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With the completion of my bachelor's in engineering my desire to learn more about processor design and network security has yet to be sated. My studies and co-op work experience have earned me what I feel is only a mild familiarity with the complex world of computer architecture and communication. Though my current knowledge and experience in both of these fields is only an introduction, I have developed a curiosity that drives me to learn of the connection between hardware design and information security.

During my undergraduate studies I had the opportunity to work on multiple hardware design projects. In my fourth-year project class, CENG 499, my partners and I designed an embedded platform for open-source-style audio signal processing. The high-performance nature of the design led me to question the possibility for alternative, unintended uses; potentially even malicious uses. During my final co-op as a junior research assistant I was exposed to the study of cryptography. I was employed to aid in the design of a new fully-homomorphic encryption scheme. The new algorithm is a candidate to be one of the first such methods successfully implemented in hardware; as my knowledge grew, my curiosity did as well. Through both course work and self-study my knowledge and experience with network and information security increased. As I learnt I began to notice more and more vulnerabilities in our embedded platform design from my CENG 499 class.

For the final co-op work term of my undergraduate degree I was fortunate enough to be provided the opportunity to work with Dr. Fayez Gebali and his team of graduate students. The experience introduced me to a thrilling new environment of learning; an environment where there isn't an instructor withholding the answers to a problem. The experience of researching a field that is relatively uncharted has shown me my aptitude for self-reliant inquisition. I have come to believe that the standard method of learning, that is, attending classes and memorizing a pre-defined curriculum, is informative and necessary but can be creatively stifling. As I have seen it the world of research provides a creative outlet that motivates original thought. The opportunity to continue my studies under Dr. Gebali in a research oriented program such as a Masters of Applied Science will provide an opportunity for my curiosity to culminate new and useful ideas. To better protect users of the internet from malicious attack I aim to investigate the possibility of improving information security via hardware design.