**Tamara Shoemaker**

Hello, I'm Tamara Shoemaker, the director of the Center for Cyber Security and Intelligence Studies at the University of Detroit Mercy, and this is a special edition of the 313 podcast. And I'd like to introduce an alum that would like to share some inside secrets and tips and help us get a little leg up on some of these things, for both our student body and the public in general. 00:00:01 00:00:13

**Matt**

Yeah, my name is — Should I used my first name? I'll just use that. 00:00:29

**Tamara Shoemaker**

Yeah you can, absolutely. 00:00:34

**Matt**

My name is Matt. I'm originally from the Michigan area. My background... 00:00:35

I'm in the United States Army as an officer. My background in the Army deals with research and development of non kinetic ways of attack, specializing in the electromagnetic spectrum. I've been in the Army for about nine years now and I'm looking forward to my transition out of the army. The purpose of me coming on the podcast pretty much is just give, to give the overall student body a more in-depth look at what is really going on, through through our eyes in the Pentagon; of what really is happening, and how much our country is under attack, not by direct kinetic means like you think like by missiles and everything like that, but more of how we're under attack by information operations and through the electromagnetic spectrum. 00:00:46 00:01:00 00:01:07

**Tamara Shoemaker**

Similar what we would think of as cybersecurity attacks? 00:01:44

**Matt**

Yep, cyber security electromagnetic warfare, just pretty much all asymmetric warfare — yeah asymmetric warfare. And we'll go into depth in terms of the Russian military's 21st century concept of hybrid warfare. 00:01:49 00:02:00

**Tamara Shoemaker**

Wonderful. That sounds very exciting, can't wait to hear about. So where would you like to start Matt? 00:02:09

**Matt**

We can start first — I threw together a quick non kinetic attack report that's based on open source intelligence... Let me see if I can share my screen. Can you see what I'm pushing right now? 00:02:20 00:02:33

**Tamara Shoemaker**

No I probably have to help you out here and let you share screens. So let me do that for you. Not sure — I have your I have your slides, so you can just go ahead and start. 00:02:35 00:02:53

**Dan Shoemaker**

Work through them like, you know, she can insert then if you talk. 00:02:56

**Matt**

Yeah first of all, first I'll go over and just pretty much give an overview of how the Pentagon sees things like cybersecurity and the spectrum. We don't look at cybersecurity and cyber warfare as its own entity. It's a piece of the puzzle. Because we don't have the luxury let's say of the FBI or Department of Homeland Security, to just focus on that one narrow portion of the spectrum. Because they don't do things inside the spectrum, like they as in DHS or the FBI, as we do. So we look at it as a portion of information operations that aids in our ability to communicate, maneuver and command and control our forces so we don't have the 00:03:02 00:03:15 00:03:22 00:03:24 00:03:34 00:03:42

**Matt (continued)**

luxury of just straight up focusing on cybersecurity. So we use it as an aiding tool in terms of how to deliver kinetic munitions to it, and kinetic munitions are your your guns pretty much. Your artillery pieces, your cruise missiles. So, that's how we look at it, because we're always operating in far out outposts pretty much that — we don't have the infrastructure in some of these places like Afghanistan or Iraq or if we had to like in North Korea, to fall back on like we do here in America. 00:04:00 00:04:10 00:04:15

**Dan Shoemaker**

I thought your examples with the Estonia attacks and also, more importantly, the actual warfare that took place in Georgia. Where it's particularly — I know that come up in their slides but that was particularly illustrated the problem two guys had compared to what we in general have when it comes to the bad guys. 00:04:36 00:04:49

**Matt**

Yes, so what — we've been doing a lot of research on what we call Russian hybrid warfare. So the question is we always get is what does where Vladimir Putin and Russia want? So we spent a lot of time like analyzing — no one can for sure know what he wants you know, but we have a general idea. He wants a multipolar world, and he wants satellite states to provide a buffer to the Russian motherland. So what do I mean by that? He wants separation between the NATO states and between Moscow, because that's a historical thing for him because of World War II when they lost 20 million Russians when the Germans invaded. They didn't have that buffer state, it was Poland and all its satellite states the USSR — like let's say Estonia is one of them. Lithuania, Latvia, Poland. So what they have one right now, and that's technically a satellite state and 00:05:00 00:05:09 00:05:15 00:05:22 00:05:32 00:05:33 00:05:47 00:05:55

