Cover Letter

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FutureTech,
MIT Computer Science and Artificial Intelligence Laboratory,

Dear Hiring Manager,

I am writing to express my **profound interest** in the Research Assistant position at MIT FutureTech, driven by my passion for understanding the intricate relationships between technological innovation and economic development.

My research experience is highlighted by my recent work at **Microsoft Research Asia**, where I was a key contributor to a groundbreaking research project resulting in a **first-author paper at ICML 2024** (International Conference on Machine Learning, a top-tier AI conference). In this role, I worked on **LongRoPE: Extending LLM Context Window Beyond 2 Million Tokens**, demonstrating my ability to push the boundaries of technological innovation. Specifically, I:

- Extended the context window of pre-trained LLMs to 2048k tokens
- Developed advanced fine-tuning strategies with only 1k fine-tuning steps
- Exploited novel approaches in positional interpolation and model extension

While my technical background in machine learning and computational systems provides a strong foundation, it is my growing fascination with **economic theory** and **technological progress** that truly motivates my application. The intersection of technological change and economic dynamics represents a critical area of research that can provide profound insights into how innovation shapes economic landscapes.

I am particularly excited about the opportunity to contribute to research at the **intersection of technology, economics, and artificial intelligence**. My strong academic performance (3.8 GPA, **top 3% of my class**) and proven research skills make me well-suited to assist in **data analysis**, **literature reviews**, and **preparing research documentation**.

The position's requirement for managing **multiple projects simultaneously** aligns well with my demonstrated ability to work **independently and collaboratively** across different research domains. I am eager to bring my **technical expertise** and **research passion** to Dr. Lashkari's team at MIT FutureTech.

I am particularly drawn to research that explores:

- The economic mechanisms driving technological innovation
- How technological progress influences economic growth
- The quantitative methods for analyzing technological change and its economic consequences

My technical skills in **data analysis**, **machine learning**, and **computational methods** provide the perfect toolkit to support rigorous economic research. I am eager to apply my analytical capabilities to explore the complex economic dynamics of technological progress.

The opportunity to work under your guidance, given your distinguished background in economic research and technological innovation, is truly inspiring. I am committed to contributing meaningfully to your research team's groundbreaking work.

Thank you for considering my application. I am enthusiastic about the potential to delve deeper into the economic dimensions of technological progress and am excited about the possibility of contributing to your research initiatives.

Sincerely,
Yiran Ding