

Visitor Research Report

Visitor Name: Mr. Chase P. Brown
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Area of Research: Advanced Space Architectures

Period of Visit: June 29, 2009 – August 7, 2009

Goal:

I came into the summer at NIA not knowing what to expect. My mentor during the school year, Dr. Robert Moses of NASA, had introduced me to Dr. Alain Wilhite of NIA. It was just a coincidence that Dr. Wilhite is a Georgia Tech professor and I was going to be a Georgia Tech freshman starting in the fall. I talked with Dr. Wilhite and he offered me a summer job, where I would be a “research assistant.” I still had no idea of what type of work I would be doing. On the first day I met with my old mentor and Dr. Wilhite to discuss what I would be doing that summer. Dr. Moses and Dr. Wilhite decide they wanted me to continue my work on mining Helium 3 from the moon that I worked on during the school year. My original goal was to create a better paper and research project on Helium 3 than I had done during the school year. This goal soon changed. The next couple of weeks I read a lot about everything rockets. I learned about the different types, fuels, what makes a rocket better than others, and much more. After reading this, I decided I was not going to go down the path of using Helium 3 in rockets because that technology was too far away. Instead, I decided to look at using the moon as a “gas station” for trips to Mars. My new goal, and the one I was going to accomplish, was to see if it is cost efficient to get propellant from missions to Mars from the moon instead of off the Earth.

Strategy:

My strategy was to find a new way to answer this question. Other people had done projects similar, but their results varied and their methods were basically the same. To answer this question, I took on a new approach to this question.

Accomplishments:

I accomplished many things over the summer. I learned a great deal about the basics of rockets. I feel that I am definitely ready to take on any aerospace class at Georgia Tech because I already have such a solid background. I also learned many time management skills. I could make my own hours, come to work whenever, and nobody was there to watch over my shoulder while I was at work. This forced me to have a lot of responsibility in order for me to get work done every day and get the most out of each day I was there. These time management skills have definitely prepared me for college. I also made many great contacts while at NIA this summer. I met about fifteen Georgia

Tech graduate students who all gave me advice and warnings about going to Georgia Tech. It was great to have had knowledge about the classes I should take, teachers I should stay away from, and areas of Atlanta I should go nowhere near. Even some of them live in Atlanta now so they gave me their phone numbers just in case I need a ride to the airport or something. This summer job at NIA was definitely a life preparing experience for me.

Future Work:

Missions to Mars are the most interesting to me. My future work will definitely involve an aspect of these missions. I have already talked with Dr. Wilhite about expanding my project even more the next summer at NIA.

Pending Publications:

I have all the results, charts, and tables from my work this summer. I have started writing the paper, but it is not done yet. The paper will be about if it is cost efficient to get propellant for missions to Mars from the moon versus the Earth.