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Sterile Geeks VR Internship Overview
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Introduction

I decided to do an internship with SirVRs because of the opportunity to work closely with people I was already familiar with. Everyone I dealt/worked with throughout the course of my internship were all brothers of my fraternity, Phi Beta Sigma Fraternity Inc. One of my fraternity brothers attended our fraternity's conclave, where he met our supervisor, and the CEO of the company. The two told him about the company and how they needed interns to work on the project they had coming up. After getting this news, he then reached out to our chapter and said he needed two people to work on a team for this internship. After hearing this news, I jumped on the opportunity immediately, as I was already looking for an internship, and I was eager to be able to work alongside my fraternity brothers in a professional environment.

At the beginning of the internship one of the learning objectives I hoped to get was to get hands-on experience working with cybersecurity tools. I wanted to internship to help me build my resume to get my skills up for future opportunities. As a member of a three-person team I was eager to learn from those I was working with and add their skills to mine, as well as vice versa. I have found that I learn extremely well amongst peers, due to a higher level of patience that they may have in comparison to teachers, so being able to add their own skills in a more patient environment was something I looked forward to. I also understand that hands on experience is extremely important in the field of cybersecurity, as although education is important, showing that I can and have worked with cybersecurity equipment is vital to show employers. Although I value the education, I get through ODU's programs, in my search for a job as graduation nears, it has become evident to me that experience is extremely important.

Another learning objective I had at the start of the internship was professional development. Although I consider myself a professional, the internship allowed me to look into the professional side of cybersecurity. Although everyone on my internship team were ODU students such as myself our supervisor and CEO that we worked closely with were both established security professionals in the industry. One of the objectives I hoped to complete in the internship was to network with and learn from industry professionals. I was eager to learn what it takes to establish oneself in the field and I now had access to two people who were already where I wanted to be. Although I have been able to connect with a few professionals during my time at ODU, the internship not only gave me close and consistent connect with industry professionals, but I was also able to build a closer

connection with them with them being brothers of my fraternity as well. As someone who is also interesting in pursuing post graduate education, I found it interesting to be able to hear their opinions on the importance of furthering my education in the field after graduation, considering there are often mixed opinions on whether or not degrees are as important in cybersecurity.

A third learning objective I had was working on communication and collaboration. While I consider myself a team player, I haven't worked on a team very much in past jobs. In today's society, teamwork has become evidently important, and I have been seeking a career in cybersecurity that would allow me to work with others. As mentioned in my example on working with my peers, I have a tendency to grow and learn more when I'm working on a team where I can learn from others. As such I looked at this internship as an opportunity to learn more about what it takes to work on a cybersecurity team.

This paper will provide detailed insight on the duration of the internship I completed as an undergraduate student at ODU. As a cybersecurity intern for Sterile Geeks VR, myself, along with the other two members of our team, worked to complete a technical cybersecurity blueprint for a mixed virtual reality platform. Throughout the academic school year, I completed over one hundred and fifty-five hours of work for the internship and worked in a team environment throughout the entirety of the internship process. The internship was also completely remote. Although members of my team lived nearby and we were able to meet in person, all meeting with our supervisor and CEO were conducted virtually.

Background

The company I completed the internship for is Sterile Geeks VR. According to the company website, "Sterile Geeks VR Inc is a MedTech startup offering software development solutions for healthcare. With over 50 years of combined expertise, our team goes above and beyond to ensure we assist our clients and exhibit exceptional customer service. Our extensive industry knowledge and processes allows for a seamless contract performance for our clients." (Sterile Geeks VR). Sterile Geeks was originally launched in 2017 as a virtual reality healthcare software design firm, and later shifted focus to augmented reality in May of 2018. During my internship, I helped with the development of the company's STEAMVision headset. The STEAMVision headset is described by the company as "a mixed reality-based concept technology solution created by Sterile Geeks VR CEO Scotty Jones to

streamline daily sterile processing department (SPD) processes, education, and training.” (SterileGeeksVR). Although being a company that’s main target is the healthcare industry, Sterile Geek has an extensive IT department in which I worked in closely with my supervisor and internship team.

My original orientation into the company wasn’t very formal. It begun with a zoom call with myself, the only other intern on the team at the time, Bobby Booker Jr., our supervisor, Justin Baker, and the CEO of Sterile Geek, Scotty Jones. Justin gave us a brief overview on the company and what we will be expected of during the internship. Following the third and final member of the internship team being added, we had another overviewing meeting of that the course of our internship will consist of the internship team designing a technical cybersecurity blueprint for the STEAMVision headset. Following the completion of our two introductory meetings, we were shared a document noting the stages and goals of the internship and were informed of when work would officially start. However, we did not receive any official training for the internship. Instead, our supervisor encouraged us to use any resources available online, such as Google or ChatGPT and to let him know of any questions we had along the way.

