

STATEMENT OF PURPOSE

In the bustling corridors of my secondary school, technology wielded a subtle yet profound influence, shaping our daily interactions and sparking my interest in the potential of data science. As I observed the capabilities of cutting-edge computers, I became increasingly intrigued by their ability to transform raw data into meaningful insights. This fascination ignited my passion for data science—an ever-evolving field that holds the promise of unlocking valuable insights from the vast sea of information that surrounds us. Today, as I stand on the threshold of a new academic journey, I am drawn by the boundless possibilities that **Master's program in Data Science and Applications** from the University at Buffalo, SUNY offers for solving complex problems and driving innovation.

I completed my Bachelor of Technology in Electronics and Communication Engineering at GuruNanak Institute of Technology (GNIT) from 2017 to 2021. Being inspired and driven towards data science, during my time at GNIT, I enhanced my studies with supplementary courses in the field, including Data Science Fundamentals on Coursera and Python for Data Science on edX. These courses equipped me with foundational knowledge in data analysis, machine learning, and essential programming languages, fortifying my preparation for a career in data science.

In my journey, I have consistently demonstrated dedication and leadership, notably through successful project deliveries that align with goals and quality standards. Achieving certification as an ISO 27001 Lead Implementer showcases my expertise in information security. As Team Lead of the Adobe-sponsored IoT club, I fostered innovation and collaboration, while my role as an Event Organizer for E-Yentra honed my organizational and interpersonal skills. These experiences reflect my commitment to excellence and my ability to drive impactful outcomes.

As an aspiring data analyst, I have led projects focused on leveraging data analytics to derive valuable insights. One significant initiative involved conducting sentiment analysis and e-commerce sales analysis. For Amazon reviews, I developed an ensemble model using Python and Scikit-Learn, which combined classifiers like multinomial Naive Bayes and Support Vector Machines (SVM) to accurately assess sentiment. Addressing data imbalance, I implemented strategic sampling methods to enhance the reliability of our sentiment predictions.

In another project, I delved into e-commerce sales data and identified 'Office Supplies' as the top-performing category, driven notably by products such as 'Staples' and 'Easy-staple paper,' which significantly contributed to profitability. By employing meticulous data aggregation and visualization techniques, I pinpointed the West region as a standout performer, generating over \$7.42 million in revenue. Furthermore, I created a Chrome extension for real-time ASL translation during Google Meet calls, improving accessibility for hearing-impaired users. Using JavaScript and MediaPipe, the extension processed video frames to interpret ASL gestures seamlessly. I trained a machine learning model with over 90% accuracy for real-time gesture recognition and optimized data handling with MySQL for efficient storage and transmission.

During my tenure at Capgemini as an Analyst, I led a team in developing a predictive analytics model for a prominent healthcare client. Leveraging LSTM networks and neural network attention mechanisms, we successfully integrated electronic health records, sensor data, and socioeconomic factors, resulting in a substantial 15% improvement in patient prognosis accuracy. Alongside model development, I optimized SQL queries for ETL tasks, significantly enhancing performance

by 30% through strategic design, and implemented robust data cleaning techniques that reduced errors and inconsistencies by 45%. Additionally, I conducted comprehensive customer segmentation analysis using Tableau and leveraged Power BI to create dynamic dashboards that effectively translated insights into actionable strategies.

During my Microsoft summer internship, I specialized in preprocessing a diverse dataset of American Sign Language (ASL) images using advanced image techniques. My primary focus was on designing a personalized configuration of CNN layers specifically tailored for image processing tasks, particularly in the context of extracting features from ASL images. By engineering and optimizing this model with techniques such as dropout regularization and hyperparameter tuning, I successfully achieved high accuracy in classification tasks.

The decision to pursue a **Master's in Data Science and Applications** represents a significant personal and professional aspiration for me. Guided by hands-on project experience, internships, and a dedicated full-time position, I view further immersion in the field of data science as the logical progression in my career trajectory. It is with great enthusiasm that I express my interest in applying for the Data Science program at your esteemed university.

SUNY's Data Science program captivates me with its advanced curriculum covering machine learning, big data analytics, and data visualization. This aligns perfectly with my goal to deepen my technical skills and effectively address contemporary data challenges. I am particularly enthusiastic about refining my programming abilities and leveraging cutting-edge tools guided by SUNY to approach real-world problems with confidence and innovative strategies. Additionally, SUNY's emphasis on interdisciplinary collaboration and research excellence resonates with my academic aspirations. Engaging with renowned faculty specializing in **Database** and **Data Warehousing Technologies** excites me, as does the prospect of learning in a vibrant campus community that fosters academic growth and professional networking.

Undoubtedly, the United States is a center for providing excellent education, especially in advanced technological activities, which will provide me with an ideal setting to gain higher qualifications in data science. With a formal education in my field of dreams, I envision myself contributing to groundbreaking projects that transcend the boundaries of what is currently possible by working in renowned organizations such as Google, Apple, Microsoft, and Amazon.

The plethora of opportunities I have had thus far to enhance my skills will be significantly furthered by the **Masters in Data Science and Applications** program that I have chosen. The open and multicultural environment at the **University at Buffalo** will help me grow exponentially in many aspects of my life, and I am equally willing to contribute my best during my candidature at the university. Therefore, I am eager to be considered for the incoming cohort of the chosen program and am grateful to the admission committee for reviewing my application.

Keerthi Samhitha Kadaveru