

Justin Bullock:

Welcome back to another episode of Bush School Uncorked. I'm your host, Justin Bullock. Greg is here with me this evening. Hi Greg.

Greg Gause:

I'm coming to you live from my porch.

Justin Bullock:

Yeah, Greg actually inspired me instead of being inside, I'm not on my porch because I don't have a cool porch, but I am in a campground sitting outside of my camper.

Greg Gause:

It's almost the same thing.

Justin Bullock:

You have bricks.

Justin Bullock:

I have styrofoam I think.

Justin Bullock:

It's good to see you. Thanks for being here. I know you've had no time on Zoom lately, so you were itching to do video conference calling. And so I think Zoom has become just like Facebook and Google. I feel like overnight, I'm on Zoom actually much more than I'm on Facebook these days and almost equivalent to the amount that I'm on my Gmail.

Greg Gause:

I would refer you to the Aretha Franklin song, I think maybe from the early 90s, who's zooming who? Of course, it should be who's zooming whom. But she's the queen of soul. So we'll cut her some slack and I recommend it.

Jesse Sowell:

I think you've got a good meme in that. I think you should really embrace that and just go off. And after, this there's a fantastic meme that I have not seen. And which is [crosstalk 00:01:29].

Greg Gause:

Justin, why don't you introduce our guest and then maybe he can explain to me what a meme is?

Jesse Sowell:

All right.

Justin Bullock:

I know Greg knows what a meme is only because the podcast has produced some of our own memes in some beautiful, very intelligent quotes that Greg and I have offered for our audience. But to everyone's relief, we have a guest. It's not just Greg and I chatting again this week. Professor Jesse Sowell is with us, who's one of our Bush School colleagues. Thank you for being here sir.

Jesse Sowell:

Oh, thanks for having me.

Justin Bullock:

So I think we'll do a little bit of a Hot Takes. And as we mentioned before we started, we welcome you to join in on that. But maybe go ahead and give us the 30 seconds or 90 seconds potted version of who Jesse Sowell is and then we will jump into our Hot Takes so the guests know why they should be listening to you.

Jesse Sowell:

So, 30 second, 90 second, whatever. So I'm an assistant professor of international affairs. I look at cybersecurity, internet operations, internet development, which is adjacent to international development and to some degree international security as it relates to cyber security, internet security.

Jesse Sowell:

I'm a recovering computer scientist. So my background from way back was a computer scientist. I realized I was less interested in the bits and the bytes and just staring at that all day. And realized it was much more interesting to understand how we make decisions about, and how when I say how we, how the individuals that build infrastructure like the internet, make decisions about how to make it secure. How to make it sustainable, how to make it stable.

Jesse Sowell:

And so a lot of what I look at is the non-state institutions that make the internet stay glued together in a secure and stable way. So that's my quick background and bumper sticker.

Justin Bullock:

Very good. And what maybe you didn't know Jesse, although you may have inferred before joining us this evening, is you lie at the exact intersect of issues that Greg and I are interested in but maybe don't know a ton about what each other's specialties is. Which is international affairs, which I am still learning about. And cyber issues in general because Greg's not a millennial, so I don't think he can really wrap his head around those things.

Greg Gause:

Yeah. That's absolutely true.

Jesse Sowell:

He can tell us wonderful stories about the party line though.

Justin Bullock:

The party line.

Greg Gause:

I actually have been on telephones that were party lines, some of the last remaining ones. This week's achievement for me is I learned how to sign PDF documents remotely.

Justin Bullock:

I love that.

Greg Gause:

And that has changed my life.

Jesse Sowell:

So it wasn't just me bringing my iPad into your office and making you sign it because I hate printing things? It was like you actually digitally signed something?

Greg Gause:

I actually learned how to digitally sign PDFs.

Jesse Sowell:

We will have you not using paper in no time.

Justin Bullock:

Yeah. Yeah. I've been working on [crosstalk 00:04:48].

Greg Gause:

I am just pining for the days when I can go back to my office and print stuff out.

Justin Bullock:

Well one thing, Greg, you are coming to us from your porch out there, which is nice. I'm here from my camper.

Greg Gause:

I am coming to you live from my porch.

Justin Bullock:

And one of the things that's nice about that is we're social distancing. We're staying at home. We're under some stay at home orders and we're doing our best to follow those. Since last week we had another round of unemployment insurance numbers that were less than desirable. Oil prices, as we were discussing a minute ago, went negative briefly.

Justin Bullock:

And it turns out Georgia and Texas, as two of the States that I follow, are ready to open up for business right at the same time we're reaching the peak of deaths. And some of these States need to be liberated according to the president. I feel like I missed some things in the last week. Have you been following any of this?

Greg Gause:

So I do read the papers a bit. And I thought the most interesting thing about the liberate stuff aside from the fact that the president tweeted about it is how small the crowds were. The polling data does seem to indicate that majorities, including people who self-identify as Republicans, feel that it's more important to maintain social distancing rules and limitations on public gatherings for the foreseeable future until the science tells us that the risks of contagion have been reduced.

Greg Gause:

So, that's what I actually thought the most interesting thing about the liberate rallies, gatherings, whatever you want to call them, was is how small they were. People have compared them to the Tea Party in the emergence of the Tea Party in 2009. I think the crowds are smaller. I mean, one similarity is that this is a grassroots movement that's actually AstroTurf. Right. It's fake grassroots.

