

Interning Final Paper

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The Brooks Crossing Innovation Lab

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BLUF

In this paper, I will discuss why I decided to do an internship with Brooks Crossing Innovation Lab and list three learning objectives I hoped to achieve. I will describe my internship experience to include a brief history of Brooks Crossing Innovation Lab and other notable facts. I will break down how my training and orientation went along with give my initial impression of the business. This paper will also discuss my experiences with management, duties and responsibilities and any cybersecurity skills used during my internship. I will talk about my ODU curriculum preparedness, any learned or new connections, new concepts, techniques and skills. I will discuss my most motivating, discouraging and challenging aspects of my internship. I will list any recommendations to future interns that may intern for Brooks Crossing Innovation Lab. Lastly, I will summarize my overall experience to include key take ways and last thoughts on how this internship will influence my future planning.

Introduction

I decided to do an internship with The Brooks Crossing Innovation Lab because I needed to fulfill the course requirement. I had applied to several cybersecurity related internships but I was not picked up for any of them. So as a last-ditch effort and with the help of Professor Duvall I was able to land this opportunity. The outcomes I had hoped to achieve were gain some new cybersecurity experiences, build a professional network, and increase my workplace confidence. I did not go into this internship with high expectations because I understood that it was not solely cybersecurity based. However, I was eager to learn and take in any new skills that would be beneficial to me in my personal and work life. I came into this internship with an open mind which I think helped me to stay engaged and interested. Before arriving to the internship, I had done research on the lab and was very intrigued with the lab's reputation. I was also excited about any networking opportunities that I will be able to take part in. I wanted to make the best out of the opportunity even though it was not all related to cybersecurity.

The Brooks Crossing Innovation Lab History

The Brooks Crossing Innovation Lab is a collaborative and team-building instructional center for STEM learning that gives individuals of all ages, skill levels, and academic backgrounds

the chance to learn by coming up innovative solutions to real-world problems. The Brooks Crossing Innovation Lab was opened on August 28, 2019 by several officials and community leaders from the city of Newport News, Newport News Shipbuilding, and Old Dominion University. It was founded to serve as a community engagement effort for students, parents and citizens who are interested in learning about digital technology, design and fabrication. The Brooks Crossing Innovation Lab offers hands on and project-based learning in the careers of computer engineer, data science, mathematics and shipbuilding. Founders opened the Innovation Lab to increase workforce and community outreach development (*City Opens Brooks Crossing Innovation and Opportunity Center - Newport News Economic Development Authority (EDA), 2019.*)

Initial Impressions

My initial orientation and training consisted of me watching instructional training videos on how the Direct to Garment printer (DTG), 3D printers, and laser engraver equipment work. I also received hands on training that allowed to me to print my own shirt and create a design for the 3D printer to print. It took me a while to learn how each machine works because I was not familiar with it. With assistance I have become more abreast on how to setup and operate each machine. My initial impression of the Brooks Crossing Innovation Lab was fascination. I enjoyed engaging with the families during the Open Makerspace workshops. The Open Makerspace workshops provide a space for families to design and print t-shirts and tote bags, create 3D pen art, operate robotic equipment and much more.

Management Environment

The management environment at the internship was relaxed with an emphasis on organization and growth. Kaitlyn McCoy provided effective communication throughout the internship which allowed for the day to flow smoothly. I spent most of my time helping setup for projects, events, and camps. The environment encouraged teamwork and the freedom to work independently. Working independently consisted of setting up for camps by making sure that the lab was a safe but effective environment for learning and creating. Kaitlyn ensured that each intern stayed engaged by providing a detailed task list of things we could do on each day we interned. Her overall management structure was laid back but she was there as a guide to help promote creativity within the environment. She was very supportive by offering ideas that helped the innovative culture

within the internship. She also provided constructive feedback and offered helpful suggestions on tasks that were difficult which made the work experience even more fun and exciting. I thoroughly enjoyed her management structure because it encouraged me to heighten my creative side.

