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Gear Up Research Program 2018 Journal

United Arab Emirates University- Abu Dhabi

Week 1: Write about an incident of personal importance that happened during the week.

I've never been on a flight longer than 7 hours so taking a 13 hour flight to the Middle East was definitely a bit nerve wrecking. In the back of my mind, I thought about all of the stories I've heard about American students traveling abroad and being penalized because of the smallest things. Therefore, I knew I had to be careful on the way I responded to people and also cautious of my actions. I was very relieved as we arrived at Dubai Airport safely and successfully went through the first security and picked up all of our lugages. That feeling of relief drastically changed when our entire group was randomly selected for a bag check. I thought it would be something quick and simple. However, 10 minutes turned into 20 minutes and 20 minutes turned into 45 minutes as our suitcases were being thoroughly searched. They started to ask us questions as if we were in an interrogation and at this point I start to think of all of those horror stories on the news about American students abroad. Our entire group is really nervous and I start to notice a pattern of the type of people they were pulling to the side and enforcing these thorough checks. We were finally let go after what felt like a 3 hour bag check because of the added nerves. It was very unfortunate what we had to go through, however it made me put a lot of things into perspective. I realized that no matter where you go, you can still be stereotyped based on what you look like. It's an unfortunate realization but it's just the way this world's perception still is about black people. I don't think for one minute there was a coincidence that so many black people were pulled over for extensive bag checks. It didn't matter at that point that we were educated college students studying engineering and here for a

research program. None of that mattered. All that mattered was that we were black and since that experience, I knew that I had to be extremely careful for the rest of my trip.

Week 2: What have you experienced this past week that show similarities or differences in culture between the research environment in the U.S and your international research environment.

From my experience, I feel that in the United States, there is so much emphasis on a theoretical approach to research. Most professors have made research seem like its simply finding and collecting intricate information on the internet that will help them develop and form a solution to a complex problem. However, I have a new perspective about research after my first week of listening to our advisor, Dr. Bobby Matthew explain the details of our research project on microfluidics. Research can be a visual, hands on phenomenon! Dr. Matthew used a plethora of figures, real life examples, and graphs to explain the importance of making dielectrophoresis an efficient method for cell separation. At first, I wasn't knowledgeable at all on the topic of dielectrophoresis and I was afraid that it would be explained in a way that was simply abstract and theoretical based on the history of how researchers in the U.S explain topics. By the end of the week, I felt like an expert on the subject matter because of the visual aid provided to me. Rather than just presenting his research by passing out lengthy packets of information, Dr. Matthew made sure that we not only had a theoretical understanding of our project, but also a visual understanding. In this day and age, most people consume information best by seeing the application of what they're learning. This is due mostly to the increased usage of social media where news and facts about the world are usually portrayed in images and videos. I believe that attaining facts in this manner gives people an easier and more personable way of thinking about "How can I fix this or how can I make this better?" That's the same approach I felt when researching internationally, the research didn't entail solely complicated words, but much more, and in response, it created a more efficient way for me to visualize my own possible answer to utilizing microfluidics for detecting cardiovascular disease. In conclusion, comparing my experience at United Arab Emirates University (UAEU) and Howard University, I think that the biggest difference is how professors perceive and present research. Research isn't just about

sitting at a computer all day, research can be about opening your mind to a visual solution by using drawings, diagrams and real life examples in order to attain a unique and creative solution to a problem.

Week 3: : What 3 words describe how you felt most of the week?

Enthusiastic, Adventurous, and Nervous are three accurate words to describe how I felt in this particular week. We were starting to wrap up our Matlab code for our project and began writing the technical paper that will possibly be presented at the IEEE conference in India. I felt a bit of pressure because my contribution could be the difference in whether or not the paper is published. I was responsible for all of the diagrams in our paper in which I used NX10 to show a detailed visual display of our project. I also worked on the “Proposed Microfluidic Device” portion of the manuscript in which I needed to thoroughly explain the insulator structure design of our microfluidic device.

We collectively decided as a group to spend some time in Dubai since this was our last full weekend and we were almost finished our paper. Dubai is an hour away from our university in Al Ain so we decided to book an Airbnb for the weekend. Our Airbnb was located directly next to a small private beach and a nice shopping area. The day we arrived, we figured out that Incredibles 2 came out in theatres so we all went to see that movie that night. Ironically, the movie was pretty incredible. We planned various activities to do in Dubai such as going on a desert safari which was really fun! The desert safari included dune dashing, camel riding, ATV bike riding, buffet, and belly dancing show. It was well worth it! We also visited Marina Del Ray which has a beautiful beach and a couple of shopping stores. We ended up finding a souvenir shop called “I love Dubai” where we purchased cool items for our relatives and friends. The final thing we did in Dubai was travel to the Atlantis resort by tram and enjoyed our time at the Aquadventure Water Park.

Week 4: If you engaged in any activities this past week that are related to the research, what were they?

This week was spent mostly wrapping up and finalizing our technical research paper. All of the Matlab code was completely finalized and we simply needed to just put everything in word form of what we did throughout our project. The paper was split up into 6 sections being the abstract, introduction, proposed microfluidic device, theoretical model, results and discussion and conclusion. We also needed to include the graphs of our results from the Matlab code that displayed the voltage of electric field (V/m) at various points in the fluid channel. We also inserted an image of the plot graph of Polystyrene at 2 distinct voltages and flow rates which showed the effect of the variation on the plot. The last image from the matlab code was a plot graph of the Silicon dioxide particle at 2 distinct voltages and flow rates. In addition, 2 other models were created using NX10 such as the proposed microfluidic device, one with repeating unit with boundary conditions and one without. Our group was able to successfully break down and distribute the roles evenly and complete our tasks in a timely manner. I can't wait to know whether or not our paper gets published for the IEEE conference in India. It will truly be amazing.