Greg Gause:

There are PACs that are supporting this mobilization, including one affiliated with the family of the secretary of education. But I guess that's not unusual because President Trump tweeted support for gatherings that actually violate the social distancing recommendations that the administration itself has issued. So I take heart from the fact that these gatherings have been relatively small.

Justin Bullock:

Well, one of the good things out of the news lately has been that the peak capacity of the hospitals has kind of seemed to have reached their peak in a lot of states. The confirmed cases, in terms of the daily number of them in the country seem to have peaked, New York. The New York governor thinks that New York has passed its peak.

Justin Bullock:

As we were looking at all these models coming up to this week, this was the time period when we expected to get the peak. And then as long as social distancing measures stayed in place through the end of May, things were supposed to tailor off and get us down to relatively few to no new cases. But this doesn't seem to be the direction that the president's pushing. It doesn't seem to be the direction that our governor's pushing and it doesn't seem to be the direction that Georgia, again, being where I'm from and having some political familiarity with, is pushing for.

Justin Bullock:

What's going on there? Do you think, Greg? I mean it seems to be a relatively uniform consensus among experts in general that we need more widespread testing, that we need more protective equipment. These are kind of necessary things before, in general, we start downplaying the importance of social distance. So what's going on? What's your take of this?

Greg Gause:

Yeah. And I want to bring Jesse in on this too, because he's a South Carolinian. And South Carolina has also ... Interestingly enough, the senator from South Carolina, Lindsey Graham who is, of course, very close to the president, tweeted today that he thought Georgia was moving too fast too soon.

Greg Gause:

And South Carolina is at risk because Georgia's doing this. But I think, I don't follow Georgia the way you do, but Texas politics, I think is really interesting on this in that you have a governor who is, I think very inclined to test the political winds. I don't think the governor likes to get out in front of things. And so what you have is the governor saying, "Oh yes, we're going to open up the state". But if you actually look at the restrictions that have been lifted and what's been left on, his guidelines aren't that different than what they were before.

Greg Gause:

So you can go to the Home Depot and the folks in there will bring this stuff out to the car for you. That's not that different than what we've been doing already. And I noticed that Senator Cruz, who's one of my most faithful correspondents, he sends me emails all the time. He had a big banner on the last email. Senator Cruz supports liberating Texas or something to that effect. And then in the body of the email, he actually doesn't want to change that much about what's happening.

Greg Gause:

So I think that there's a sense that that public officials in Texas don't actually want to reopen in the way that we think of as liberating the public interactions in Texas, but they want to be seen as supporting it. So it's eating your cake and having it too. But I think it's interesting that even people who are identified with that kind of Tea Party ethos like Senator Cruz, want to have the headlines seem like they're with them, but the actual policy, not so much. Jesse, what's your sense?

Jesse Sowell:

So, a lot of the way I think about this is like is going back to, just looking at these as health extra maladies. So if you are going to try to reopen things, how are you going to try to do this? It's going to require much more nuance than just saying, "Liberate, liberate, liberate", as you pointed out. There are lots of great ways that we can think of how to open some of these businesses to make sure that they keep going without necessarily breaking social distancing. So your example of the Home Depot example where people bring things out to you. Being able to expand what it means, not just to expand what it means to be essential, but expand things that really do some thoughtful work on how can we make some of these nonessential businesses that we really want to stay open to kind of sustain the economy, how can we make it safe for them to operate?

Jesse Sowell:

So of course you're not going to open the local barber shop. That would be a little crazy. But opening up other things like some of the nonessential stores that have closed, being able to like say, "Here's how we can incent them to do something like Home Depot is doing or expand the way we deliver food". I mean that's pretty well-defined in a way.

Jesse Sowell:

But things like that. For me, it's an interesting question of how can you do that gradual opening to kind of sustain that? Especially the local economies without necessarily doing a full bore, kind of, as you said with the headlines like liberate, liberate. We're all just going to go back to quote unquote normal.

Greg Gause:

Yeah, I could desperately use a haircut. I mean I'm looking like a hippie. It's something I think about way too much. When am I going to be able to get my hair cut?

Justin Bullock:

Well, if I'm not mistaken, I was looking it up as we were talking. My understanding is that as of Friday of this week, Georgia is opening gyms, beauty salons and barber shops.

Greg Gause:

I might drive there this weekend.

Justin Bullock:

So it was nice that that was your example, something that seems just a maybe not quite there yet. That is what Brian Kemp with the governor of Georgia is suggesting. But maybe at this point it's kind of fitting, given that two weeks ago he learned that the coronavirus could be transmitted from one human to another, which was all a meme in my social media there for a while. Okay, one other thing-

Greg Gause:

Maybe we... Oh, you've got something else?

Justin Bullock:

Well just do you have any sense on election stuff? I think election stuff's pretty much wrapped up now. We're down to two and we'll wait and see who the VP pick from Joe Biden is and have a messy road forward, I imagine.

Greg Gause:

Well, I've got to tell you, if I were Biden's campaign manager, I'd say stay in your basement. I mean this is up. It's president Trump's time. He's going to either successfully or unsuccessfully manage this crisis. And lots of people are saying, "Oh, Joe Biden, nobody hears from him. Nobody hears." I would say that that is the perfect campaign strategy right now for Joe Biden.

Justin Bullock:

Yeah. Just hang in tight.

Greg Gause:

And of course, he's in a basement in my hometown. So, Wilmington, Delaware is not the worst place to be in a basement.