**Matt (continued)**

that's Belarus. So that's what we've been really focusing on, is that Torda area, like us — he does not want us to have — he doesn't want NATO pushed up any closer to the Russian border than it already is. So that's a threat. He views that as a threat to him. And when Ukraine kicked off — this is when we really started to see the ramp up in information operations as we like to call it pretty much, so he wants to attack us through every single spectrum. So he's they'll get online, they'll spread misinformation, and they're not just playing one side of the political spectrum. They'll play Democrats and Republicans or they'll play, play these groups like let's say in the Czech Republic that have communist sentiment. So they're doing it just to divide people into slow our political processes down. So they'll play both sides. And then in the Ukraine what we saw is everyone on the news could tell these little green men. Well those little green men were Russian soldiers without any Russian insignia on them. Well they want plausible deniability so they can continue to astroturf and spread misinformation, so the criminals are not those aren't our guys. We don't know what you're talking about, while they go into these very specific areas of countries that have ethnic Russians. So this is a tactic that was taken from Hitler in the early 1930s when Hitler went into the Sudan land. So when Hitler went to the Sudan land in the Rhineland, what he used as an excuse, he's like well I'm protecting ethnic Germans from aggression. So he moved. So that's how we look at what the Russians are doing. So in the Donbas, which is in eastern Ukraine and Crimea, what they did is they moved in special forces. And you'll see the Russians, the Russians love to use military contractors. What I mean by that is military contractors are just mercenaries. Our equivalent to what

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**Matt (continued)**

the Wagner group is to the Russians is Blackwater or what now called Xe. But they use it in a different way, because they don't want to have a rerun of the stinky boys of Afghanistan; when all the Russian soldiers were coming back in zinc coffins, when they were getting killed in Afghanistan in the 80s. So they use military contractors with their special forces to hide fatalities of casualties pretty much. 00:08:21 00:08:38

**Dan Shoemaker**

So they'd have some disinformation requirements there just to make sure that people don't really know that they're employees of the Russian government. 00:08:48

**Matt**

Exactly — gives them plausible deniability. They can just keep saying no that's not us, that's not our guys. That's not our guys, it's not our guys... 00:08:57 00:09:03

**Dan Shoemaker**

So how would they push that out? Facebook somehow? ...Saying no we're really not haven't invaded the Ukraine. Sounds a little suspicious. 00:09:04 00:09:13

**Matt**

Yeah. What they do on on Facebook is they pretty much just have bot armies of people who just throw out like that's not us or that's not us. And they will up like comments to the point where it like — that's the first comment you see it's just like... imagine it like Google's algorythm, like you see pro propaganda the more likes you push on Facebook, it pushes that comment up to the top, just like that on Reddit too. So that's just one portion of how they astroturf on social network. Their main portion of disinformation operations in terms of its interconnectivity with their military is... They have — all their media in Russia's state owned, so they 00:09:14 00:09:24 00:09:40 00:09:44

**Matt (continued)**

just keep parroting out with reporters like you like that's that's not us, that's not us. Those are Russian citizens. What they really like to say is 00:10:04
those are Russian citizens over there on their own accord. But they're 00:10:11
obviously dressed in military equipment. I mean military fatigues and 00:10:14
everything like that. So they're sending out messages through their 00:10:16
ministry; their Ministry of Foreign Affairs, and then by the time it's all got — It's gotten bigger and bigger and bigger. They started trying... I'm 00:10:28
trying to explain it to the point where — they have these special forces also acts as a force multiplier on the ground. So even before any of this 00:10:40
even kicks off, their special forces are going into ethnic Russian. Portions 00:10:47
of countries and with money, with technology, and they're building a base pretty much. They're building like a support base inside that country. So 00:10:53
once things start getting really kicked off, they just snap their fingers and they have militias that are....

**Tamara Shoemaker**

So what you're saying is they're using our social media outlets to gain 00:11:03
popularity and get people gunned up and ready to go before they actually physically then do something.

**Matt**

Yes. 00:11:16

**Dan Shoemaker**

You're also saying that's kind of state strategy? You know, it's something 00:11:17
that basically is, if you want to view it that way, conscious attempt to conscious attack on other countries by virtual means?

**Tamara Shoemaker**

But they start with sort of the hearts and minds right before they actually do anything physical. 00:11:33

**Matt**

Yes. It's hearts and minds, and they'll don't know when to — because they're running everything off what is like pretty much a decision matrix. 00:11:37

**Dan Shoemaker**

What is the strategy? Is something that basically is just sort of kind of part of how they approach. Virtual warfare? 00:11:47 00:11:55

**Matt**

Yes. And it's not that — we don't think of it as — this is what kind of caught us off guard in terms of what they do is with a very battle centric military. So everything we do is guns like pretty much like tanks. We want to dominate all domains of war. So like the space domain like a satellite and everything like that. The cyber domain, we want to dominate the air, land and sea. What they do is — they don't have that advantage because they don't have the economic means to do that. So they are a regional power. They can only do so much. They don't have, they don't have the ability to project power globally, because they don't have the logistic capabilities and economic capabilities to do that. So what they just do is, they just pound you with disinformation and pretty much a sleight of hand, a sleight of hand maneuvering of their force. What they love to do is do militaries what we call snap drills. So what we saw in the in the Ukraine with their southern... with the Russia's southern military district; they pulled up all their military like their armies to Ukraine's border. And when everyone was seeing that, they're just like we're just doing a military drill. Well that's a that's a military drill that can easily be turned into an 00:11:57 00:12:10 00:12:19 00:12:22 00:12:27 00:12:31 00:12:33 00:12:44 00:12:55 00:12:59 00:13:10 00:13:15

**Matt (continued)**

invasion.

