Kunal Chandan

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TRIUMF
4004 Wesbrook Mall,
Vancouver, BC

To whom it may concern,

I am applying in regards to the Undergraduate Research Assistant - Laser Applications Group - Job Number TR20-2-17. I am currently a second year Computer Engineering student at the University of Waterloo. I am extremely interested in this position at TRIUMF as I can bring my passion for the natural sciences and computing together to solve problems in engineering.

My academic experience, although limited, has allowed me to develop an interest in Electromagnetics and Optics. I have had the chance to attend additional physics courses outside my degree requirement at the university. Furthermore with this new-found knowledge I developed personal projects to solidify my understanding of the natural world. In particular, I built a Ray Tracing Engine that attempts to model how light is scattered and reflected through a spectral representation of its constituent rays.

Furthermore I held a position at MappedIn as a Machine Learning Developer where I learned to equip myself with the tools for informed machine learning. In particular I learned to identify and engineer relevant features, vectorize computing for high-performance workflows, and architect models. Over the term I was able to replace expensive black-box deep-learning models with simpler statistical models that reduced inference costs while maintaining accuracy. There I learned to appreciate the accuracy and simplicity of ML-free techniques for modeling and predicting as well as the convenience ML techniques for particular problems.

My experience at MappedIn developed my Machine Learning (ML) skills however my software engineering and design skills were developed over my co-op at the Ontario Institute for Cancer Research (OICR). I was fortunate enough to be able to lead the design and implementation of a new data-pipeline which would become one of the fundamental data analysis tools for researchers at OICR for many years to come. My biggest learning outcome from this co-op was how to design maintainable and intricate software projects.

Overall my appreciation for the natural sciences, computational modeling (with or without ML), and software design have made me particularly interested in this position at TRIUMF. I believe I stand out as a candidate due to my end-to-end experience understanding theory, building data pipelines, modelling processes, and finally deploying to production.

Thank you for your taking the time out to read my application, and I look forward to hearing from you!

Sincerely,
Kunal Chandan