
STATEMENT OF PURPOSE

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“Explore the unseen and untangle the fathomless abyss”

Relating to the above quote, I would like to mention that I am incredibly privileged to have such a great opportunity of applying to this program that can help me explore the unseen and unravel my hidden potentials. In a world that has become increasingly confusing to the layman, there are few anchors one can find to interpret it rationally. We now use physics that defies the laws of observation. Indeed, at the surface, it is an abhorrent idea, even sparking Dr. Albert Einstein to remark, “God does not play dice”. And yet, it is all true. The only reason we have to believe such incredible predictions are the numbers behind them. It may be hard to imagine that abstract quantities can ever be lent more weight than what had, until the beginning of this century, been considered the infallible power of human observation. The fact, though, stares you in the face each time you solve a problem or find the roots of a differential equation. However far-fetched the results might sound, numbers never lie. This inherent honesty of numbers, the sheer sincerity that mathematical results exhibit, and how they are related to the field of automation is what attracts me to the field of Robotics. The basic prerequisite for education in Robotics is a passion for the subject. The education system in my country lays a lot of stress on this particular facet of education, realizing that whatever you are doing and wherever you are, this is something that will always come in handy. Thanks to my teachers and the World Book, early on in my life, I developed an insatiable thirst for the subject, constantly testing myself with problems and puzzles and incorporating new knowledge as soon as I could possibly understand the matter presented. I took part in various senior-level Olympiads in Junior High school. The growth of challenging demands and ever-increasing advancements, thriving all over the sphere, intrigued me to steer my career towards Computer Science. I was fortunate enough to work on a hand full of projects and gained Industrial Experience both at national and international levels employed mostly on software development and research. I still crave to navigate through the depths of Robotics, Computer Vision, and Artificial Intelligence with an intense desire to delve deeper into the cavernous stretch of research and unravel the peculiar conjectures of technology and Sciences.

My admission into the undergraduate course at the National Institute of Technology Srinagar opened a plethora of resources for me. I joined the Bachelors in Technology program with a specialization in Information Technology. This course helped me in diversifying my interests while still pursuing my zest for Robotics. In fact, I was exposed to the fundamentals behind the field of robotics and discovered several angles to the subject that I might have missed out on had I not made this choice. Through the various core Robotics courses floated by my college, I gained an understanding of the real-life applications of the subject. During my undergraduate study, while pursuing my interest in robotics, I also got intrigued by computer vision. The concepts of neural networks and Data science which I had used for so long with so little meaning, got clearer, and the logic that I used got streamlined. I could relate the two fields and map a dependence between them clearly.

While one may assume that my opportunities to pursue the field I love would have been severely limited due to my commitments to my field of study, I managed to eke out time to take part in activities that kept me in constant touch with Mathematics. I took part in several math Olympiads, programming competitions, carrying on a hobby I had developed in school. At that moment, any doubts I may have had as to how to live my dreams were put to rest.

During my undergraduate studies, in addition to my core curriculum, I took up four major internships to expand my horizon of knowledge and explore the practical aspects of things I had learned. After my sophomore year, I decided to get a taste of what my chosen field of study had to offer me in terms of a career. This quest took me to an Advance Level Telecom Centre BSNL that dealt with Cyber Security and Networking. There I learned some of the standard networking concepts and the art of troubleshooting and solving network problems.

My second internship was a rewarding experience at the Indian Institute of Technology Kharagpur, as this exposed me for the first time to the field of research. Here, I worked on using computer vision to aid agricultural robotics. We focused on the problem of fruit identification on trees and devised an algorithm to identify fresh and rotten fruit. Being from an agrarian state, this project gave me immense satisfaction in solving local problems. My third intern was in a Software company named EXPOSYS DATA LABS at Bangalore. Here I gained corporate experience by working as an Internet of Things Developer. Specifically, I worked in the area of encryption and decryption between users in Morse using a Flashlight. Morse can be sent by persons with severe motion disabilities, as long as they have some minimal motor control. It can also be translated by computer and used as a speaking communication aid. I recently did an internship at IISc Bangalore where I worked on applications of U.A.V in Disaster Management and a deep learning model to estimate the pose. In the latter project, we made a comparison model between instructor and student based on the comparison to simulate proper instructions.

I plan on a research-based career in academia or some R & D lab in Robotics and Computer Vision. Specifically, I'm interested in contributing to real-world applications in this area. With the mathematics-intensive education that has always been my prime focus, I believe I am well equipped to undertake this program. In fact, the pre-requisite subjects for this program, such as machine Learning, Discrete Mathematics, numerical methods, graph theory, and Data Structures and Algorithms have already been covered during my undergraduate study. In addition, to my core courses, I have also attended various workshops and done multiple projects related to my areas of interest, like the Robotics workshop at ARTPARK IISc Bangalore, Linux workshop by IIT Roorkee, and Computer Vision Projects. On an extracurricular front, I have also been elected as a Vice-Chair of IEEE Student Chapter at my institute.

My educational background in Artificial Intelligence and application of Image Processing & computer vision collectively propels me to grab this opportunity of working and learning at your Institution. I am highly interested in computer vision applications, NLP, robotics, and neural network optimization. In particular, I am more inclined towards the intersection of Robotics and computer vision, focusing on optimization.

I feel that choosing the right graduate program is of utmost importance to pursue my research interests and achieve my goals. I recognize this field as one of prime importance in the present world and the foreseeable future. This area commands more than academic interest, seeing that it is as valid in the industry as on a sheet of paper. I believe that this program has gauged the importance of this subject accurately. Having decided on my long-term goals, I will engage in research as my career. I am fully aware of the dedication, resilience, and resolve required to pursue higher education. Therefore, it is the ideal destination for a person of my interests and qualifications. I am confident that I will meet the high standard set by the institute and provide a significant contribution to the ongoing research work of the institute.