**Tamara Shoemaker**

It's obviously a threat right? I mean it was — they were right there opposed and ready, and so that you know they were holding the big step right? 00:13:20

**Matt**

So what we really saw them do with their electromagnetic spectrum stuff is they pulled it all up close to the border and then they had this overall bubble of what we call anti access aerial denial capabilities, which is pretty much air defense, short medium and long range land based artillery, heavy artillery, and pulled it very up close to Ukraine's border. 00:13:29

That's when all like they're mercenaries and special forces soldiers started infiltrating Ukraine. So what happened then is once they got enough support within the ethnic Russian minorities, they really started hitting the electromagnetic spectrum and information operations portion of their plan. So what they were doing was when the Ukrainian military pretty much activated and started pushing from west to east... this is when we saw attacks on the Ukrainians telecommunication systems. So what they did was the Russian cyber warfare units pretty much embedded viruses on the physical telecommunication structure because these countries — the Russians, most of the stuff was made by Russians. Because Ukraine was a part of the Soviet Union, and so most of their legacy systems probably had back doors in them or stuff that the Russians knew about. So one of the more advanced things we saw them do was they had a radio repeater and that radio repeater, once it sent its specific frequency to a virus inside Ukraine's telecommunications 00:13:54 00:14:03 00:14:17 00:14:32 00:14:49 00:14:59

**Matt (continued)**

network that was passively listening for a frequency, and it activated and shut down all of... a portion of a region's telecommunications infrastructure. So they were attacking Ukraine's command and control ability. 00:15:25

**Dan Shoemaker**

What you're talking about is force projection, literally in another medium, and so forget the bombers and aircraft carriers and things like that. You dominate in cyberspace, you've got kind of another way of being able to... what's the diplomacy under another — 00:15:31 00:15:40

**Tamara Shoemaker**

Well aren't you crippling the enemy? I mean are they not at that point then flying blind, right, they can't deal with each other? 00:15:52

**Matt**

The whole portion of this was to pretty much bring down Ukraine's ability for command and control. Which is the most important portion of our ability to fight pretty much because if I can't — as an officer, if I can't command my units, I can't, I have no control over what they do in terms of movement and maneuver. 00:15:58 00:16:05

**Dan Shoemaker**

So what you're saying though is that we really need to kind of develop an awareness that the bad guys or the Russians, or whoever out there, or you know who kind of, don't have our best interests in mind. May use other means that would be just as successful. I mean, if they bombed the daylights out of their command and control center that wouldn't be any different than if they blew it up using a virus right? 00:16:20 00:16:35 00:16:38

**Matt**

Yeah. Exactly. What we — the scary thing about this is how they were 00:16:46
how they were doing it. So well, we know, we have the same capabilities 00:16:52
obviously. We're the most advanced military on this planet, but at this 00:16:55
speed, because we need to take a macro look at this... What they were
pretty much doing their homework on us in terms of our military
capabilities for the last 20 years while we were in Iraq and Afghanistan.
So they sat back and they were just pretty much watching us. Like what 00:17:14
we relied on and how we communicated to our forces and everything. And 00:17:24
then that's where they started to invest their resources. So we're 00:17:27
obviously incredibly reliant upon our radios, our GPS, our satellites and
everything like that, because that's how we communicate. That's how we 00:17:36
maneuver. The United States military's greatest asset is that it can move 00:17:38
faster than anyone else. It can command and control its units faster it 00:17:43
can — that's what makes it deadly. Because the faster I move on you, the 00:17:48
less time you have to react, and I've already... in your rear area already.
I'm just blowing by your front line troops, and I'm going right to where 00:17:55
your command control nodes are. So the Russians saw that and they're 00:18:01
just like — they view that as in how to slow us down. So what they were 00:18:06
doing in... we saw in the Ukraine was, they will use the spectrum. So 00:18:13
they'll intercept phone like telephone messages, and they'll just push out
propaganda to that phone in terms of... their trying to destroy the morale
of the Ukrainian soldiers. So like they'll be like “Hey we're coming." They'll 00:18:26
send like text messages to smartphones over a short message servers,
and it's just propaganda like “Hey we're coming to kill you tomorrow,” or
they'll go to like their family members and send false messages to their
family members being like "Hey your son is a Ukrainian ministry defense.

