Why Quantum Computing?

In Fall 2023, I became a part of Dr. Jame Van Howe's Quantum Optics research group tasked with developing a data acquisition system. This opportunity allowed me to extend my expertise beyond the content of the Quantum Mechanics course I took. To measure the coincidence of entangled photons, I self-taught LabView to work with the data acquisition boards, which led me to discover noise defects in a channel of the previous system. I will be programming in Python with the new data acquisition system, applying knowledge and experience I gained through Computer Science classes, personal projects, and research with Dr. Benjamin Civiletti in modeling thin-film solar cells.

Drawing on my prior experience with a modest solar modules project in high school, I found myself integrating math, computer science, and physics concepts into my work. Concepts from three different fields have proven essential in optimizing thin-film solar cells through numerical modeling and analysis. Adapted from Dr. Civiletti's previous research in R, I translated math language and built a model in Python. The research was a refreshing experience because I learned the inner workings of thin-film solar cells. I taught myself how Fourier transforms work in a solar cell's permittivity setup in a written Python algorithm and functions.

After a trip from Argonne National Laboratory and saw the Illinois-Express Quantum Network (IEQNET) with Dr. Joaquin Chung, I want to learn more Quantum computing and utilize my experience I am currently having in Quantum Optic research with Dr. Van Howe. With a skillset spanning all disciplines and emphasizing computational modeling and programming, I can experience programming in Qiskit deepens my understanding of Quantum computing.