Duties

My duties consisted of setting up and learning the equipment (3D printers, DTG printer, Laser engraver printers.) I also helped the community members use the equipment during Open Makerspace and other camps. I provided remote administrative support by completing data analytics spreadsheets which consisted of combining students and campers' demographic information like name, grade, zip code, city and school districts into one spreadsheet to get an overall percentage. I helped setup, run and clean up family and community K12 STEM programs. I attended an outreach event that involved spreading the word about the Brooks Crossing Innovation Lab while introducing fun and interactive robotics to children of all ages. I assisted in creating marketing materials for workshops, camps and events along with strategizing different ways to increase community attendance and participation. I provided technical assistance and troubleshooting of the 3D printers, robotics equipment, laser engravers and DTG printer. I also analyzed an assortment of collected data from surveys and registrations to find trends that evaluate the program effectiveness; along with help guide decisions about any future programs, events, workshops, and camps. I supported adult learners and campers by making them feel welcomed during their time within the Open Makerspace events by ensuring they understand how to operate the equipment safely and effectively. The above duties were necessary because it helped the camps, events, and workshops continue to run appropriately without any issues. Families and children were pleased with everything that was provided for them to enjoy as they left positive feedback about their overall experiences (*Internship at the BC iLab, n.d.*)

Knowledge and Use of Cybersecurity

During this internship there was not a lot of opportunities to use any cybersecurity skills or knowledge. I don't have any personal cybersecurity experiences other than what I have learned in school. As an intern at the Brooks Crossing Innovation Lab there was a Cybercrime camp that I unfortunately was not a part of because I wasn't picked to be a part of it. But I was able to watch and what I learned was interesting. The camp consisted of middle school aged children whose tasks were

to solve a cybercrime case. They had to use the evidence that was provided along with find out any missing information to help solve the case. They took on the role of a forensic investigator which consisted of them identifying the criminals and their actions, collecting and analyzing the evidence, gathering more evidence from things such as computers, they were also in charge of reconstructing the events that led up to the crimes. I enjoyed watching the little investigators work through their cases while heavily utilizing teamwork skills. They show cased great problem solving, leadership and conflict resolution skills at such a young age. As a final task the children had to come up with their own cybercrime case for everyone to solve which was very interesting and fun to solve. During this event I was able to take away a greater understanding of cybercrime and the importance of keeping everyone abreast on the risks that are associated.

Prepared or Not Prepared

The ODU curriculum and the internship did not prepare me for the internship. However, the ODU curriculum does a great job at providing a solid foundation in cybersecurity basics, tools and techniques. Which I think would be great for an internship that is centered in cybersecurity. But nonetheless, my internship at the Brooks Crossing Innovation Lab was an overall great experience because I was able to learn some great new skills in STEM and robotics. I think that ODU is has a great idea with providing students with the opportunity to get an internship while in school but there should be more opportunity for acceptance into degree specific internships. Although my internship was great overall it did not reinforce any concepts I learned while in school but I did make some great connections with the other interns and the management team. In my opinion, I should have done a better job of introducing additional cybersecurity ideas and methods into my internship. I could have conducted a cybersecurity workshop to raise awareness of cybersecurity issues or I could have taught cybersecurity training.

Outcomes Explained

Outcome 1: Gain some new cybersecurity experience: This outcome did not fulfill my goal because the internship was not solely based on cybersecurity. There was a cybercrime camp but the majority of the internship was based on STEM. As stated above, I could have done better with making sure to incorporate some cybersecurity training into my internship. The internship

fostered an environment to create a cybersecurity training program that I did not take full advantage of.

Outcome 2: Build a professional network: This outcome did fulfill my goal because I had the opportunity to talk to and meet many different people. The internship fostered an environment that allowed for open conversations with professional individuals that were willing share their personal and work experiences. I had the opportunity to take down names and numbers of future employers as well as get information for new employment. The people were warm and friendly and eager to help or answer any questions that I may have had about the security industry. I am pleased with this goal because I was able to benefit from getting information that will be beneficial for my future.

Outcome 3: Increase workplace confidence: This outcome met me in the middle with did and did not fulfill my goal because of my own personal reasons. In the beginning I was shy to talk and open up to the other interns which hindered my communication with them. As the days past and we worked together on more projects I became more open to communicating with the other interns. I could have done a better job at getting to know the other interns but I let my shyness get in the way of opening doors for further communications even after the internship is over. However, the other interns were very understanding and respectable in allowing me my time and space to open up as I saw fit which I appreciated them for that. In the future I will work on not being so shy and hard on myself because it causes a hinderance when trying to get to know people.