**Matt (continued)**

Your son was killed yesterday by a Russian attack." When the son wasn't — their son wasn't killed. They were just spreading disinformation and trying to destroy people's morale. 00:18:43 00:18:49

**Tamara Shoemaker**

Truly our hearts and minds then. So I mean it's their communication system has not only been brought down but it's completely under the control of somebody else? 00:18:54

**Matt**

Yeah exactly. And you're trying to destroy the soldier's morale just by like... because when we, when the Ukrainians would talk to us about it, like they would, they would pretty much say "We can't even watch our own television shows." Because the Russians took over everything and were just blasting like propaganda from R.T. like on Ukrainian television and in the eastern portion of the country. So they didn't even know what was, what was Ukrainian like — 00:19:02 00:19:18 00:19:23 00:19:27

**Tamara Shoemaker**

So what was real and what wasn't real? What is real and what isn't real anymore because they're just constantly getting absolutely bombarded with Russian information; because they have all the control, the telecommunications like all the broadcast channels and everything like that. So like they just use that as — they know the soldiers are going to be bored when they're sitting in defensive positions, so let's bombard them with propaganda. And it goes on to even like that, like I said their family members like they'll know which soldiers like family members are where, and then they'll just like bombard them with Facebook messages be like "Your son died," or "Your son is missing... your son's been 00:19:31 00:19:45 00:19:52

**Tamara Shoemaker (continued)**

captured..." when that's not true at all. The Ukraine just can't talk to each other. 00:20:08

**Dan Shoemaker**

You've been talking about the Russians but it crosses my mind that there's also places like China or North Korea or Iran, or even Luxembourg, who could use the same approach right? 00:20:11

**Matt**

Yes. So we view — 00:20:28

**Dan Shoemaker**

Do you think they're doing it? 00:20:30

**Matt**

From the... perspective, absolutely. But so. This one... we look at what the Russians do in terms of the electromagnetic spectrum and cyberwarfare differently than what the Chinese do because we view the Russians are doing theirs to gain a military advantage, when the Chinese are doing theirs to gain an economic advantage. So pretty much the Chinese are going for the economic win; like they want to steal intellectual property from companies they want to force the transfer of technology. So what that means pretty much is every company in China its own pretty much by the People's Liberation or the CCP. It either has ties the People's Liberation Army or the Chinese Communist Party. 00:20:32 00:21:00 00:21:09 00:21:18

**Dan Shoemaker**

They would put it more under the purview of people like NSA or DHS than it would under the army right. I mean that really isn't warfare? 00:21:26 00:21:32

**Matt**

Well it... see this is what, this is like what we're trying to build is like a whole, pretty much, government approach in terms of — The head on that would be the combat and commander for Indo Pacific Command who would coordinate all of this, because for all of you who don't know that's listening is — The Department of Defense is the only military organization on earth that breaks the the world up into separate geographical combatant commands. And what I mean by that is the European continent has its own command commander. The Middle East has its own combat commander. Asia has its own combat commander. So every geographical country has — the U.S. military breaks it down, assigns different units to that geographical combatant command. And it's that geographical combatant command is a four star flag officer. So they're in charge of pretty much that area if crisis breaks out in that region of Earth. So with the Indo Pak, it covers North Korea, South Korea, Japan. All of what is the South China Sea, Philippines, Vietnam, Thailand and India. 00:21:34 00:22:07 00:22:13 00:22:15 00:22:24 00:22:29 00:22:36 00:22:44 00:22:52

**Dan Shoemaker**

So is there a possibility that, for instance because what you just said, that they say the Indians don't like the Chinese very well and vice versa, they could be using that sort of stuff on each other? 00:23:02

**Matt**

Yeah absolutely. We see China go pretty much — China doesn't discriminate in who they pretty much go after, because they're just trying to steal as much intellectual property and gain as much... pretty much economic information as they can. We even see this with — They want with their Made in China 2025 program. They want to become an innovation economy, not just a manufacturing factory. 00:23:12 00:23:29 00:23:35

**Tamara Shoemaker**

That makes sense. So you guys look at it. So if I hear you, if I hear you correctly, in the military they look at the fact that in Russia they're going after physical boundaries around their country to keep there — to keep it a stop gap between them and the rest of the world. And in China they're trying to do it with an economic stronghold. And that those are equal, no I mean not equal, but I mean you guys look at that as all sort of a way of other countries warfare against you know sort of... 00:23:43 00:24:04 00:24:09

**Dan Shoemaker**

It's something to protect against. 00:24:21

**Tamara Shoemaker**

Right... so right? I mean, even though the Chinese are doing an economic kind of way and the Russians are doing in a more more understandably warfare type of way with a sort of a zone area they are looking for? 00:24:23

