“Pyramids, but not ladders.”

These Words from Carol bartz form the crux of my belief in pursuing masters in Computer Science. Instead of choosing an ever ascending path in a singleresearch area, I would like to strengthen my base in eclectic fields of Computer science domain. One thing I realized after my under graduation in Information technology and more than 3 years of work in a startup and one of the best product based firms, is that the gamut of Computer Sciencedomain is broad. I deeply cherish opportunities to satiate my thirst for knowledge in the field of research in Computer Science domain. I strongly believe that graduate study would help me refine my knowledge and skills and give direction to my goal as a professional researcher in the field of computer science.

Application of Computer Science and associated technologies in a plethora of allied areas never stopped amazing me. My first tryst with Computer Science was in June 2006 at the Indian Institute of Information Technology, Allahabad, one of the premier technological universities in the country. After clearing AIEEE with 3200 rank among 6 lakh students all over India, I choose to join IIIT Allahabad, ahead of other premiere universities like NITs in India that were offering me engineering in mechanical and other disciplines. As I have always been enthused by and passionate about Information Technology, I choose to pursue my interest in Information Technology though the Premier Institutes offered me a lucrative career options in other streams like Mechanical Engineering etc.

The course structure at IIITA, regarded as one of the best and most rigorous in the country, has allowed me to gain a sound understanding on various fundamental concepts in Computer Science and also exposed me to the latest technologies and most happening research areas. My core areas of interest in Computer Science are Network Security, Artificial Intelligence and Problem solving. I pursued my interest in Network Security by taking up a project on “research over Identity Based Cryptography and its applications”; my research aimed to implement a secured messaging system with minimal dependency on setting up public key infrastructure. The implementation was primarily done considering RFC 5409 as reference which had laid the groundwork for my strategy of implementation. In the course of project I have set up a PKG server, on which a private key generator program was executed. The logic for private key generation was based on RFC 5091 and majorly making use of Stanford PBC library. While I was working on this project I have had the chance to learn about elliptic curve cryptography. I used the Identity (email) of the user itself as the public key and also used it to generate the private key. With this solution, I could demonstrate a secure messaging system with no prior exchange of public keys in the system.

In third year course of my undergraduate, I found Artificial Intelligence very fascinating, I have taken all electives related to AI and also have enrolled myself in AI related courses at coursera.org. I am especially interested in decision theory and Probability. I have explored mixmax, negamax algorithms and pruning strategies to get an understanding on game engines work. I constantly entertain myself by working on other interesting applications, for ex: I developed a simple multiplayer chess game which can be played over network by two players. This was one of the widely used games in our batch in under graduation.

I believe that a practical approach is the right way to learn new things. So I constantly strive to find some real life situations/problems which can be de-complicated and made easy by applying technology. For instance: 1) while exploring web technologies, I worked on an interesting idea with my friend. The idea was to create a service that makes comparison of flight fares from different websites easier. The work is still in progress at <http://www.flytrix.com/>. Going further on this project, the idea from business point of view is to create a good platform for travel related advertisements. Marketing is being done aggressively by approaching different travel portals.We are expecting some advertisement requests from travel vendors soon. 2) Given that the retail sector at our hometown is largely fragmented. Inventory management has become quite a challenge for these small players. At the same time these small retails players cannot afford complex billing software. So, me and my friend are working on a project to develop a competitive billing software for small retail shops. The software covers the basic use cases of inventory management and discount engines and at the same it is very cost effective. We have also got a positive feedback on the features in the beta build.

In order to hone my skills and gain first hand enterprise level experience, I joined Amazon Development Centre as software development engineer. I worked on developing client application called Amazon Instant Video on the set-top boxes with stagecraft platform. I have developed Configuration modules, an intelligent framework for State Management & Page Navigation in the app, developed an efficient non-blocking Loader service to load the assets in the app, and an intelligent focus management in order to make a decision on the object to be focused on the next events generated by user’s arrow keys. All my work was critically acclaimed by peers and management. Also, I have developed uninterrupted browsing of Movie/TV catalog in the app. I achieved this by developing an infinite gallery view using virtualization and caching techniques on image bitmaps. I have also tried my hands on Digital Rights Management technologies like PlayReady and Marlin for content protection. I have also worked on progressive playback implementation of the content; the interesting challenge here was to select the appropriate quality of bit rate based on bandwidth of the user. To analyze the user bandwidth at a particular instant of time, I have used on sophisticated logic based on metrics like average and standard deviation. Currently I am working on developing the same app on Opera presto engine with HTML5 and JavaScript technologies and I find it very interesting since I am exploring new libraries and extensions like node js, ruby, sass and compass.

Four years of undergraduate study and 3 years of enterprise level experience in the field of Computer Science have instilled confidence in me and enriched my skill set in Computer Science. On further contemplation in alignment to my interests, I found that further study is the only way I can satisfy my curiosity and thirst for knowledge. I have full faith in my ability to understand, analyze and break down a complex problem to its roots. This has enabled me to crack many a tough-nut and come up with novel solutions to challenging problems. One of my prime hobbies is Problem solving. I’ve continuously improved myself on this front by participating in single round matches of Top Coder and other programming contests like Hacker Rank and Code jam. I was top in the code mania contests held at Amdocs during my first year of work experience. When it comes to open source community, I am a fan of git and greatly follow and encourage open source projects.

I recently started learning different languages and constructs like coffescript, lisp, ruby, action script after watching an inspiring talk from Douglas Crockford on history of programming with an emphasis from a programmer’s perspective. The talk included how various programming languages were inspired and developed, the talk mentioned about doug engelbart’s demos and mentioned about a lot of things in the evolution of programming languages. I was so much impressed by the talk that I even made sure all my friends watched the video.

Apart from nurturing my academic interests, throughout my career I’ve taken active part in other extra-curricular activities which helped me nurture my all-round personality. I actively participated in table tennis and chess. I also organized Cold fire ethical hacking competition during the IIITA's annual technical festival. I was also vice captain of my house during schooling. Each position of responsibility I had, held tremendously helped me in molding my personality, by developing my team player skills, leadership skill, co-operation and compassion in a competitive environment.

The central theme that epitomizes my career hitherto has been an unquenchable desire to learn and apply technology for practical problems and the same holds true for my career goals as 5 years hence I see myself as a professional researcher working to bring technology closer to man. Extremely distinguished faculty, and milieu replete with academic activity, and a graduate program which blends high quality course work and research facilities at the cutting edge of every sub-field are the factors which have motivated me to choose University of California , Los Angeles for graduate studies as I see my goals coming to fruition there. I found that my current interests are in alignment with eminent scientist Prof. Richard Korf and had contacted him for my research assistance at UCLA. He was happy to help me broaden my understanding of the subjectas my research advisor on Artificial Intelligence in Distributed systems. I approach my studies, projects and research with vigor, passion, inquisitive and exploratory attitude. I can make a good graduate student and would be extremely honored if you could consider my candidature favorably and give me a chance to study at your esteemed institution.

(Anush Babu)