Catalyzing Computing Podcast Episode 7 - Interview with Keith Marzullo Part 2

Intro [00:00:10]

Hello, I'm your host **Khari Douglas** and welcome to **Catalyzing Computing,** the official podcast of the **Computing Community Consortium**. The Computing Community Consortium, or CCC for short, is a programmatic committee of the **Computing Research Association**. The mission of the CCC is to catalyze the computing research community and enable the pursuit of innovative, high-impact research.

In this episode of Catalyzing Computing, I sit down with **Dr. Keith Marzullo**, the Dean of the **College of Information Studies**, also known as the iSchool, at the **University of Maryland College Park**. He joined the iSchool from the White House **Office of Science and Technology Policy**, where he directed the **Networking and Information Technology Research and Development Program**, or NITRD for short. NITRD enables interagency coordination and cooperation among the over 20 member agencies, which together spend over four billion dollars a year in NITRD. Keith is a member of the **CCC Council**.

This is part two of my interview with Keith. In this episode, we discuss being the dean of an iSchool, as well as his thoughts on the impact of technology on society. If you haven't heard part one and you'd like to, **check that out first** and come right back.

Interview [00:01:20]

Khari: So, Keith, after you left NITRD, then you went to the University of Maryland, where you became and still are the dean of their iSchool. What prompted you to move to an iSchool as opposed to a computer science department?

Keith: Yeah, so my time working on that project in cyber security with the people in social, behavior, and economic sciences (SBE), it really opened my eyes. A lot of the things we do in computer science are based on technology solving problems, but we're at a time where technology is getting more intimately embedded in our lives. I mean, I have here a cell phone, I'm sure yours isn't too far away.

Khari: Yeah mine is in my pocket.

Keith: Yeah, I mean we all have technology around us all the time. I have an Apple watch on too. We are all wearing these things. But technology also is around our homes, it's embedded in our workplaces and all those technologies are getting really close to us. Understanding the people side of that equation is really important. We like to joke that engineers consider people inconveniences, that is, how can you design something so that people don't muck it up, right?

Khari: Right.

Keith: There's some truth to that, but in iSchools, we tend to look at the information technology and people as a holistic thing. So when we design things, when we're in that area, we want to design it with people. So it isn't that you just look at people and say, "What technology do they want," well that's part of it, but there's a kind of iterative process that as you design something then the way people use it will change, and so you need redesign based on that. It's a shifting landscape. It's a kind of systems thinking, like in operating systems, except it includes people.

Khari: I mean, that makes a lot of sense, obviously. The technology ecosystem does not exist without people using the devices.

Keith: Right, and so iSchools are deep in that world. So when I was looking around to going back into academics, I thought, "Well, I could go into computer science again. I love computer science, but this whole people side of the thing is really fascinating." And since iSchools are addressing that front and center, I thought, "Let's do that." The University of Maryland is a great iSchool and it's within the Beltway, so it has good connections with the federal government so it seemed like a wonderful opportunity.

Khari: So what challenges have you found are unique to being a dean versus being in a management role in a government agency?

Keith: There's a lot of differences. The most obvious one is in a federal agency everyone's working on a mission -- different agencies have different missions -- and so in some ways, it's much more like a company. You have responsibilities, you have command and so you're able to get things done by making plans and having people do things because if you tell someone to do something they do it.

[Laughter]

Keith: That doesn't sound like a university, does it?

[Laughter]

Keith: Universities are all shared governance, a huge part of it. So the way you get things done in a university is by getting people together and understanding what directions people want to go, reaching consensus, and moving forward based on that. As a dean it's my job to help my college grow, help my college develop. I certainly have my own ideas and I can go to my colleagues and expound on those ideas, but just

because I say we should do something doesn't mean we're going to do it. Instead, I need to work with my colleagues, to hear what they want to do as well and then from that craft a vision that we all share so we can go together.

Like, for example, after a year at the iSchool I tried to come up with a couple of areas that I felt were important -- and I couldn't have said this before -- having been at the iSchool for a while. One was looking at trusted information in an untrusted world. Trust in our institutions is at an all time low and it's continuing to go lower. Libraries, by the way, are still trusted.

Khari: Really?

Keith: They are and there's reasons for that, which we can go into later, if you wish. But people are more willing to trust individuals than they are to trust institutions. And so people in my iSchool, since we provide information through libraries, but [since] we also look at how information disseminated, how it's cleaned, we're in a good position to be addressing, how can we increase people's trust in information when there's a dropping trust in the institutions around us. Some of this is computational and some of this is policy and some of this is just pure old people.

Khari: So have you guys done any projects related to that that you could mention?