**Dan Shoemaker**

Does the Army feel like it has to address China? In general? 00:24:38

**Matt**

Yeah. Absolutely. But, then again, the Army doesn't really look at it, look at that as its problem. It's more of the Navy and Marine Corps is problem because the Army's traditionally has always been Europe's, like the Army always traditionally with the Europe. So, and the Chinese problem... what makes it so advanced is the Chinese are trying to build something called One Belt One Road initiative. So like they want to pretty much bring back the old Silk Road as a way to get to your — to push stuff to Europe. But what they're doing is, they're going to places like Africa. We saw it in Greece too, and they're loading these countries up with debt. And once those countries default with debt in the contract, what it says is, if you 00:24:42 00:24:51 00:25:00 00:25:10 00:25:17 00:25:22 00:25:27

**Matt (continued)**

default on this debt, we're going to take total control over your ports and your key infrastructure. So they're invading these these countries without really invading them. They're just taking over their critical infrastructure by loading them up with debt. When once they default they own that portion. 00:25:38 00:25:42 00:25:46

**Tamara Shoemaker**

So Dan I've heard you say that in interviews before. You've said things about how China is end[ing] up owning a ton of our paper, and right now sort of — they need the funds so they haven't called a loan in, but you know, should they want to call that loan in, we're all in big trouble. 00:25:50

**Dan Shoemaker**

It's an old fashioned business line about: if I owe you a million — or you owe me a million dollars that's your problem; if you owe me one hundred million dollars that's my problem. 00:26:08

**Tamara Shoemaker**

So I mean that's the issue then that they're doing it sort of with the economics, they actually are then going to be able to collect property correct? 00:26:23

**Matt**

Yeah absolutely. We've seen this done, like Europe; Greece has a huge problem with it and it's becoming a NATO problem very quickly. 00:26:32

**Dan Shoemaker**

This could be — the thing about asymmetric warfare, as it could very soon be carried out in say someplace like North Dakota. Yeah is this something you're looking at? 00:26:44 00:26:52

**Matt**

Yeah, so, pretty much... what gives us — we're much more concerned 00:26:53
about Vancouver than we are anything here. What really helped us out is 00:27:02
the severity of trying to launder money through real estate in... under the
Patriot Act. So we use that pretty much as a budget for other companies 00:27:15
countries too. So what the Chinese have done in Vancouver: they have 00:27:20
bought up an absolute ton of real estate and it's a huge problem.
Because, that gives them a base to even run operations out of in the 00:27:28
Western Hemisphere. Because the Chinese are, pretty much, went in 00:27:36
there with all cash and just bought up everything and they create these
little enclaves of Chinese within western western company — I mean
Western societies. And the same thing happened in Australia. The reason 00:27:51
why, the reason why Australia didn't really go through the recession in
2008 was because its main trading partner was China. So that's why you 00:28:02
see, and they have huge populations of Chinese down there. And what 00:28:07
what they like to do is... The Chinese view like cyber warfare and human
intelligence as — I don't, i'm not going to take a bulldozer to the beach to
steal sand. I have a billion Chinese citizens. All I have to do is tell them to 00:28:23
go grab one grain of sand. We'll figure out how to on a put the sand 00:28:30
together later. So what we see, they love to use their student exchange 00:28:34
programs a lot. And they run spies pretty much through the Confucius 00:28:43
Institute. That's huge on the FBI's pretty much briefed to Congress. And 00:28:47
because some of these universities will get addicted to the money and
the fees of... all this, like because you're, there Jack — these Chinese
people they come from usually upper middle class or high class Chinese
families. And they'll buy their way into the, well not buy their way to the 00:29:10
university but they'll get into the universities. And that's that's their art 00:29:17

**Matt (continued)**

here. That was a pretty fair pretty fair way of saying it. 00:29:20

**Tamara Shoemaker**

I mean, you know, we we do have some strenuous kind of you know cost 00:29:23
involved when you come from another country and that kind of thing and
if you're able to pay it and you're able to do it or to attend, and so, you
know that's just the way that it's always been set up. So.... 00:29:38

**Dan Shoemaker**

Is there any actual dividing line between what constitutes warfare and 00:29:39
what constitutes messing with another country I don't know, maybe
espionage? You know, I mean the sort of thing that would get the military 00:29:51
involved versus...

**Matt**

Yeah, so this is, this was a huge thing just a few weeks ago. Right. So 00:29:59
what we saw, well you pretty much saw it like on Facebook or on the news
and everything was disinformation warfare, straight coming over the
Internet, that the U.S. military was going to lock us in our house, like I saw 00:30:17
that a ton of time. And so you know like. 00:30:23

**Tamara Shoemaker**

Right. 00:30:24

**Matt**

I'll get I'll get calls on my phone and it's like "Hey, like what are you guys 00:30:24
doing?" I was like "I'm sitting on my — I'm sitting on my computer right 00:30:27
now. Like we're not doing anything. I'm like, I'm looking at my brokerage 00:30:31
account right now. We're not gearing up to lock you in your home. We're 00:30:37
not like, we're not going to lock you in your homes, like that's not gonna
happen. ...Friend Disinformation online saying "Hey, the US military is 00:30:45

