

Episode 004 Transcript (13 April 2023)

00;00;00;02 - 00;00;21;14

Seth Hamman:

I just want to put the adversary back in the in the central component of what cybersecurity is. I'm putting the adversary and the human element in the center where it belongs. And if we can just acknowledge that – recognize that – we are going to be better all over cyberspace.

00;00;21;14 - 00;00;51;09

Jen Langdon:

Hello and welcome to CyberChats, a podcast made by the National Cryptologic Foundation. I'm your host, Jen Langdon, and together we'll be demystifying the world of cybersecurity by talking with amazing cyber fanatics like you, as well as industry professionals.

Thanks for sticking with us after our short break. We took your feedback and you'll notice a change in our episode format.

00;00;51;22 - 00;01;13;01

In this episode and episodes moving forward, you'll hear a back and forth between both of our guests that weaves the conversations together. We hope you like it. Continue to let us know what you think.

In this episode, our guests get their tech game on. Our first guest, Dr. Seth Hamman, is the director at the Center for Advancement of Cybersecurity at Cedarville University.

00;01;13;15 - 00;01;45;01

He's an associate professor of cyber operations and computer science. And I'll be facing off against him in a legendary game of rock, paper, scissors. We'll also be speaking with young entrepreneur D.J. from Team Tech Boy LLC. He'll talk about his business and how his interest in gaming made him want others to be more cyber aware.

How have you kind of narrowed in on game theory and its relationship with cybersecurity?

00;01;45;13 - 00;02;08;00

Seth:

So when I was doing my PhD, my dissertation advisor asked me to look at securing the power grid from cyber attacks. And when I started delving into that, how would we keep our power grids safe from cyber attack while it's like a huge, sprawling infrastructure? How could we possibly protect all of it? Then I realized, Well, we can't we can't protect the entire power grid all the time.

00;02;08;13 - 00;02;33;28

And that's really that's just a general axiom of cyber security. You cannot have 100% security no matter. It is so blatantly true when you're trying to protect like something like the power grid. So I started realizing, well, if I were an attacker, why, How might I attack the power grid? Where am I attack? And when I started going down that rabbit hole, I realized that it leads right into what we call game theory.

00;02;34;01 - 00;02;52;29

And it's basically the study of strategic reasoning. And it's us trying to anticipate what the attackers going to do and then thwart their attempts. And so my dissertation really focused on game theory. And

there were other papers that were doing this to this wasn't the only I wasn't the only one writing papers at the intersection of cybersecurity game theory.

00;02;53;12 - 00;03;13;26

But what made my contributions unique? I'm like, Well, I'm doing this for my dissertation. I really enjoy it. It's fascinating. I'm teaching cybersecurity at Cedarville. I should teach my students game theory. Yeah, so that's what I so I started incorporating it into my lectures and I developed a whole curriculum around it. And so that's been kind of my thing.

00;03;14;04 - 00;03;21;22

It really falls under the rubric of adversarial thinking. And a big component of that is game theory.

00;03;24;13 - 00;03;43;28

Jen:

I want to talk about like when we met in Saint Louis for Nice K-12. When we first met, I was drawn to your table that you had there because you had a comic book about cyber. Why did you feel a comic book was the best type of book to make and why were you so motivated to make a book to begin with?

00;03;44;20 - 00;04;10;01

DJ:

Well, I was inspired by Chadwick Boseman and his role in Black Panther and the Black Panther movie. After seeing that, it made realize that there was a lack of positive Black representation in movies, TV shows and books. And so to increase representation. I started my whole career of start a Black male protagonist. Also, I at the time part of it as our part of it, because I really loved tech in video games.

00;04;10;16 - 00;04;27;22

Also, my mob coming and so the color code says programing and that Chris my love for video games as well because I was able to create my own. So I want to add my love for tech to it. And it sparked the name Tech Way and from there inspired me to create it.

00;04;29;25 - 00;04;55;05

Jen:

So, you know, you're talking about games. A lot of our listeners, you know, they're thinking game theory, strategy. I'm old school, I like Tetris, Super Mario. I'm classically trained, as they say. You know what I mean? Are we talking about any game when we're talking about this? Because I feel like, you know, Super Mario can be pretty strategic, especially when you have two or more players, it gets really hazardous.

00;04;56;26 - 00;05;18;13

Seth:

Yes. Typically when we talk about game theory, we're not talking about video games. There are there could be some game theoretical elements in video games, but that's really it's kind of a distractor from what game theory is really about, which is it's really the study of strategic reasoning. So some games are more lend themselves more like purely to that than others.

