



## My Story in Computing with Madison Quinn Oliver

Featuring Madison Quinn Oliver as Interviewed by Dr. Jonathan Spring

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Welcome to the SEI Podcast Series, a production of the Carnegie Mellon University Software Engineering Institute. The SEI is a federally funded research and development center sponsored by the U.S. Department of Defense. A transcript of today's podcast is posted on the SEI website at [sei.cmu.edu/podcasts](http://sei.cmu.edu/podcasts).

**Jonathan Spring:** Hi, my name is [Dr. Jonathan Spring](#). I am a senior vulnerability researcher here at the [Software Engineering Institute's CERT Division](#). I am joined today by my colleague, [Madison Quinn Oliver](#), who is an associate vulnerability analyst here on our team. Madison, welcome to our latest series of podcasts where we talk to our guests about how they ended up working in the field of software engineering and cybersecurity.

**Madison:** Thank you for having me here today. I am really excited.

**Jonathan:** Let's start off by having you tell us a little bit about you and the work you do here at the SEI on a day-to-day. What does it mean to work as a vulnerability analyst?

**Madison:** More specifically, I work doing vulnerability coordination. What that entails is somebody finds a vulnerability, discovers one, is told about one, for a number of different reasons and does so in a number of different ways. They have a handful of options available to them, with what to do with said vulnerabilities. We here at CERT advocate for [responsible coordinated vulnerability disclosure](#). We are a group of individuals that they can bring this vulnerability to. We can then contact the vendor or company who needs to make the changes, work with them on getting it fixed, and then notifying the public about it, ideally after it has been fixed.

**Jonathan:** Do you spend a lot of your day talking to people?

**Madison:** Almost entirely. I am very good at communicating and coordinating. I have always in my personal life been a planner. I am really good at planning things. I am very list- and task-oriented, which is really good when I have to contact a thousand different people for a thousand different reasons.



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**Jonathan:** I am sure that comes in really handy. Can you tell us a little bit about how you ended up here besides planning it? Or, was it planned?

**Madison:** In my own personal life, extensively planned.

**Jonathan:** OK, I know that you started as an intern, and you also interned at Bayer, but how did that play into the plan?

**Madison:** I am a Pittsburgh native. I grew up outside of the city. I have spent my entire life here. I went to Penn State for four years for college, so I went to the middle of Pennsylvania but not too far. Growing up in the city, or outside of the city, I have always been interested in Carnegie Mellon. I always had an interest in technology. I didn't know doing what with technology, but I knew that I liked it, and Carnegie Mellon was here. I have attended a bunch of the summer camps that they have for kids in the summer, which really, really sparked my interest with Carnegie Mellon. So, when I was at Penn State, I knew that I wanted more. I knew that I wanted to pursue another degree. In my mind the only way to do that was to go to Carnegie Mellon. That was basically my dream my whole life.

**Jonathan:** In your childhood was Carnegie Mellon the thing that sparked your interest in technology, or did it go the other way, or...

**Madison:** A mixture of both. I have always had some innate interest in technology. I have been lucky enough to have parents that have helped me further that interest by summer camps, different classes, learning opportunities. So, really, with their help attending these things at Carnegie Mellon—and I have done things at other universities as a child too—it really solidified for me that this was what I wanted to do, that this was it.

**Jonathan:** How does technology manifest to a child? Did you think about it as computers or machines or math or...

**Madison:** Definitely not math, probably more computers. I think the things that interested me more as a child were more artistic, like web design or video game design, because I am also pretty passionate about video games. That was something that I really enjoyed and was another avenue for me as a child and as an adult to connect with technology. Though what I do now is less visually artistic, I think that was really what helped get me in and segue me into where I am.

