**Statement of purpose**

Manjit Ullal

“Fan not working”, take it down, check the windings and the start capacitor and fix the one which isn’t’ working after preliminary checks. “Tap is leaking”, close the connection from the main outlet, unscrew the tap and put cotton threading and screw it back. “Have throat pain”, eat raw ginger 3-5 times a day, and gargle with salt water early morning and at night. Growing up, watching my dad working and teaching me his tricks were galvanizing. He was neither an architect, nor a formal engineer nor scientist nor a doctor, yet he acted in all of those capacities, inspiring experimentation, research and independent action in me.

With the curiosity piqued in me, entrenched by lifelong quest of knowledge acquisition and driven by persistence, I started seeking different perspectives and facets to expand my intellect and ability. My choice of free time activities in a way reflect this, long distance running, football, sketching, meditation, obstacle racing, music, guitar, reading and writing. Running marathons has taught me goal setting, patience and given me endurance. Football has showed me how to stay nimble on feet and make right decision under pressure and lead the team. Playing guitar/sketching have shown the necessity of constant practise and ear/eye for the details. Eclectic reading has allowed me to gain ideas and wisdom from the lives and experiences of others. Writing/blogging has enabled me to share my learning’s with rest of the world.

Coming from a lower middle class family, the need for highly constrained optimization and creative thinking is real life necessity. Even though my parents were not formally educated they have inspired me to instil values such as educational excellence and integrity through their hard work, discipline, vision and ethics. My professional ambition is product of those principles.

I found Computer Science stream appealing with its emphasis on logic and critical thinking, even though I had no exposure to the concepts of computing, however this was no different from many of my earlier endeavours in the sense of seeing the bigger picture of being adept through deliberation past the initial hurdles. Consequently I earned Bachelor of Engineering in computer science from **Sir M Visvesvaraya Institute of Technology.**

Under graduate study gave me solid foundation on the aspects of computer science. I worked on many projects to thorough my understanding of concepts. The electro optic sensor simulation was one such project, performed at Bharat Electronics Limited (BEL), aerospace and defence company. Using frameworks in QT and C++, I developed simulation software that would predict infrared signatures of moving objects like ship and aircrafts. The simulations would be used to test the actual sensors on site that would be used for coastal surveillance. Analysing the objects and implementing the intrusion system got me interested in machine learning since my supervisor suggested that would be optimal approach for detection.

For the final year under-grad project, I tried to incorporate multiple streams of technology like Symbian, Java, Digital electronics, database and display systems, developing a system to benefit personal transport. I created a system which will track the location of bus using GSM phone and transfer that location to the base location from where, the details of the bus, the estimate arrival time and current location would be displayed to the passenger who is waiting for the bus. The time was calculated by analysing historical data of travel duration along with traffic correction.

A good academic track-record and strong performance in training was instrumental in securing me a job at **Infosys Limited**. Even though I was consistently appreciated by the client for my work, I felt the need to work on another use-case of computation driving banking. Therefore I moved to Singapore office in 2014.

Working in investment banking domain for 8 years I have realized the power of modelling, computation and interoperability of various technologies driving businesses. On some of the projects, I have interfaced with experts in Artificial Intelligence (AI) and was involved developing machine learning modules using Alteryx, Dataiku and DataRobot to create data as a service. These interactions have ignited a deep desire in me to engage in advance study of AI and machine learning since the industry is adopting Artificial Intelligence (AI) to innovate, improve decision making and efficiency, which will eventually permeate to enrich all walks of our lives.

Since I want to be at the forefront of the AI innovation and make my contribution, I am interested in Masters in Computer science with specialization in Artificial Intelligence and Machine learning because it is complementing my work experience and my desire to gain in-depth knowledge in the field through research and advance study. My interests were solidified further when I won the hackathon completion where I was tasked to find new ways of analysing and improving technology for the bank. Even though I have gained proficiency in programming, application development, software life-cycle and many software packages, my current skill-set is inadequate to innovate the existing complex computational designs or remodel existing systems using AI, as that would require deeper study of each as aspect of software engineering and concepts of AI, meaning I needed fastidious study of computational processes, algorithmic efficiency, architecture, and supporting technologies crafted by experts in the field to create the foundation of deep knowledge, readily applicable to the field.

Currently my pursuit of excellence in graduate education has led me to **University of Buffalo**. Buffalo’s research program is well funded by National Science Foundation; some of the recent projects on data-transfer and autonomous transport done at Buffalo are not only enchanting but also have high potential, showcasing the profound knowledge students have gained through the program. Buffalo’s special focus on Artificial Intelligence and its applications align with my interests. My learning’s have always accelerated when I have worked with highly accomplished active learners; therefore I wish to study the concepts of AI under the guidance of Professor Varun Chandola and Venu Govindaraju of Buffalo, whose field of research echo with mine. With the rich tradition, eminent faculty, industry affiliation and multi-cultural environment; Buffalo is certainly a centre for excellence. I believe the graduate study at Buffalo will be most agreeable and logical extension of my academic and work experience and I will be grateful to be part of Buffalo’s fraternity and to continue onto to the path of growth.