Motivating/Exciting Aspects

One of my most motiving aspects of the internship was when I could see my finished products after completing a task or setup. It made me feel good knowing that I was helping with the educating and learning of children and other adult learners just as myself. I also enjoyed seeing all the smiling faces as they entered and exited the doors of the Brooks Crossing Innovation Lab. I enjoyed helping people get through their creative blocks as they navigated the space. I think that I enjoyed knowing that anybody could come in and create in a space like the Innovation Lab because I did not know this place existed prior to me having this internship. I experienced excitement when I saw my designs come to life because they started from blank canvas'. Another exciting aspect of the internship was when I participated in a two-day outreach event. The event was located at the Virginia

Air and Space Museum where I had the chance to walk around and take in all the history about space and air. I learned how to setup and operate a Sphero BOLT which was my first time working with them. The children also made the experience wonderful because they were excited to play with the Sphero and I enjoyed watching them interact with one another while they explored the Sphero.

Discouraging/Challenging Aspects

As stated above, I am disappointed at how I allowed my shyness to get in the way of me getting to know the other interns in the beginning. At times there wasn't a whole lot going on so we had to improvise or do nothing. Which I did not mind because I was able to get caught on my some of my coursework. Also, in the beginning it was a bit challenging learning the new equipment because I was not familiar with the ins and outs. As I stated, earlier I am also hard on myself which made me get discouraged when I would make a mistake or miss a step or get something wrong but everyone had a ton of patience with one another. Another discouraging aspect was not knowing what to do at times with guidance. However, the manager and other interns who had been there longer were very diligent on explaining what to do or how to do it.

Recommendations

I would recommend that the future interns are to do some research on the lab to understand what kind of projects and technologies they will work with. I would recommend that future interns work on their problem-solving skills and critical thinking skills because there is plenty of difficult challenges to work through with all the different equipment they will have to learn. I would recommend that they ask plenty of questions and seek feedback because it will help them learn as well as show that they are open for constructive feedback. I would recommend they bring their thinking and creative mindsets because this internship is a space where innovation is prominent. Lastly, I would recommend that they take notes because although it's not a fast-paced environment, it still requires that individuals take in lots of information at a time because there is always something new to learn.

In conclusion, my main takeaway thoughts from my internship are that I should keep an open mind to things that I am not familiar with. Because it will make for a better learning experience. I took away from this internship to get more abreast on what STEM and robotics have to offer and how they may relate to cybersecurity. I took away that even though I did not get to work directly with cybersecurity concepts and techniques I still was able to have an enjoyable experience while in this internship. I met some really nice and professional people along the journey of this internship and I learned a few tips from each of them.

My internship experience will influence the remainder of my time in college by keeping me focused and driven to continue school and finish. This experience has taught me that perseverance and dedication are great building blocks to have when I am entering into new endeavors or finishing ones I have started. This internship has influenced my ability to network and communicate more even if I feel shy and afraid. I believe that this experience has helped me to stay positive even when I am faced with challenges. I am grateful for this opportunity because it took me from out of my comfort zone and exposed me to a new world of technology that I can extend to my family and friends.