**Jonathan:** How did that choice of Penn State lead to internships that connected here?

**Madison:** While I was at Penn State, I knew I wanted to perform an internship in Pittsburgh, because I knew after graduation I intended to come back to Pittsburgh. So, seeking that out, there were actually a number of opportunities available, which was great. Ironically, my husband is in the same field, and he interned at Carnegie Mellon while we were at Penn State. Weirdly



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enough, we have come full circle. I interned at Bayer doing data governance and a bunch of policy-related work, which was good because I saw IT security from a different angle and also learned at a very early age that I did not want to pursue that. So, I learned that very quickly, but it was a really good opportunity. I really enjoyed what I did there. I got a great foundation with a solid network of IT people in Pittsburgh that I am still in contact with to this day. I got to see how a large company works, how an established IT security team works, which I was 19, I was awestruck. So, I learned a lot, and it was really an eye-opening experience for me. I interned there for three summers, I think, three years in a row.

**Jonathan:** Oh, wow. I didn't realize that. Is that because Bayer has the North American headquarters here? Is that why all that stuff lives in Pittsburgh?

**Madison:** Sort of. So, it did actually. Since then, I think my last year there, they started their transition out. They have another location somewhere else in the northeast. I don't remember where off-hand. They have since, I think now, officially, closed down the Pittsburgh office and have consolidated into whatever the other northeastern office was. But they had a very large campus here. I think it was 13 or 14 buildings. It was huge.

**Jonathan:** How did the choice of the undergrad risk analysis stuff at Penn State lead to the Heinz College stuff, more focusing on network management securities, right?

**Madison:** Yes, it's a lot of words. A lot of very long acronyms. All of my degrees have very long acronyms. My time at Penn State I think led directly into Carnegie Mellon, for me, personally. I knew I wanted to do this. I knew I wanted to do security, and I got a fantastic foundation at Penn State and could have just gone on from there. But I am extremely passionate about learning, which I think is also really important in an ever-changing field. I knew I wanted more, and I knew I wanted a different experience, just to try something new. So, I didn't want to stay at Penn State. I had already been there for four years. I was ready to do something different. I, more importantly, looked at [the program that I was interested in taking at Carnegie Mellon](#), and I really liked that program. I looked up every single class, all the professors, everything that I would be doing, and I was like, *You know what, this is the program I want*. So, it wasn't even so much, *I want to go to graduate school*. It was, *I want to go to this program. I want this specific...*

**Jonathan:** That specificity seems really important. How do you think that you got that interest and passion for learning? Because that seems to be, like you said, a super important thing in a very changeable field, so where do you think that comes from?

**Madison:** I think it comes from my parents. My mom is very much the same way. She went back to get her PhD when she was 56, I think, because she has always been very passionate about learning. My grandma is the same way. She put herself through nursing school as a very



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young widow, very accomplished. Same with my mom. I come from a long line of very powerful, strong women that all put a really high emphasis on education, and I think I have gotten that a lot from them, and I have gotten a lot of support from them to continue doing that I don't know if I would have been able to without.

**Jonathan:** That makes sense. Can you tell some of our listeners what it is like to do a degree at Carnegie Mellon, as I am sure some of them might be interested in their own continuing education?

**Madison:** Well, as I am sure they are aware, no one decides to go to graduate school lightly. It is a lot of work and a lot of time and a very huge commitment, especially when you are talking about a school like Carnegie Mellon. Their program is a little bit different, in that for me, I think it was more courses, more rigorous, more content, all smushed together basically in two years, which is what I liked about it, but that is also what made it so difficult. I was able to take more classes I think through that program than I would have in any other program, but it also put a lot of stress on me to do that. I was able to learn and touch subjects that I don't think I would have gotten the opportunity to anywhere else, but it didn't come at not a cost.

**Jonathan:** I know that certain staff are sort of heavily involved in the Heinz program in particular. Have you ever thought about going back to teach there?

**Madison:** I have, and actually, that is how I ended up here, weirdly enough. I attended a local conference, and two of the people speaking were from CERT. I knew about CERT. I have known about CERT my whole life. I grew up in Pittsburgh. I have been very interested in Carnegie Mellon, and I always do all of my research. So, I knew that they were going to be at this conference, and I went with the sole mission of finding them afterwards and talking to them and doing whatever I could to weasel my way in basically.

