

STATEMENT OF PURPOSE

How hard is it for us to believe that men once made it to outer space with the aid of computers that were far less powerful than many of today's electronic equipments! It simply amazes me how computer technology has evolved over the years paving way for advancement in other sciences. For a naive computer user, who was only aware of the massive advancement in the field, an undergraduate study in computer science introduced various challenges the industry is facing today in its different disciplines. Amongst all, the research going on in the areas of Operating Systems, Distributed Systems, Computer and Network Security has inspired me the most.

I completed my Bachelor of Engineering in Computer Science at Sri Jayachamarajendra College of Engineering, one of the esteemed institutions in the state of Karnataka, India. My undergraduate study provided a stimulating academic environment and helped me gain substantial knowledge in different areas.

During my junior year I worked on a project, "Implementation of Page Replacement Algorithms". This project helped me realize the significance of memory management, a key function of any Operating System and the need for strategies beyond conventional algorithms in identifying pages that will be referenced soon, so that they can be loaded into the memory in advance before they are actually referenced. I also worked on a project, which implemented a macro processor by replacing each macro instruction with the corresponding group of source language statements. Implementation of this project not only helped me to improve my programming skills, but also to appreciate the hard work that goes in developing complex system software.

As part of the Data Compression course work, I worked on a project, "Scalar Quantization for Audio and Speech compression". The project performed a lossy compression of audio and speech signals by quantizing the input values and assigning a binary code word to represent each smaller set. A good understanding of various strategies used for data compression helped me identify a room for enhancement. I employed Huffman Encoding to generate the code words which reduced the number of bits required to represent them and thereby further reduced the number of bits transmitted. This helped me see how a firm hold on theoretical concepts can motivate one to analyze and experiment.

My final year project, "An Empirical Approach to Classify English Web Pages", which classified a web page as written in American or British English, introduced me to another discipline in Computer Science, Natural Language Processing (NLP). The system performed classification using NLP tasks like parsing, tokenization, text segmentation and part-of-speech tagging. This project strengthened my interest in Java and exposed me to the challenges involved in implementing various NLP tasks.

During my 8th semester, I got an opportunity to work as an intern for Schneider Electric India Private Limited. I was involved in the implementation of an android application to read data from SFT SAV Sepam devices, which are used to detect voltage fluctuations that can cause damage to electronic equipments. The application communicated with the device using Modbus protocol, an application-layer

serial communication protocol based on master/slave architecture. This project introduced me to programming for android operating system and to a new protocol altogether.

After my undergraduate study, I have been working for Oracle India Private Limited (erstwhile Sun Microsystems) for around 1.5 years. My team is primarily engaged in performance engineering of applications on Solaris Operating System and Oracle Hardware, which includes optimization of hardware resources and tuning of operating system and network parameters. I have been involved in the development and upkeep of “Oracle Preflight Application Checker” tool, which checks the readiness of applications for a particular version of Solaris and the “Oracle Performance Advisor” tool, which suggests performance related changes that can be done to an application. I have also gained exposure to several virtualization technologies like Logical Domains, Zones and Kernel Zones and the suitability of these technologies in different situations. My industrial experience has enhanced my perception of the systems field and has motivated me to delve deeper.

I believe that a right balance of academics and extra-curricular activities helps one develop a well-rounded personality. I have been learning Carnatic classical music and “Bharatanatya”, an Indian classical dance form from a very young age. Practicing these art forms for years has helped me grow as an individual in many ways. I have been volunteering for a non-profitable organization “DivyaDeepa”, which provides education for under-privileged children. As a volunteer, I have taught basic concepts of Science and Mathematics to school children and involved in various fund raising activities for the organization. I also held the post of a Secretary of Career Services, a coveted position in my institution to assist my batch mates in the placement process.

One of the prestigious universities in the United States, with a great amount of research being carried out, the University of Southern California, has been my choice for graduate studies. The work of Dr. Clifford Neuman in the fields of Security, Distributed and Operating Systems closely aligns with my interests. I am inspired by the work going on in the Center for Computer Systems Security (CCSS) group on computer, network and application security. Given an opportunity to be a part of the diverse USC student community, I would concentrate my efforts to sharpen my skills and contribute to the research at your university.