Statement of purpose (SOP)

An application is being filed for the Michaelmas Term 2026 intake of the University of Oxford's Ph.D. Program in Generative AI Ethics.

Motivation and Purpose

The desire to pursue doctoral study in Artificial intelligence (AI) derives from "Ethical Governance and Bias Reduction in Public Sector Algorithmic Decision-Making" a project where you inspected a recruiting algorithm and discovered it disproportionately flagged specific demographics. The enduring algorithmic bias in automated hiring systems, which frequently lack transparency and fairness indicators for different populations, is the focus of AI Policy Consultant. How HR technology may incorporate explainable AI (XAI) frameworks to guarantee fair outcomes and legal compliance. The Stanford University Computer Science PhD program, with its strong emphasis on its groundbreaking work in Human-Centered AI and its robust ecosystem for interdisciplinary machine learning applications, provides an ideal environment for addressing these questions, according to a thorough review of the research contributions of faculty members like Drs. Fei-Fei Li and Andrew Ng. Developing enhanced methodological rigor and theoretical depth to contribute novel and significant research to this topic is the main goal of doctoral education.

Academic Background

Undergraduate Study

Advanced Data Structures, Machine Learning, and Stochastic Processes courses at the Indian Institute of Technology (IIT), Madras, provided a solid academic basis for the completion of a Bachelor of Science in Computer Science and Engineering. Along with being a Lead Developer for the university's Open-Source Initiative and actively participating in the Neural Networks Research Group, academic performance placed in the top 5% of the graduating class with a CGPA of 9.4.

Graduate Study

A master's degree in artificial intelligence has been completed from the Technical University of Munich. In order to gain practical experience with Python, PyTorch, and fairness-aware machine learning frameworks, the master's thesis, "Mitigating Algorithmic Bias in Healthcare Diagnostic Models," investigated how different datasets affect CNNs' accuracy in identifying skin pathologies across various skin tones. However, the necessity for further doctoral-level training was brought to light by limitations pertaining to the scarcity of longitudinal patient data and the absence of explainable AI (XAI) frameworks for practical clinical integration.

Research Activities

Research experience includes:

- **Project 1:** "Scalable Transformers for Low-Resource Languages" (Published in EMNLP 2025): Developed a novel pruning technique that reduced model parameters by 30% without loss in BLEU score.

- **Project 2:** Predictive Healthcare Analytics Dashboard (Lead Developer): Engineered a real-time data pipeline using Python and AWS to predict patient readmission rates, currently utilized by three regional hospitals.

Work Experience

As a senior data analyst at Microsoft Research India, professional involvement has been carried out since [2020]. Leading a cross-functional team to improve natural language processing (NLP) models for regional languages, creating automated data validation pipelines to guarantee high-fidelity training sets, and advancing expertise in cloud-based data orchestration and scalable machine learning architectures are among the responsibilities. A noteworthy accomplishment in [2025] was receiving the Innovation Excellence Award for

cutting model latency by 40% across all mobile applications, which significantly strengthened research discipline and readiness.

Plan for Professional Study and Future Career

Under the guidance of Dr. Joy Buolamwini, the doctoral research will concentrate on Algorithmic Fairness and Trustworthy AI in the provision of public services. The department's experience in the Human-Centered AI (HAI) Institute and its emphasis on Value-Sensitive Design (VSD) will be particularly interesting. The department's multidisciplinary strength and research climate offer ideal circumstances for intellectual progress. The long-term goal is to return to India and work as a Lead AI Ethics Researcher at organizations like the Ministry of Electronics and Information Technology (MeitY) or research-led universities like IISc Bangalore after earning the Ph.D. In order to contribute to the development of inclusive technology policy frameworks that protect citizens' rights in the Global South, the goal is to create an independent research agenda that addresses the exclusion of disadvantaged linguistic groups in digital governance.