Keith: Well, we have a couple of people who've been looking at how engineers design things with respect to privacy. What are the values they put into what they're building based on their understanding of privacy? This is Jessica Vitak and Katie Shilton. So that's one thing we've been doing in that area.

Then we have people who are looking at visualization, how can you look at information to understand what it says? Niklas Elmqvist does that. And that's really another way to

try to build trust if you think of it. If I can take information, allow you to look at it in different ways, in ways that increase your understanding, that's also going to increase your trust.

Khari: So you've had a lot of management roles both in academia and in the government. Do you have any advice for people that are trying to move up into a management role or just got a management role in either sector?

Keith: First, it's a funny thing in academics, because we all like to say that you are throwing your life away if you become department chair or a dean -- "What are you doing?" -- because it's going to take away from your research. It doesn't stop your research necessarily; although it's hard for me to do my research I'm doing some. But there is such a strong sense of mission within academics that getting involved in management is seen as suspicious by our colleagues. So my first bit of advice is don't listen to them. It actually is really wonderful to get involved in the next level up.

You can think of -- and this is gonna sound demeaning and I really don't mean it to -- but as a chair you can think of your fellow faculty as like your graduate students. You're helping move them along so they can be successful. Of course, they're very talented people, it isn't like you're necessarily mentoring them, but you're providing an environment in which they can be successful. The other part of my advice is to build partnerships, and this I learned from my time at NSF and NITRD.

You can do things great by yourself. Indeed, academic culture pushes you in that direction. The whole thing of getting tenure is a way of writing papers that people say, "You are brilliant, you've done this wonderful work, we're gonna make you an associate professor." And while we do look at collaboration as being important, every time you look at a tenure case you're asking the question, "What did this individual do?" And that's unfortunate because when you get at the organizational level, when you're working in departments or colleges, if you're a dean finding ways to collaborate with

others is a great way to do things, to move things forward, because we all have different strengths. It makes it hard because we all have different values. But if you can find ways to partner, you can do amazing things.

Khari: So how do you handle the intersection between computer science and CS research and the iSchool more like social science side?

Keith: It's gone really well, but there's tensions. Not necessarily at my university and I'm not going to say which universities there are, but there are iSchools that are pretty antagonistic with computer science. That the computer scientists tend to think of the people in the iSchool as being CS light or or just applied CS and the people in the iSchool think of the computer scientists as being technological utopians, you know, who would think that somehow they're using new liberal policies and...you could go down this path, but clearly they are just doing things without understanding the larger scope of things.

I'm pretty fortunate that I have a good relationship with the [Chair of Computer Science](#) and we are working together. We are doing some coordinated hires this year in information retrieval, for example, and we have people in my iSchool that have joint appointments in computer science and I have one too. And my faculty will have some of their Ph.D. students be from computer science, especially people who do more computational, information based things. And we share a lab, it's called the [Human Computer Interaction Lab](#), HCIL, as part of [UMIACS,](#) which is a computational center that computer science is deeply invested in, and the iSchool, and it's a really nice place for us to cooperate.

[Ben Schneiderman](#) was the one who set it up, so it's really, very strongly in the design space. And that brings in understanding computation and information, as well as how people use things psychologically. So it's a good environment for us to share common space.

Khari: So what kind of projects or technologies have you guys been working with in the HCIL?

Keith: It does a lot of stuff. In the iSchool, we have people who are using technology to do new things, and so there is some adaptation or further development of that technology, but a lot of it is how do you embed it with people. So, for example, Hernisa Kacorri -- she's relatively new, I think this is her second year -- she has been looking at how can you translate American sign language to English with an ultimate goal of doing simultaneous translation.

This is pretty hard because ASL, American Sign Language, is not just your hands, but it's also where your hands are located, the angle of your head, what you're doing with your face, and so understanding all these details is really hard. She's using deep learning to do that as well as image processing.

Khari: Ok. So she is like recording people doing sign language and then that would appear in English on a monitor?

Keith: Yes, right now she's just building avatars. But yes, that's the direction we're going.

Khari: Yeah, that would be pretty cool, I guess.

Keith: It is cool. Amanda Lazar is another one who's doing HCI. She's part of the HCI lab. She, for her dissertation, was building technology for people who are demented, [have] Alzheimer's. She's generally interested in technology for the elderly. And the way she's been thinking about this is what can people at different stages in Alzheimer's do and how can you provide technology that will help them connect with their family. Some of this is through art, through music.

So she's again looking at the space of the users, in this case, the families and the people who are demented and the models, the ways that the medical community is working with them to be able to develop technology that can improve the communication that exist with people in those families.

