

Rohan Statement of Purpose

In seventh grade, my father gifted me a family tree book that had a page to talk about my ambition. I had instantly written Software Engineer. There was no role model influencing this choice, but my insane love for computers. Changing game files, creating small scripted software, or installing and fixing drivers ignited a fire in me. As an undergraduate student at PES University majoring in Computer Science and Engineering, I contributed to machine learning, artificial intelligence, and algorithms. I am still convinced significant pieces are missing and your Master's program in Computer Science will be a stepping-stone in completing the puzzle.

With an interest in intelligent systems and game development, I joined as a researcher at my university's Microsoft Innovation Lab. I used AI aided by Kinect-based gait analysis to detect cerebral palsy and build AR/VR games focused on cost-effectiveness and entertaining physiotherapy among children. To further expand my knowledge, I interned at the Research Facility for Cloud Computing and Big Data. I proposed and built a highly accurate ML model for recognizing low-resource Indian languages. The challenge here was the limited amount of corpora and the phonemes not being feasible features, so a traditional RNN could not be used. My idea was to use syllables and process them using a very performant Convolutional Neural Network. This experience bolstered my interest in machine learning optimization and led me to develop the fastest running H-DBSCAN algorithm using C++ instead of the resource-hungry Python implementation. It was a highly performant algorithm running on devices that have lower computing power and limited memory. This is one of my open-source contributions. I worked on this project as an SDE intern at Itron during my junior year summer break and received multiple recognitions from my manager.

I chose Deep Learning, Performance Engineering, and Advanced Algorithms as my electives in my junior and senior years at the university. These courses paved the way for my growing interest in evolutionary algorithms and creating a super optimizer for Deep neural networks. The focal point of the research was to build an iterative solution to train neural networks using swarm intelligence and also increase the usage of shallower networks to curb computational costs. The sophisticated execution, organization of ideas, and time management manifested this project into two publications, a conference chapter in Advances in Machine Learning and Computational Intelligence and a journal paper in IEEE Transactions on Emerging Topics in Computational Intelligence. As a research assistant at the Astroinformatics Research Group under Dr. Saha, I collaborated with the remarkable minds at BITS Pilani, CINVESTAV-IPN (Mexico), and IIT Kanpur on this research study.

I have strived to be the best of the best, graduating first-class with honors with a GPA of 9.69/10. I received the honorable Prof. CNR Rao Scholarship Award for six semesters and the enviable Prof. MRD Scholarship Award in the seventh semester for being in the top 20% of my batch and distinction awards in all eight semesters that provided financial aid. As the head of the design club at the university, I delivered many tutorials and volunteered to organize a creative design workshop at a Pediatric Cancer drive. Being the core member for various fests, I have organized and led plentiful events during its

course. I actively took part in hackathons and was a runner-up of Springfield Challenge and, later, the winner of the DocAssist Challenge held at IIT Bombay.

While interning at LogMeIn, I gained a deeper understanding of operating systems, networks, and cloud application development. I further took up the Software Engineer role to architect, design, and develop a unique unified experience platform that put the company's customers onto a single application. This project has cultivated leadership and management skills and expanded my technical knowledge. I am proud to say that I received the quickest promotion and achieved the highest performance grading for two consecutive halves.

San Jose State University offers a strong all-around curriculum that focuses on academics and provides ample research opportunities. The specialized courses on Machine Learning and Linear and Non-Linear Optimization will support my aim to invent highly optimized solutions for day-to-day problems using machine intelligence. I look forward to being a part of the university's Computer Science Study Lab and taking up a tutor's role. The university has no dearth of esteemed faculty, the research expeditions of Dr. Katerina Potika and Dr. Teng Moh are in line with my interests and I wish to pursue research under them. My career objective is to eventually become the CTO of a company. On that path, I intend to take up technical roles which require advanced computer science knowledge and software architectural aptitude. My goal in any company is to build an inclusive ecosystem with responsible innovation and SJSU's course structure, focus on professional and research attributes will guide me on this path.