00;05;18;13 - 00;05;39;15

So like there's games of skill, there's games of chance and there's games of strategy. So video games maybe intersect a few different areas there, but like pure games of strategy, that would be like chess.

That's a really pure game, theoretical game. There's not a lot of skill involved, you know, in terms of hand-eye coordination or things like that, right?

00;05;39;15 - 00;06;03;11

It's all strategic. And so when you think and you're studying game theory, you're really studying that strategic component of games. And so at that point, we're not we're probably not talking about actual games, although there's some that really are based on game theory. We're more talking about like how the world works, how people think military situations, like how generals might assemble troops and figure out where they're going to attack.

00;06;04;05 - 00;06;30;03

And in economics, we're thinking about I have competitors out there that are, you know, producing similar widgets as I am. How many are they going to produce? What are they going to charge for them? So typically in academia, when we study game theory, we don't really do it in cybersecurity. But we ought to we should study it in cybersecurity, too, because we're already it's a well formulated discipline.

00;06;30;03 - 00;06;35;25

We're already doing it in some disciplines, and I think it belongs in cybersecurity as well.

00;06;37;19 - 00;07;09;04

Jen:

We did some random drawings and are awarding prizes for participation to those who submitted to the first three episode challenges. Congrats to ED for episode one, CB for episode two and AI Johnson zero for one. The drawing for episode three. The real Hermione won the grand prize drawing for their submission to all three challenges. Thank you, everyone, and great job.

00;07;09;04 - 00;07;28;28

I mean, in a way, and we're going to demonstrate this. I started thinking about it. I was like, How would you, you know, where does this fit in? And when I started thinking about it more, I'm like, Oh, this is more psychology level. And I think that's why I'm attracted to it. So I devised that we should play our piece or rock, paper, scissors.

00;07;29;06 - 00;07;34;23

So we're going to kind of demonstrate this adversarial mindset. I've already pre-selected my three. Have you?

00;07;35;03 - 00;07;38;27

Seth:

Wow. No, you are upping me.

00;07;39;03 - 00;07;42;05

Jen:

Okay. Okay. Best out of three. Are you ready?

00;07;42;10 - 00;07;45;26

Seth:

I am so nervous. I'm ready. Okay.

00;07;45;27 - 00;07;49;18

Jen:

All right. Ready? Okay. Rock, paper.

00;07;49;29 - 00;07;55;20

Scissors. Shoot. I'm okay.

00;07;55;28 - 00;07;57;18

We both did. Scissors.

00;07;57;18 - 00;08;24;17

Seth:

And now I'm trying to gauge what level of thinker is Jennifer. So I had you pegged at level one, and you come at me. Level two. And by the way, this is all game theoretical lingo here, so I underestimated you a little bit, Jennifer. So now I'm it's the fact that you already re select pre means that you're not being dynamic here you've already thought about.

00;08;24;18 - 00;08;27;23

Jen:

I've anticipated what you were you were thinking.

00;08;28;05 - 00;08;31;21

Seth:

Yes you did. Which is what game theory is.

00;08;32;16 - 00;08;39;02

But it turns out we matched one another. We kind of sized one another up similar. Okay.

00;08;39;26 - 00;08;42;19

Jen:

So I chose scissors because I thought, well, people definitely pick-- I know my kids. They put out rock. Your hand's already shaped like a rock. Yeah. So I thought, okay, I'm going to play scissors. And you're anticipating that I'm going to play rock. So I would have thought you would maybe have played paper. So I was going to beat your paper with scissors.

00;09;09;03 - 00;09;29;12

Seth:

And that's exactly. So how do you play rock, paper, scissors? There's a couple of different strategies. One of them is the no strategy strategy where you're-- I don't know. It probably isn't purely random, but you're like, you're not even thinking. You're just like, gone in like that kind of person is a little hard to beat because they're unpredictable.

00;09;30;12 - 00;09;38;17

Jen:

My son does that. I was like, I can't beat him. He's crushing me. I'm like, really thinking hard and this kid is just throwing out whatever. Yeah.

00;09;38;26 - 00;10;05;09

Seth:

That strategy can play. It's like the you know, you can't really predict that person. But when you get thinking, people watch you. You and I are now it comes down to, hmm, I wonder what the other person's going to play. And then I want to one up that person. Right. And so that's exactly what you described in rock, paper, scissors, what I would call the level zero strategy, which is kind of the most natural non thinking strategy is rock.

