CyberFirst Podcasts
'Surprising roles in cyber security' transcript

00:01 **Anne-Marie -** Cyber security – it's just for coders and computer science students, right? Wrong. Our podcast created by CyberFirst is here to show you how you can succeed in this fast-growing industry, even without a tech background. In today's episode, we're exploring the roles on offer in the cyber security world, including a lot of roles thar need soft skills, like the ones you probably already have. I'm Anne Marie from Stemettes, and I'm

joined by….

00:28 **Emma -** I'm Emma, and I work in the comms team at the National Cyber Security Centre, a part of GCHQ.

00:34 **Amy -** I'm Amy, a former GCHQ apprentice and I work within the CyberFirst team.

00:39 - **Michala:** I'm Michala, and I'm the Head of Information Governance & Security at Marie Curie. We're a charity that supports terminal illness and we're also one of CyberFirst's industry members.

00:49 **Annie-Marie -** And additionally, I'm joined by Ethan and Olivia, two current CyberFirst bursary recipients.

00:55 **Ethan -** Hi I'm Ethan, I study Computer Science at university and I'm currently on a year-long placement organised through the CyberFirst bursary scheme.

01:03 **Olivia -** Hello I'm Olivia, I'm graduating university with a Chemistry degree this summer and I've secured a graduate role through the bursary scheme.

01:10 **Annie-Marie -** In this episode of the podcast, we'll be talking in detail about all of the different roles in cyber security – available to people from both tech and non-tech backgrounds. So, to kick us off, can you all quickly explain what you do for your organisation and what kind of academic background you come from?

01:28 **Emma -** I began at the NCSC as a people-centred security specialist and I now work on advice and guidance within the NCSC comms team. My academic background was very different though, I have a Philosophy degree in fact. So in my current role, I try to make sure that we have the correct technical advice and guidance on the NCSC website at all times for all of our different website audiences. In terms of my research interests I specialise in people-centred security which is mainly trying to make sure that people get considered as being an important part of security as well as computers and processors and other kinds of technology.

02:01 **Amy -** My academic background was more sort of creative skills – at GCSE I did Art and Music, then when I decided I just wanted those for hobbies I went into tech at my A

Levels, so I took Electronics, Maths and Computer Science and from there applied to the GCHQ Higher Apprenticeship scheme.

02:20 **Annie-Marie -** And what do you do for your organisation now?

02:23 **Amy -** I'm in the CyberFirst team, so I provide technical support for their competitions as well as at the events we run for schools and industry.

02:32 **Michala -** I fundamentally help our patients die with dignity and ensure that our nurses have accurate information that's not been tampered with, that's also available at the time they need it. I also help maintain supporter's trust in our brand so that they continue funding our services. In terms of my academic background, there's a bit of a story here which we probably don't have time to go into, but my degree is in Classical Music specialising in Musicology.

03:02 **Annie-Marie -** I think yes, we definitely want to hear that story, maybe on another podcast episode! Ethan?

03:09 **Ethan -** Ah yeah, so I had the kind of typical academic background, so at A Levels I did Maths, Physics and Computer Science. I did Media as well just as because I needed something to de-stress and be a bit more creative. Since going to uni I've done Computer Science but anything cyber security related is all part of my third year that I'll go back to in September. It's been all new stuff when I've been working on my placement and at the moment, I'm a Security Researcher. I've been blending the hardcore technical stuff with people-centred and human factors stuff, so trying to bridge that gap between working on a bunch of data science projects and risk management, that things like that.

03:47 **Annie-Marie -** Fab! And Olivia?

03:49 **Olivia -** So I come from a Chemistry background, but I did Chemistry, Maths and Biology at A Level. So non-techy but I do a little bit of coding on the outside. Nothing too heavy, so hopefully this summer – although it'll be virtually for the first few months – I'll be working as a Cyber Consultant, so looking at the risks that businesses may face within cyber security and how we can mitigate them.

04:18 **Annie-Marie -** Fantastic, thanks everybody. There are a lot of different people in cyber security with tech and non-tech skills. The problem can often be as an outsider what these roles mean or what they actually do. As a quick-fire round I'm going to name a common role in cyber security and our guests will tell me what they do in one sentence…or two if I'm feeling generous! Our first role on the list is Technical Writer. Who wants to take this one?

04:49 **Emma -** I'll take that one, this is Emma. Communication is a hugely important part of cyber security, if you don't communicate with your audience in the right language then you're not going to be able to reach them and they're not going to be able to do the right thing. So a Technical Writer's primary responsibility is to ensure that anything that needs to be communicated is translated into a language and presentation that's suitable for the audience.

05:08 **Annie-Marie -** I think that just about counts as two sentences! Thank you, Emma. Next up, we've got Pen Tester. Who wants to take that?

05:17 **Ethan -** Yeah, I'll have that! So, a Pen Tester is probably one of the coolest jobs going because you basically have to try and break into a network, legally of course, and it's going to highlight any problems that you need to patch up so that an organisation can make their network more secure.

