Armaan Nanji
28 Scarden Avenue
armaan.nanji@mail.utoronto.ca

March 13th, 2024

Dear Member of Faculty,

I'm currently an undergraduate student at the University of Toronto, majoring in computer science and economics. I'm also an aspiring computer science researcher, with an interest in artificial intelligence, and I'd love to take part in your research during the coming summer.

Over the past summer, I worked at the ReStore lab, under the U of T's Faculty of Medicine, to provide statistical support. This gave me the opportunity to develop skills in statistical analysis by means of working with experimental data. This included performing logistic regression, ANOVA and t-tests using R, as well as verifying the assumptions of each model beforehand. I summarised my findings in reports through the use of summary statistics and visualisations, and presented them orally during meetings. I've also performed data extractions, where I developed abilities to interpret and identify key findings in existing literature.

I've also been volunteering for professor Tianyi Wang in the Department of Economics since last May, which turned into a formal employment contract in October. Here, I've learned how to use text embeddings from OpenAI and Cohere to identify political bias in movies. I've gone through the processes of cleaning data, creating visualisations, optimising models and summarising my findings. We're now trying to apply these same methods to historical concert and band data. While my experience at the ReStore lab consisted mostly of engaging in traditional statistics, this opportunity allowed me to gain experience in working with modern machine learning techniques.

This September, I took on a research assistant position under Laurent Cavenaille at the U of T's Rotman School of Management. Here, I've been working on a project that analyses business data such as royalty agreements, patent filings and M&A cases to derive insights and guide further research. This includes identifying firm similarities, detecting obsolete products, and identifying possible cases of trademark infringement. It was an involved position, where I was able to gain experience with literature reviews, developing and implementing mathematical models, and utilizing specialized software and hardware to perform computations over large datasets. For example, I learned how to use tools such as PyTorch, cuML and Slurm to embed patent abstracts across multiple GPUs on a remote compute cluster.

I aspire to obtain a PhD in computer science, and eventually become a full time researcher. Through this opportunity, I will be able to gain the experience needed to strive towards that goal.

Best,
Armaan Nanji