STATEMENT OF PURPOSE

It may not be my place to criticize or condemn Putin for his presidential stance, but his comment about the world domination by the country leading in AI-Based tech is accurate down to the last word. With the fourth industrial revolution afoot, AI, IoT, and quantum computing have emerged as the eminent factors forming the crux of the current socio-cultural fabric. With my age-old love for computing and information technology, I have always remained extremely excited about innovations happening in this field; from binary digits to human robots mimicking human intelligence. Further, I aspire to revamp my knowledge in this domain, acquire a better skill set while enhancing the existing one, and rethink computer science with the latest developments in this domain, such as Database Systems, Computational Intelligence, and Machine Learning, so that I can be ready to contribute across systems worldwide. The creativity and meticulousness involved in professing a career in this domain are precisely what has inspired me to upskill myself through a master's program. Therefore now, I wish to pursue a Master of Science in Computer Science from Stony Brook University.

The journey of my undergraduate program specializing in CSE, I must say, was a wonderful one, for me it was a chance to live my dream – the dream of coding and developing fantastic applications. I gave my hundred percent in making the most of this program by deep-diving into modules such as Analysis Design of Algorithms, Object-Oriented Programming, Software Engineering, Database Management Systems, Compiler Design, Data Analytics, Machine Learning, and many more, which is why I can proudly speak of having solid fundamentals today. To complement my theoretical learning with practice, I underwent a series of projects and internships along with some online courses.

One of my most important projects concerned identifying plant diseases through deep learning methodologies. My decision to take up this project stemmed from witnessing my maternal uncle losing a considerable chunk of his plantation at the hands of a pathogen attack and weather conditions. The success of this project changed my perspective of seeing this in merely an academic light but as an idea that needed to be converted into a full-blown venture in the Agri-tech industry. A good vouch for the innovative relevance of our project came from its selection as one of the finalists in three national-level innovation challenges. An article about our project idea in the local newspaper further boosted my confidence. I documented the findings in a research paper titled "Detection of Bell Pepper Crop Diseases using Convolution Neural Network".

Taking this streak of addressing real-world problems through technology further, I developed a website in my final year summarizing audio inputs from online classes and meetings. The thought was to relieve the fatigue building upon my peers due to extended screen times during the pandemic. An urge to make informed choices between the various summarization algorithms prodded me towards penning a review research paper, "Extractive Text Summarization Techniques", which compared different summarization algorithms. Although empathy may have been a driving factor behind all my projects, the motivation to eradicate these issues with technical interference is what I gained out of these experiences.

Applications of AI stretch far beyond disease identification and text summarization; the way data, algorithms, and advanced technology are closely associated with solving the problems of humankind and organizations in this dynamic world of data gravitates my interest unequivocally in this domain. Whether it be Machine Learning or Big Data, I believe that extracting insights from the wealth of data and training the model with them will facilitate a better, secure, and informed future. Witnessing the miracles of Computer Science, I seek its myriad of learning, and my aspiration rests firmly on developing applications that will benefit the communities around me.

While my research pursuits armed me with an analytical and scientific viewpoint, it was my involvement with the Entrepreneurship Development Cell of my college that morphed me into a self-reliant person with a flair for entrepreneurship and team management. Leading the E-Cell towards several recognitions, impacting more than 2000 students, and conducting more than 80 events to foster entrepreneurship while maintaining high

academic grades was like a crash course in time management. My multidisciplinary involvement in the college earned me the title "Ideator of EDC, Acropolis."

Furnishing my learning graph with my Internship, I received a six-month training from Persistent Systems. During the final assessment of the Internship, my team and I worked on a project, which was a dynamic website constructed through spring boot to find nearby hospitals and book beds during the second peak of the COVID pandemic. Because of my performance, I converted this internship into a full-time job opportunity as a Software Engineer. Presently, my responsibilities include functionality development, bug fixes, working on customer issues based on our applications, debugging, and providing them with the root cause and a workable solution, whether it comes from the database side, application scripts, or code alterations/fixes. Parallelly, I have served on several high-priority cases throughout my professional tenure, ensuring minimum turnaround time and zero escalations.

Spearheading numerous projects has given me insight into various technologies, frameworks, databases, and tools, such as Network Performance Monitoring, Microservices, Spring Boot, DevOps technologies, and Columnar databases to name a few. Having worked with clients on various projects, I often receive appreciation for my input to tasks. However, at the same time, there are many challenges to face, all of which help me learn a lot. At work, every time a development environment is involved, the tasks for me become much more complex, and there are chances of mismanagement. Such critical times teach me to stay calm and focused in difficult situations. Through the project I handled with Persistent Systems, I was able to comprehend the significance of data welding to produce predictive insights for the future and create simple dashboards to display the data in a relevant way.

At this point in my career, pursuing a graduate program in Computer science is highly important to me. It will substantially contribute to bridging the gap between my current level of exposure and that which I look forward to having for being a much more competent professional in this field. Every sphere imaginable has been infiltrated by sophisticated technology, thanks to developments in AI/ML and the omnipresence of data. In the longer term of my career, I want to combine my affinity for these domains with my technical finesse and managerial acumen to veer startups and organizations toward socially-responsible innovations. With my entrepreneurial mindset, I want to set up my venture over the next ten years and utilize my knowledge, flexibility, and exceptional multitasking skills to serve my clients and generate employment for young professionals while staying true to my vision of innovation. In the foreseeable future, I also see myself drifting back to research to balance my professional achievements with scholarly pursuits. The MS in CS program offered by Stony Brook University will be highly conducive to my goals.

From the profound research environment on the campus to the streaks of innovation, Stony Brook University can be a great place to thrive academically, which has professors who are in the top echelons of their respective fields. University’s modules on Machine Learning and Big Data will bring me closer to my professional objectives which adhere to the highest educational and research standards within the flexible and versatile curriculum along with various research communities and practical learning. I am particularly excited to learn under the eminent guidance of Prof. I.V. Ramakrishnan and Prof. Steven Skiena whose work coincides perfectly with my research interests in machine learning and building realistic predictive models through big data and performing analytics. University’s strong emphasis on a flexible course structure, ongoing work and projects in Data Science Lab and AI Institute, Roth Pond Regatta, campus traditions, and outstanding ROI allures me to become a part of your growing family with my expected career goals and going “FAR BEYOND”.

In the end, I am incredibly thankful for being allowed to put forth my candidature for the program. With much humbleness and enthusiasm, I look forward to joining your university for the MS in Computer Science program.

Regards,
Sarthak Parakh