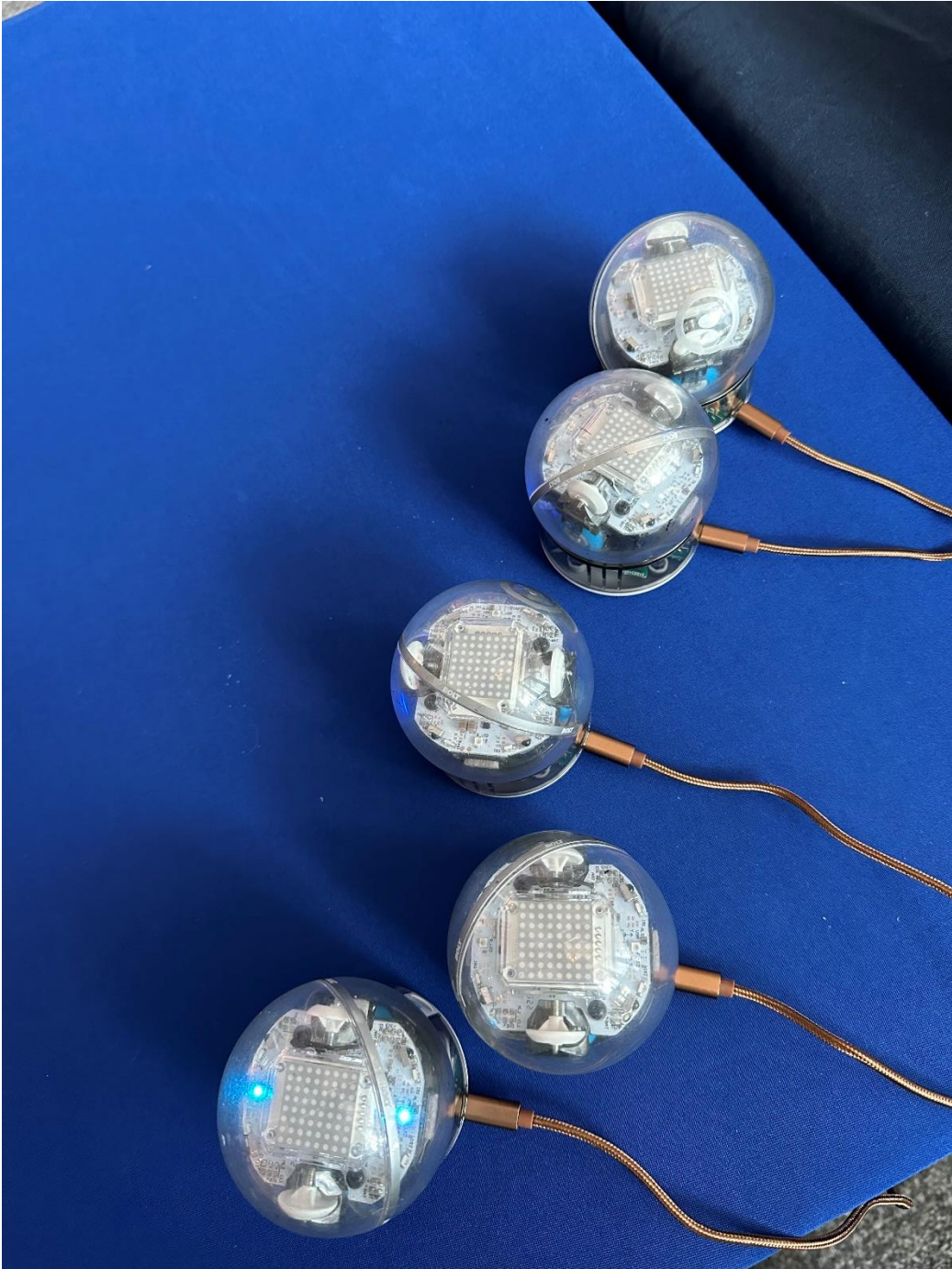
This internship will influence my professional path because I have new knowledge and education on equipment and processes that may be beneficial in my future work. Having the ability to adapt and overcome is another influence this internship will have on my future professional path. Because in cybersecurity, things are ever changing so the need for adaptability is necessary. This internship has had a positive impact on my ability to think outside of the box to create and imagine things I never thought I could create or imagine. I thoroughly enjoyed this internship and I hope to have plenty more of these opportunities while I am still pursuing my education.

References

City Opens Brooks Crossing Innovation and Opportunity Center - Newport News Economic Development Authority (EDA). (2019, August 28). Newport News Economic Development Authority (EDA). <https://newportnewsva.com/city-opens-brooks-crossing-innovation-and-opportunity-center/>

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Appendix A



Up close photo of the Sphero BOLT

Appendix B



A photo of the Apollo 11 Command Module from the Air and Space Museum

Appendix C



This is a VEX 10 Base Bot with Sensors that I built

Appendix D



Here are some of the parts of the robot