



Women in Software and Cybersecurity: Anita Carleton

featuring Anita Carleton as Interviewed by Eileen Wrubel

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

My name is [Eileen Wrubel](#), and I am the co-lead of the SEI's Lifecycle Innovation and Automation Directorate. With me today, is [Anita Carleton](#), who leads the SEI's [Software Solutions Division](#). This interview is part of our series of podcasts highlighting the work of women in software and cybersecurity.

Hi, Anita. Thank you so much for joining me today.

Anita Carleton: It's my pleasure. I'm really looking forward to the discussion.

Eileen: You and I work closely on a number of things, but a lot of our listeners don't know you very well. So I was wondering if you could start by telling us a little bit about your work at the SEI, maybe a typical day, and the things you really love about your job.

Anita: Yes, I am currently the [Software Solutions Division](#) director with leadership and operating responsibility for about 150 people and \$55 million in revenue. The division is one of three technical areas for SEI. The other being cybersecurity [CERT] and the other being the Emerging Technologies including artificial intelligence.

I am responsible for the strategy, the leadership, the direction, and the management of SEI's activities in the area of software. I lead the division's software engineering research and development portfolio of work, which includes working with government, industry, academia in designing, and building, and deploying advanced software technologies for national security. A typical day for me, I am an early riser and I know you're an early riser, too. I am an early riser. I am in the office by 7 or 7:30. I always take a few minutes each day to keep up with defense and tech news.



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Some of the things that I like to read will include [Wired Magazine](#), [IEEE Software](#), the New York Times, [Defense Daily](#) or [Defense News](#). I like the [MIT Technology Review](#), and there is a publication from [CMUs School of Computer Science](#). It's called [Link](#).

I can glance it, actually, very quickly and just get a sense of what's going on. Those are some of the things that I just want to glance at and get a sense of what is going on in our communities.

A typical day then is, part of what we have to do is solve complex engineering challenges for the Department of Defense [DoD]. That requires building strong partnerships and collaborations with DoD, with the research community, with various U.S. government agencies as well as other SEI leaders. This means I am in quite a few meetings. That is what my day is like when I get into the office, but they are important meetings. I am usually connecting with the executive team, with our leadership team, with leaders across SEI and CMU, and certainly defense leaders as well. Part of what we are trying to do is understand what their key challenges are and how we are going to devise the right kinds of research programs and the right kinds of solutions to be able to address the key challenges that DoD has. So that is sort of a typical day.

Another thing that I do—and it's another thing that you do—is that I travel. I travel a lot. I travel probably, weekly. That is important because we have got to get out to where our customers and our key stakeholders are. I travel pretty frequently to the Pentagon to meet with DoD senior officials, the Army, the Air Force, Navy, acquisition programs. We want to get a sense of what their pressing challenges are. Sometimes it requires getting some of our folks on site to work hand in hand with some of the engineers there. But it is important to actually be out in the environments where the work is really happening.

That is a typical day, and I guess the best part of my day, I think there's three best parts of my day. Knowing that the work that we do really matters, really matters to DoD, matters to our nation, matters to the world. Working on significant challenges that really are going to make a difference, that is something that is incredibly rewarding to me. I have been at the SEI 30 years. Time flies when you are having fun. The mission is why I came to the SEI, and what I find is that the mission is what keeps me at SEI. I think that is incredibly relevant.

Working with our team and working with key stakeholders on devising a software strategy for the DoD, I think that is something so exciting that I think we are working on. Taking time—yes, we have got to address the day-to-day problems—but taking time to position our work for the future is incredibly important and of course very rewarding. That is really important. The most important part or the most, maybe, rewarding part of my day is just working with the great people that we have. They are talented, incredibly committed to the mission, dedicated to their customers, and dedicated to really being all in and coming up with really innovative solutions. To me, those are sort of the best parts of my day.



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Eileen: That is so much fun to just know that every day when you come to work, you are with people who are just in it to do the best thing, and everybody is so hungry and so curious and so ready to just push to the next level.

