Reflection Essay

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Abstract

Cyber security does not exist in a vacuum, it is propped up by people. The internet is a living social ecosystem, so to protect people in it one must understand them. In my time at ODU I have learned the value of interdisciplinary study. I have developed skills like policy writing, planning network layouts, and analyzing the way cyber security connects to the social sciences. In this eportfolio I use artifacts from my time at ODU to highlight three of the skills I feel capture the diversity in learning that I achieved with my degree.

Introduction

Crafting this portfolio has been a chance at reflection, showing me how far I have come in my education. It can be hard to truly gauge how much one knows because there is always more to learn, but when we stop and look back we get a clearer picture. My curated collection of artifacts should not be taken as a comprehensive collection of my work at ODU, but it is a taster of the diverse

range of thought I engaged with. When I set out on my degree I mostly imagined a world of coding and networking, but in cyber security one must be adept at all sorts of skills. It would be impossible to create security guidelines without the skill of writing legible policies for laymen. I need to have a grasp on the complete layout of my network in the physical and digital world. Lastly, without an understanding of the people behind the screens I could never do my job effectively.

Cyber Policy Writing

Part of the job of a cyber security professional is to create usable policies on the micro or macro scale. In an office setting you want these policies to be clear and understandable. Meaning one has to be able to explain high level technical concepts in simple terms. My first artifact is a review of the Cyber Resilience Act passed in the EU. This artifact briefly discusses the policy's role in their modern cyber landscape, analyzing how effective it could be.

The second artifact takes that same policy, and analyzes the political implications of this policy which address the security of electronics that connect to the internet, "Products with digital elements shall be designed, developed and produced in such a way that they ensure an appropriate level of cybersecurity based on the risks." (Regulation (EU) 2024/2847). I take the complete picture of the cyber landscape to form a holistic view of cyber policy. These policies do not

materialize in a vacuum but are careful products of their environment. By analyzing the political implications I show my ability to shift through legal documents to extrapolate information to be digested by my audience.

My last artifact analyzes the ethical considerations of the policy. This one was a challenge for me as I had not taken many classes on ethics, but it shows that cyber security really pulls from all fields. I used my basis in criminology to write this review, but it required a lot of research into the laws of the European Union. I came away with a greater understanding of global cyber laws. This one was one of my favorite projects because a lot of classes focus on American cyber policy, but this opened my eyes to how America is lightyears behind Europe in our cyber defense and consumer protections.

Planning Network Layouts

This artifact tested me to the limits of my understanding. I had never expected to be put in charge of designing a whole network diagram for a building, but it taught me something vital: I am the intersection between electricians and IT. I need to be able to discuss how the layout will affect traffic or security with the people laying the wire. On the bonus side, I may perhaps be able to get a job as an electrician.

The first artifact was more inside my wheelhouse, it is a table of router Ips for a simple internal network. I spend a lot of time doing this type of task at work,

so it was not extremely taxing on me. It was, however, a lesson in creating a presentable diagram using software to communicate my plans visually. I had to imagine presenting this to my boss for approval of a small network upgrade.

Next, I chose an example of a small classroom layout with pricing for each item that would be needed. I imagined this as another proposal that would need to communicate the exact costs of a project before it is approved. This one was easy to get done but hard to conceptualize. Cyber security professionals have an image of themselves as lone wolf style heroes, "(ISC)², a nonprofit association of certified cybersecurity professionals, released the findings of its 2020 Cybersecurity Perception Study, in which 2,500 survey respondents across the U.S. and the U.K. gave their opinions of the men and women working in the cybersecurity profession. The research indicates that attitudes toward cybersecurity roles are now overwhelmingly positive…..In fact, 71% of the survey's respondents, all of whom do not work in the industry, say they consider cybersecurity professionals to be smart and technically skilled, while 51% also described them as "the good guys fighting cybercrime." 69% of respondents replied that cybersecurity seems like a good career path, just not one they see themselves pursuing." (New research indicates positive perceptions about cybersecurity professionals, 2020). This perception is baked into the culture, so it

can be hard to get used to working as a team. Having to present ideas for approval was something I had to get used to.

The final artifact was something that the entire semester was building towards as it brought together all the skills I had been learning so far. Expanding the diagram to encompass a whole school was no easy feat. I had to take time to plan out every foot of wire and every cable head. I ran through the halls in my mind laying wire every step of the way. I had to take into consideration the physical side of cyber security, there needed to be a wire for every school computer in the building. I also had to consider security threats that can manifest in person, such as: infiltrations or bogus usbs. This was one of the most rewarding projects I worked on at ODU, it was the one I felt most prepared me for my job.

Cyber Security and Social Science

One of my favorite things about cyber security is how it allows me to study other fields that I never thought I would be able to, from criminology to sociology. I am very much a proponent of classical education that shapes a more well rounded person. I do not think people in technical fields should be excluded from the broader discussions of humanity. I have managed to work in my passion for literature, arts, humanities, sociology, politics, and history during my time at ODU.

These three artifacts show how important it is to consider the people behind the screen.

The first artifact is a paper about how my chosen career can be viewed through the lens of social sciences. I chose the field of digital forensics. In digital forensics you have to analyze the content of someone's computer like it is a crime scene then piece together the evidence for the prosecution. Much like any sort of criminology job this requires a keen insight into human nature or at least the ability to pull from experience in social sciences,"One of the main issues of cross-border investigations is the collection and exchange of electronic evidence, which is often located in multiple countries, requiring external access to it. While being a priority for most countries, there are many unsolved issues due to the different regulatory frameworks of each country, which hinder collaboration due to, e.g. ethical, legal, or even procedural differences." (Prümmer et al., 2024). The socio-political environment can never be forgotten when investigating a crime.

Using the skills for presenting an idea to a crowd of people I crafted my next artifact, a presentation on the dangers that young people face online. I felt that the conversation was dominated by the dangers older people faced while kids were increasingly left on their own to navigate a complex digital world, "In 2021, some 97 percent of 3- to 18-year-olds had home internet access,

according to the American Community Survey (ACS). Specifically, 93 percent had access through a computer,1 and 4 percent relied on a smartphone for home internet access. The remaining 3 percent had no internet access at home." (National Center for Education Statistics.). Kids are being affected by this, so I created a simple, but telling, presentation that I imagined I could pitch at a PTA meeting or to a school board.

My final artifact is a diptych of article reviews that take a cyber security problem and filter it through a social science lens. A lot of my time in this class was spent creating a familiarity with a competent research paper.

Interdisciplinary Studies

When creating this portfolio I had to utilize all the skills I had learned across all the disciplines I studied at ODU, making this a true forged in fire example of the strength of interdisciplinary studies. I think the portfolio invites introspection as we curator a list of our greatest achievements. I was scared at first that I would have nothing to show, but the lessons I have learned in my four years as a student shone through. It is incredibly important to have a broad base of knowledge to reference when confronted with a problem; I believe I have outlined here how I have never taken the narrow road into the deep north of cyber security but the multi lane highway. I have capitalized on all of the

preceding centuries of knowledge to help me tackle every problem with skill. This class has taught me to look back and see that.

Conclusion

In conclusion, I have learned much on this long and winding road. The skills imparted by my teachers will not leave quickly, but they shall reinforce every one of my decisions. My portfolio is open to you, dear reader, to judge, kindly, I hope. In the words of the great humanist Robert Burton,

"Cry mercy critic, and thy book withhold:
Be some few errors pardon'd though observ'd:
An humble author to implore makes bold.
Thy kind indulgence, even undeserv'd,".

I lay my soul bare to you to judge.

Sources

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