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To
Dr. Mohamad Moosavi
Department of Chemical Engineering & Applied
Chemistry
University of Toronto

Subject: Application for AI for Chemical Science Research Position

Dear Dr. Moosavi,

I am writing to express my strong interest in the AI for Chemical Science Research position in the Department of Chemical Engineering & Applied Chemistry at the University of Toronto. As a Computer Engineering student at UofT with extensive experience in AI research and system development, I am excited about the opportunity to apply my skills to accelerated materials discovery for sustainability applications.

My current role as a Research Assistant at the Institute of Automation, Chinese Academy of Sciences has equipped me with strong foundations in AI research and development. I have experience in developing end-to-end data pipelines and evaluation frameworks for large language models, achieving significant improvements in processing efficiency and accuracy. This background in AI/ML systems and mathematical modeling aligns well with the position's focus on applying AI to materials discovery.

The position's emphasis on sustainability applications particularly resonates with me. Through my work at VolunTrack, I've demonstrated my ability to apply AI solutions to real-world challenges, developing ML systems that achieved 85% accuracy in matching scenarios. My experience with implementing production-grade LLM systems and RAG pipelines, as demonstrated in the YiXing project, shows my capability to handle complex AI applications and mathematical modeling tasks.

I am particularly interested in applying my programming skills (Python, TensorFlow, PyTorch) and experience with AI/ML frameworks to the challenges of battery thermal cooling and carbon capture. My background in developing scalable AI systems, combined with my strong foundation in mathematical modeling and programming, makes me well-suited to contribute to your research in applying AI to chemical science innovations.

I appreciate your consideration of my application and look forward to discussing how I can contribute to advancing AI applications in sustainable materials discovery.

Best regards,

Shuolin (Leo) Yin