Management

After work for our internship started, we communicated with our supervisor weekly. Each meeting would be somewhat brief, we would email him the blueprint we had at that point, and he would review it and offer suggestions. The team would also ask any questions we had regarding the internship. Our supervisor was available offer whenever we needed and encouraged us to reach out to him with any questions we had, however, as far as actually completing the blueprint, it was largely up to the team for us to figure it out on our own. Outside of our weekly meetings however, the team was largely operating with no supervision for most of the course of the internship. Towards the end, when we began working on a PowerPoint to go alongside the technical blueprint, our supervisor became more involved with our work. Communication with our supervisor became crucial at this stage of the internship due to the importance of the PowerPoint, as it would be used to pitch the concept of the security system to investors. Our supervisor instructed us that while the presentation should be detailed and show the thoroughness of our blueprint, it should at the same time be simple enough to be explained to someone who doesn’t know much about the system or cybersecurity. This proved to be challenging for our team to navigate and caused us to have to have more frequent meetings with our supervisor to ensure we were meeting their

requests correctly. After completing a rough draft of the PowerPoint, the team requested to have a longer meeting with the supervisor to ensure the PowerPoint was up to par. Our supervisor gave us tasks on exactly what needed to be fixed and we went through, fixing each issue individually. Despite this meeting spanning around 1-2 hours, when our normal meetings are usually no longer than 20 minutes, by the end, this method proved to be extremely effective, we finalized the presentation and eventually had to send it off to get approved by the CEO.

Responsibilities

With the main task of the internship being to complete the technical blueprint, members of our team split up the work for the blueprint separately, and we would then meet to revise and discuss the blueprint as a whole. We began by looking up an outline for a basic technical blueprint and copied it onto a shared google doc. We then went through and edited it to reflect our current internship. We all decided that we would then continue to do research on our own time and meet again later to discuss what we had done by ourselves. I tasked myself with looking on various drop selling websites to find hardware components for our system. For example, one of the security components requested was retina verification, so I included a link to an external website where the retina camera needed could be found and included the price and why it was needed. (Reference photo #1). To complete this task, I took my supervisor's advice and used ChatGPT to compile what hardware and software would be needed for each feature our team wanted to add. I would then research on different drop selling websites such as Arrowelectronics.com, Alibaba.com, and even Amazon, and submitted the links in the blueprint.

Examples of features that we had to include in the blueprint included things such as two-factor authentication, accessibility settings for the hearing and visually impaired, and a developed risk management and incident response plan. We developed our risk management and incident response plans by researching other already developed plans and create a simple one corresponding to the vr platform. (reference photo #2). Features like two factor authentication were suggested to be obtained through third party platforms. Our team also performed research on what we needed to make the VR platform accessible for the hearing and seeing impaired and added the necessary hardware and features into the blueprint. (Reference image #3)

I also served as the main communicator for the internship team during the weeks leading up to our meetings. I would usually take it upon myself to contact

our supervisor with any questions we had on the blueprint. I would often either reach out to my supervisor via slack or by phone, to establish any clarity on what we were expected to do.

After completing the blueprint, I also assisted my team in working on the corresponding PowerPoint for the blueprint. We tasked ourselves with two slides each and proceeded to read over and edit each one.

Use of Skills

The main skills I used throughout the course of the internship was a proficiency in research. We were, in large part, on our own for a large portion of the internship. Our internship had to learn how to create a technical blueprint and what should go on it. This skill was increased exponentially throughout the course of our work in the internship.

Another skill that I feel I gained during the course of the internship was security architecture design. Throughout the internship we had to build the entire security infrastructure for the augmented reality system from the ground up. As such we had to do extensive research on everything the headset would need. Creating the blueprint gave the three of us a much better understanding on the concept of security of architecture and how much goes into a good cybersecurity platform.

Finally, a third skill I developed throughout the internship is an understanding of data privacy and compliance. Everything we included in the security blueprint had to comply with data privacy regulations to ensure that customer privacy was prioritized. As such, we spent a lot of time researching on different cybersecurity policies to understand what concepts would not only make the blueprint up to code, but stronger.

The ODU curriculum did help me throughout the internship, as it related largely to the goals of the internship. Working on the blueprint somewhat felt like something I would do for a project in school, just on a far more professional level. ODU's curriculum focusses a lot on the studying of cybersecurity policy. As such my knowledge of these policies came in handy while working on the blueprint. I also had a decent understanding on security architecture, which was amplified throughout the work of the internship.

