

Dillon Dragomir  
Erin Alanson  
Gateway to University Honors  
30 September 2015

### Passions Reflection

#### What?

One of my passions is engineering. When I first came to the University of Cincinnati, I was at a struggle with what specifically I wanted to major in and how my major could help me accomplish my life long goals. I had a great interest in biomedical engineering and aerospace engineering, but in the end decided to switch my major to computer engineering. After much thorough consideration and research I discovered that being a computer engineering would allow me to work in all the areas I find so interesting and gives me greater flexibility in achieving my goals. If I am a computer engineer, I could work on the schematics and all the amazing behind the scenes programming which makes space exploration possible. Also, I could work doing the programming for all the biomedical devices. As I looked across the industry and researched the jobs that interested me the most this major seemed like the best fit for me to be able to be flexible in my career. Additionally I love how with a lot of work and little equity someone in this major can create something so amazing. I have always been extremely passionate about pursuing and designing things on the side. It is possible for someone to design an awesome program but can someone really design a car or rocket ship and see it come to life with as little equity as I could designing a program.

Additionally, I have a passion for travel. I get great enjoyment out of experiencing new environments, trying new foods and hearing multicultural music. I like how much there is to learn and how our differences make us all think and solve problems very differently. Since I am an engineer I find great interest in better understanding how culture and our childhood affects how a person thinks and solves a problem. There is so much I can learn from traveling. Finally, it is just very enjoyable to go on an adventure see all the sights, try all the different foods, hear the language and listen to how their music is similar and different from the music in the US.

#### So What?

Specifically I have had a love for research and experimenting since middle school when I started competing in science fair. I have done projects mostly concerning renewable energy everything from wind turbine blade optimization, fuel cell catalyst research and thermoelectric concept research. My final year I wanted to pair everything I was learning in my classes with my project. So I used what I learned in physics to better understand how to balance horizontal forces and my knowledge of calculus to create a Segway like robot which balanced on two wheels. I utilized a proportional, integration and derivative action controller to calculate the exact speed it should travel to counteract the forces of gravity at different speeds and angle of elevation measured from the gyroscope and accelerometer.

My research interests have somewhat evolved this summer. I hope to pair my love with research with my new found curiosity for genetics. When I met Dr. Francis Collins, the director of the NIH, I became extremely interested in his new precision medicine initiative. Basically, he is trying to take the sequenced human genomes from one million people and understand better how and why drugs react differently due to variances in the human genome. This is already done with cancer therapies, but he hopes to someday make all drugs personal so drugs can be invented specifically for a person's DNA. Additionally, previous to meeting Dr. Francis Collins, I had been dating someone who was currently at Case Western finishing their Phd in genetics research and as I began to gain a greater understanding of the different accomplishments and amazing research that was being done in this field, I wanted to learn more. This person has been a great mentor to me and has helped me myself understand all my options available going through undergrad and grad school. I hope to minor in bioinformatics and pair my knowledge of computer programming with the idea of handling extremely large amounts of data, for example hundreds of human genomes, and finding the differences between them. These are my specific passions in research and how my research passions have evolved over the years.

Another strong passion of mine is travel. When I was a child a love for travel was influenced upon me by my parents. We would travel all over the united states and to Mexico, Canada and The Caribbean.

While in Mexico, I got to see people who, to me, seemed less fortunate than myself but at the same time, were so much happier. The most influential thing I saw was a family trying to make a living selling necklaces and jewelry. Even though it was a school day the kids were under the table making jewelry and the parents were trying to sell it up on the table. This really stuck with me because I had never seen a family before work so closely to provide for themselves and in a way it was very touching because even though their situation was not optimal something about them just being together made them happy. This has caused me to think a lot about the true meaning of happiness and also how experiences and a person's life time influences their behavior. Understanding people might not seem very important to being an engineer, but it is very much so. Understanding the consumer and who the product will target is very important in the product's design. This is how my love for travel will also advance my career as an engineer.

### **Now What?**

My passion in space is being pursued through Northrop Grumman. This summer I attended a residential science program targeted towards young scientists. While there, I got to interact with some of the smartest individuals from every state and multiple countries. We heard lectures from some of the best professors from institutions including Harvard, MIT and Stanford along with industry professionals. One of these guest speakers was the CEO of Northrop Grumman and he instilled in me an interest in his company and the Weber Space Telescope Project. He additionally gave me his business card and told me to email him if I was interested in internships because Northrop loves to hire kids from science camp. I plan to pursue this connection for a summer internship and hope to further understand where my passions exactly lie.

I can engage with my passion for engineering with engineers without borders. This club is honestly amazing. It will enable me to further define my grant writing skills and someday will contribute to my desire to work in academia and do research. Also, their club will allow me to pursue my love for design and my love to travel all at the same time. Last of all, I can get very important Cincinnatus volunteer hours. This is why EWB is a good fit for me and my goals.

In high school I very much so wanted to study abroad but my mother was worried about it affecting my educational goals. Now that I am in college, I am determined to study abroad and will do what ever is necessary to get an experience I know will impact my life and my views of the world. I hope to go to Nanyang Technological University in Singapore. It is one of the best engineering schools in Asia and will not only help me pursue my love for engineer and to be the best engineer I can be, but also my love to travel and see the world. Nanyang is very special because it is on the left side of Singapore which was settled by England and has many English speakers. This will allow me to study in my own language, but at the same time, I can travel the short distance to the amazing city of Singapore and experience all the asian influence and language which will make my experience a truly amazing one.

One thing I would like to learn is how I can get involved my Freshman year in interesting research. Another thing I am trying to do this academic year is evolve my resumé into something a tech company will find interesting. It is very detrimental that I can bring to the table a competitive application since I am trying to get an internship on my Freshman summer. I will also pursue applying to different REU's and in the end I plan to choose the opportunity which will give me the most experience as well as contribute to my overall professional goals. These are the connections I have made and the opportunities I have already taken advantage of, coupled with a few things I would be interested in learning more about.