**Jonathan:** So, that worked very well, apparently?

**Madison:** Well, no. So I wasn't hired. I interviewed for an internship, and they didn't take me because I didn't have the experience that they wanted. But, they said, *Hey, we are teaching this class this semester. If you are interested in this, we highly recommend that you take it.* I tried to sign up for it. Carnegie Mellon is very particular about what classes you can take your first semester, and they are not able to change the schedule. I had a really long conversation with the advisor and a bunch of people and got that changed, so that I could take this class.

**Jonathan:** Do you remember what the class was?

**Madison:** Yes. Network Situational Awareness.

**Jonathan:** Oh, yes, we have a whole team named after that.



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**Madison:** Yes, we do.

**Jonathan:** But we don't anymore.

**Madison:** But we did, and yes, we did.

**Jonathan:** Well, the Situational Awareness Team still exists, but they took the Network off the front.

**Madison:** Yes, and I think that also...

**Jonathan:** When I started, the group of people was called Network Situational Awareness, but that included what is currently the Engineering Team, the Situational Awareness Team, and the Threat Analysis Team, but not the Vulnerability Management people.

**Madison:** Oh, interesting. Yes, so, it's all different now.

**Jonathan:** Yes, it's all been split up, because now there are a bunch more people.

**Madison:** I don't have any idea how those things work. I fought really hard to take this class, who was taught by these people who I had interviewed with and were denied by. About halfway through the semester, they came back to me and said, *Hey, that position that you interviewed for is actually still open. Are you still interested in it?* and I said, *Yes. I'm extremely interested in it.*

**Jonathan:** ...and the rest is history now?

**Madison:** Yes, and now I am here. That was a lot.

**Jonathan:** Yes, that sounds like a large amount of persistence.

**Madison:** I refused to let things happen by accident, but that is again just kind of how I am.

**Jonathan:** There is a question here that I think is a little bit hard, but I think it is important to talk about. The community of computing professionals still has a gender imbalance, obviously. Can you talk a little bit about how that impacts your life, your career?

**Madison:** It is definitely very prevalent for me. I think it also greatly depends on where you sit in cybersecurity. I know where I am is very, very male-dominated. My husband also works in security, and working in a different kind. He primarily works with women, which I find really interesting, so I am not sure. I have always said that the difference must be the type of work I think that we are doing.

Something about mine must attract men more, and something about his must attract women more, and I think that is a large part of it. It also depends where you sit, how big the gap is for



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you. Where I sit, it's rather large. I think it has impacted me because I go out of my way to make sure I am seen, so I attend conferences. I do things that are public. I do things, so I can be seen, just so that other women, and especially other young women, can see that there are other young women in the field that can do these things, that it is not stereotypically all old white men, that there are some differences.

**Jonathan:** That makes sense. If you have male colleagues that want to be allies, is there anything that you can say to them that you think that they maybe don't know but would help you feel better about the situation?

**Madison:** For somebody, if anybody, especially men, that want to be an ally, it is extremely difficult to do that, but I think the most important thing is being aware that the privilege that you have, whether it be because you are a man, whether it be because you're not a minority. Whatever the reasoning is, understand that you do have a certain innate, inherent privilege that is given to you—and using that to ensure that those without it are still heard. If you know a woman in a meeting suggests an idea, nobody heard her, and you reiterate that idea, make sure that they know that it came from her. Don't take the credit for it. Make sure that you are using your ability to be heard, to ensure that somebody else can be heard. I think things like that, being aware of your privilege and using it to help others, would be the best way.

**Jonathan:** That sounds really valuable, yes. That is good advice.

So, a little bit differently, but still about work balance and how you navigate your professional space. How do you keep up to date on information when everything is so busy? There are so many different things that you could be paying attention to. How do you continue education, but also just stay aware of the different stuff that is going on?