00;10;05;16 - 00;10;31;21

Seth:

First of all, it's the first word in rock, paper, scissors. And secondly, our hand is already as a rock, like you said. So it's just like, don't change it, just leave it there. Right? Yeah. So I would call that a level zero strategy if you anticipate that your adversary and at this case, Jennifer, were adversaries in this context, if I anticipate you're a level zero person and I'm going to say like, all right, well, she's going to go rock, I'm going to go paper, so I'm going to one up.

00;10;31;21 - 00;10;52;12

You want to get one past that person, right? But what I thought about you, Jennifer, I was like, well, she's not going to play rock. She's going to she's going to think through this. She's going to think maybe I should have thought she's going to think I'm going to play rock. I think that she might play rock. So then I'll play paper and then you get into this back and forth reasoning.

00;10;52;24 - 00;10;53;10

Speaker 2

Yes.

00;10;53;10 - 00;11;07;24

And I stopped one short of what I needed to do the same against me. We both stop one short. So we got a little we got deep into it, but we didn't get deep enough and that's why we had a tie.

00;11;08;07 - 00;11;26;24

Jen:

Ready for round two? Rock, paper, scissors, shoot. That's paper-paper. We have a tie. Oh, my God, I'm so excited. I thought I'll be out in the first two rounds.

00;11;26;24 - 00;11;29;13

Seth:

Oh, man, I did not anticipate this. I don't know what we're exhibiting here to the audience, but let me think about this. I'm going to go. Okay. I think I know what I'm doing.

00;11;38;23 - 00;11;48;26

Jen:

Ready? Yeah. Let's on rock, paper, scissors. Shoot. Oh, we both made paper.

00;11;48;26 - 00;11;52;22

Seth:

Good, though. Jennifer--

00;11;53;01 - 00;11;54;04

Jen:

Oh, my god – we tied.

00;11;55;01 - 00;12;02;26

Seth:

The chances of that happening randomly is very remote.

00;12;02;26 - 00;12;12;15

Jen:

How did you learn what you knew about cyber? Was it from the program that you did? Or like what? Really? Like, got you to hone in on that topic?

00;12;13;06 - 00;12;26;18

DJ:

Well, with crayon, my social media, it made me realize like the importance of staying safe online with cybersecurity. I realize, you know, I've actually on my video game, I actually got hacked before.

00;12;26;29 - 00;12;27;29

Jen:

Wait, really?

00;12;28;05 - 00;12;52;21

DJ:

Yes. Like yes, one of my video games, I got to have someone was able to get my information. And that was also just seeing the consequences of not having your data protector into it made me really realize the importance of that. Also, MasterCard invited me to the cyber cybersecurity unit, so I got to see a lot of behind the scenes with like it with cybersecurity and just with all of that.

00;12;52;21 - 00;13;00;04

Like, it really I started my intro as a cybersecurity. It made me realize the importance of it. And like all in between.

00;13;00;04 - 00;13;35;21

Jen:

So I won't lie. I was thinking, you know what? How can I gain an advantage in this adversarial game of rock, paper, scissors? And I thought, you know what? Schatz has to know what rock, paper, scissors is. And so I asked it. I was like, and it's got to know about you, Dr. Hanson. So I put in I'm like, I'm playing an adversarial thinker with game theory and it explained a whole strategy of what I could do.

00;13;35;21 - 00;13;50;29

And then it said, if your opponent uses scissors, you might consider using paper to beat it. And I thought, no way, AI does not know how to play RPS.

00;13;51;13 - 00;13;52;19

Seth:

Apparently not.

00;13;53;00 - 00;14;17;14

Jen:

I lost it. I was like, Wow, someone could have easily skipped over this, thought this was correct. That was blatantly wrong. So there's been a lot of talk in the cyber community about using AI to help solve some of these problems. Like you've mentioned, you know, you've already said how you can't just throw algorithms at this. What would I be able to even do in cybersecurity then?

00;14;18;00 - 00;14;41;03

Seth:

Well, there are limits. I mean, it's not we're so far from having, you know, true AI is what's sometimes called AGI or artificial general intelligence. I don't think we'll ever have it. It's kind of like a, you know, a goal that's been the goal for a long time. We're like, the computers really is smarter than us now. I say that and you're like, Well, of course the computer's smart.