Justin Bullock:

No, that doesn't seem... I haven't been, but your stories of it make it sound like I need to visit.

Greg Gause:

Someday.

Justin Bullock:

So, okay. That was the last thing I had. Let's transition on because people have listened to us the entire last episode and now 15 minutes into this episode, we have with us professor Jesse Sowell. So Jesse, thanks for being with us and thanks for giving us a little bit of a background. One transition that you and I talked about into talking about some of the issues that we have some interesting overlap in and some issues that tied directly to your research, I alluded to in the opening, which was our reliance now on Zoom. As universities, we're pretty early on in this process of sending everyone home and saying, "Don't come in anymore." Really, since spring break happened for us, everything I've done, as we were joking about earlier and Greg and I were joking in text messages earlier, was Zoom all the time.

Justin Bullock:

And Zoom is an interesting issue of a tool that was nicely placed for us to be able to utilize when we needed it but then pretty much almost immediately in those weeks following, there were all these security concerns that started popping up with Zoom, some which we've experienced filming this show. A lot of people have had people jumping in on their classrooms, trying to record things. There's been some rhetoric around trying to use these tools to record professors to catch them when they're saying something that the student disagrees with.

Justin Bullock:

Let's take that as our launching point. What's your take on what's going on with Zoom? It's all of a sudden become as essential as social media or Google to those of us in higher education and, really, education more generally.

Jesse Sowell:

I've been following this a little bit and it's interesting to me because it's a classic case of security versus usability. It could not be a more canonical instance of that issue that people that design the software, people that use it, people that deploy it have to think about on a daily basis. And whenever you're designing something like Zoom... Alex Stamos at Stanford, he's recently decided ... He's formerly with Facebook, now he's doing some work at Center for International Security and Cooperation at Stanford. He does a lot of internet observatory stuff.

Jesse Sowell:

He was highlighting something that's really interesting, which is he highlighted that's a mid-range IT firm that all of a sudden became the it thing, just like you said. It became a platform that we now increasingly rely on. And so, any time you put that amount of scrutiny on a piece of software... Going back to... Recovering computer scientists, still remember a little bit of it... Every piece of software has flaws. If you look at it hard enough, if you hammer on it hard enough, you're going to find vulnerabilities. You're going to find flaws.

Jesse Sowell:

Zoom made a choice. They decided to make their tool usable and they didn't pay as much attention as they could have to the security flaws and that seemed to work for them for a while because it wasn't as

widely used. But as with anything you do on the internet, you're going to... As soon as something becomes widely used, it's going to attract all of the malicious actors, all of the trolls that are going to come along and Zoom bomb.

Jesse Sowell:

A lot of what I've seen when you get past some of the immediate, "Oh my gosh. Zoom is insecure, blah, blah, blah," is a lot of folks are like, "Zoom has actually done quite a lot of good stuff in being responsive to their security problems, has been responsive to working with folks who have reported this." And a lot of these folks have actually ... Especially one particular cyber security actor, Gadi Evron, he wrote a somewhat scathing piece on media on the basis get off Zoom's case. They're doing a good job. What we really need to do is focus on how do we use the tools that are available to make it secure? Like putting passwords on your Zoom session or ensuring that you have a waiting room like we do here.

Jesse Sowell:

And so, a lot of this is essentially a lot of dogpiling on a tool that has many of the same vulnerabilities that a lot of these other video conferencing services have. So, if for some reason we all just said, "Well, to heck with Zoom. We're going to go and we're going to use Google Hangouts or we're going to use Skype," then all of that attention would be on them and you'd have the same dogpiling effect. I think a lot of this needs to be taken with a grain of salt and say, "Let's look at the trade off between is this a tool that facilitates distance education? Facilitates keeping people in touch with their relatives? Ameliorates some of this isolation that we're experiencing versus the relatively small effort to help people understand how to secure their sessions?"

Jesse Sowell:

One of the other interesting things that Gadi said, and then I'll drop it off, is he's ... Being a cyber security professional fairly well-known in the industry, he also not only chastised folks that were getting on Zoom's case and just being... Just dogpiling. But he's also like... He also made a call to the infosec community saying, "You guys shouldn't be dogpiling, either. Don't be classical tech pinheads that are like, 'Oh, well Zoom has this esoteric security problem. Blah, blah, blah.' Think about the trade-off. Think about your responsibility as a cyber security professional informing the public about what is genuinely dangerous to them versus something that is just like walking in the public, just like any other thing that could be public. You face the potential of being confronted with nasty individuals that are going to show you ugly images or say things that are going to be offensive to you. You face that every day when you ... In normal times, when you walk out the door, when you go to a public forum.

Greg Gause:

We don't face those problems.

Jesse Sowell:

Not anymore. We just have to worry about getting to the kitchen. But there's also a subtext of these discussions around how we frame these security versus usability problems and really focusing on what is good for the end user, good for the public, if you will, versus what is something that is something that's a really esoteric security issue that certainly is problematic? But it's the social value versus the nuance over overly techy analysis is...

Greg Gause:

Jesse, I found Zoom very easy to use and I converted over to it with relatively frictionless ... Very few transaction costs. So, I found it invaluable for this switch over mid semester to teaching at distance. But I was involved ... I was doing a seminar at distance with people, some of whom were at the Pentagon, and the military doesn't allow people to use Zoom and it doesn't allow them even to use Zoom on their personal computers. So there must be some security-

Jesse Sowell:

Yes.