Khari: Pretty interesting projects. So what's the breakdown of grad students in the iSchool who majored in computer science or electrical engineering or something like that versus the humanities?

Keith: So we have several programs. Our undergraduate program, I would say, is about..if I had to guess 50/50, maybe a little more on the technology side. That program is growing really rapidly. It went from zero students to now it's about 820.

Khari: Wow.

Keith: Yeah and I think we'll break 1,000 this year. And we're getting students from computer science because we are doing interesting things with computation but we have a more humanistic viewpoint, which is appealing to many people.

Khari: So do these people just take classes within the iSchool or are there majors or undergraduate majors that you offer specifically through the iSchool?

Keith: Yes, there's one undergraduate major we offer. And so our degree, which is called a [Bachelor of Science in Information Science](#), we call it InfoSci, is what we call a discovery major. It's relatively new, so people outside, students outside, when they apply, they don't know about it but when they get there, they say, "Oh, look at this." And they have friends who are taking InfoSci. We graduated our first students last spring.

Khari: Oh wow.

Keith: Yeah now, that was very cool. Before that I could say, "Yes, every student graduating in InfoSci has gotten a job", because there were no students who graduated from InfoSci. But the placements have been very good. They're getting jobs as database administrators, UX designers, working in cybersecurity, some people are working in archives. They're doing some really interesting stuff.

Khari: Is this a common major, InfoSci, now or is it still sort of new?

Keith: Yeah, iSchools are starting to increasingly offer them. So Syracuse has one, Michigan has one, Washington has one, just to name three off the top of my head. They're springing up all over the place. You know, at Maryland, I think it's like in the top five, certainly the top ten popular majors.

Khari: Wow. Yeah, I mean, I guess it certainly is the wave of the future.

Keith: Yeah.

Khari: Do you think people that come into the grad program at the iSchool have more of an advantage if they have more technology skills versus social science skills? Or vice versa.

Keith: That's a really great question and I have to attack it sideways. I apologize for that. Unlike computer science programs, iSchool is in some ways a professional school. Remember, we used to be library schools. If you get a master's of science in computer science it's a good thing and more and more they're starting to be treated like professional programs, but historically, the important program in computer science was a Ph.D. program. So when you say graduate students, you think Ph.D. students. At iSchools we started teaching Master's of Library Science. Indeed, the Maryland iSchool is still the library school for the state of Maryland.

Khari: Oh really?

Keith: Yeah. In fact, I'm a member of the [Maryland Library Agency Board](#), which is really interesting, because I don't know much about libraries. I do now, I've learned a lot more, but going in there I really knew very little.

And so we're a professional school, many of our graduate students are master's students. Those going into Library Science, it's now Master's in Library Information Science. Many of them are technophobic, right? They like books and they like working in libraries, but not all of them. We're seeing increasingly more and more of them quite interested in using technology like V.R. and A.R., for example, to work with public libraries, school libraries, academic libraries and so on -- and in archives.

We have a [Master's of Information Management Program](#). Those students go off and work at places like Price Waterhouse Cooper, Ernst and Young, various beltway bandits.

[Laughter]

And those people are highly technical, they're interested in data and analytics, data forensics, things like that. It's quite technical. Then we have a third major, a [Masters in Human Computer Interaction](#), HCIM, and of course those students are very technical as well. They're interested in the design space, they want to go off and be UX designers, things like that.

Khari: So the iSchool strategic plan mentioned the goal of increasing the number of prominent research centers. How's that work going, and have you developed any interesting research centers you can talk about here?

Keith: Sure. It's going well...by the way, we're redoing that strategic plan, that plan is like ten years old and we're undergoing a new plan right now, which is really a lot of fun. But yeah, we've actually executed on that part of the plan. Our main center, I mentioned one, the HCIL, that is doing well. Every year they run an HCIL Symposium and I think the CCC has come and actually visited to hear all the great things that are coming out of that.

The latest center we've created is something called the Trace Center, and saying that we created it is a gross overstatement. What we did is we lured the person away from the University of Wisconsin to come to Maryland and bring his center with him, and to say that we lured him away as also an overstatement, because he came to us and said, "You know, I want to live in D.C. How would it be if I moved to Maryland?"

[Laughter]

Keith: Greg Vanderheiden, he's a wonderful guy. And what Trace does is look at the problems of accessibility, which is...what a great iSchool topic. Indeed, I think the iSchool is a much better place for the kind of things he does than back where he was in engineering [at] Wisconsin. I mean they liked him there, but they weren't really his people, we're very much his people.

