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StoryCorps @ RSAC Podcast Transcript

Episode 1: "I Might Die Because of a Software Bug"

JOSHUA CORMAN & MARIE MOE, APRIL 8, 2016

NARRATOR: Welcome to the RSA Conference 2016 StoryCorps podcasts. Please enjoy this discussion between fellow cybersafety advocates Joshua Corman and Marie Moe. Joshua is Director Cyber Statecraft, Atlantic Council, and founder of IamTheCalvary. Marie is research scientist, SINTEF, and member of IamTheCalvary. Joshua begins the conversation.

JOSHUA CORMAN: So what is it that we do and what's our passion in life for this? What is cybersecurity?

MARIE MOE: Well -so, so my, my passion in life is to make the world a better place, actually on a high level, to protect our critical infrastructure, our personal critical infrastructures and my personal infrastructure, but also other people's lives.

JOSHUA CORMAN: I do it because I want to be a protector.

MARIE MOE: Yeah me too.

JOSHUA CORMAN: How are we doing as a community at protecting the world? Are we winning, are we losing, are we getting better or worse?

MARIE MOE: I think that we're realizing that this is a very difficult game.

JOSHUA CORMAN: Yeah I think, um, one thing that unites us is, you know, we put out this idea a few years ago that our dependence on connected software was growing much, much faster than our ability to secure it.

MARIE MOE: Like, I have a pacemaker inside my body with network connection.

JOSHUA CORMAN: You're not just giving off information, you're also potentially, your health can be influenced. So..

MARIE MOE: Yeah I can, I can be, uh, a victim for a - of a software bug. So if my lifesaving device fails, I might die, because of that.

JOSHUA CORMAN: Yeah I think when I met you you blew me away, because I was already deeply passionate about medical

cybersafety, um, in the abstract and I was trying to talk about the need to get better, but then I met you and you were flesh and blood and you were three dimensional and you had a personality and a smile and it wasn't theoretical for you.

MARIE MOE: It was while I was working for NorCERT the instant response team in - a Norwegian, uh, National Search team. I was on my way to work. I was still in the apartment in Oslo and I was standing up holding a glass of orange juice, and then the next thing was I found myself lying on the floor, but I decided to go to the emergency room because I had passed out. They, uh, then discovered that I had an arrhythmia.

JOSHUA CORMAN: Mm-hmm.

MARIE MOE: And, and after one week they, uh, uh, gave me a pacemaker implant and they really struggled, in my case, to find the correct settings so that my pacemaker could follow me up to a higher pulse.

JOSHUA CORMAN: I'd imagine that most of their patients are a bit older.

MARIE MOE: Yeah, so the default upper-rate limit was 160 beats-per-minute. And it turned out that I had the default upper-rate limit, and at 160 beats-per-minute the pacemaker would suddenly cut my pulse in half. And the problem was that when they looked at the screen, the number on the screen was not correct.

JOSHUA CORMAN: Oh, it was a bug?

MARIE MOE: There was a bug in the software..

JOSHUA CORMAN: Terrifying..

MARIE MOE: of the ... programmer.

JOSHUA CORMAN: And given what you and I know about...

MARIE MOE: [OVERLAP] Yeah.

JOSHUA CORMAN: ...software and security...

MARIE MOE: Yeah.

JOSHUA CORMAN: ...this is terrifying.

MARIE MOE: And that's sort of also what motivated me to do some research on my own...

JOSHUA CORMAN: [OVERLAP] Right.

MARIE MOE: ...of my implant. Uh, I Googled for my pacemaker model and I found the technical manual...

JOSHUA CORMAN: [OVERLAP] Mm-hmm.

MARIE MOE: ...on the internet and in the technical manual I read that I - I discovered when reading it that I have two wireless interfaces inside my body. So, uh, is one is the, is the close range communication channel that can talk to the programmer. There's another longer range radio channel, which is used for, can be used for remote monitoring purposes.

JOSHUA CORMAN: Yeah the average person wouldn't know this, but you know, any remote access is at a point of attack for an adversary. It's an attack surface.

MARIE MOE: I purchased equipment on eBay and...

JOSHUA CORMAN: Mm-hmm.

MARIE MOE: ...right now I'm - I have a research project where I'm hacking the devices to figure out how they work, because I, I really want to know for sure how it works. And I think it's better to know than not to know.

JOSHUA CORMAN: One thing that I don't think is very commonly known and depending on when this is listened to is the laws - there's such a gap and a mismatch between current laws and, um, technology advancement that it's actually illegal in many cases for you to even look at what's the code running in your own body.

MARIE MOE: Yeah.

JOSHUA CORMAN: And we've been using this IamTheCalvary mission and your efforts and other teammates to try to show that not only is it not always bad to hack, it's about white hat hackers, good guy hackers, protector hackers are vitally necessary contributor to public safety.

MARIE MOE: And we need to be sure that these systems are built with safety in mind from the start.

JOSHUA CORMAN: And we've gone from the Food & Drug Administration thinking all hackers were bad to just than in less than a year they now realize that we're a vitally necessary part of the mix.

MARIE MOE: Mm.

JOSHUA CORMAN: And they really want to - they went from an attitude of there has to be proof of harm before they'll do a recall or corrective action to now a posture of any unmitigated pathway to harm is sufficient.

MARIE MOE: Yeah and I also want to add that there are - I'm not the only patient that is advocating for this.

JOSHUA CORMAN: [OVERLAP] Yes.

MARIE MOE: So I want to mention actually, uh, Jay Radcliffe.

JOSHUA CORMAN: That's right.

MARIE MOE: Uh, with, uh, hacking his own insulin pump and..

JOSHUA CORMAN: [OVERLAP] Yeah he was my first hacker friend..

MARIE MOE: [OVERLAP] Yeah?

JOSHUA CORMAN: ...who also was in jeopardy, yes.

MARIE MOE: And then we have, uh, Hugo Campos who's been really, really doing a lot of work on the, uh, having more openness and transparency and access to your own data generated by your own device.

JOSHUA CORMAN: Mm.

MARIE MOE: And then there's Karen Sandler, she also has a cardiac implant and she has been giving talks about how important it is to have access to the software inside of the device, and open-source software..

JOSHUA CORMAN: [OVERLAP] Yeah.

MARIE MOE: ...in, in the devices.

JOSHUA CORMAN: Yeah if we, if we get this wrong people will be afraid to trust these lifesaving technologies.

MARIE MOE: But we need more transparency...

JOSHUA CORMAN: Yeah.

MARIE MOE: ...uh, and openness and dialogue. Uh, it's an ecosystem of stakeholders in this, including patients.

JOSHUA CORMAN: Well, it's funny you know when I met you you said you had a weak heart, but the more I talk to you the more I think that's not the case at all. [LAUGHS] Well, uh, thanks for having this conversation.

MARIE MOE: Thank you.

JOSHUA CORMAN: [OVERLAP] And thanks for everything you're doing.

MARIE MOE: And thank you for, uh, founding the IamTheCalvary group.

JOSHUA CORMAN: We have a lot of work ahead of us.

MARIE MOE: We do.

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