Reflection

Looking back on the internship, the experience did mostly cover the learning objectives I had at the beginning of the internship. I do feel as if I have grown professionally working in a cybersecurity related role. Our supervisor also did write several letters of recommendation for me in my graduate school applications, helping my career growth. I also did get to learn from and take advice from my supervisor regarding pursuing higher education and career development.

A learning objective I feel I didn't get is hands on experience using cybersecurity tools. Although I did get hands on experience, I didn't use much of any type of cybersecurity software. The members of our team did use a little bit of python programming to include in the blueprint, but not much outside of that. Although we were originally supposed to have a second phase of the internship which would have been far more technical and involve more programming, unfortunately the internship had to end earlier than expected due to personal issues going on with our supervisor.

One of the more motivating aspects of the internship were when our original blueprint started to come together. Each week we watched our blueprint look more and more professional. Even our supervisor would often tell us how impressed he was with the growth of our project. Our supervisor admittedly didn't have much experience himself in creating a cybersecurity blueprint, so he would often let us know that the fact that we were able to put together such a professional and detailed blueprint on our own, using only our own knowledge and research we had compiled. Hearing that we were doing well motivated us to continue to work harder to finish the original project we started, and led to our confidence growing, especially considering at the beginning of the internship our confidence was extremely low as we had never heard or done anything like the project we were assigned.

One of the more discouraging parts of the internship came when we were working on the PowerPoint. I would say that this phase was a time when our communication between the CEO and supervisor was at an all-time low. After we created an initial rough draft of the PowerPoint, the entire thing was basically shut down by the CEO. Our internship team was agreeably confused of how exactly the PowerPoint was supposed to be. We were confused on if the presentation was supposed to be extremely simple or extremely detailed. Our original concept was simple, as instructed by our supervisor, however the CEO then informed us that the presentation needed to be far more detailed and technical. Over time, our proper

communication was restored, and we understood what was expected of us, however this initially was discouraging not only for me but our entire internship team.

The most challenging part of the internship however was the beginning. Figuring out how to get started on a project none of us had ever seen or worked on before was extremely difficult. Although it sounded crazy at first, using ChatGPT to get a general idea on how we could go about completing the outline proved to be extremely useful in helping us overcome these challenges.

I would advise anyone with a similar internship position to use as many resources as possible. Anything on the internet can and should be used to help the intern complete the project. I would also stress the importance of working closely and collaboratively with other members of the internship team.

Overall, the experience working as an intern for Sterile Geeks VR was positive. Although I wish I could have worked with more technical aspects of cybersecurity, it did provide a healthy boost of confidence to myself and my fellow members of the team. I think the internship does serve as a reminder that I am capable of far more than I may believe and is something I can take with me as I continue my professional career.

References

<https://www.sterilegeeksvr.com/>

4. Technical Skills and Tools

- Multi-factor Authentication: Ocular Verification, Eye Movement Test, Verbal Identification
- Ocular Verification: The built-in camera captures an image of the user's eye. - Omnivision OVM6211-RADA-R (image 3) camera designed to be implemented into

ocular verification systems in mobile devices and headsets, Arrow Electronics.com, around 8 dollars each)

LEGUHON IR Transmitter (IR 740 NM), Amazon.com *IR transmitter for low light*(image 4) Optics/lenses

Reference Photo #1

8. Risk Management and Assessment

- The objective of Risk Assessment will be to identify potential security risk and vulnerabilities within the SirVRs System and have strategies to minimize these risk in an effective manner
- This process involves: Risk Identification, Risk Analysis, Risk Prioritization, Risk Mitigation Strategies, Implementation and Testing, and Monitoring/Reviewing after risk has been dealt with.
- After this process, a detailed documentation of the Risk Management process, identified risk, and mitigation will be used as reference.

Reference Photo #2

7. Accessibility

- Within settings, there will be dedicated accessibility options for users to customize their experience to their liking
- After submitting all biometric information, users will have the ability to change these settings. These settings include:
 - Voice Commands
 - Text-to-Speech (TTS)
 - High-Contrast Mode
 - Adjustable Font Sizes
 - Screen Reader Compatibility (Narrator, Non Visual Desktop Access)
 - Haptic Feedback
 - Audio Equalization
 - Closed Captions for Videos
 - VR Comfort Settings (FOV, Comfort Vignettes)
 - Keyboard and Mouse Support
 - User Support and Assistance

Reference Photo #3