Anita: I think what is important is part of the SEI's role is to really do the groundbreaking research and being able to figure out, *OK, how does this translate to what our customers need, and then how do we take that and transition this into practice?* When we think about our role being all the parts of the software lifecycle, it makes it challenging but it makes it really rewarding.

Eileen: Now I'm going to ask you to step into my way-back machine a little bit. I'd like to go back to your childhood. Can you tell me a little bit about what started you on this path? If there's a kid out there listening, what clue might they find that, *Hey, I'm like that, too. Maybe that is a path I could take some day.*

Anita: Yes. Well, I'm the daughter of Indian parents. If you know anything about what is important to Indian parents, there are two clues: math and science. My father is an engineer, and my parents were just so fabulous, exposing me to everything math and science. I love that, so it was no hardship by any means. I grew up being very good in math and science. It's what I really love doing. In high school, I remember that I was selected to the [Westinghouse Science Honors Institute](#). It was an opportunity to gain insight into various engineering and science fields.

I couldn't wait for every Saturday to come. It was a chance to go to where my Dad worked. So that was also very exciting. I looked up to my Dad. He was an engineer. It is something that I always wanted to do. I wanted to be like my Dad. I got to go to Westinghouse, and every Saturday morning was some deep dive in some area of science, some area of engineering. Just getting some exposure to the different engineering fields: math and science and physics and chemistry. All the different sciences and sort of the interplay, I think, was very exciting. But I have to say my first exposure in the software field wasn't until I attended CMU. I attended CMU when the big computer science awakening was starting to happen. It was my first computer science course. It was my first programming course. It was [FORTRAN](#). The other really exciting thing freshman year was there was a new class the year that I was starting.

The core classes were, calculus, physics, chemistry, math. You also went to CMU. What was exciting is that I had a chance to take a special calculus course that was about programming or coding on a programmable calculator. It was the [TI-58C](#). I remember buying that thing, and I could not wait until I was going to start at CMU, and that I was going to be taking this cool class. It is just some of those kinds of things. It is being exposed to things early on and developing the love of something, and feeling like, *Hey, you know, I understand this. I'm pretty good at this. How can I take these things and apply them to the real world?*



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Eileen: Can you tell me about any mentors that you had along the way and what wisdom they might have imparted to you or lessons you've learned from them?

Anita: I've had several wonderful mentors, including both my mother and my father. The mentor that has had the most, I guess, significant impact on me and my leadership style is [Watts Humphrey](#). Watts hired me into the SEI many, many years ago. I guess what I will remember most about Watts is his love of learning, his passion for the people that he worked with, and for the work that he was doing. He knew that this work, the work of trying to understand software engineering better, was really going to make a difference. I remember when I interviewed with him, he said, *How would you like to come and join me in changing the world of software engineering?* Who is going to say no to that? I was hooked. I was very, very excited to have that opportunity to work with him.

It was about changing the world of software engineering, but more specifically, working with Watts was about thinking carefully about how software was going to be engineered and how software was going to be managed. Those were the key areas that were passionate to him. They became my passions, too. He was one of those kinds of people. I think that he was such an important person in my life because he really helped me to grow and develop as a software engineer but also as a software leader. He had a lot of fabulous ways that he did that. He looked for challenging assignments. He looked for lots of different kinds of assignments. He really encouraged me to take on leadership roles, even when I didn't necessarily feel that I was ready to take some of those on. He really was quite an incredible man. He had a profound impact on the field of software engineering during his lifetime. He then went on to receive the [National Medal of Technology](#), one of the highest honors given by the President of the United States to America's leading innovators. He just was quite a remarkable person. I try very hard to be the Watts in other people's lives. What I mean by that is I work very hard for the people that work on our team to look for leadership and growth opportunities for them, just the way that someone fabulous did for me. He's someone very important in my life.

Eileen: I know you really do live that. I have certainly benefitted from your perspective where you see an opportunity, and you match someone to it and give them a chance to stretch out of themselves and take on some new project or some new leadership role. That has been something that has been really formative for me, as well. I'm not just sucking up.