00;14;41;03 - 00;15;02;25

And look, it can play chess better than me. Look, it can solve these math problems I can never solve. But I mean, generally, like common sense, you know, can a computer ever, like, possess the level of common sense that I have? So we no matter what the advances in AI, like in just what we're seeing today, yeah, I can do some pretty impressive things, but that's a great example,

00;15;02;25 - 00;15;22;00

Jennifer, right there, what you just said. I still need to know. I need to know more that the computer in this case to know that is telling me something that's wrong. It doesn't. And it makes mistake like it says it so confidently that if I don't know anything about rock, paper, scissors, I'm just like going with it. And it's, oh, yeah, a stray.

00;15;22;00 - 00;15;45;13

So like, there's still a space for education and knowledge and like, so that I can use it as a tool and then correct it when I can tell that it's gone off the rails. So that's one thing we have to be careful. Like if you tell a program, a chat, GPT or something to write a program to do something, if you don't know anything about programming, you might just be like, Oh great, I've got this program, let me write it.

00;15;46;00 - 00;16;05;27

Well, GPT might have gotten an 80% right, but it didn't get it probably didn't get it totally right. And you have to know that 20%. So it's a helpful tool. Hey, got 80% out of the way for me. I can just fill in the next 20%. I saved myself a lot of time, but you still need to be to know how to be a programmer to do it.

00;16;06;10 - 00;16;08;14

Jen:

And that 80% could still be wrong.

00;16;08;29 - 00;16;28;20

Seth:

Yeah, so that's why you need to know what you're looking at. And you can, you can, you know, so you're using it as a tool, not as like what we wish we could use it for is like a guru, you know, like this is like the Oracle and I can go to it and ask it anything I want and I can just trust it, you know, to be right.

00;16;28;20 - 00;16;55;24

And then just like, Whoa, we're not anywhere near that. So when cybersecurity, we have to think about just specialized areas like domains of expertise where we can put AI in that lane and let it do its thing there. So it's going to have some character is going to be very narrow, limited, it's gonna be defined and maybe I can unleash it there or something where it can be like brute force, where it can do a lot of work, you know, like computers do.

00;16;55;24 - 00;16;58;23

Jen:

They don't like maybe hacking passwords or something like that.

00;16;58;23 - 00;17;04;24

Seth:

Something like that. I could maybe fire up on that and feel like, all right, this is well-defined, limited enough.

00;17;05;10 - 00;17;31;19

Jen:

So when I started doing this and I started thinking about it because I put in a lot of thought, obviously I couldn't help thinking about hacker groups right. And how, you know, people study different approaches of these different hacker groups. They're well known and often state hacker groups. You know, they have tons of resources behind them. So of course they have the ability to research and anticipate other state hacker groups.

00;17;32;04 - 00;17;47;23

So what they know the next what their opponent is going to do. But like for our game, we're already anticipating the next level, like where does it stop? How do you stay ahead of a sort of this sort of game when your decisions can be anticipated?

00;17;48;07 - 00;18;10;18

Seth:

That's a great question and it's really hard. So it's measuring. It's kind of measuring your opponent. And so it's there's still guesswork in there. So it's it's an intelligent process, but it's not a bulletproof, like foolproof process. You might get it wrong. But to what? Because what you're doing is you're trying to anticipate what your adversary is going to do.

00;18;10;18 - 00;18;30;07

And then one of them. But in order to anticipate what your adversary is going to do, you have to count on them anticipating what you're going to do. And that's where you get that back and forth thing going on. So if I respect you as a competitor, then I'm going to I'm going to give an extra thought to, Well, if I were in her shoes, what would I do?

00;18;30;14 - 00;18;47;19

Right? And so rather than just like looking at purely from my perspective, I need to stop, get in your shoes, look at it from your perspective. And then I need to realize, well, you are measuring me up. You don't really want to go like, Oh, well, the deeper, the better. I'm going to go to level ten and I'm going to beat everybody.

00;18;47;19 - 00;19;15;12

That's not actually how the railroad works, right? You need to like if they're a level nine, then yes, level ten is good. But if they're a level one and you're at level ten, you're actually you're going to do worse. So I caution people when I talk about cybersecurity and game theory, it's not like, Oh, I solve cybersecurity now I need to do is write an algorithm and encapsulate game theory and hit go and it'll spit out the answer.

00;19;16;04 - 00;19;38;14

That won't ever work in cybersecurity because if my adversary knows that I'm using that program, then they're going to I mean, because they're going to anticipate that and do the other thing. So there's a very much of a real time dynamic situation playing out here. But my overarching argument is, okay, let's I'm not saying that we can develop an algorithm, we can solve the problem.