Greg Gause:

... lack in there that ...

Jesse Sowell:

That is another fantastic point, which is a lot of these folks that are promoting Zoom, these folks that have... Some of these cyber security... On the ground cyber security experts are coming out saying, "Yes, use Zoom for your daily activities for things are that are like ... But if you are dealing with something that's really critical to your firm's value proposition, if it's something that you're having a call about a new product that's coming out, and you really don't want your competition to know about it, then Zoom might not be the thing to use. Because there are actors that are not just your trolls that are coming in and throwing porn on the screen or spewing out racist slurs, which are very bad. It can be very psychologically damaging to the other on that call.

Jesse Sowell:

But if you have something that's of really serious high value, or if you're, say, doing work with national security, then Zoom probably isn't the thing for you. You want to use something, there are plenty of other, perhaps less easy to use, less well known video conferencing tools that do have a lot better security. They're a lot older, they've been hammered on by a lot of other folks and been pin tested and all that kind of good stuff a lot more, that's more appropriate. So you're absolutely right, that's a great point.

Jesse Sowell:

But for the most part, at least right now, 90% of my calls are not of that nature. When I need to say, talk to one of my research subjects in the cyber security community, and it's a something that's covered by human subjects, I would not use Zoom. In part because I don't want them to think that I'm putting their stuff at risk and Zoom. I mean, it's unlikely that there's going to be someone that knows we're having that conversation, would go in to try to compromise that call, but it's still a concern. But for the most part, for someone talking to their grandkids, someone running a class, someone having just a regular day to day stand up for their firm, Zoom is perfectly fine. On the other aspect-

Greg Gause:

So I'm still okay doing my Zoom cocktail hour with my siblings on Sundays?

Jesse Sowell:

Yes, yes. You should definitely do that.

Greg Gause:

Nothing classified in there.

Jesse Sowell:

And if by chance you, they do crack your password and they break in, just tell them like, "Chill, have a cocktail, just relax." And ignore them. Or just run a waiting room.

Greg Gause:

Yeah.

Jesse Sowell:

The cocktails are not as good in the waiting room, but whatever [inaudible 00:25:25].

Justin Bullock:

So one of the things you highlighted is this trade off between usability and security that people should be aware of, as a general thinking about cybersecurity, and other values framework. Are there other things that kind of fit in that category that sometimes programming, sometimes it's optimized as the word is for usability, and security is weighted more or less heavily? Sometimes things like using the information from the program to predict something else about you might be a major goal, privacy concerns, what's to be done with the data. When you're kind of thinking about what's good for the public, and what some of the challenges are at the intersect of programming and kind of public values, how do you see some of the competing pressures here? And then I think we have a question that we'll take after that.

Jesse Sowell:

So I mean one of the classic competing pressures that we kind of batted around as we were up there planning this call is this balance between usability and an appealing platform. Our favorite whipping horse is Facebook. We all love Facebook, we all use Facebook, we all enjoy Facebook. It's another great platform for keeping in touch with people for following on what's going on. But it's what's going on with your family and friends. Some of the people you don't like, but you still follow because you want to know the latest gossip, whatever. But Facebook is notorious for collecting all kinds of information about you. And so that's another classic trade off is, whether you value the utility of being part of that social network versus the kind of private information they collect.

Jesse Sowell:

And so one of the interesting challenges there is that whenever you're looking at these things, when you speak to the programming aspect of it, you don't have to really necessarily get into the programming up to know what they're doing. You can kind of get a feel for what kind of information you're collecting. So when I was doing my master's before I did my PhD, I did a master's thesis on privacy. And one of the things that came out of that was that yes, they have these privacy statements to tell you what they're doing. But unless you're willing to wade through a lot of legalese, and you also understand enough about the technology to know how they're collecting this data. When they say things like, "We're just collecting innocuous information about you, like your age range and the region you're in and whether you like red wine or white wine."

Jesse Sowell:

But when you aggregate all that together, even though they may not have what's conventionally known as PII, this idea of like a social security number or your phone number or your home address, once they put all those little innocuous pieces together, they have a really distinct aggregate image of the individual. So they have a very good description. So if somebody took all of that aggregate image and then said, "Hey, there's this guy who's between like 35 and 45 years old, currently lives in Texas. He looks at flights to Charleston and London. He likes craft beer, he likes playing darts. He reads a lot of political economy and a lot of computer science."

Jesse Sowell:

And they'd be like, "Oh, you know Jesse, great. That's awesome." And so that aggregate image is something that they collect but most people don't necessarily... it's not obvious. It's something that it's where a lot of these tools and a lot of understanding the privacy implications are less of a, what economists would call a search good. Something that you can go evaluate and say, "Okay, this is this tool that has these properties. It's exactly what I want. It doesn't have any additional properties." It's more of an experience good, until you use it and start seeing those effects.

Jesse Sowell:

And so whenever we look at these things, one of the big challenges is, how do we start to incentivize these firms to share more information about what they're doing in a way that people don't have to go through that experience? Don't have to go through that kind of learning experience, don't have to go through having privacy leaks or having things that everybody makes fun of it. But when you share the wrong thing with the wrong person, you're like, "Oops, my ex just saw that. That wasn't what I wanted to happen." That's a challenge. But being able to find that balance. And that's not necessarily within their proposition.