**Matt (continued)**

going to lock you guys in your homes, like martial law is happening. Then 00:30:53
they're really clever at editing stuff we give them. So like someone, pretty 00:30:58
much, took a cell phone picture like cell phone video of a convoy of pretty much new Humvees. And it was going north. 00:31:11

**Tamara Shoemaker**

They made it look as if they were rolling into town? 00:31:14

**Matt**

Yes exactly. They used that, so that's the type of — how they're using 00:31:17
cyber warfare. It's to pretty much scare the population and turn us on 00:31:23
each other. You know, so like the Chinese and the Russians were really on 00:31:27
top of it; they did it super fast, to the point where the Pentagon had to pretty much create a website of myths, like that said "We're not going to do this." The only soldiers you see on the streets are ones who are called 00:31:39
up by their own government. I mean by their own state government. 00:31:46

**Dan Shoemaker**

So I mean there's a... I mean basically the Internet changed everything. 00:31:49
And so things like elections that everybody's kind of worried about and all 00:31:56
that sort of stuff, it's clear that bad actors are out there, you know doing whatever they can interfere, and not just the Russians. With what would 00:32:11
amount to our normal everyday processes, like processes. That would not 00:32:18
be the military's problem thought right? Do you have specific kind of 00:32:21
mission that that's sort of oriented towards what's been traditionally what the military does which is kind of keep our borders secure and you know not keep the other guys from crossing the. Border. 00:32:37

**Tamara Shoemaker**

Or has it all been turned on its head? Because now... there isn't a border, right? 00:32:38

**Dan Shoemaker**

There is no such thing as borders based on what you're talking about. 00:32:45

**Matt**

Yeah. So what's what's what's really hard about this for help for us is that. 00:32:49
There's so many bureaucracies who claim to have pretty much — you 00:32:56
claim to have a stake in your goal of the cyber domain within the United States, like outside because... We, the military, in the form of cyber combat and command operates under Title 10 authorities, which means it is a military operation. The NSA and all the other intelligence community. 00:33:24
Operate under Title 50. So what they can do and what we can do are 00:33:27
pretty much we're always at odds with with that we can't do any title 10 operations within United States borders because of Posse Comitatus [Act]. So what we end up fighting the Title 50 guys who are the 00:33:44
intelligence community about is... like they're looking at a target right? Like let's say a target over somewhere in the Middle East or Africa. They 00:33:53
always want to just do intelligence collection on it. But look let's say that 00:34:04
that that place is getting ready to transfer a bomb. They want their their 00:34:10
whole training is let's just watch it, where it goes, who's communicating with you. When... is like OK they're transporting a bomb. That's our 00:34:17
responsibility. Yeah let's do something. Yeah. So like that's where the 00:34:21
word fight and then find out insecurity inside the United States with the FBI is is a part of. We don't even know if they're in charge of the cyber 00:34:30
aspect of this. Or is it, or is it seesaw. So like that's what we're trying to 00:34:34
figure out in terms of is it DHS's responsibility or is it the FBI's

**Matt (continued)**

responsibility to investigate and prosecute.

**Dan Shoemaker**

There are 17 agencies that fall under DNI (Director of National Intelligence). And so I mean in this it was 17 intelligence agencies out there. There's a part of me thinks that maybe they could cut that down to one, probably be a lot more efficient. 00:34:46 00:34:49 00:34:54

**Tamara Shoemaker**

I think that — isn't that an awful lot about why there is becoming — why there is going to be a [U.S.] Cyber Command right? So that we sort of all get in one place and talk about how this all... Where all the overlap is and how we can actually maybe do this is a coordinated effort, or at least working on your turf issues in one spot. 00:34:58 00:35:05

**Matt**

Yeah that's why they're trying to break. The NSA is going into pretty much a messy divorce right now because they're they're trying to break the NSA and [U.S.] Cyber Command up completely. And I think it's a — they're going to put a four star flag officer under the NSA and a four star flag officer under Cyber Command. So like right now with the title 50 and Title 10 stuff it kills us because like, is it a military operate? Like it's that red line you're talking about. It's to the point where, when do we go kinetic? Like what is that red line? This is the new great game of the 21st century is, I want to get as close up to that red line. We see Iran doing it with their boats in the Strait of Hormuz right? What can you do to force me to shoot at you either in the electromagnetic spectrum with cyber warfare or in the physical spectrum? What is that red line? And like. We saw a red line crossed at the beginning of this year when Iran proxies 00:35:17 00:35:28 00:35:38 00:35:44 00:35:47 00:35:49 00:35:56 00:36:01 00:36:09

**Matt (continued)**

militias and their special forces. Shot at our military bases in Iraq and then 00:36:21
tried to break into our embassy right? So then we killed Qasem Soleimani, 00:36:27
the Quds Force general. So that's it. We told them like this is a red line. 00:36:35
Don't attack our embassies, don't let our embassies. Iran crossed that red 00:36:37
line and we bomb them and then we took down a ton of their networks
with inside their country. So it's always a portion of how close can I get up 00:36:49
to that red line before you, before crossing it? That's the game Russia, 00:36:55
China, Iran, Syria and North Korea want to play. Like in terms of North 00:37:00
Korea. How many of these missiles can I shoot off towards Japan, or 00:37:01
towards South Korea? So like that's how we look at it. Cyber warfare and 00:37:06
everything is making the world more dangerous because it's blurring red
lines that are more traditionally there during the Cold War.

