



Women in Software and Cybersecurity: Bobbie Stempfley

featuring Roberta “Bobbie” Stempfley as Interviewed by Eileen Wrubel

Eileen Wrubel: Welcome to the SEI Podcast Series, a production of Carnegie Mellon University’s Software Engineering Institute. The SEI is a federally funded research and development center sponsored by the Department of Defense and operated at Carnegie Mellon University. A transcript of today’s podcast is posted on the SEI website at sei.cmu.edu/podcasts.

My name is [Eileen Wrubel](#), and I am the initiative lead for the Agile-in-Government Practice here at the SEI. Today, I am excited to sit down with [Bobbie Stempfley](#) who, in June of 2017, was appointed the director of the [SEI’s CERT Division](#). Bobbie you are our inaugural interview on our brand new podcast series that we are launching highlighting the work of women in software engineering and cybersecurity. Thanks for joining me today.

Bobbie Stempfley: It is a really important topic, so really my pleasure to be here.

Eileen: Why don’t we start off by having you tell us a little bit about your role as director of CERT. What do you do on a day-to-day basis? What are the coolest, most interesting, most fun parts of your job?

Bobbie: It is a great job. *The people* is the most fun part of my job. I have the real privilege of working around some of the smartest people on the planet and really have the opportunity to help them be incredibly successful. The problems we solve are not yet solved. It is really that exciting elixir that is there. Day-to-day it is really hard to say. No two days are the same when you are the director of the CERT Division.

I spend a lot of time thinking about what are the strategic challenges that we need to be focused on, helping ensure that we are aligned well enough to take on those challenges, really communicating with the staff, and removing barriers from the world they are faced with.



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Eileen: Can we go back a little bit to your early experiences in the field or before the field. How did you decide that you might want to work in software or cybersecurity? Did you program as a kid, solve lots of puzzles, really good at math? Tell me from the beginning.

Bobbie: Let's start with I am not a spring chicken. Computers didn't exist in homes when I was growing up. My dad bought a computer for our home. I probably was in fifth grade. It was not really more than just a word processor. In school, we had the TRS-80s, the *Trash 80s*. That is what they were called. I know Radio Shack hates that I am sure. We had these very interesting computing infrastructures and environments. They were fun to play with, and yes, that was great.

Math and I have always gotten along. I think math is a beautiful language for the world. I think that's an important era.

I went to high school in southeastern Arizona. It was a big regional high school, so they bused kids in from all over the place. As I started figuring out what I wanted to do, I found myself into engineering types of courses. I really tried to find my way that way, and they weren't really there.

My high school did away with AP for resource decisions. They didn't have enough money effectively to have an AP program. There were probably 20 of us. We had taken every math [class] available at the high school, and we were sophomores at that point. Maybe we were juniors—I can't remember. So we got the community college. The school worked with the community college, and had a professor come over and teach calculus in high school, which is not uncommon today, but back then it really wasn't mainstream.

It's really interesting figuring out what that meant in terms of college and getting a job. I have one daughter who is a computer engineer, graduated from Virginia Tech, a phenomenal opportunity. I keep telling her that when I graduated from college, engineers couldn't find jobs. Nobody remembers those days. I graduated from college in 1991, and I got rejection letter after rejection letter after rejection letter. *I'm sorry, we don't need an engineer. We don't need an engineer. We don't need an engineer.*

It is just not the world we live in today. It almost didn't happen. I almost didn't end up in software and computing.

Eileen: Did you have any particular mentors or somebody who you felt really encouraged you along the way as you were making your own decisions and making your own path.

Bobbie: My dad in a really big way and my mom as well. They are a really good team. My dad always taught me, *If you ask a yes or no question, be prepared for a no answer, so ask a question in a way that was a how question. Not, Could you do x or y—I want to do this, how do we do it?*



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Eileen: That is great advice.

Bobbie: I, for once, was smart enough to listen to my dad. I have not always been that way.

My mom taught me that you can always go back and learn. My mom has always been a lifelong learner. She went to school late in life. She got her bachelor's degree later in life, not the traditional approach that I certainly pushed for my kids. So I have been that lifelong learner.

Eileen: That has obviously done you really well. We talked about your school pulling back on AP classes for financial reasons and the hiring environment for engineers when you graduated from college.

Did you encounter any other roadblocks or stumbling blocks as you made your way through your career that you would like to talk about?

Bobbie: Roadblocks and stumbling blocks...I finally got a job. About six months after I graduated, I got hired by the department of the Army to be an intern. It was wonderful. I was thrilled. I threw my resume out to the entire country and figured I would move wherever the job was. Lo and behold, I got a job back in the same town my high school was in. It was not the way I expected the world to land. They are great people, incredibly smart engineers. Other than the secretary, I was the only other female in the office.

Eileen: I have been there.

Bobbie: Yes, that has been our lives. These guys couldn't wait for the intern to show up, because they had a box of things to be shredded. I was like, *OK, this isn't exactly the world I want to be in.*

I sat in front of the box and looked at it, and I went to the ladies room and cried because I was 21 years old, and I thought this was like the most amazing thing in the world and here we go.

Then I started reading the documents that were in that box before I shredded them. I really want to believe that everything in front of you is an opportunity, and it is really about my attitude towards that opportunity.