Anita: That is awesome.

Eileen: Now is the part where we talk about rocky things. Did you experience any roadblocks along your career journey, and how did you navigate those?



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Anita: Yes. I think like everybody else. Everyone experiences highs and lows and various challenges that they come across. I think this has to be a pretty common one. The balance of career and family was a tough one for me. My husband and I had kids a while after we were married, 9 1/2 years after we were married or so. For many years we could give our career our all: days, nights. I developed software. I developed missile-guidance systems. I was in labs and never saw sunlight for days, but you can do things like when it's just yourself or maybe you and a partner. Once I had a family, that was challenging. There was a saying that I came across that I will never forget. It was I think in Forbes Magazine, and the quote was something like, *You can have it all but not all at one time.*

It is something that always rings true for me, which is that, I think that when you are trying to balance career and family there are always sort of competing priorities making their way. That is something that takes an understanding and supportive environment and an understanding and supportive leaders and bosses. This is another...Watts was one of my leaders, managers at the time that I was starting to have my family. I was so lucky because I think he was a father of seven. He really valued and cherished family and family priorities. I'll tell you, it was so helpful. Watts, as well as others at the SEI, I think made this time, which could have been really, really difficult, a lot easier as I progressed. Flexible working hours, some work at home time here and there when you need it, all of these things become really, really helpful as you are trying to juggle your career.

It's the sweet spot of your family, the time you have with your family. It is also a sweet spot of when your career takes off. That is another set of sort of competing priorities. Having leaders that are supportive, I think, make a big difference. I think there is something else. Maybe you and maybe others can relate to this. Over the years, especially early in my career, there were very few examples of women in high profile positions. That becomes important, too, because if you see that another woman is getting promotions or rising in the organization you say, *You know what? I can do that, too.* It gives you a chance. It provides some confidence that the organization values women's contributions, and it gives you some confidence when you see somebody that you can identify with to say, *You know what, if they can do it, I can do it.* So those were some of things that I've encountered.

Eileen: There's a saying, *You can't be what you can't see.* Seeing other women in those positions really helps you know that it's possible.

Anita: I very much agree with that. Also, to have a chance to maybe even meet some of those women and understand what was their journey? How did they get there, or how did they do something? Having some of those lessons learned in conversations is really helpful I think.

Eileen: That is why this podcast is so much fun for me.



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Anita: Yes, for me as well.

Eileen: Our regular listeners know that I cultivate my reading list by asking the people who mentor and influence me what is on their bookshelves. So I was wondering, what are you reading now, or what books are on your list to do right now that you would recommend?

Anita: I rarely have hard copies of books on my nightstand because I get up so early that I am actually pretty wiped out in the evenings. The best time for me to catch up is I love audio books. You will always find two, three, four, five books queued up on my phone because I travel a lot. So it is a perfect time to catch up. There are a few things that are on my list. I really enjoy leadership kinds of books. There is one, I think it's called [How Remarkable Women Lead, the Breakthrough Model for Work and Life](#). That's one that I think maybe a number of us can relate to, which is, what drives and sustains successful women in the workplace. What are some of their lessons learned and how did they get there and how did they do it. So that is of interest.

There is another one I can't wait to read and it's [Start Something That Matters](#) by [Blake Mycoskie](#). He is the person that invented or came up with the idea of [Tom's Shoes](#), if you're familiar with those. I think they are available in a lot of places. The reason why that's of interest to me is he created a profitable business but with a greater cause in mind. That was really of interest and really appealing to me. I can't wait to really dive into that.

There's another book, and it's on creativity. The author is [Ed Catmull](#), and it's about how Pixar inspires creativity. So how do the people, I mean they have just the most incredible mission as well in entertainment and children's entertainment. How do those people constantly keep the creativity engine going? I'm really looking forward to diving into that book, as well. So those are sort of three big ones that I'm looking forward to.

Eileen: Great. Now, I have things to add to my e-book collection. I know you and I both commute from similar neighborhoods. We spend a lot of time with our audio books. Can you tell me a little bit about a mistake you have made, a good mistake that you have learned something about professionally or personally?