**Dan Shoemaker**

I guess you — I mean because what's in it for me here in this really 00:37:19
fascinating discussion we're having? What what. I mean you've got 00:37:28
students and you've got basically a general population you're looking at
this thing here. If you say for instance a kid, you know, student. What sort 00:37:35
of options would you have if you want to do this sort of thing you're
talking about or get involved with that besides going to boot camp?

**Tamara Shoemaker**

And that’s not a bad place to go either. You need really great people in 00:37:50
the services, so that’s a really legit option.

**Dan Shoemaker**

You you put a lot of people around... out of business. If you didn't 00:37:58
eliminate boot camps.

**Matt**

So we have huge, pretty much, what a lot of people don't know is the DOD (Department of Defense) has a lot of federal employees working for it that special — they're very highly specialized, like electronical engineers, cyber security experts. We can not get enough of, like it's the most in demand thing there is. And they're all over. So you can you can go to work in the southeast you can go work in the northeast, you'll have opportunities in the federal service to go overseas and work on a military base or anywhere else like over... you could go to Europe, you can go to South Korea, you could go to the Middle East. So it's a great experience and you're doing very important work. So like, you might not get one hundred fifty thousand dollar paycheck like at Google, but you'll get a security clearance; you'll be able to work on some of the coolest stuff that you can ever dream of working on. There's a lot of stuff where... I'll look at companies, I'll look at a companies stuff online, let's say Google Glasses is making something. Well we already thought about that 10 years ago. 00:38:04 00:38:20 00:38:26 00:38:47 00:38:50 00:39:04 00:39:14

**Tamara Shoemaker**

Right. This is the thing that people don't understand about... the fact that you know we put an awful lot of money in our DOD and the innovation and things that they come up with that we, as normal everyday ordinary people, sort of end up seeing you know five or 10 years later. That this was something that you guys got to get your hands on right away. 00:39:18 00:39:34

**Matt**

And it's a perfect example of that is the G.P.S. Constellation the G.P.S. constellation is ran by the United States Air Force for free. It is a provided service by the U.S. Air Force for free. We had it in 1991 during the first 00:39:40 00:39:44 00:39:51

**Matt (continued)**

Gulf War.

**Dan Shoemaker**

If I can raise one other thing, she, this person here [Tamara Shoemaker]... 00:39:57
runs this thing called Cyber Patriot Program, which is for K12. Not even, 00:40:08
you know, not even college. One of the things that this thing — hopefully 00:40:12
people might be able to see amongst your Cyber Patriot people is that... you know if you're in high school or whatever and looking for a career, people that come to me say, how can I get in NSA. And it's like, why 00:40:25
would you want to even do that? You know, when there's so many other 00:40:28
fun things that you could do. And obviously where you're talking about 00:40:32
here is a lot of really fun stuff.

**Tamara Shoemaker**

Well like you said there's installations all over the country, right? And like 00:40:37
for instance are one here in Michigan we have... we have TACOM right here in Warren Michigan.

**Dan Shoemaker**

You also have the Air National Guard. 00:40:46

**Tamara Shoemaker**

Absoluteley, and you have some really great folks that work there too that 00:40:49
you have a day job, and then you work one weekend a month kind of thing. So there's an awful lot of those kinds of situations. And like you 00:40:57
said, the thing that people don't understand is all the leading edge sort of technology that you get to use and experience... and let's not forget that that service to our country and making making all of our lives a little bit safer is also a really important piece of work when you work for, you know, the DOD or any of those...

**Matt**

Yeah, but what I would recommend is the — just don't get cell focused on stuff like the NSA. 00:41:23

**Tamara Shoemaker**

Right. 00:41:31

**Matt**

There is I think — you could work for the national lab, you could work for DHS, like there's so many more that do a lot cooler things than the NSA. 00:41:32

**Tamara Shoemaker**

Like he said there's what 30, how many agencies did you say? There's 17... 17 agencies, right, so and they only... depending on how you see on TV? Yeah. Yeah. I like there's stuff like the National Reconnaissance Office, there's like all of them require the ability to defend their network. So like do your research and each one has a different mission to the point where not one hoards over all of them, but they have a different — like the National Reconnaissance Office that deals with spy satellites pretty much, the CIA works in human intelligence. DHS protects... DHS as CSL protects critical infrastructure, all of are doing very cool things. The national laboratories are literally trying to build small nuclear reactors that you can fit inside a small town. So it's... everything is varied. Just broaden your horizons to like what exactly you're interested in. 00:41:42 00:41:53 00:42:02 00:42:19 00:42:26 00:42:34

