

I have always been enthusiastic about solving problems because of the sheer satisfaction felt with innovating solutions. The mere possibility of my solution making peoples lives easier kindles the motivation for finding out of the box solutions. This fascination of mine has been tested in my four years of college through various projects I have worked on and my job experience at Microsoft along with a startup. I aim to pursue Masters in **Artificial Intelligence and Machine Learning** because of the ample opportunities of innovation these field offer and therefore I am highly motivated for graduate studies in computer science.

The flexible curriculum at IIT Kanpur has allowed me to explore a gamut of topics through electives and projects. My first experience with research and development came when I started working on a summer project under the supervision of Professor Arnab Bhattacharya on "Document Keyphrase Extraction". We designed and developed a Text Mining tool for extracting keyphrases using a text corpus and suggested documents for further reference based on the occurrence of keyphrases in it. After completing this project I experienced a sense of great accomplishment which further motivated me to work on more challenging and interesting projects. My zeal to explore variety of topics in Computer Science led me to take courses in a variety of topics like Computer Networks, Machine Learning, Databases and Programming Languages apart from the compulsory courses.

During my third year, I did various projects to understand the diversity in this field. To name a few "Optical Character Recognition" to solve math equations, "OpenCV for NEON Architecture" to speed up the image processing libraries using SIMD instructions, "Extension of NachOS" which primarily dealt with implementation of OS operations and "Cross Compiler for C# to MIPS".

After my third year I got selected for an internship with **Microsoft India Development Center**. It was an enriching experience working in a big team of intellects and contributing with top innovators of the software industry. I was assigned to work on the project 'Adaptive testing using telemetry'. The idea of the project was to automate the product testing for SaaS Web applications using the telemetry data. We applied data mining to generate test cases and developed an Execution Engine for executing generated test cases in existing test framework. The successful completion of this project made testing more dynamic and closer to customer usage patterns, certainly making developers more efficient in their development cycle. This project made me realize the impact novel ideas can create along with the potential of using big data to solve problems which can change peoples lives. Therefore I decided to explore more about this field in my final year through projects and courses offered. I also got a chance to discuss with my mentor and colleagues about the possibilities and challenges that lie ahead in pursuing masters in Machine Learning, and Computer science in general.

In the final year I took up a course "Machine Learning for computer vision" under Professor Vinay Namboodiri and did a project "Anomaly Localization in Topic Based Analysis Of Surveillance Videos". We detected anomalies in video clips using a database of surveillance videos. Using Unsupervised learning to model data, and techniques like VIBE and HOG-HOF to extract foreground pixels and visual words, we applied Parametric Bayesian Model(pLSA) to extract anomalies in the video frames. I also took a project under Professor Arnab Bhattacharya on "Mining Statistically Significant Substrings". This was about identifying substrings which deviate from their expected assumed distribution of Generative Bernoulli model, capturing deviations using Chi-Square measure. Both these projects further bolstered my interest in this field and helped me in developing the methodology of solving research problems. I also got first hand experience of softwares that are used in Machine Learning and Data Mining.

Currently, I am working as a software developer at **Microsoft India R&D** in **Windows Azure Backup** team. From the many cloud services which are needed for proper functioning of Backup, I handle two key services of Billing and ID management. ID management is used for inter service authentication and is the backbone of Backup product. I also devote a part of my time working as a Full Stack Software Developer in a service based startup "Jugaado", which is functional in Mumbai. At Jugaado, I am developing tools for location based Natural Language Processing for automatic query resolution. Also, in the past I have developed android applications and web extraction code for Contextual Data Mining.

My aim to pursue masters is an essential step of my career. An active research group and guidance of distinguished faculty would be instrumental in my gaining maximum out of my graduate studies. My search for such program has led me to apply for Masters in Artificial Intelligence and Machine Learning at UCSD. In particular, I have found the work of **Prof. Lawrence Saul** and **Prof. David Kriegman** very interesting. Prof Saul's work on Machine Learning for Computer Systems and Security is very novel and captures my attention the most. Prof. Kriegman's work on Computer Vision is very diverse and touches various aspects of it. His work on challenging problem like Recognition has many practical applications.

What started as a journey to explore different fields in Computer Science has resulted in something about which I am passionate and confident. My work in different courses, projects along with my job experiences will certainly prove an asset during my graduate studies. I hope through my keen interest in problem solving, research aptitude, teaching experience in Counselling Service and work experience I will be able to add value to this masters program. I look forward to learn, share and innovate at UCSD.