**STEM careers podcast series – Cyber security software engineer**

**Holly Wright**

#### *Holly Wright is a cybersecurity software engineer and product owner at IBM. She specializes in building technology that lets companies detect when they are being attacked.*

#### *She graduated with a Bachelor of Engineering (Honours) – Mechatronics from the University of Queensland. She has received several awards including*

*Best Automation and Control Thesis Project (2016), Best Non-Thesis Project for final-year team project product (2016) and ABB Pty Ltd Engineering Scholarship (2013 – 2016). She is fluent in nine computer languages and has four patent disclosures.*

**Announcer**:

This is the Queensland Department of Education Podcast.

**Virginia Bowdidge:**

The careers that fall under the STEM, science, technology, engineering, and mathematics umbrella, are many and varied. In this podcast series, we talk to professionals working in some of these careers. Hi, my name is Virginia Bowdidge and I'm from the department of education, and with me is cybersecurity software engineer Holly Wright. Holly, thanks for joining me today to talk about your career and STEM education.

**Holly Wright:**

My pleasure. Thank you for having me on.

**Virginia Bowdidge:**

What first sparked your interest in STEM and in cybersecurity in particular?

**Holly Wright:**

So, my journey into cybersecurity was a little bit different to what a lot of people have. I actually first got interested in more just engineering in general, and the way I got interested in that was I was actually watching a documentary about teleportation of all things. In this documentary, they were saying that they had managed to teleport an atom from one island to another, and I just thought that was amazing. I thought that was something that could actually change the world as we know it, and I wanted to be part of an industry where we're actually making a real difference in the world to people all over the world as well. So, from there, I followed my career into engineering. I did a bachelor of mechatronics at university, and then that actually led me down the cybersecurity path, doing a little bit of software throughout my degree, and then having that experience in the field has led me to where I am today.

**Virginia Bowdidge:**

How did you get into cybersecurity?

**Holly Wright:**

In school, I did all of the maths and science. So, I did Math B, Math C, I did physics, biology, IPT, and English because I was thinking, ‘Oh, maybe I want to go into medicine. Maybe I'll go into engineering.’ I wasn't totally sold on one track or another when I was at school. Ultimately, I ended up getting into the engineering degree, which I'm really glad I did because that is where I think I was able to have the biggest difference on multiple people around the world. It's not just helping one person at a time. I could innovate something. I could build something completely new and inventive and then help people all around the world with that one little piece of technology.

During my engineering degree, I studied mechatronics, which was robotics, did a bit of experience working in different companies along the way. So, work experience, and then I did an internship with IBM. So, that's where I had my first experience in cybersecurity, and I really liked it. I was actually helping companies and people all over the world prevent cyber attacks. So, saving them millions of dollars and preventing people's data being stolen, really helping defend against the bad guys that are out there. Pretty much all the skills I've learned in cybersecurity has been on the job.

**Virginia Bowdidge:**

As a cybersecurity software engineer, what does a typical day look like for you?

**Holly Wright:**

Every day is different for me, which is always something that people say about their job, but it's really true. For me, some days we'll be mainly focusing on planning what we're going to build next. I work with people all over the world. At the moment, I'm working with a team that's spread out across America, across Canada, Taiwan, Israel, all over the place. So, we'll have some discussions about what's the new technology that we're building and how are we going to do it. Other times, I'll be spending my whole day coding. So, I'll be hands on keyboard. I'll actually be building the technology that we want to deliver to our customers. Fortunately, in the past, I've even had the opportunity to travel. I've had a few trips to Europe and Singapore and all over the place to actually share my knowledge about what we're building and making sure people get the most out of it.

**Virginia Bowdidge:**

Is there one thing about your job that you like more than the other?

**Holly Wright:**

It really just depends on what we're working on. Sometimes, you'll enjoy something for a while and then all of a sudden it's not as interesting as it used to be, but for me, the thing that always stands out, the thing I most enjoy doing in my job, is actually the inventing and the brainstorming with other people. Even if it's getting in a room together and just drawing pictures on a whiteboard and imagining what the future could be. Sometimes we can't always build the best thing in the world. We just don't have the time to do it, but doing that big picture thinking and thinking about what is the possibilities and then working out what can we actually deliver to make that a reality, that's really my favourite part of the job.

**Virginia Bowdidge:**

What is it about your career that motivates and inspires you?

**Holly Wright:**

I think it's really what I was saying earlier about working in technology where you can build one small, innovative piece of technology and that can then go around the world and change millions of people's lives. I think that's really inspiring. So, when we're sitting here in Queensland in our offices coming up with what is the new idea to stop cyber attacks or to detect cyber attacks faster, then being able to see that comes to fruition and see that actually help people all around the world is really inspiring.

**Virginia Bowdidge:**

So, do you have an example of that?

**Holly Wright:**

A good example of that has been some things we do in work through hackathons. So, often we'll have hackathons in the office where it's all just about coming up with a new piece of technology. One of them, we actually used artificial intelligence to help people detect when a cyber attack was likely to happen. We actually developed this. We developed a prototype. We used artificial intelligence to tell when people were particularly angry in the workplace, and then we said, ‘Well, if they're an angry user, they might be a higher risk of insider threat’. So, that means that you can start to respond to those attacks a lot more quickly. If that person has a higher risk, you can monitor their behaviour a bit more closely. That's something that we actually presented at a conference and lots of other people were interested in. It's not something that we've got in the product today, but that's a good example of one way that we use a new invention to stimulate some conversation about how do we detect attacks faster.

**Virginia Bowdidge:**

What has been the highlight of your career to date?

**Holly Wright:**

There's been lots of highlights along the way. To date, it's probably been working on the project I'm actually working on right now. That project, we know that delivering it is actually going to make a big impact in the industry and it's really the opportunity to work on something that will make a big difference in the cybersecurity space and could make our products a lot stronger compared to some of the other competitors. It's really quite motivating to be working on something that could have that big impact. For me, that's been my career highlight because I've actually been taking on more of a leadership role in that initiative and it's really given me the opportunity to test out working with teams, working in a global environment, and delivering products on a really tight deadline.

**Virginia Bowdidge:**

What advice do you have for high school students interested in a career in STEM?

**Holly Wright:**

The thing about STEM is they say people have a career change every five years in the space of STEM technologies. I think that's a really important thing to keep in mind. When you're in school, you might be interested in STEM, and I think it's really important to understand that you can go into STEM and it's actually really likely that what you start doing won't be the same thing you're doing 10 years down the track. Even once you enrol for your university degree, it's actually really easy for you to change to a different discipline. So, I would say if you're interested in getting into STEM, don't worry about getting the exact right career planned out for yourself at this point in time.

Start doing it, get your experience up, work out what you enjoy doing and what you don't enjoy doing, and you can just follow that career path that way. I think that's the really exciting thing about pursuing a career in STEM is all of the skills you're learning are very transferable. It's problem-solving, it's critical thinking, it's skills that will help you jump between different disciplines, but even skills that'll just help you in life. Problem-solving in life is a really useful thing to have. In technology, and particularly in global companies, there's a lot of opportunity to try new things, to grow both professionally and personally. I think it's really exciting being able to work in a role where you're inventing new technology, but you also have the support behind you to travel the world, to interview customers, to find out what are your pain points? What can we do for you? I think that provides a lot of opportunities for career growth, particularly in cybersecurity.

**Virginia Bowdidge:**

Thanks for your time, Holly. That sounds very interesting.

**Holly Wright:**

Thank you. Thank you so much for having me on and hopefully, we'll see a few more people in cybersecurity in the next few years.

**Announcer:**

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