That experience more than anything really taught me that it is my attitude that makes a huge difference. I can be as large as I need to be or as stubborn as I need to be or whatever, but that is entirely on me.

Eileen: Great. That was an interesting story.

Bobbie: They were phenomenal individuals, really smart guys. It was an interesting place to work right out of college.



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Eileen: And cut your teeth and move on to other experiences.

Bobbie: Exactly. Exactly.

Eileen: Let's talk for a little bit about the dearth of women working in software and cybersecurity. We know that as cybersecurity attacks become more frequent, jobs in information security are expected to skyrocket. The Department of Labor estimates that by 2020 there will be, I think, [1.4 million computing-related job openings](#). In 2017, there were something like 350,000 current cybersecurity openings, [according to Cyber Seek](#). But according to [a recent NBC News report](#), only about 11 percent of cybersecurity professionals today are women. What are your plans, your hopes to address this gender gap, specifically at CERT?

Bobbie: That is a really complex question because there are several pieces that play together. The first one is there are [a million unfillable jobs in cybersecurity](#). That means there just are not enough people. We have to grow the number of people who understand how to resolve cybersecurity-related issues, who are focused on it. We need to automate things, so we need more software folks who are smart in order to do that. We can bring women in, but the other interesting statistic is that more than half of them leave mid-career. So it's not just how do we bring them in, it is how do we keep them in that space? It takes a real holistic approach, right? We have to really focus on things like the [Rooney Rule](#). I love the Rooney Rule. The Rooney rule says you have to have diversity candidates as a part of all of your selection pool, and you have to commit to diversity candidates as a part of your selection pool. I think that's an important part of the beginning. Now, that means they have to exist, right?

Eileen: You have to attract them.

Bobbie: You have to attract them into, so they have to come into the pipeline. You have to do it in a way that they are willing to stay in that pipeline. In CERT, we are really focused on getting the best candidates for every position that we have. I want the best candidates for every position that we have to be someone with a diverse background, right? A woman, an underrepresented minority, to be considered for all of this, and so we are really committed to opening the aperture to recruiting from each of those places. That is not enough. We also then have to create our cultural environment in the place that overcomes the bro culture, the hard-hat culture, all of those sort of cultural issues. It's a real challenge in security because every metaphor we use in security is a male-dominated metaphor.

Eileen: They are about warfare or sports or things like being a rock star.

Bobbie: That's right. Teenage boy in a hoodie, male-dominated adversary. [Alice and Bob](#) communicate with each other. Evil is Eve in the traditional crypto allegories. We really have to create a narrative that speaks to a larger community. That is really a part of what we have got to

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be able to do in that landscape. It's really complicated because women have to be seen as credible technically, credible communicatively, and credible in an understanding of how our adversaries function. We have to really focus on growing everybody's understanding of those three.

Eileen: Thanks for your insights on that. One trend that we recently talked about in a previous podcast is that high school girls are more than half of all AP test takers. But boys continue to outnumber girls by 4 to 1 in taking computer science AP exams. The data from 2014 said that there were three states, Mississippi, Montana, and Wyoming, where not a single girl took the AP Computer Science exam. Do you have any thoughts on changes in approach in primary and secondary education that might help with that early pipeline to encourage those studies at the primary and secondary level?

Bobbie: My kids hate when I do these things because I use them as great allegories for this sort of situation. It is horrendous that it is a 4 to 1 ratio. Beyond the fact that I have three children, one of whom has gone into the social sciences as a psychologist, one is a computer engineer, and my third is about to start college in math and music. He is going to major in math and music. The thing I found watching them all grow up is you get the girls in, and you lose them when it becomes time for them to have to stand up to their boyfriends.

Eileen: That's an interesting observation, and I have anecdotes that support it too.

Bobbie: Exactly.

We have to raise our girls to be determined and focused and want to have the world be the way that they want it to be, and we have to raise our boys to make the space for that. I think that is an important part of how we do this for the community as a whole. The important piece in that, that perhaps will correct itself over time—without attention, it won't—is we have got to look at all of the subtle messages folks get. Remember pager days, right? They don't make pagers for women's clothes. They don't make VR headsets for women's faces. We don't have machine learning data sets that reinforce kinds of activities. We really have to push in all of these ways and be constantly vigilant about all of the subtle ways that we are removed from the discussion.

Eileen: That we have to work harder to even get a seat at the table.

Bobbie: That's right. That's right. Like I said my kids hate it when I use them as examples, but having watched them all go through this, I really became committed to creating the space for, in secondary school, the space for girls to have a voice and continuing to engage in that space.



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Eileen: Well, great. Thanks. I really appreciate your insights, and I really appreciate your taking the time today to talk with me about this. This is one of my favorite things to talk about in my work too.

Bobbie: I appreciate your being passionate about it. It's a very important topic. So, I look forward to where the podcast goes.

Eileen: Great. Thanks so much.

Bobbie: My pleasure.

Eileen: Thank you so much for joining me to talk about this today.

Bobbie: Thank you so much for having me. It's been great.

Eileen: Great. This podcast is available on the SEI website at sei.cmu.edu/podcasts and on [Carnegie Mellon University's iTunes site](#) and the [SEI's YouTube channel](#). As always please feel free to reach out to us with any questions you have at info@sei.cmu.edu. Thank you.