Statement of Purpose

From a young age, I have been fascinated by machines and their ability to transform the world. When my family installed our first internet modem, I was captivated by the possibility of communicating across the globe. However, I also observed how difficult it was for non-technical individuals, like my parents, to fully harness the potential of this technology. This sparked a vision in me: to create intelligent systems capable of understanding and interacting seamlessly with humans, removing technological barriers. This early realization, reinforced by my passion for innovation, set me on a path toward **Data Science**, **AI**, and **Meta-Learning**, where I could contribute to making technology more accessible and intelligent.

Academic Journey and Preparation

My academic journey has been deeply shaped by my passion for **AI and Machine Learning**. While pursuing a **Bachelor's Degree in Information Technology and Mathematics** at the **Cluster Innovation Center, University of Delhi**, and a **Diploma in Data Science** from **IIT Madras**, I have built a solid theoretical foundation in **Machine Learning, Data Science, Robotics**, and **Mathematics**.

These courses enabled me to work on a variety of innovative projects that challenged me to apply classroom knowledge to real-world problems. However, I initially underestimated the importance of the **mathematical principles** underpinning machine learning algorithms. Recognizing this gap early in my studies, I committed to developing a deep understanding of the mathematics behind the algorithms. This shift in focus has not only sharpened my analytical thinking but also enhanced my ability to question and improve the models I work with. This process has strengthened my **problem-solving skills**, which are crucial for my future research aspirations.

Professional and Research Experience

At **FSIL, Georgia Tech**, I had the opportunity to work with **Large Language Models (LLMs)** specialized for **financial domains**. My primary focus was improving the quality of financial datasets used to train these models, which enhanced their performance in analyzing financial data.This experience allowed me to deepen my understanding of **domain- models**, as I gained key insights into **data quality management, model optimization**, and **performance enhancement**. Staying current with state-of-the-art research in **LLMs** also helped me refine my research skills and learn how to apply theoretical concepts to practical problems.

In contrast, my work at **CyPsi Lab, University of Delhi**, focused on developing **open-source, reprogrammable nano drones** using off-the-shelf components. These drones were designed to be accessible and cost-effective, contributing to research in autonomous systems. Debugging hardware setups often required persistence, and one significant challenge involved troubleshooting malfunctioning motors, which took several months to resolve. Through **trial and error**, I identified and fixed the issue, reinforcing my problem-solving skills and patience. This project not only honed my technical abilities but also taught me to approach problems from multiple angles.

Alignment with NTU Projects

I am particularly drawn to NTU's research projects in **Meta-Learning**, **AI Interpretability**, and **Deep Learning for Scientific Advancement**, as these areas align closely with my research interests and professional experience. My work with **FinLLMs** at **FSIL** exposed me to domain-specific **machine learning models**, a skill set that can directly contribute to **Meta-Learning for Financial Forecasting**. Additionally, my experience developing **open-source nano drones** at **CyPsi Lab** honed my ability to blend **theoretical knowledge** with **practical problem-solving**, which is critical when addressing challenges in **AI Interpretability** and making **deep learning models** more accessible. The opportunity to work at NTU will allow me to further refine these skills while contributing to real-world challenges. My prior experiences across both **software** and **hardware-related AI** projects give me a well-rounded perspective, enabling me to approach research problems from multiple dimensions. I am confident that my foundation in **data science and machine learning** will allow me to make meaningful contributions to NTU's ongoing research efforts. Furthermore, my **perseverance, adaptability**, and capacity for rapid learning make me a strong candidate for interdisciplinary projects at NTU.

Career Aspirations

The **Global Connect Fellowship at NTU** represents a critical step toward my long-term goal of advancing research in **AI and machine learning**. I am particularly eager to immerse myself in the vibrant research environment at NTU, learning from its esteemed faculty and contributing to projects that push the boundaries of AI research. I hope to leverage the skills I acquire through this fellowship to contribute to AI-driven solutions that have real-world applications, from financial systems to scientific research.

Skill and Uniqueness

One of my key strengths is my **perseverance** in the face of challenging problems, coupled with my determination to **iterate and improve**. For example, during my work on **nano drones** at **CyPsi Lab**, I encountered months of difficulty troubleshooting malfunctioning motors. After numerous failed attempts and trying different approaches, I was finally able to identify and resolve the issue through **careful troubleshooting** and **problem-solving**. This experience reinforced my approach of viewing failure as a stepping stone toward improvement and success. I believe that my ability to stay committed during challenging times, whether in **hardware** or **software**, combined with my curiosity to understand underlying principles, will allow me to contribute effectively to NTU's research community.