**Madison:** Luckily for me, my job is coordinating vulnerabilities. We are very lucky where people often tell us about vulnerabilities. A lot of the time, there is more pull from others than me needing to go out and grab it, which is really lucky, and just because of where I happen to sit. I love Twitter for these kinds of things. I have a ton of people, a ton of different topics, things that I follow on Twitter, that I search through, that help keep me up to date, especially on breaking news. News articles I find really helpful within reason. Talking to my colleagues. They are all also on top of this, and also check different sources, different things than I do. So, when we can come together and have a discussion, we are usually all bringing information from a lot of different places.

**Jonathan:** I guess then that is part of the importance and difficulty of having good colleagues. I feel like CERT and the SEI have a lot of smart and well-informed people.

**Madison:** I think so. I would agree with that.



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**Jonathan:** Maybe that is just some luck. I know that that sort of community is also aware, but that is a valuable thing.

**Madison:** I find that really helpful. Especially finding that sort of community just locally, too. I think Pittsburgh has a really good IT security community. I have connected with a lot of these people also on Twitter, also online, at local B-size conferences. They have started holding movie nights, bar nights, just different ways for these people to get together. You can hear and learn about all these different things that are going on, like in a small, little geographic area, which is also really interesting. So, all these people have different perspectives. They are all following different things, reading different things, doing different things. Being able to combine that knowledge just by having conversations with these different kinds of people I think is also really helpful.

**Jonathan:** If we had a listener who you could only give one piece of advice to, what do you think would be the most valuable, single piece of advice that you could give to someone who wanted to advance their career in cybersecurity or maybe get into the field?

**Madison:** If you want to get in or advance your career, I would say never stop learning. I think that's really the most important thing in this field, if that isn't evident by everything I have said up to this point. I put a lot of weight on knowledge and the continuation of knowledge. I think, if you are considering going into cybersecurity, I would ask you, *If you see a problem, are you inclined to fix it, or not?* If you are inclined to fix it, I would say that this is definitely something you should consider.

**Jonathan:** It sounds like you live that advice.

**Madison:** I like to try to.

**Jonathan:** When you are not only trying to fix things, or you are not just learning more about cybersecurity, do you have anything that you like to do to relax or to further other interests or anything like that?

**Madison:** Hobbies are something that I have been struggling with recently and have been trying new and different things and trying to get a good hobby. So, once upon a time, when I had a little more time in my life, I used to volunteer at an animal shelter, and I really enjoy doing that. I am really passionate about animals. I am really passionate about animal welfare, and I have been trying to find a good way to fit that back into my life. I have not done it yet, but I am hoping to, soon.

Until then, other hobbies that I am trying is I am trying to get into baking. My husband and I really enjoy watching [Nailed It!](#) on Netflix. We are thinking about submitting, just for fun. But I



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would like to get maybe a little bit better before then. But it sounded like a good hobby. I have also gotten into painting. I have a bunch of girlfriends that I talked into playing Dungeons and Dragons with me, which is a lot of fun.

**Jonathan:** Which version are you running?

**Madison:** 5e. Next will be Pathfinder, but there's too many rules to start with so...

**Jonathan:** No, you don't want to start there.

**Madison:** We started with 5e.

**Jonathan:** Yes, that is the right choice.

**Madison:** Yes, I know.

**Jonathan:** Ignore that the fourth edition happened.

**Madison:** No, we are not. I am not even going to tell them about it.

I had a bunch of girlfriends. So, the same thing will happen in a video game community. I have got a lot of girlfriends who have always been interested in playing Dungeons and Dragons, maybe have significant others that play Dungeons and Dragons, but I have never felt comfortable enough joining a group, because they are also predominately male-dominated. And I had the same experience whenever I started playing. So, I have a girlfriend who has been wanting to be a Dungeon Master for a while, and I have my own experience. We decided that we were just going to start our own group of only women just for fun. So, I brought a bunch of my girlfriends together, that have all never played but were interested in learning how to play, and it has been a lot of fun. It's been very different.

**Jonathan:** So, one of the things people always ask...So, I consider D and D [Dungeons and Dragons] to be collaborative storytelling. Is that how you find it? Is that what you like about it? Or what is it that you like about that sort of thing?

