

## Statement of Purpose

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I am an Electronics and Communication Engineering graduate from the Indian Institute of Information Technology (**IIIT Guwahati**), a centrally funded technical institute, with a CGPA of **8.73/10**. Although my formal degree is in ECE, my academic and professional pursuits have been deeply aligned with computer science. My key interests along with general CSE lie in the areas of Information Systems, Software Engineering, Artificial Intelligence, and Machine Learning.

One of my most formative academic experiences was my **final year B.Tech project**, guided by Dr. Surajit Panja (HoD ECE), titled “***An Analytic Study of Evolving Public Opinion Towards COVID-19 Vaccines on Twitter.***” I led the development of a complete NLP pipeline: from large-scale data acquisition using Twitter API and snsrape (over 2.4 million tweets), to preprocessing, sentiment and emotion classification (VADER, TextBlob, NRCLEX), topic modeling with LDA and pyLDAvis, and temporal sentiment tracking. I also performed network analysis through bigram co-occurrence graphs using NetworkX. The data was segmented across time, geography, and themes (e.g., vaccines, boosters, political commentary), offering a multidimensional view of evolving public discourse. This project highlighted how information systems can uncover societal insights at scale and sparked my passion for systems that organize and extract value from unstructured data.

Professionally, I worked as an **Associate-II Software Engineer** at Capgemini Engineering, Gurugram from September 2022 to June 2024, deploying and maintaining 5G services over cloud-native infrastructure using enterprise container stacks. This gave me hands-on experience with large-scale systems, cloud architecture, and intelligent monitoring and automation. I also built and deployed a RESTful web application using Spring Boot, containerized on AWS. My cloud foundation is supported by certifications in AWS Cloud Practitioner (score: 1000/1000) and Microsoft Azure Fundamentals.

In 2021, I won second place at **Sociothon (IIT Roorkee)**, a national hackathon focused on social impact, for developing a Django3-based web application within 24 hours that recommended low-cost generic alternatives to branded medicines and provided basic cost analysis. This aligned closely with my interest in designing human-centric, actionable, and trustworthy information systems.

During the summer break of my third year, I interned at **Indian Institute of Information Technology (IIIT) Pune** on Human Activity Recognition using deep learning. While brief, the project taught me the end-to-end academic research process, from literature survey to dataset evaluation and structured reporting, giving me valuable exposure to research methodology.

I am particularly drawn to an environment with rigorous research culture, collaborative lab environment, technical depth and research diversity across its CSE faculty. I am particularly

inspired by the blend of theory and systems in work related to dynamic indexing structures, large-scale information processing, and socially-aware AI. Through a higher education program in engineering, I hope to further develop the mathematical and algorithmic foundations necessary for building adaptive, robust, and meaningful information systems. My long-term goal is to contribute to academic or industry-led research in areas like information retrieval, large-scale data, and AI that helps society which can ideally lead toward a Ph.D.

If given a chance to prove myself, I am ready to give my complete focus and effort, and I view this next step as the true beginning of my research journey.