

## Archita Harathi '22

### Summer 2019

This past summer, I used my Byrne funds to travel to the United Kingdom and do research with Marie Curie Fellow Irena Vankova at the British Antarctic Survey in Cambridge. For four weeks, I was able to experience living and working in a different country through biking to work every day and having lunch with the PhD students at the survey.

My research involved looking at Irena's data from moorings located near a shelf near a fjord in Greenland. Her data comprised of ocean temperature, salinity, and other properties. Using Matlab, I looked at two different models with the same locations as Irena's moorings. I extracted different features of the models and compared one of the models to the specific data Irena gathered at the mooring locations. I then played around with the models and the data to find similar characteristics. I filtered both the model and the data and also created a variety of different plots such as the power spectra and temperature vs salinity. I also created composite arithmetic means of the data by choosing a specific pattern in the temperature data through constraints and seeing the resulting shape formed in the salinity and velocity plots to identify correlations. I learned an incredible amount of Matlab and underwent the thought processes of using mathematical logic to produce tangible results.

My experience working at the British Antarctic Survey was full of learning and exploring the potential of mathematics in a variety of applications. I am forever grateful for experience and the memories I made along with it!