GENERAL ABSTRACT
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The United States Department of Energy (DOE)'s Office of Energy Efficiency and Renewable Energy has a mission to transition to a global clean energy economy. Part of this mission focuses on investigating new technologies and system improvements to reduce the cost of wind energy. The Wind-Plant Integrated System Design and Engineering Model (WISDEM) is a set of models made by National Renewable Energy Laboratory (NREL) researchers and engineers to simulate the cost of wind energy for different turbine and plant designs. My SULI involves the development of a web application interface to WISDEM. The result will be a unique WISDEM web interface made to help users at NREL and DOE understand how design change impacts the cost of energy.

In this project, I learned front-end web development skills and incorporated them into the web application. The outcome of this project is a framework for researchers to use to analyze various aspects and sensitivities of wind farms. Along with restructuring the web application, I also implemented data visualization techniques so that researchers are better able to understand the results of the analysis performed using the framework. Some of these visualizations include using tornado charts to evaluate sensitivity and using waterfall charts to easily see component costs.

SULI has contributed to my professional development goals a wealth of experience and skills. In the future, I want to work with software companies in Silicon Valley. Learning front-end web development skills here is a step towards that goal. Here, I have also learned a lot about technologies in the renewable energies and in particular, the wind energy industry. SULI has helped me identify some of the paths open to me in the future, be they in a tech startup or energy research, or perhaps even a combination of both.