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NIHERST-NASA Mid-Internship Report

Orientation

On June 3rd 2019, the first cohort of summer interns attended an orientation session. We were welcomed warmly and provided with general information about Ames. Following this session, I attended an Aeromechanics branch-specific orientation. We were introduced to our mentor, Dr. William Warmbrodt, and learned about our project assignments. I even received a special welcome as the only international student in the Aeromechanics cohort of around 60 interns.

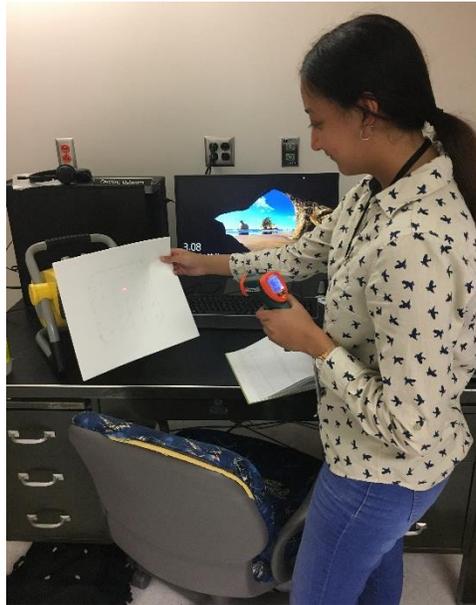


The Aeromechanics interns in front of our building. This rotunda used to be a 20G centrifuge with 3ft thick walls, which is why there are no windows.

Project Progress

My project is working with a team of 3 interns to develop an omni-drive robot to assist emergency responders in controlling wildfires. The focus of my role on the team is Thermal Systems. As such, I am responsible for ensuring that the robot is insulated well enough to withstand the temperatures to which it will be exposed in a wildfire. I am enjoying working as part of a team and being able to generate and discuss ideas with my peers. Furthermore, I have a personal interest in this project since there are possible applications of the work to assist with the frequent bushfires that we face during the dry season in Trinidad and Tobago.

At this the midpoint of the internship, we have conducted sufficient research and are currently refining our testing protocol. The first phase of testing will be for proof-of-concept while the second phase aims to demonstrate more complete functionality. My team members and I are also developing a poster to present at a symposium at the end of the internship.



Setting up an experiment to test an insulating material (ceramic paper) using a temperature gun

Highlights

My time here at NASA is not all work. This is the first time that I have travelled to the West coast of the U.S. and as such, I am exploring as much as I can on the weekends. So far, I have visited the Golden Gate Bridge in San Francisco, the Monterey Bay Aquarium, the beaches in Santa Cruz (which strongly contrast with the warm Caribbean beaches to which I am accustomed), the SpaceX Falcon 9 in Pasadena, the Gas Lamp Quarter in San Diego, and the Walk of Fame in Los Angeles.



The Golden Gate Bridge



Santa Cruz beach



In the Prop Warehouse at
Paramount Studios



SpaceX Falcon9 Rocket



Historical sites at Old Town San Diego visited on a road trip with new friends



Moon Jellyfish at the Monterey Bay Aquarium

There are also many concerts and food festivals to attend in the area. I have already attended a Carlos Santana concert with fellow Trinidadian intern, Ruth, and a Paul McCartney concert with my roommate from Thailand, Yana.



Beatlemania at the Paul McCartney concert

Ames Experience

Besides enjoying working on my exciting project, there are so many additional experiences on the Ames campus. There are seminars presented by some of the greatest minds, not only on aerospace topics such as the upcoming lunar exploration mission that will send the first woman to the moon, but also on other STEM fields such as supercomputing and cancer treatment. There are also events such as monthly fun runs and branch-wide barbeques, where I can interact with my colleagues in a more informal

environment. Out of the myriad clubs, I have chosen to join the Salsa Rueda dancing classes and the Kickboxing Fitness sessions.

The Ames campus has many interesting sights and sounds. As soon as one enters, one is greeted by a large model of a Space Shuttle. There is the looming presence of a massive zeppelin hangar that housed the USS Macron in the 1940's. When I went for a run with my roommate, we stumbled upon a Lockheed P-3 Orion along the path. While working in my office or sleeping at the NASA Lodge, I can hear the thundering sounds of aircraft directly overhead, taking off from, or landing at, the airstrip.



Hangar One



For scale!



Stumbling upon a Lockheed P-3 Orion



The Space Shuttle Model

Meeting so many like-minded interns has certainly been a positive experience. I work alongside peers from almost all 50 states, and I have met other international interns from countries like Sweden, Portugal, New Zealand and Israel. It is also an enjoyable experience to live in the same lodge as many of them. Even chores like doing laundry and cooking in the shared kitchen turn into 'limes', one of the Trinidadian slang words I have taught my American friends.

I was privileged to tour some amazing facilities such as the world's largest wind tunnel, a supercomputing facility and the Mars Roverscape. These tours included unique experiences such as being able to walk through the vane sets inside the wind tunnel, and seeing up close a block of a material called Aerogel, or 'solid smoke', worth around \$2000USD.



Holding a jar of "solid smoke" in front of the Vertical Gun Range



The drive system inside the wind tunnel



The Mars Roverscape



The Unitary Plan Wind Tunnels



Touring the world's largest wind tunnel



Inside a Vertical Motion Simulator used by astronauts