05:32 **Anne-Marie -** Brilliant, thank you very much Ethan, very quick! Next up, we've got Security Architect.

05:38 **Amy -** I'll take that one, Amy here. I actually used to be one when I first joined the NCSC. Despite having the word 'Architect' in it, it's actually got nothing to do with building houses. What a Security Architect does is look at a network's architecture, so this is a description or a diagram of all of the different computers, servers, routers, printers etc. on a company's network and we will help to find vulnerabilities and patch any holes that we might see in there.

06:08 **Anne-Marie -** Thanks very much Amy. The next and penultimate term is Cyber Security Policy Advisor.

06:15 **Olivia -** That's for me, so a Policy Advisor is responsible for assessing the efficacy of existing policies and also for laying out the groundwork for new legislation.

06:31 **Anne-Marie -** Thank you very much Olivia. We've left for you Michala, CISO. What's a CISO?

06:37 **Michala -** 'CISO' stands for Chief Information Security Officer. This is typically somebody who reports into the Board and they are responsible for the creation and delivery of the security strategy of the organisation. They need to keep a really board remit and be aware of all the threats that are happening, assess the risks and look at what they need to do to manage those, but all within the risk appetite of the Board, that's a really important point.

07:03 **Anne-Marie -** Thank you very much Michala and to all of our guests for opening up those roles. People often think that the only roles available in cyber security are for deep technical specialists. To all of our guests, from your own personal experiences, were there any roles that surprised you when you joined the industry or roles that perhaps it didn't occur to you that the industry would need?

07:23 **Michala -** This is Michala here. I'd say the social engineers that do the physical pen testing. I had no idea, it opened up my eyes to this wonderful world and some of the stuff they get to do is so cool, so yes, I'd say social engineering.

07:40 **Amy -** I think something that surprised me is all of the outreach work. When I first heard about GCHQ I imagined it all being behind a very secretive closed door with a million

locks, but the amount of work that we actually do, especially in my role now with CyberFirst going into schools and trying to inspire a new generation of people into tech. I think it's so important having all those young people come in all the time on the apprenticeship or the academy or the bursary etc. It's really, really important.

08:10 **Ethan -** I would say either engagement teams or Technical Writers. There's always that stereotype of how people who are really good at coding don't know how to express what they're doing to people with less tech skills, so I always thought that jobs would only hire people that could do both as that was just a problem in the industry, but there's actually a lot of roles now that are good at bridging that gap. It's something that I'm really happy to see across lots of organisations and it's definitely in demand, so people that have those types of skills should apply because we're calling out for it.

08:42 **Olivia -** I also didn't realise that the field of cyber security was so vast. One niche example I recently discovered is jobs that look at the identity and access management as one particular role. For me, I thought perhaps that would be included in another role, but it just shows how important that type of thing is, and there's a whole role based around that.

09:10 **Anne-Marie -** I think for me I'm always surprised by the different types of organisations that need cyber. It's kind of obvious when you meet people like Michala, but Marie Curie being a charity they're handling information, so they need someone to keep it secure. You've got to think that as much as every organisation needs a CEO or a Director, they also need a cyber set of people too.

09:32 **Amy -** Definitely, learning about cyber security will help you almost anywhere you go, not just in a dedicated cyber security organisation.

09:39 **Anne-Marie -** It's clear that there are a wide range of skills needed in cyber security and from the roles that we've heard about so far, that a lot of them require soft skills. Could you all tell me about a soft skill that you think is particularly important is cyber security and why?

09:54 **Emma -** To start off with, I'm going to take issue with the terminology. I really hate that phrase 'soft skills'. It makes them sound easy and it makes them sound a bit feminine sometimes as well, which undersells how difficult and how crucial those skills are for everybody. It's hard to find a good replacement phrase, but I try to think of it as critical business skills really, rather than 'soft skills', 'soft', 'fluffy', 'friendly'. Having said that, I think that one of the most important critical business skills is the ability to communicate with a wide range of people. I think cyber security does worst when it lives in its own little silo of deeply technical people who only understand other deeply technical people. The ability to communicate with people across the business, to connect with people who are very different from you and to frame what you're doing in terms of what's important to them, to help the understand why they should care about the cyber security things that you care about. That I think is absolutely crucial, and you see cyber security fail quite a lot when those skills aren't in place.

10:56 Amy - I think you raised a really good point there about the language usage. I think for me, a skill that's expected from everyone but really underrated is just basic empathy. I think that's really important in life as well as cyber security. Being able to understand something from someone else' perspective is useful for getting technical points across to non-technical people of course, but even simple things like writing a report or an email with a particular audience in mind. It might sound easy, but it's always easy if you can do it.

11:30 Emma - Yeah, it sounds easy from your point of view because you're not thinking about it from the point of view of the person who's reading the thing you just wrote, but without the benefit of your skills and experience.

11:37 Amy - Exactly, yeah.

