

For more than a decade, a lot of effort has been put into developing software and building cloud platforms, and this area of technology development seems to have reached a threshold level. What the world needs today is technology that can relieve humans from tedious computer-oriented chores like data entry and transformation of data from one system to another. Artificial Intelligence can be the technology that will help the society do great things with utmost ease. It can also improve our quality of life by providing services to the society like reliable healthcare and safe transportation. I have observed that all major companies like Google, Microsoft, IBM, and Apple are investing heavily in artificial intelligence and groundbreaking breakthroughs are being made in this field on a regular basis. Seeing the pace of development in artificial intelligence technology and the knowledge of its potential benefits to the society has inspired me to pursue postgraduate studies and eventually a long-term career in Machine Learning / Artificial Intelligence.

Since childhood, my dream has been to pursue a career in Robotics. I have always been fascinated by how a large number of calculations can be carried out by tiny semiconductors in a computer. I know that it is not just the software that needs to be carefully built and upgraded regularly, but the hardware too needs to be developed in a manner that can support the breadth of tasks that a software commands a computer to perform. Hence, I decided to pursue my undergraduate studies in Electronics and Communication, in order to better understand the physical components of machines. Here, I got a very good understanding of Computers, Computer Communication Networks, Digital Signal Processing, C Programming, and Assembly Level Programming of microcontrollers and microprocessors. I have experimented with MATLAB and LABVIEW after learning about them in my courses, where I ran a simulation in MATLAB using Linear Block Codes. This experience helped me develop a deeper understanding of the applications of the theoretical concepts that I had learnt.

I was bursting to make use of all my newly learned concepts and so I jumped at the opportunity to participate in a TI competition where I developed a concept of a solar panel controlling and monitoring system. I used an Arduino board to make a prototype of my concept and used Arduino Programming Language for its programming. I had previously done a simulation of an automatic water billing system using an Arduino board in my Arduino Technology course, and this experience helped me in my solar panel project. Through this project, I developed an enhanced understanding of Arduino boards and Arduino programming, and its applications in the development of technology.

After participating in this competition, I wanted to try my hand at a bigger and more complicated project, and hence I decided to use an LDPC decoder for encoding an audio file in order to increase the signal-to-noise ratio of a transmitted signal. As I already had experience working with Linear Block Codes, I used this technique for coding work in my project. I used programmable boards available from the Xilinx FPGA kit and the hardware description language, Verilog. For decoding purpose, I used encoding techniques such as SPA, SSPA, LOG SPA, and SSD. I ran simulations of my project using the simulation software, MATLAB. In this project, I had a chance to work with a lot of different techniques and programs, and was able to conceptualize and design a project based on my skills. My hard work paid off and my project was awarded the Best Project of The Year in my department.

During my undergraduate studies, I learnt about C programming and its applications, and I became so intrigued that I wanted to find out more about this programming language.

Hence, I attended a 2-month Arduino training conducted in my college by HCL, where industry experts gave us training on microcontrollers and the coding required for its usage. I found several similarities between Arduino coding and C programming, and I started experimenting with Arduino boards for counters and basic arithmetic operations. I also attended a 4-month training in a private institute where I learnt how to use the core JAVA in Eclipse tool. These two trainings played a very important role in helping me build my technical knowledge in programming systems and languages. Now, I don't just have the theoretical information, but I can customize my knowledge for use in projects based on the project requirements.

Aside from attending trainings, I have also conducted a 2-month training session on the visual programming language, LABVIEW, in my college. This programming language is quite different from the traditional programming languages and hence, I wanted to share this knowledge with my peers and juniors. I also used this opportunity to increase my own knowledge and skills in this language. Organizing the course and charting out the syllabus helped me systematically sort the information and a lot of concepts became clear to me in this process. I participated in my college's event, Srishti, where I presented my final year project. Presenting my work helped me logically arrange all my experiments, results, and conclusions, and this gave me a lot of clarity about my work and all that I had learnt through my project. I also helped organize other events in my college such as games, crime investigations, and treasure hunts. All these experiences helped me work on my social and communication skills, and be a better team player.

After completing my undergraduation, I decided to work for some time before pursuing my postgraduate studies. The reason for this was that I wanted to understand how the technical and programming knowledge is utilized in product development and business growth. I also wanted to understand the types of projects that are carried out in companies and the various techniques that are applicable for these projects. This information would help me decide the particular industry where I wanted to start my career. Hence, I started working at Cognizant Technology Solutions. My main role here is to ensure data transfer and security, and I write appropriate protocol transformations for making data communication smooth between frontend and backend employees. In this role, I have learnt how to secure data, the kind of data that is usually secured, certificate handshakings, and transformation of data with the help of stylesheets. I have learnt MYSQL and PL/SQL database languages and improved my JAVA skills in the past few months.

My main objective for my future is to build a career in Robotics, where I design robot minds and behaviours for need-based applications. In order to do this, I need to be well-versed in both hardware and software. I believe that I have taken care of the hardware part through my undergraduate studies in Electronics and Communication, and I now look forward to developing my skills in artificial intelligence and machine learning through my postgraduate studies. I want to work as a Robotics Engineer for some time to understand the current industrial trends in this field, following which I want to set up my own company and work towards automation in the Agriculture industry.

A postgraduate education in Machine Learning / Artificial Intelligence from your University will help me focus on the bigger picture and understand how theoretical concepts are actually applied in the field of robotics. I particularly want to enhance my skills in the recently developed technologies in order to understand the direction of research in this field. Working in

your advanced research facilities will help me become comfortable with sophisticated machinery and complex programming tasks. I look forward to interacting with skilled professionals in this field at your premises, so that I can gain from years of knowledge and experience and decide the direction and prospects of my chosen career path.

As I have always been driven to attempt robotic automation for performing laborious and error-prone manual tasks, I look forward to presenting my ideas and learning more about the field at your University.