I have had an internship at the North Carolina State University Department of Statistics under Dr. Brian Reich and Dr. Eric Laber since February 2017. I have been actively involved in the research process since the very beginning. My first project was an individual project with guidance from Dr. Neal Grantham, a graduate student at the time. I created a model using the coding language R to predict features of a home based on a fungal swap of the house. I presented my findings in a research poster at the 2017 State of North Carolina Undergraduate Research and Creativity Symposium titled “Inferring Home Features from Indoor and Outdoor Microbial Fungi”, which you can download a PDF of here.

After completing the fungi project, I briefly worked with Benjamin Hu on a project to improve the accuracy of Zillow’s home pricing estimator. Currently, I am working with Nick Kapur and James Gilman to improve NFL play-calling using the video game Madden. We simulate American-football games on a gaming console, collecting vast amounts of data, and use Python to develop a model that will call the plays. In addition to R and Python, I am also fluent in C++, HTML, PHP, CSS, and SQL.

For all of July, 2018 I worked at a laboratory internship at the South Korean Daegu-Gyeongbuk Institute of Science and Technology (DGIST) in the Department of Energy Systems Engineering for Dr. Su-Il In. I assisted Saurav Sorcar with his project to create a photocatalyst capable of converting sunlight, carbon dioxide, and water into solar fuel, namely methane and ethane, at efficiencies large enough to convert the technology to an industrial scale. My tasks were to set up a photocatalytic experiment every morning to test the productivity of samples, and then assist in the synthesis of samples in the afternoon. I also used R to code a function that would calculate and plot incremental efficiencies automatically, which was used to gain a greater insight into the properties of the materials that were tested.

Over a period of three months in 2018 I created an interface for managing the assets (computers, printers, etc.) of the North Carolina State University Department of Materials Science and Engineering. I used coding languages HTML, PHP, SQL, and CSS to build the system. I received guidance from George Martell, the Information Technology manager in the department, throughout the process. The system saves the department large amounts of time and helps everything to run more smoothly.