Jesse Sowell:

So that kind of trade off is something that I find especially interesting as being able to kind of surface those, make it less than experience good. And more of a more of a, "Here's our contract with you." And how do you enforce that? How do you get through? How do you incent the creation of third parties that can actually monitor that without also in the same vein monetizing that information? So that to me is a fascinating trade off. And it gets to your question of what are the algorithms doing and how do we understand it without necessarily being able to see the actual algorithm itself.

Justin Bullock:

Yeah. No, I want to come back to that because this is one of the things I was very interested in talking to you about. I was just reading in Foreign Policy today, which has got the international affairs lens about the idea around a digital bill of rights from some folks out at Harvard. Thinking about what should the protections be for individuals in the digital space? Particularly given that we know... I've read some stuff from Shoshana Zuboff that's turned this terms of surveillance capitalism, right. That where you're offered a free product from Facebook or Google and Facebook being kind of the classic example of then all of the other things that you do in directing with that product are used to build up a user profile about you to target ads directly to you with a bunch of kind of intense A-B testing. But I'm starting to [inaudible 00:31:40] I can see Greg.

Greg Gause:

Anytime you get something for free, you are not the consumer, you are the product.

Jesse Sowell:

Yep, no. That's right.

Justin Bullock:

And actually the argument that's made here is you're not even exactly the product. You're part of the product. Your behavior is part of the supply of the product that's then packaged and sold to advertisers to then directly target ads to you.

Jesse Sowell:

Yep. I mean that's precisely that's a lot of what that privacy work was about was looking at how this... And so part of the reason I told that aggregate image story is that, whenever they target information to you, at the time I was very fortunate that the Wall Street Journal was also publishing the series where a canonical instance of this was a young girl, 13, 14 years old was online searching for better eating habits, healthier eating habits. And what kind of advertisements do you think she got? Just make a wild guess.

Justin Bullock:

Better eating habits. Let's see. Is there things in here like about eating disorders?

Jesse Sowell:

Close, got diet pill ads. So, of course, it's like that's exactly the wrong thing you want to tell a teenager, male or female that have all the pressures of being a teenager and all the body image issues that go along with it. That's exactly the wrong thing. That's where you're taking two pieces of information that come from two spheres of an individual's life and you're mashing them together. You're breaking down what we normally look at as our privacy contexts. We tell certain things to some people, we tell certain things to others. When you're at a restaurant, you're sitting at a restaurant, you know there's other people around you. You know what you can talk about with the person you're at dinner with. You know how far that's going to go, and you have some tacit rules between you about what you're going to talk about.

Jesse Sowell:

So you're not going to talk to them about the same things you talk to your physician about. And moreover, with your physician, it's a one-way street. You're telling them all the detailed nuance things about what you're doing and why it may be unhealthy. They're not telling you any of that. So these different privacy contexts, whenever you're online and you're cruising around and you're going from website to website and all of them have these little network advertising beacons that are collecting all this, they are essentially breaking down our understanding of those privacy contexts. So while you may feel like you're at Amazon, you feel like somewhere else, they're still aggregating that all together, and they don't discern, they just glom it all together, and then fire advertisements at you that correlate with subsets of those preferences that these are classic reveal. Whether you want to or not you revealed your preferences.

Jesse Sowell:

But they glom those together, and in a lot of cases, like the diet pills example, they may be presenting you with advertisements that elicit this response and you're there like, I know that those are things that are part of my life, but I didn't necessarily want to see those things combined and then be confronted with an advertisement that reminds me of that combination of things. That might be something that I'm fairly sensitive to. And that creates this element of discomfort, but on the other side of that, while I sound like I'm very anti advertisement, very anti-this, that's how the free, and free as in not free, internet that we know and love or at least the free platforms that we use every day are provision. That's how they're paid for.

Jesse Sowell:

So again, finding that middle ground where I don't want to sound like a green-eyed monstrous capitalist, but finding a way to allow people to say, I'm happy for you to use my preferences because quite honestly, I love getting book recommendations from Amazon. That's fantastic. I found lots and lots of great tip books. Do I want them to know my health information? Probably not.

Jesse Sowell:

But being able to understand how to enforce those partitions for people to be able to express, I want to share this with you and not share this with you. I'm happy for you to send me interesting ads because some advertisements are useful. So again, that balance we have an understanding of how we don't have to see the exact code, but we can understand how those algorithms are working and how they create these negative effects. So for me, that's the intersection with your question about what they're doing with our private information and how they're using it.

Justin Bullock:

Yeah, no, that's great. I see Faith, so that means she has a question. So let's take a question and then given that there's time, let's come back to some of this.

Faith:

All right. So going off of everything that was just said, is there a program that you would recommend for confidential conversations?

Jesse Sowell:

Oh God. So I-

Greg Gause:

Hold it, I think that that one was directed to me, wasn't it? No.

Jesse Sowell:

I mean, if you're looking to have confidential conversations then I mean something like Signal is a really great tool. It's presented largely as an instant messaging app that works on your phone. That works on, if I remember correctly, I haven't ever used Signal on the desktop, so I don't know if it has a desktop client. Things like Signal, Telegram. I would have said WhatsApp, but they were just recently, they are owned by Facebook. And that was a huge controversy whenever they were acquired by Facebook, and Facebook said, no, we're going to let you just go on being WhatsApp and hue to your ethos of privacy that drew all your customers, but then they kind of renege on that.

