Thomas Alexander

Mount Allison University
Sackville, NB E4L 1H3
(902) 880-2143
taalexander@mta.ca
whitewhim.ca
github.com/whitewhim2718

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To Whom It May Concern,
University of Waterloo
200 University Avenue West
Waterloo, Ontario N2L 3G1

Dear Kimberly Simmermaker:

As a third year physics and computer science student with a primary interest in quantum computing I am always on the lookout for great learning experiences. **USEQIP 2013** was brought to my attention by my research supervisor Dr. Irwin. Therefore I am writing this letter to express my interest in a position in the **USEQIP** camp this May.

As a physics and computer science double major at Mount Allison University I have been presented with many interesting oppurtunities such as guest lectures, interesting labs, conferences and summer research. Unfortunently my school while great is small and there are no experts on certain topics such as quantum computation. As a student with an interest in both physics and theoretical computation the field of quantum computation and information appears to be perfect for me to combine my two passions. It has been my goal for several years now to explore the amazing potential of Quantum Computing at a graduate level. However, as there are no courses on this interesting subject at Mount Allison I have had to make do and follow a self-study path as much as possible. I have attempted to begin to understand the field of quantum computation from textbooks such as *Quantum Computation and Quantum Information* by Nielsen and Chuang and Massively Open Online Courses on quantum computation such as the course currently being hosted by Coursera. In an effort to introduce many of my classmates to this exciting field I have also given several in class presentations on the aspects of quantum computational systems.

As a physics student I have studied many interesting and relevant phenomenon to quantum computation such as quantum mechanics, wave mechanics, electrodynamics and electronics. These provide me with a strong theoretical background in many of the base concepts of quantum computing. As a computer science student I have a great understanding of the computational basis, linear algebra, discrete structures, algorithms analysis, data structures and general purpose programming in a variety of programming languages and frameworks. Additionally I have a strong interest in electrical and computer engineering concepts and enjoy building my own projects. **USEQIP** appears to be the perfect blend of theory and experimentation for me. Getting to study my dream subject for two weeks with some of the brightest minds on Earth would be my dream come true. As a physicist I would love to learn about the many possible implementations of quantum computers and the phenomenom that underlie their operation. As a computer science student I am very excited to continue learning about the quantum computational basis and the development of quantum algorithms and their complexities. I believe this camp along with being a great learning experience would place me in a very good position when applying for graduate studies next year in quantum computation. My great joy is learning and because of this on my own time I am always studying new topics and working

on my own research. I am a very quick learner and am a highly sociable team player. I have no doubt in my mind that if given the chance to attend **USEQIP** I would succeed and learn a great deal.

I would like to thank you for taking the time to consider my application to **USEQIP**. If you require any additional information please feel free to contact me via phone or email.

Sincerely yours,

Thomas Alexander