00;19;38;24 - 00;20;03;20

But I do want us to pause and I want us to remember that cybersecurity is an adversarial situation. It isn't just like me sitting down and installing a firewall and following a checklist of best practices. Those things are very important. But if I stop there, I've missed the point of what cybersecurity really is. Because I'm treating cybersecurity, it's like, Oh, it's just a checklist.

00;20;03;22 - 00;20;15;22

Just do this checklist and you're great. We should definitely do checklist. Checklist do help a lot, but I need to go further than that. And remember, wait a second, I have an intelligent adversary out there who's really smart.

00;20;16;03 - 00;20;18;23

Jen:

And they also know what the checklist is.

00;20;19;03 - 00;20;30;01

Seth:

Yes. And they're watching me do what I'm doing when they're planning their attack. So if I'm a sitting duck, if I'm just predictable in that way.

00;20;30;01 - 00;20;56;28

Jen:

Here's your challenge note for this week. We'll be giving out prizes for individual participation and team participation. So be sure to submit to the next three challenges to increase your chances of winning. The Episode four challenge is live now. So go on our website at cryptologicfoundation.org/podcast and compete against Dr. Hamman as well as every other podcast listener.

00;20;57;12 - 00;21;20;23

That's right for this challenge, the leaderboard will have to be updated after everyone has submitted and you'll be ranked against each other if you sign up to our mailing list on our website, you'll get notifications of when the leaderboard is updated and when new challenges drop. That's it for this week's challenge. Make sure the numbers you submit add up to 120.

00;21;20;23 - 00;21;38;03

So thinking about the adversary, let's kind of loop back. Talk about the challenge again. Are groups like our challenge for this week. The strategy that you've used to protect the most servers is out there. It exists right?

00;21;38;03 - 00;21;38;17

Seth:

Yeah.

00;21;39;02 - 00;21;44;18

Jen:

Have you considered that people would anticipate that you would play the same way?

00;21;45;02 - 00;22;11;12

Seth:

Yes. And I will let them. So here's the thing with the challenge. You're playing against everybody. So in this challenge, if it was just me versus you, you could beat me every time. And the way that you would win is you're you're trying to win servers in this game. And if you already know what I'm going to do, you're got you can beat me on five of the six servers every time.

00;22;12;04 - 00;22;28;20

So that's a loss for me. I win one server, you win five if you know what I'm doing. So I don't care how brilliant this is. Another reason why there's no program for this. There's no algorithm. There is no right answer, like in rock, paper, scissors. I can't say, Oh yeah, you should always do rock first and then whatever.

00;22;28;20 - 00;22;51;17

That doesn't work. Because if my adversary knows that's what I'm doing, then they'll have a better strategy that will beat that strategy. So it's the same thing here. So the calculus now comes down to, Well, I'm playing everybody. So okay, there might be some people out there that beat my strategy because they know what it is, but I'm banking on I'm going to beat a lot of other people strategies.

00;22;52;03 - 00;23;11;13

And meanwhile, they may have to have some inefficiencies in their strategies against those other competitors. So it's the total aggregate number of servers that I'm winning. So if there's, you know, 20 of us competing, that's 20 times 19 different contests that are actually happening because we're all playing each other.

00;23;12;08 - 00;23;36;16

Jen:

Right? So you may be one, but 19 other people didn't beat you. Yeah. So you're doing better than that one.

Last we talked, we discussed that you had an interest in video games, as you've mentioned, and you've made your own video game. So what type of games do you like to have you built so far?

00;23;37;07 - 00;23;54;01

DJ:

I made one of those. I think it's called like a brick breaker game. So somebody that watched like the ball is has to go up and like break the bricks and I sort of like the platform. And my what I've made recently is a text adventure game, which I called it Choice Master, and it's going to be coming out on Steam.

00;23;55;01 - 00;23;55;21

Jen:

Wow, really?

00;23;56;15 - 00;24;16;00

DJ:

Yes. And the choice that you go and make in the game, the fact affects your outcome in a story. So if you go and do what choice do go? I go to the park or want to go swim in like whatever, it'll affect the end of the game, whatever when you pick it. So that's kind of the premise of the game.

00;24;16;12 - 00;24;18;02

Jen:

Interesting. Just like life.

00;24;20;04 - 00;24;23;13

DJ:

Was very similar to that and I think it turned out really well. I'm excited.

00;24;24;04 - 00;24;49;06

Jen:

You've been very persistent as a young person and like being able to create this comic book. It's really admirable, but you use your books to help do good in your community too. You've helped raise money for St Jude and you've donated books to schools in your area. Let's talk about the risk of starting your own business, especially since you started before the age of 14.

