# Kunal Chandan

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To whom it may concern,

I am applying in regards to the Undergraduate Research Assistant on SNOLAB Experiments job on WaterlooWorks. I am currently a second year Electrical Engineering student at the University of Waterloo. I am extremely interested in this position at SNOLAB - Astrophysics Labs as I can bring my passion for the natural sciences and computing together to solve problems in biomedical engineering.

My academic experience, although limited, has allowed me to develop an interest in Electromagnetics, Optics, and Microbiology. I have had the chance to attend additional physics and biology courses outside my degree requirement at the university.

My last co-op at Huawei Waterloo in Digital Compression helped me develop the skills for research. I was given the task to develop a new algorithm for collision free non-cryptographic hashing. After having spent a number of weeks on research and synthesis I was able to pull from knowledge obtained in linear algebra, computer organization, and research from academic papers to develop a better performing algorithm.

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. 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, and software design have made me particularly interested in this position. 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