Jesse Sowell:

So I would look into things like Telegram and Signal, both of which have voice capability and if I remember correctly video capability. I usually use them for voice, but those are two good ones that are explicitly dedicated to keeping your conversations private, having end-to-end encryption. All the good stuff.

Greg Gause:

So let me ask, I mean, given our discussion, are those apps free?

Jesse Sowell:

Yep.

Greg Gause:

And so how did these people finance themselves?

Jesse Sowell:

So if I remember correctly, Telegram has... I'm sorry, I've forgotten which one it was, but Telegram or Signal, one of the two has a fairly huge grant that's been given to them. And I do believe one of them has a paid subscription-style offering, but I haven't dug into, because I use the free versions and I've never... So, yeah.

Justin Bullock:

Zoom, I believe, has a paid-for version. We'd just get licensed, like what some of the-

Jesse Sowell:

Yeah, Zoom does. Zoom has a whole tier structure of-

Greg Gause:

I mean, at Texas A&M, we're not paying. We, the individual faculty and students are not paying [crosstalk 00:38:55] but I think the university's paying for Zoom.

Jesse Sowell:

Yeah, the university is paying for the license, yeah. So Zoom has a license, but for a lot of people, Zoom's free offering is perfectly fine. I mean, it allows for somewhere around 50 or 100 people per session. So unless you're doing something like a big webinar, then... And I think some of the distinctions are whether you can turn on authentication. Some of us have to... All of my classes that I set up, I make them do the TAMU net ID login. So I think that's a paid feature. But I think in the free version, you could still set the password, still set the waiting room list. But yeah. So again we have this borderline surveillance. Is this surveillance capitalism?

Justin Bullock:

Yeah. Yeah. No, it's a good question. I want to shift to COVID-19, and talking a little bit about how we mentioned in, at the start out as something that we started using more as a consequence of COVID-19, and you used, Jesse, some of the health data concerns and some of the methods that are being

discussed around, how can we intelligently integrate back into a somewhat of a normal existence, involve tracing? Do you know much about that? I didn't prep you with this question, but this presents some concerns about what types of data and storage capabilities we want both government and private actors to have getting some of the nuance. [crosstalk 00:40:38].

Jesse Sowell:

Tracing individuals movements such that we can give reporting information on contact information without necessarily excruciatingly violating individuals' privacy.

Justin Bullock:

Ah, yeah. You worded it perfectly. Now you have to have as good of an answer as you did frame it.

Jesse Sowell:

Yeah. Yeah. Yeah. So there's a kind of tool that Apple and Google have been working on, which basically is something that they're both going to bake into their respective mobile phone operating systems. And what it does is, it doesn't share any information about you. What it does is it uses some interesting encryption and encryption techniques to create these... They turn on your Bluetooth and Bluetooth is great because its range is farther than what you should be with social distancing. So as you approach someone, if you've been in the Bluetooth range of someone else who's also using this, your two devices are going to exchange essentially these random numbers that they can tell because of... Without going into detailed encryption magic, that this was generated by this particular device that was assigned this key, this one was generated by this device, it was assigned this key.

Jesse Sowell:

So if you come along and if you're [inaudible 00:42:02] or a lot of us are using these devices, as we move in and out our day, what these devices do is they say, "Okay, when I was walking along, I saw these utterances from another device, this device made this utterance, this device made this utterance." And it collects all of them and it uploads them to a common repository. Again, none of this, if they implement it correctly, which I trust, given the scrutiny of this, that a lot of people that do encryption a lot more regularly than I do, will scrutinize this and it shares this in this repository. So then if you go to the doctor and you're like, "I'm starting to feel like I've got COVID symptoms," or you call up your doctor on Zoom, or however you report it that you're feeling affected.

Jesse Sowell:

What they can then do is say, "Let's look up the utterances from your device and see who else has seen those, who else's devices has seen those." So they have a way to contact the individuals whose devices came into contact with yours. So they then immediately say, "In the last so many days, back from whenever you started exhibiting symptoms, you encountered this many people." So it's a really interesting prospect. There's actually a cute web comic that actually describes this because these are combination of privacy advocates and encryption nerds that are helping contribute to this. So of course they love to make comic depictions of a very technical thing. So it's a really interesting potential solution that seems to be modular, some failure modes and deployment could be a really, really powerful way to trace contacts without necessarily sharing information.

Jesse Sowell:

Now the oversight on how Google and Apple actually bake this into their phones. I would actually rather see this as something that's an app that you download yourself and you know you've downloaded, you know it's doing this rather than having it baked into the operating system. That is a potential concern. But again, there's a certain amount of scrutiny that goes on there and especially since it is broadcasting, there are lots of mods of security folks that can certainly test us and say, "Is it really just broadcasting this information?" And they can also monitor what... Because a lot of these folks that do this kind of testing, they monitor exactly what their phone communicates back to the mothership. So there is the potential for some degree of accountability there. And that's about the extent of my knowledge to it. I read the web comic, I read a couple of articles on it and I was like, "That's cool." And moved on to my normal stuff.

Justin Bullock:

Yeah. So as we've gotten a little bit into the conversation, we haven't really circled back to some of the... I mean we've talked about some of the privacy issues, but I know one of the things you're interested in talking about was some of your work on internet security and non state actors, so just give me the basic overview of what you know from looking at those topics, so we can share that with our listeners and those people that are here this evening.