11:39 Ethan - Yeah, I was going to say exactly the same thing as Amy, but you phrased it in a way better way. I was just going to say generally being sound, but empathy is a much better word, I think! To forward this on a little bit, just being honest and open about your skill level and if you don't understand something, or you're a bit nervous about taking something on because you think you'll be out of your depth, or whatever. I had that experience literally last week; I was doing a project where I had no idea what was going on! I feel like the more open you are, the stronger the relationships are and bonds you make with your colleagues. You start acting more as mates rather than just working together and that can mean that you make the work go faster and you end up making a better-quality product, is what I'm trying to say. So yeah, don't feel afraid and that you have to be a robot just because you're your job, you're a person too, and I think that gets forgotten sometimes maybe at some organisations…. definitely not these ones though!

12:36 Emma - To do that team building and team working, and to be able to build trust between groups of human beings and have the psychological safety that you need to be able to operate effectively as a group is yeah, hugely important.

12:47 Michala - Yeah, I would absolutely agree with that and I echo Emma's points around communication. I'd also add influencing skills. So that ability, as you've already talked about, to understand another person's point of view and then be able to influence their behaviour in order to actually achieve a more secure outcome is another key thing there.

13:10 Emma - And I think the empathy point makes it clear that it goes both ways as well. Like if you're talking to somebody else then it's partly about trying to get them to do the things you want them to do, but it's also just as much about listening to them and understanding how much you might need to change your own plans or your own schemes for how things are going to work in response to how they need things to work.

13:29 Michala - Yeah absolutely, we've definitely had to do some of that at Marie Curie and become very pragmatic at some things. So, there's quite a difference between cyber security in theory and cyber security in practice.

13:40 Emma - Exactly, yeah, yeah. The use of cyber security as going 'hey, it'd be great if everyone just memorises all these billions of long, complex, unique passwords and never write them down', and then yeah, the smack of that against reality is quite fun.

13:52 Anne-Marie - Within cyber security, there's huge potential for your career to go in any direction you choose. As a question to our current CyberFirst bursary recipients, Ethan and Olivia, have you had the chance to explore different kinds of roles – both tech and non-tech – on the bursary scheme so far?

14:09 Ethan - Yeah, so as I said before, the actual main role I've been doing is a lot of risk management stuff, especially in the first half of my year-long placement, and even though it's technical, it's not your traditional coding or development task. You're trying to get into the mindset of humans using systems and what things could go wrong. I've also done a lot of coding roles and some classic agile development type things, but I've made an effort to actively get involved in outreach work. Being responsible for trying to get games to be used to teach cyber security and computer science facts to kids, or just helping to run workshops or do things like this where we're just trying to spread the message. Otherwise, you go down the rabbit hole of doing so many technical things that you forget how to speak to people! It's nice to be able to talk to like-minded people and encourage people to get into the word and show them that it's not really scary, it's just something to try. You might not like it, but you might as well give it a go. So yeah, it's perfect and I think organisations like NCSC and GCHQ are really good at giving you the opportunity to try different things alongside your actual job.

15:16 Olivia - Yeah definitely, and even within my summer placement last year it was predominantly a technical role, as it was listed, but actually when I got to the workplace and got involved in projects and things it was quite flexible. One day I would be doing very technical, hands-on coding using things like Shell script and things, but then the next day I'll be in a consulting role, meeting with my supervisor and trying to figure out path we're taking this in and doing more of the analytics and exploring that avenue. Just from that glimpse of a few months' work, it was very varied, so there are many roles that you can get into. But even with this scheme, I've also had the opportunity to go on insight experiences within another industry member. We did a little tour of their Security department and just seeing the amount of roles and how vast and varied the people are, types of projects that are on and how they all collaborate together, tech people and non-technical.

16:45 Anne-Marie - A great example of being able to 'try before you buy' there as well. And to Amy, we know that the degree apprenticeship has a slightly more technical focus, but can you tell us about your work and study that included tech and non-technical elements?

16:58 Amy - Yes, so we would have lecturers from universities delivering a lot of the technical content, but we were majoritvely 18-year olds fresh out of A Levels. Of course, there were some exceptions, but I think they were really keen for us to become well-rounded people, for want of a better phrase. Ethan used the term earlier, that we don't want people to become techy robots, we want people who can be friendly and creative. So, there were a few modules that we did to improve on our presentation skills and improve on our creativity in that way. We did a project where we not only had to build some sort of

gadget that could be presented at a science fair, we had to budget and pitch it to a panel of judges, and they would judge us based on our presentation and on the gadget itself. We had to go from all the way along the production line, if you like. That was one of the projects that we had to do as part of the scheme, so if you're finding that you maybe don't have any experience just yet in any of the technical side of things, then having those 'soft skills' or 'critical business skills' will really, really help you and it'll give you a bit of a head start into the area.

18:20 **Anne-Marie -** We've just started to scratch the surface on the kinds of roles that are available to you in cyber security, but if you'd like to know more, and if you'd like to start taking your first steps towards starting your own career in this diverse industry, visit the website https://cyberfirstcareers.co.uk to find out more about CyberFirst's university bursaries and degree apprenticeships. Thanks to all of our guests and thanks to you for listening as we open up the world of cyber security.