of market research data to inform marketing decisions in the company.

Apart from my undergraduate projects and internships, I acted as the Vice President and General Secretary of the Mechanical Engineering Association in my college where I organized several industrial visits for my classmates and juniors to enable them to experience the technical and management aspects of manufacturing companies. One of the visits I had organized was to a BASF Chemical Plant in Dubai where we learned about their large-scale chemical production processes. This role as a trip organizer helped me acquire multi-tasking and time management skills, and gave me a sense of accountability for my decisions.

After completing my undergraduate studies, I felt that I needed more in-depth knowledge and expertise for creating a considerable impact in the field of mechanical engineering. So, I decided to

continue with my education by pursuing a postgraduate degree in Mechanical Engineering from the University of Illinois, Chicago. During this period, I got the chance to delve deeper into topics such as Mechatronics, Solid Mechanics, and HVAC. My management experience during my undergraduate period motivated me to take up Data Science as an elective course, and this awakened a burning desire in me to learn more about data analytics, machine learning, and artificial intelligence.

Eager to practically explore my new-found passion in Data Science and Analytics, I decided to pursue my final year project in this area to acquire hands-on experience and expertise in the techniques used in predictive analysis and data management. However, I didn't want to take up conventional projects in the domains of image processing or development of robotic systems, and so, in attempting to look for novel technologies, I came across Generative Adversarial Networks (GANs). Hence, I undertook the prediction of future frames of a video using GANs, which was very challenging as I had to first acquire knowledge of new concepts and understand why and how things worked the way they did. Basically, I intended to train a GAN algorithm that could understand the basis behind an action in a frame, make it understandable for computers, and predict a possible subsequent frame for the video. As this was the first time I was working with the GAN algorithm, I spent a lot of time in understanding convolutional neural networks and Python programming and this gave me the confidence to take up further projects in the area of computer vision and machine learning.

When I became familiar with Data Science during my postgraduate period, I knew that this was where I wanted to work despite all odds, and so, after completing my postgraduate studies, I convinced the CEO of Kpoint Technologies, a Chicago-based startup, to take me in as a Machine Learning Engineer in the Computer Vision branch. The mission of this company was to develop technologies that would enable users to directly search for words and faces in a video. This resonated with my own ambition of working with advanced technologies in the field of machine learning and computer vision, and I was eagerly looking forward to working in this technologically competent environment.

During my work period here, I worked on both supervised and unsupervised learning which gave me immense technical insights into the latest technologies in machine learning. One of my projects here required me to track faces in a video and keep a record of timestamps of the occurrence of faces in the video clip. Using Python, OpenCV, and deep neural networks, I developed a platform for visually analyzing faces, and also developed tools to enable users to search for faces using dlib library and facial landmarks. After this, I decided to go one step ahead to enable identification of faces in a video, cluster unknown faces, and notify the owner of the video to create a library for the unknown faces. For this, I used deep residual learning architecture for face recognition to recognize faces in a video and an unsupervised learning model to detect unknown faces and prompt video owners to tag these faces. Not only have I acquired an extensive technical knowledge in my domains of interest, but I have also learned essential project engineering and management skills, team communication, and adherence to deadlines. Working at Kpoint Technologies has given me a huge sense of accomplishment as despite coming from a Mechanical Engineering background, I managed to make myself capable of learning and contributing to a Computer Vision-based project.

My work experience at Kpoint Technologies gave me a glimpse of what my future could be like in the field of Data Science; however, I miss the formal educational environment that can give me a well-structured all-round knowledge of my field of interest. Hence, considering the types of projects that have increased my enthusiasm during both my undergraduate and postgraduate periods, I wish to further explore my interest in Business Analysis by pursuing a doctoral degree in this stream. After completing my higher studies, I believe that I will be better equipped to work as a Business Analyst in a large company and positively contribute to the growth and development of my company using principles of Data Science. Eventually, I would like to establish a financial technology company that can provide analysis tools especially for small startups.

In order to fulfill my goal of exploring the field of data science and machine learning, I wish to take up a doctoral program in Business Analysis at _____ University. The numerous research projects that I have worked on and the internships I have attended during my undergraduate and postgraduate periods have given me a strong command over the concepts. I now wish to deepen my understanding of the field and become up-to-date with the most recent trends in the field of machine learning and data science. I intend to acquire a strong technical skill set by pursuing several exciting and challenging projects at your state-of-the-art research facilities. Being guided by accomplished faculty such as _____ and _____ at your premises will help me take my projects to the next level and acquire a more comprehensive understanding of the field.

My experiences in using my knowledge and skills for research projects in my field of interest have given me a strong knowledge of my subjects, and I am confident that my aptitude and passion for the field will help me stand out at your campus.