Jesse Sowell:

Sure, so when we think about the internet, when we see it on the surface, when we see Facebook, we see the web in general. It looks like this nice contiguous communications platform. You click on a link, you go to another webpage, you click on a link, go to... Underneath the hood, it is a network of thousands and thousands of networks that are all largely privately owned and managed and yet still somehow they cohere into this common platform, this common communications cloud. One where any modular censorship efforts by our favorite folks that we know do censorship like China are on.

Jesse Sowell:

Modular those cases, for the most part, any end node can communicate with any other end node. I can reach out and send a message right now. I can send a message to, if I know its IP address or even I know it's domain name, I can send traffic to a point in Japan or I can send a point in... And that has to cross multiple different private networks.

Jesse Sowell:

I was thinking about this, I was just kind of curious and I was like, how do our networks, TAMU and say SuddenLink, which most of us use, how do they connect? So, they all have upstreams that they have to go through. So SuddenLink connects to GDT, it connects to Telia, it connects to a number of these big firms.

Jesse Sowell:

But somewhere in there, it's not just the magic of the technology. These relationships are managed by individuals that have to keep track at the border of each one of these networks, how traffic is being exchanged. How it's being managed, whether you're seeing congestion, whether you're seeing things like a denial of service attack coming from another source.

Jesse Sowell:

And in terms of political economy in a classic kind of cooperation story, that is a fantastic story of people that work, these engineers that work for very different firms, many of whom that compete with one another. Google and Netflix and Hulu, their network engineers collaborate to a certain extent to share information about attacks they're seeing, about vulnerabilities they're seeing.

Jesse Sowell:

Because if this transnational network, if all these connections between them don't necessarily work as we expect, it's very easy for those externalities to spread and affect everyone. So there's a tacit level of cooperation there that has very different political dynamics and dynamics of how they create authority in these groups than we see in conventional governance processes.

Jesse Sowell:

And so that's in effect what I study. I look at how they cooperate on what, situate. On what topics they cooperate on and what issues they cooperate on and what issues they don't. So for me, there's a question of, these guys have maintained the security of the instability of internet for quite a while. But increasingly governments, they're not satisfied with, "Okay, these cowboys are going to ride in and solve these congestion problems. They're going to solve these security problems. And then they're just going to ride off into the sunset." They want stronger guarantees.

Jesse Sowell:

So when we think of this one kind of political order that we have amongst these actors that are managing the infrastructure is very different political order that we know of as conditional government and the conventional politics and that. They don't have to be competing with one another.

Jesse Sowell:

But understanding how they can communicate so that we can say, make better regulation about IoT security. Or how we can make better decisions about rural broadband deployments so we can ensure that everyone has the same kind of quality of service. And I know I said I don't like [inaudible 00:49:14] but that is an issue when you get to the end structure level.

Jesse Sowell:

Those are the kinds of questions that I think that these communities have an extraordinarily deep knowledge. Governments don't necessarily have the capability to collect this information to be on top of all these changes. How do we create an interface between these so that we can actually have better informed regulation, laws, statute, whatever. So, that's a little bit longer than a nutshell.

Justin Bullock:

Yeah. Well, as I alluded to in an email to you, we need to chat outside of our podcast thinking about these, how to regulate these issues and the balance between things like privacy and usability and accessibility and discrimination. There's actually a group of us that are starting to have some conversations around that at A&M. So you and I should talk. Greg, did you go mute on me? Are you muted on your end? Is everything okay?

Greg Gause:

Yeah. Well I'm following along, following along. I mean, truthfully, I know more about Jesse's work than you do since I actually recruited him to the Bush School and I'm his department head. So I kind of knew some of this stuff already and I just wanted to allow you to be educated.

Justin Bullock:

You're letting me have my moment. All the questions always come from Greg. Greg's letting me have my moment. All right, Greg, I warned you-

Jesse Sowell:

Greg has been gracious enough to let me ramble on about that for much longer than I did just there. So, he's a gracious fellow. He smiles and nods at the right places and then says, "Go [crosstalk 00:50:55] nowhere."

Greg Gause:

Yeah. Yeah. In the end I always say, "Yeah, government will win in the end."

Justin Bullock:

Greg [crosstalk 00:51:03].

Greg Gause:

Has armies and police forces. So they will win in the end.

Justin Bullock:

Yeah, they have the violence.

Jesse Sowell:

Except they rely on the internet to communicate. So, ah.

Justin Bullock:

Greg, I want you to explain to me that oil prices were negative and I don't understand that at all. I asked you before and warned you that somewhere you need to explain to me how oil can have a negative price. So close this down because I don't think we have any more questions. So close us down with how is oil negatively priced at some point.

Greg Gause:

So we were in an interesting situation yesterday where, if you were willing to take a contract to receive a certain amount of oil, a futures contract, the person who was "selling" that contract to you, was actually not getting money from you, was going to give you money to take that contract. And this is unprecedented. It's never happened in the futures market.

Greg Gause:

So it was a weird concatenation of circumstances. The most important weirdness to understand is that the futures market in the trading of oil is almost exclusively among people who never actually want to take possession of any oil. They're trading paper contracts in hopes of being able to play a market and

arbitrage differences in markets and guess right where other people guess wrong. And make money by trading paper, not by actually taking possession of oil.

