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Dear SURF Organizational Committee:

I am writing to express my interest in the Summer Undergraduate Research Fellowship (SURF). I am currently a second-year student pursuing a Physics Specialist and Mathematics Minor at the University of Toronto. During my coursework I developed a passion for physics and would like to explore it in greater detail through a summer research fellowship position. This will give me a great introduction to experimental physics, an area which I hope to pursue graduate studies in.

Last summer, I was a research associate at the Singapore Synchrotron Light Source (SSLS) where I conducted Fourier transform infrared (FTIR) spectroscopy. I participated in the *International Atomic Energy Agency (IAEA) Coordinated Research Project F11021* where I researched fast authentication of adulterated edible birds' nests. I performed multivariate analysis on spectral samples in R and developed a software using R-Shiny for non-programmers to use for analysis. The findings of this project were presented by a lead author at a FT-IR workshop hosted by Robert Koch Institute in Berlin with me as the first author. A formal paper is to soon be submitted for peer review.

During my school year, I enjoy spending my free time as a senior member of the University of Toronto Aerospace Team (UTAT) where I am involved in the development of the Heron Mk-II Satellite which is scheduled for launch in mid 2020. Through UTAT I have learned surface mount and through-hole soldering. I am also proficient in solder paste stencilling. I was involved in designing the battery insulation and acted as a consultant for the payload insulation. I am now part of the ground station team working on its website with python flask as well as other hardware components.

I received an overall grade of 90% in PHY224 (practical physics) and 95% on my review article about "*Gravitational Redshift Observation in Binary Black Hole Mergers*" as part of my first year research and ethics seminar course (VIC172). The former demonstrates my ability in experimental physics and the latter highlights my understanding of searching and writing peer-reviewed literature. This is further illustrated by my work on edible birds nest.

On a less academic note, I have served two years in the Singapore Armed Forces with over 60 unique combat missions, I have worked with US, Australia, Malaysia and Brunei militaries separately. I am also an international mentor under the Office of Dean of Students at Victoria College in my university. I enjoy challenging myself both physically and mentally.

The research fellowship is a great opportunity for me to get exposure in physics by working directly with physics faculty. I am eager to lay the groundwork for research skills that I hope to build on throughout my studies. Thank you for your time and consideration, I look forward to hearing from you soon.

Sincerely,

Utkarsh Mali