

Statement of Purpose

Applicant: Ananya Singh **Program:** Master of Science in Computer Science **Institution:** University of Toronto

Introduction I am Ananya Singh, a 24-year-old graduate of the Indian Institute of Technology Delhi (IIT Delhi) with a Bachelor of Technology in Computer Science. My academic foundation, combined with two years of professional experience as a Software Engineer at Infosys, has equipped me with robust coding skills and a deep enthusiasm for artificial intelligence (AI). I am eager to pursue an MSc in Computer Science at the University of Toronto (UofT) to deepen my expertise in AI and contribute to transformative healthcare solutions.

Academic Background During my undergraduate studies at IIT Delhi, I excelled in core computer science subjects such as Algorithms, Data Structures, Machine Learning, and Distributed Systems. My final year project, "Predictive Modeling for Early Disease Detection using Deep Learning," involved developing a convolutional neural network to analyze medical imaging data. This project not only honed my programming abilities in Python and TensorFlow but also sparked my passion for applying AI to improve health outcomes.

Professional Experience At Infosys, I have been a key member of the "Digital Transformation" team, where I: - Designed and implemented micro-service architectures using Java and Spring Boot for large-scale enterprise applications. - Optimized backend performance, achieving a 30% reduction in response time for critical services. - Collaborated with data scientists to integrate AI models into production pipelines, gaining hands-on experience with model deployment, monitoring, and continuous improvement.

These experiences reinforced my belief that AI can revolutionize healthcare, from early diagnosis to personalized treatment plans.

Research Interests and Goals My primary research interest lies at the intersection of AI, medical imaging, and bioinformatics. I am particularly intrigued by the potential of generative models and explainable AI to uncover hidden patterns in heterogeneous health data. At UofT, I aim to work with renowned faculty such as Prof. Raquel Urtasun and Prof. Geoffrey Hinton,

whose groundbreaking work in deep learning and AI aligns with my aspirations.

Post-graduation, I intend to:

1. **Join a leading AI research lab** focused on healthcare innovation.
2. **Develop scalable AI tools** that assist clinicians in early disease detection and treatment planning.
3. **Contribute to open-source AI frameworks** that democratize access to advanced medical AI technologies, especially in low-resource settings.

Why the University of Toronto? UofT's world-class faculty, interdisciplinary research centers (e.g., the **Vector Institute** and **Institute of Biomaterials and Biomedical Engineering**), and cutting-edge computational resources provide an ideal ecosystem for my research ambitions. The program's emphasis on both theoretical foundations and practical applications will enable me to bridge the gap between algorithmic innovation and real-world healthcare challenges.

Conclusion In summary, my solid academic record, professional experience, and unwavering passion for AI in healthcare position me as a strong candidate for the MSc Computer Science program at the University of Toronto. I am confident that the rigorous curriculum and collaborative environment at UofT will empower me to make meaningful contributions to AI research and ultimately improve patient outcomes worldwide.

Thank you for considering my application.