Greg Gause:

So futures contracts unravel toward the end of the month. These were futures contracts to accept oil, to receive oil in May. And I think, I forget if the contracts actually get unraveled tomorrow or Friday or Thursday or I forget when. But we were coming close to the end of the trading period. That is to say if you get caught with a hot potato at the end of it, you're actually obligated to receive some physical barrels of oil.

Greg Gause:

And as I said, almost no one who trades in these markets wants to receive physical barrels of oil, particularly at a time, and this is the second circumstance that's unusual, when we are in an enormous global oversupply of oil. Not only because demand for oil has collapsed as a result of the COVID pandemic, but also because for all sorts of interesting political and economic reasons, and technological reasons, we're awash in oil. All right. The United States is producing an enormous amount of oil, much more than it was six or eight years ago.

Greg Gause:

Saudi Arabia and Russia, for reasons having to do with their own market share, ideas and dominant, asserting dominance in the market. We're producing more oil than they had been producing for a while. All of this happens at a time when global demand is completely collapsing. There is no place to put physical barrels of oil, right? The tank farms that you see, if you're driving through New Jersey, up to New York, right? Or big tanker ships that you can just put oil in and have them wait offshore. Those are all full. There's no place to put the stuff.

Greg Gause:

So we're in a strange situation that you didn't want to get caught with the hot potato at the end of this futures contract period. Because not only do you not usually want to take possession of physical oil, but there's actually no place to put it. And so that's why you could "buy" a futures contract for a barrel of oil at minus \$35, which is to say the person selling you that contract would give you \$35 to take the contract off his or her hands. So it's an artifact, but it's also an indicator of the enormous oversupply of oil in the market right now, given the collapse of world demand. So that's why you saw West Texas intermediate futures contracts for delivery in May go into negative territory yesterday.

Greg Gause:

There's your short answer. It has nothing to do with the internet, except I think you're actually done on the internet now. And information about storage capacities are probably conveyed via the internet.

Justin Bullock:

So there's one followup on that, I see, Greg, from the crowd, which is, do you know if the US strategic oil reserve has any excess capacity?

Greg Gause:

It does. I don't know how much, and probably very few people know how much because actually measuring where the SPR, this strategic petroleum reserve is, is a day to day thing, because it's in salt caverns in Louisiana, close to Texas, and they seep. So you've got to go in and you got to test every once in a while. It's very, very interesting, because the president said, weeks ago, "We're going to buy oil. We're going to fill the SPR up to the top." But the Congress, in its wisdom, didn't allocate any money in the various bills that went through to try to fund the emergency procedures to keep the economy on life support with the coronavirus pandemic. They never allocated any money to buy oil for the strategic petroleum reserve.

Greg Gause:

So, it was Congress. And in the end, Congress appropriates funds. And as much as President Trump might want to spend money that Congress has not appropriated, and has found ways to spend money that Congress has not appropriated, by declaring national emergency to try to build the quote unquote border wall. He has not been able to find a way to spend money that has not been appropriated by Congress for further filling the strategic petroleum reserve.

Justin Bullock:

Final question, while we were talking, this is a yes or no, and I'm going to hold myself to yes or no on this as well, okay? So yes or no is the rule.

Greg Gause:

Jesse's got to do yes or no on this, too. I don't care [inaudible 00:57:52].

Jesse Sowell:

I got a notification on my [crosstalk 00:57:55]. What was that?

Greg Gause:

What are the two answers again?

Justin Bullock:

So, the headline from the Wall Street Journal and notification to me for an article, of course I haven't read because I'm hanging out with the two of you, the big question for colleges, will there be a fall semester on campus? And I'm going to say, Texas A&M campus, and I'll go first, and I'm going to say no. I don't think we'll be on campus in the fall. Gentlemen?

Greg Gause:

I'm going to say yes, but with this caveat.

Justin Bullock:

No, you only get no or yes, Greg. You only get no or yes.

Greg Gause:

I said yes. I said yes, but here's my caveat. That's a straight up bet, that yes or no. If you give me any odds at all, I'll go no.

Justin Bullock:

I like that. Jesse?

Jesse Sowell:

No.

Justin Bullock:

Okay. Well, when we start back recording again in the fall, hopefully we still have a meeting next week, but we've got our answers on the record. We'll have to revisit in the fall this episode to see who was right, and see whether we also think whoever was right, was right for being right. Was it a good idea to go back or bad idea for going back?

Greg Gause:

[inaudible 00:59:21].

Justin Bullock:

Okay. Yeah.

Jesse Sowell:

We need to send a nice little, speaking of cryptography, nice little cryptographically signed message that says, "This was my answer," and then we can decrypt it in the fall and say, "It's signed." We know the person said it. There's no reneging. There's no like, "Oh, well here's my answer. Now that I know the..."

Justin Bullock:

What I need is one of those timed emails, right, where I can send an email to the three of us [crosstalk 00:59:45] and Faith, so that we can't sneak out of it, that September 1 or August 15th, it generates our responses and sends them to us. Gentlemen, Jesse, thanks for being here.

Jesse Sowell:

Thanks for having me.

Justin Bullock:

It was great to get to chat to you about these things. Let's have more conversations. Greg, thanks for letting me do so much of the talking tonight, and thanks to the audience for your questions and for being here with us tonight.

Greg Gause:

Bye-bye, everybody.

Justin Bullock:

We'll see you next week. Same time, same place.

Greg Gause:

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End of semester.

Justin Bullock:

Oh, yep. Thanks everyone.