Although the amount of research going on in the field of artificial intelligence is never ending, I think that the best machines built so far have not yet been able to outsmart the human mind. The field of Deep Learning, albeit a new one, is still attempting to train machines based on the human learning process and brain functions. The initial breakthroughs of deep learning in the fields of healthcare, business, and autonomous driving have been quite promising and I am deeply interested to pursue the applications of deep learning concepts in different areas. There is no doubt that this field has changed the way we perceive problems and provide results that are probably a notch better than human efforts. The rate at which we are progressing has greatly improved and the time taken to solve problems has diminished considerably. The use of human processes for providing solutions to improve human life is something that is very fascinating for me and which, I feel, has great potential. Hence, I want to pursue a doctoral degree in Deep Learning to move deeper into its concepts and make valuable contributions.

In order to pursue my ambitions in the fields of Artificial Intelligence and Deep Learning, I felt I needed a strong background in Computer Science, and so I pursued my undergraduate studies in Computer Engineering. My father is a professor of Computer Science, and with his help I have mastered the basic concepts in my undergraduate subjects, especially Algorithms, Data Structures, C Programming, Computer Programming, and Linux. By the end of my undergraduate program, I had developed a deep interest in this field and so I went on to qualify GATE and pursued my postgraduate studies in Computer Science and Engineering. I gained advanced knowledge of basic concepts I had learnt in my undergraduate studies such as Algorithms and Formal Models in Computer Science. During this period, I learnt under the guidance of highly educated and skilled people and experienced the productive and progressive environment of research in my institution. My enthusiasm level for this field reached its peak and the various discussions and brainstorming sessions about the different research topics strongly developed my interest in research.

My research project during my postgraduate program gave me a taste of research and development in academic institutions, where I used image processing techniques to identify brain tumors. I selected various textural features and then filtered out the most important of these using cut points. I fed these features along with their corresponding classes into a classifier to help predict the class of the tumor. I used the model of rule-based prediction, implemented my system using MATLAB, and published it on GitHub. Through this project, I learnt advanced concepts in supervised learning, image processing techniques such as enhancement and thresholding, textural feature extraction using the cut-point method, classification of features based on predictive association rules, the human learning process, and the development of systems that can perform similarly to humans. Based on this project, I published the paper ‘Knowledge Abstraction from Textural Features of Brain MRI Images for Diagnosing Brain Tumor using Statistical Techniques and Associative Classification’ in the International Conference on Systems in Medicine and Biology (ICSMB).

In order to go beyond my postgraduate coursework and gain knowledge of related fields, I completed a number of additional courses, both online and in campus. I completed a four-week course on Advanced Robotics with Embedded C conducted by Technophilia, where I learnt how to use Embedded C to develop applications in robotics. I completed a course conducted by Knowledge Solutions in Image Processing using MATLAB. I also completed two online courses, one was ‘Embedded Systems Shape the World’ conducted by the University of Texas on the platform EDX, and the second was ‘Image and Video Processing: From Mars to

Hollywood with a Stop at the Hospital' conducted by Duke University on the platform Coursera. Through these online courses, I learnt about Embedded C, Tiva C Microcontroller, and MATLAB.

After completing my postgraduate studies, I decided to take up a job as I wanted to understand the industry trends and market requirements. Hence, I started working as a Software Engineer in Kudos Knowledge, which is an Australian startup in Bengaluru. Here, I worked on automation of testing process, and backing up of scripts and writing modules. My project required me to moderate social media posts for abusive content by developing an automated testing system that fetched data and moderated using CasperJS. I wrote scripts for backing up the database on AWS using Python and developed node modules for fetching data from Instagram. I gained considerable experience in programming and developed an in-depth knowledge of concepts in machine learning and deep learning. I also learnt time management and how to work for long hours without losing productivity, and how to approach a problem critically and logically to come up with the most effective solution.

This work experience reinforced my desire to pursue research, and so I decided to spend some time preparing myself for doctoral study. Hence, I started working as an Assistant Professor in the Department of Computer Science and Information Technology at the Central University of Jammu. Here, I taught the courses Artificial Intelligence, Big Data Technologies, and Open Source Technologies. I also guided postgraduate students in their academic projects and co-published two research papers in the area of Deep Learning. The objective of one of my projects was to find nodules in lung CT scan images. I used the Kaggle Data Science bowl 2017 dataset and convolution neural network-based architecture for this project. This experience taught me a number of advanced concepts such as preprocessing of images, training models using 3D CNN, K-fold cross validation for performance measurement of models, initialization techniques, learning rates, optimization functions, and identification of best parameters for a dataset. As an Assistant Professor, I understood how to identify a research problem and domain prerequisites, and how to present an idea to fellow researchers.

Over the past few years, I have kindled my interest in Deep Learning by following research blogs and reading about the progress made in fields such as computer vision, natural language understanding, healthcare, business, and education. I have also completed several online courses from different professors to understand personalized ideas and opinions and the current state of the industry in various parts of the world. My immediate objective is to pursue and publish good research by smart collaborations, attending conferences and seminars, and performing experiments with a well-contemplated range of parameters. I want to work in both fundamental and application domains of Deep Learning and especially focus on automated cars, space travel, and basic things such as conversation, vision, and scene understanding. In the future, I want to get involved in research and teaching full-time and I want to collaborate with researchers working in my field around the globe so that a combination of innovative ideas and advanced facilities can lead to the development of effective models to address problems.

I deeply wish to pursue my doctoral degree in Deep Learning at your University because I feel I will greatly benefit from your advanced research facilities, your team of skilled researchers in this field, and exceptionally talented professors who can guide me in my ideas and experiments. I have been closely following the research papers published from your institution about the groundbreaking research carried out at your premises, and I dream of nothing more than to be a part of it. The knowledge and skill set that I acquire through your

doctoral program will help me become a better researcher and professor in the future. I look forward to getting a good platform to showcase my talents and skills to fuel my ambitions further and make valuable contributions to the field.

Given my considerable experience in both industry and academic research projects, I believe I can give the best possible direction to any project and I would love to carry out extremely innovative and product-oriented research at your University.