Anita: Yes. This one stings. It still stings. That happens. That is how you learn, I guess. One of the reasons that I had come to SEI—and it was 30 years ago, so it's hard to believe that it's been 30 years, but it has been an incredible 30 years, so it's something that I'm very proud of. One of the reasons I really wanted to come here is because that I knew that CMU had a [School of Computer Science](#), and that computer science program was ranked a top program in the world. I thought, *Well, this is great because not only can I learn about the DoD and contribute to the software engineering mission, but it's an opportunity to also add to my credentials, beef up my credentials.* That was an objective that I had.



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The problem was that I took on a lot more of the consulting role very early on in my career, which meant that like a lot of people in our team do, I left every Sunday or Monday, and I came back every Friday night or Saturday. Then I had one day to repack and kind of do that again. I did that for a long time, maybe 10, 12 years, 15 years. While I don't regret that I got to know our customers, understand their challenges, and get a much better sense of the Department of Defense and the key programs. I kind of thought, *You know, I'll do that another time*. Then I took on some other roles and so on. Pretty soon, I put my husband through law school. Then we had our sons.

To me it's a disappointment that I couldn't find a way to get my PhD then because I feel that something that younger people in their careers should keep in mind is, *If there's an opportunity to build on your credentials, take those opportunities when you have them*. At the time I thought, *Well, I can't do this*. Well, maybe there might have been a way to restructure some things. I don't know. I really didn't pursue it. I took a few classes. I would sign up. I would withdraw. It just didn't work out of my schedule, but if I had gone to somebody and said, *You know, this is a really important objective I have. How can we make this happen, or is there a way that we can do?* So to me that is a failure that I didn't find a way to build on my credentials a little bit earlier on in my career. Because I feel that it's been something that has haunted me. There are opportunities, and sometimes you don't have to have a PhD or an advanced degree for everything. People are fabulous and can contribute and excel in a lot of ways but for me, that's something I wish I would have done. So, it's a regret.

Eileen: I appreciate you sharing that with me. So can you tell me now something about yourself that isn't about work, isn't about software. Tell me a cool thing about Anita.

Anita: Yes, I'll tell you a few things. I have to say that I am most proud, maybe like a lot of us, I am most proud of the family my husband and I have created. Our sons are now already grown up at 22 and 24. Gosh, it's been the most joyous part of our life. I am most proud of the family that we have created. My kids are sports enthusiasts and especially hockey. I have to say that I have proudly earned the title of *Hockey Mom* over the years. We are a huge sports family but especially hockey. That has been just an awesome part of our life. I am very proud to have co-authored [a measurement book](#). This was early on in my career with a lot of encouragement from Watts. This was in the early years of the SEI when we were trying to define the field of software engineering. One of the things we were trying to figure out is, *How do we actually instrument the software engineering process?* Of course, measurement was a key part of that.

He had really encouraged me to write a book about measuring the software process. With one of his colleagues and friends from IBM, I had co-authored that book. It is something I am incredibly proud of, and Watts wrote the forward to that book. That is something that I always really cherish. I think from my parents, and I think from Watts, I have a love of learning. Just a



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few years ago, I decided that maybe get going back and getting that PhD wasn't maybe the right thing for what I was doing now in my career. I went back and I went to MIT, and I got my executive MBA there in two-and-a-half years. It is an accomplishment that I am incredibly proud of. I forgot what it was like to not go out nights and weekends. I had underestimated the amount of homework, but, boy, I loved every moment of it. The colleagues and new friends and sort of the new ideas that I could come back here with. Those are some things.

Eileen: Anita, thanks so much for joining me today.

Anita: It's been my pleasure.

Eileen: This podcast is available anywhere you get your podcasts including [Sound Cloud](#), [Stitcher](#), and [Apple Podcasts](#). It is available on the SEI website at sei.cmu.edu/podcasts and [Apple Podcasts](#). As always, if you need any additional information or have any questions, please reach out to us at info@sei.cmu.edu. Thanks.