00;24;49;06 - 00;24;53;00

What would you say the risk has been to you?

00;24;53;14 - 00;25;16;04

DJ:

Actually, two comes to mind. The first one is a lot of like companies of people already taking you seriously as a business owner. Like I've had experience of like people like, walk by you like, yeah, like this kind of seems like a really good idea, but like, they won't really take me as seriously as my own business order because I'm so younger, being like only 14 and still in eighth grade.

00;25;17;28 - 00;25;37;05

And I think the second one really comes to mind is also a balancing school and you're like your own free time, personal life and what's your business to having to manage all that. Like you need to put in a bunch of work for your business so your business can grow, but just have to focus on your studies so your grades don't drop.

00;25;37;11 - 00;25;43;18

So just having that balance is also another like big risk with having your business at such a young age.

00;25;44;06 - 00;25;59;26

Jen:

You also have a science girl comic book. I'm sure you realize that potentially you have to reach so many kids. You've you've printed and distributed over 5000 of them, which is amazing. What do you hope the impact of your books will will be?

00;26;00;12 - 00;26;24;23

DJ:

I really hope just to inspire kids like my age-- to inspire youth to become tech savvy entrepreneurs, but and also to pursue a similar career field. But even if they don't watch it go after SEWA. So my career as much as finance at least follow their dreams and father passions. And I think you do it too. Even as a kid, a lot of kids like went, including me.

00;26;24;23 - 00;26;44;00

Actually, at first it was no way to their adults, the first to do anything. If they want to go get a job or follow any other passions, I want to show them that they can do it too. As a kid and like they can go so far, their passions, as long as they do the research, add, have the support of a parent or guardian they can follow their dreams to even as a kid.

00;26;44;11 - 00;26;46;27

So I'm hoping that I can make that impact on them with my books.

00;26;47;22 - 00;27;09;12

Jen:

If you want to sponsor donations or purchase books, check out the Team Check Boy website and Instagram links in the show notes.

How does this sort of strategic thinking really truly wrap into real world cybersecurity? Like what? How do I apply this real world skill to a situation?

00;27;09;20 - 00;27;33;03

Seth:

I think you could be a cyber professional working for an organization trying to defend their networks. You could be a cyber operator even doing cyber attack and you could play game theory. They're like, you know, computer network operations or something like that. You could just be a normal person trying to secure yourself from, you know, some kind of cyber attack or ransomware attack or some other phishing attempt or whatever it is in cyber.

00;27;33;22 - 00;28;01;07

So the point with a game theory, that's all I really want to accomplish. I just want to put the adversary back in the in the central component of what cybersecurity is. I'm putting the adversary in the human element in the center where it belongs. And if we can just acknowledge that, recognize that we are going to be better all over cyberspace because we're constantly going to be thinking about, is this an attack or how would I attack or could I be attacked?

00;28;01;07 - 00;28;21;19

And just recognizing there's an intelligent person out there is going to help help us be safer all the time, whether you're in one of those job roles, whether you're just a normal person, just living out your life in

cyberspace like we all do these days. You know, when we talk about education, which is really what my specialization is here at Cedarville, I'm an educator, right?

00;28;21;23 - 00;28;48;16

I'm helping my students learn how to think about problems. And you get in some theory and understanding at a deeper level how things work. That's what that's education. It's shaping the way that we think. Somebody had a famous quote. Education is what remains after we've forgotten everything we learned in school. And that's kind of a funny way to think about what education is like, because we are going to forget we're going to forget the things that we read.

00;28;48;16 - 00;29;07;09

We're going to forget the lectures that we've heard. You know, whether you're in middle school, high school, college, you forget. But what you don't realize is your brain is being formed. You know, all those inputs, all those lectures as homeworks, as labs, as books, you read their shaping the way you understand the world, in the way that you think about the world.

00;29;07;29 - 00;29;08;23

Jen:

As a person.

00;29;09;06 - 00;29;14;02

Seth:

Yes, they shape that. So that's a next level. This is hugely important.

00;29;17;07 - 00;29;42;01

Jamie Kemp:

Be cyber smart, not cyber scared. Learn to navigate the digital world safely.

Jen:

That's our show. Thanks so much for being a part of our community. We can't wait to see how you do with this week's episode challenge. Go to the CyberChats podcast page on our website at www.cryptologicfoundation.org to find this week's challenge, submit a question and join our focus group to help improve the podcast.

00;29;43;02 - 00;30;03;13

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