This fall I worked in a Device Evaluation and Performance Lab for Verizon Wireless in Bedminster, NJ. In this lab, mobile devices, such as cell phones and wireless modems, are tested before they are released on the market. We test how the devices interact with a wireless network to give us an indication of how the device will perform on a live wireless network once it is released. We acquire data in many areas such as data throughput, antenna power and sensitivity, battery quality, chipset certification, and hardware reliability. With this data, we can prevent devices that are not performing up to certain standards from being released on the market.

I specifically worked on device testing in the antenna sector. Verizon had a brand new antenna chamber built for testing antenna performance, so my job was to learn the software that is used to program tests into the system and write the test cases according to Verizon specifications. Additionally, the system that tests antenna performance is a complex network of hardware and software, so I had to really study the architecture of the system to learn how all the components are related. This is necessary when debugging hardware and software issues that occur during testing. My final task was to write a software guide that can be used by future test engineers to properly program tests into the system and solve any hardware or software issues that occur along the way.

Additionally, I had projects involving analyzing the data acquiring from testing systems. I looked at data such as antenna sensitivity and power across the spectrum of many radio channels. I also looked at data from devices tested in different situations, such as on a busy network or with added interference from the user. I then used this data to look for trends that indicate if the device will be able to perform successfully in a live environment.

Training was given by Verizon through web-based courses as well as through hands-on training for the equipment in the labs by my mentor. Online courses were on topics such as wireless network architecture to teach us the fundamentals of networks and how devices interact with them. Because I was working on a brand new test system developed by an outside company
called Rohde & Schwarz, I was additionally put through a week of special training by a systems engineer from Rohde & Schwarz to learn how to use their software and hardware to create tests. I was also the main contact person at the interface between Verizon and Rohde & Schwarz, so any hardware and software updates or issues were solved through me. I had the opportunity to work with a lot of engineers and software developers from Rohde & Schwarz, so this was a great opportunity to network and learn from the experts who create test systems for a living.

Outside of Verizon, Bridgewater, NJ is filled with nice restaurants and a very nice shopping mall where you can hang out after work. An awesome benefit of working at Verizon was access to an on-site gym with personal trainers to work with you. So usually after work, I would go to the gym and either work out by myself, or set up an appointment with a trainer for a more intensive routine. I was a few hours from Cornell, so I would often drive up to Cornell to visit friends on weekends. Housing was relatively difficult to find; Verizon provides relocation stipend, but you must find your own housing. There are apartment complexes all over the area, some more expensive than others. I ended up living in a residential neighborhood, renting a room from a private landlord. For transportation, I strongly recommend having a car, since there is no public transportation in residential areas. For food, Verizon has a great café with subsidized breakfast and lunch, but you could also bring food from home as well if you wanted to.

My favorite part of the job was that I was able to work with the latest technology in the mobile industry, some of which is still secret knowledge and not yet released to the public. The only negative is that is sometimes the work you do gets repetitive since you perform many similar tests over and over again on different devices.

Overall, this experience gave me a unique perception into the type of role that an electrical and computer engineer can fill after graduation. I was able to network with engineers that work
in a variety of areas of device testing at Verizon. Additionally, there is a great opportunity to network with engineers from companies across the mobile industry including Samsung, Qualcomm, Novatel, and Setcom. These companies always have engineers on-call at Verizon's testing labs to work with our test engineers to perform tests and solve any issues. Professionally, I can use the network of connections I have built, as well as my knowledge of the wireless industry, to pursue a career in the telecommunications industry.