**Dan Shoemaker**

I remember asking one of the people on the National Geophysical agency what they did and got the original. I could tell you what I have to kill you and call it the thing. I mean the thing that I was trying to get out here, and which was really obvious, but I just wanted to kind of summarize it is... If you're a high school kid, and you're looking for a career you think Army 00:42:42 00:42:50 00:42:55

**Dan Shoemaker (continued)**

and you think, OK, they're going to march around and hand you a gun. And you know that's going to be pretty much what you've got in terms of 00:43:10
options but what you're saying here is that you've got all kinds of exciting technologies sitting out there that you can learn to play with if you get you know you basically are willing to sign the contract. And you know 00:43:27
that's that's really where we build our cyber warriors in some ways. I think 00:43:33
it's Israel that demands two years of service.

**Matt**

A conscription work with our latest like campaign pretty much we're just 00:43:36
we're trying to show everyone there's so much more than just being an infantry — an infantry soldier. Yeah, the first portion of a boot camp is 00:43:49
rifle based and everything like that. That's only like a very short period of 00:43:55
time. You know like you can go work on satellite communications you can 00:43:58
join the cyber program, which they always need. And they'll — if you pick 00:44:04
one of these dealing with the electromagnetic spectrum, you could get a bonus or like you'll build — they'll pay for your IT certification as you say.

**Tamara Shoemaker**

That's the thing that's the other part that's really a good thing is that is 00:44:15
that your education is now paid for your certifications and all of that kind of stuff that like you said that you you'll want to have at the end of, you know, if you decide to continue on with your career. It can all be done 00:44:29
free. I mean.... 00:44:31

**Dan Shoemaker**

Right now the pipeline is really narrow because people don't know what 00:44:32
the options are in terms of when they get in terms of getting into the workforce. And you know what you've said today basically is the military 00:44:42

**Dan Shoemaker (continued)**

is a really great option. In terms of expanding the number of people coming through the pipeline is we're really falling critically short of all the people that we need. 00:44:47

**Matt**

Yeah exactly exactly that and we just have. You we just always had that that need for what we don't. Surprisingly enough. We don't ever have not a need for infantry people. Everyone thinks they're George Washington joining the U.S. Army, you know, we are a very surprisingly need for people who are tactically smart, who have technical degrees, like you will get put in... but what they're doing right now with my job is... I was actually a major contributor to the creation of the Armies portion of space command, which is going into space force, and they're about to pretty much double or triple our numbers. So like I would, I would automatically get promoted and picked up and everything like that. But like, so, we have a huge need on the technical side. We don't really have a need for soldiers because there always be people who are crazy enough to go tote around a gun in the field for a month you know, like what we're really needing is people who are smart on the electromagnetic spectrum, people who are better with cyber skills, people would think tactically and strategically at the same time. Because we need to push that out broader. Like yeah we are we're great at fighting you know and we've been fighting for the last 20 years. Well we need people who are smart enough tactically that show us what fighting in the next 20 years is going to look like. 00:44:56 00:45:05 00:45:10 00:45:13 00:45:39 00:45:44 00:45:48 00:46:06 00:46:09 00:46:13

**Tamara Shoemaker**

It's a very good point and a very good place for us to go ahead and round this up. I truly appreciated this conversation. And it is inspiring, to know that our military is out there on all fronts, protecting us and that we need to think about it a little differently than we've thought about it in the past. 00:46:21 00:46:25

**Dan Shoemaker**

And they got smart guys like you. 00:46:41

**Tamara Shoemaker**

Absolutely. And you can see the future growing in those areas. I know I'm doing everything I can to see the pipeline with as many kids as I can and expose them to all of these kinds of ideas. 00:46:43

**Dan Shoemaker**

I think this will help. 00:46:58

**Tamara Shoemaker**

Absolutely. This is one more... one more little tool in my toolbox here that I can use with my students to let them know about the opportunities that are available. And until we really thank you for your time; spending with us today, man. 00:46:59 00:47:08

**Matt**

Yeah. Definitely appreciate you for having me on. And if anyone has any questions feel free to email me at any time.... 00:47:12

**Tamara Shoemaker**

I will. I will, i'll definitely consider you as a really good mentor for folks that have questions about specifics on all the things that you've discussed. 00:47:19

**Dan Shoemaker**

And you made us proud. 00:47:29

**Tamara Shoemaker**

Very very proud. Thank you so much for your time. 00:47:32

**Matt**

You guys have a great day. 00:47:34

**Tamara Shoemaker**

Thank you. You too. 00:47:35