**Madison:** I do like that a lot. I definitely see it more as collaborative storytelling, even more so playing with women. I played in groups that are mostly men, and it is a very different experience, not bad, not good, just different. With playing with women, I think it is much more like we think everything through. Every step is thought through. We are not going to just barge in without having talked about 15 different other things that we could do.

Whereas in other groups that I played with it's just, *If you think there is something behind that door, you are going through that door, no matter what.* So, it's different, and I find that to be less storytelling than I find the group that I am currently playing with, to be even more of a



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storytelling base, because we are considering, *Who have we interacted with? How is that going to impact us? What could this possibly be? What are all of the different possibilities, and what are we going to do if any of these are true. What are we going to do if we're wrong?* So, I like that a lot.

**Jonathan:** How is that different from work?

**Madison:** It is more fun. I can paint miniatures for this. That was one of the hobbies that I have gotten into is painting miniatures.

**Jonathan:** We could do that for work.

**Madison:** I could do it for work, couldn't I?

**Jonathan:** There is nothing that would stop you.

**Madison:** Well, you would be like a giant miniature.

**Jonathan:** That is fun.

**Madison:** I should do that. That would be a lot of fun.

**Jonathan:** If we all have miniatures for everyone on the team, I think that the meetings would go a lot smoother, because like...

**Madison:** I think so, too. I think that would be a lot of fun. I will happily paint them if you can get someone to 3D print them.

**Jonathan:** We get a grid like the way that people have to who is allowed to talk.

**Madison:** It would be perfect. I fully support this, so I have gotten into painting as a hobby.

**Jonathan:** When you say painting, are you exclusively painting miniatures, or are you also painting canvases?

**Madison:** As of right now, exclusively miniatures. So, I am also what I would consider not at all artistic, not even a little bit. I can basically draw you, like, a little cat face or a stick figure. That is the most artistic I have to offer. But at least a miniature, it is there. I don't have to craft anything. I don't need to make any details. It is just colors, which I feel like I can handle.

**Jonathan:** Do you feel like you have a strong sense of color?

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**Madison:** No, to be quite honest, but it is getting better. I am learning. This is something that I know nothing of. I am incredibly uncomfortable with, but I thought it would be fun, and it is. It is really fun.

**Jonathan:** You are passionate about learning. So, you are going to be good at it.

**Madison:** Do you want to know how many blogs I read about how to paint miniatures?

**Jonathan:** Yes, actually. I do.

**Madison:** I think I went through like 15 different ones including YouTube videos and, like, how to do shading and the differences between plastic and metal and everything [See the sites and videos that Madison watched [here](#), [here](#), [here](#), [here](#), and [here](#)].

**Jonathan:** I am both surprised there aren't more than that and surprised that there are so many.

**Madison:** There are so many more than that.

**Jonathan:** How did you do the literature search of which ones were the best ones to read?

**Madison:** Effectively, most visited. They would often include photos of ones that they have done. Those that included photos of hundreds of miniatures that they painted were top priority for me. So, I can tell that they had done this.

**Jonathan:** Well, Madison, thank you so much for being here and for sharing your experiences. To our listeners, thank you for joining us today. We will include links to all of the resources we have mentioned in the show notes. That will include all of the advice that Madison has about how to paint miniatures as well as all the stuff from all the different courses and all those different, wonderful resources. Thank you very much.

*Thanks for joining us. This episode is available where you download podcasts, including [SoundCloud](#), [Stitcher](#), [TuneIn Radio](#), [Google Podcasts](#), and [Apple Podcasts](#). It is also available on the SEI website at [sei.cmu.edu/podcasts](http://sei.cmu.edu/podcasts) and the [SEI's YouTube channel](#). This copyrighted work is made available through the Software Engineering Institute, a federally-funded research and development center sponsored by the U.S. Department of Defense. For more information about the SEI and this work, please visit [www.sei.cmu.edu](http://www.sei.cmu.edu). As always, if you have any questions, please don't hesitate to email us at [info@sei.cmu.edu](mailto:info@sei.cmu.edu). Thank you.*