And so he has a RERC, Rehabilitation Engineering Research Center, out of NIDILRR [National Institute on Disability, Independent Living and Rehabilitation Research], and it was just renewed for another five years this year. Plus, he gets money from the Department of Education to build mechanisms and policies that will increase accessibility to technology. And that's really the whole goal of the Trace Center, is doing that. Much of the accessibility you find on a Macbook, for example, came out of his lab. He developed that a while ago.

And what they're doing now is finding ways to quickly change the configuration built on the software, on the device, be it an iPhone or Android phone or a P.C. by using basically an RFID, some way to indicate what your profile is. It then, through software, will just enable the accessibility features you want. And then when you're done, it gets reset back to the way it was before.

This doesn't seem like it's hard. It's really, really hard, right?

[Laughter]

Because you have to get agreement in place, companies to support this. And it has incredible social value. Greg likes to talk about how he's interviewed elderly people who don't use computers, because their kids, who are adults, will set up the computer for them so that they can have the visuals. You know, it's magnifying and such, maybe high contrast, and then that person will hear their grandkids come in, try to use a computer, and say, "Oh, this is set up for a grandma and I can't use this." And that makes the grandparent feel ashamed and so they just stop using it, and those are the social pressures. So if you can make this easy, then that social pressure goes away.

Khari: Huh. Yeah, I guess I never really considered that aspect. So as far as accessibility like in phones, do apps that go to the app store or the Google… I forget what the Google one is called…

Keith: Google Play.

Khari: Yeah, do those have to be certified as far as accessibility or...do you know?

Keith: I don't know. That's a great question. We should ask Greg. What does the [Americans with Disabilities Act](#) say about apps?

Khari: Yeah, I don't know.

Keith: I don't know, I should know. What a great question. Let's look that up.

Khari: I mean, I can Google it. Let's see.

So according to this first website I found, which is the [New Possibilities Group](#) -- I don't know what that is -- a couple years ago, the Department of Justice made changes to the Americans with Disabilities Act, requiring all mobile apps to adhere to people with disabilities. So there are some [guidelines](#). I'm not going to read through all of these, but I guess there are some requirements. If you build an app it needs to be accessible.

Keith: Well, my guess is the bar is pretty low.

Khari: Yeah.

Keith: One of the things that Greg likes to talk about is how if you're a company and you have a choice, a marketing choice, to work on some system or application that increases accessibility vs. create a new application that will bring in more people, what are you going to spend your money on? Just, it's a business decision and so the marketplace is somewhat biased against trying to increase accessibility. And accessibility means different things to different people. People are complex that way.

Khari: Yeah. I mean this incentive structure seems like a problem also in cyber security and privacy, in terms of, are you going to spend the time making your program secure if it works or just build something new that will make you more money?

Keith: Yes. How serious are you going to be? What are going to be the ramifications if there is a security breach?

Khari: So related to that…Well, first, so how did you first get involved with the CCC and the CRA?

Keith: Oh, I got involved with the CCC and CRA through workshops just like everyone else. I got invited to [some workshops](#).

Khari: And you're a member of the [Cybersecurity and Cybercrime Task Force](#). So can you talk a little bit about the projects you've been involved with in the CCC, like [socio-technical cybersecurity](#)?

Keith: Yeah, so the socio-technical cybersecurity -- which I got involved with just when I went to Maryland actually -- was the question of can we define a research agenda that looks at the socio-technical aspects of cybersecurity? Not... I mean, there's a lot of important things you can study that are just purely technical: quantum computing and the security associated with that, cryptography, tamper proof hardware, issues with 5G. But since cybersecurity is a problem that we're doing to ourselves...I mean, it is not an inherent thing like gravity that, you know, it's just out there -- it's something between people. We were interested in saying...could we bring together social scientists, computer scientists to understand possible research issues in socio-technical cybersecurity?

The things we came up with were good. Things like incentives -- what are the different incentives you can put in place so that people do better security? We were just talking about incentives, right. There are issues of getting data to understand how well you're doing and what the issues are. This is especially an issue in cybercrime, understanding what are the kinds of crime that is happening in cyberspace. How are they reported?

How can you then understand whether you're moving the needle, for example? So we had a lot of that that came out.

One of the topics that came out, though, which is funny, is how can we learn better to work with social scientists [and] computer scientists? Because we all realize that the communities...there's a lot of value in working together. But you have to find ways to bring them together.

Khari: So related to this idea, I want to hear your thoughts on can technology really help to reduce crime or are new kinds of crime enabled too quickly to be contained?

Keith: Right off the bat, I don't think you can solve crime through technology because people are people and everytime you create a technology you create new tools for crime, of course. But depending on how you phrase this you can end up in a very bleak, pessimistic point of view. It's sort of the Whac-A-Mole theory of cybersecurity that you stop something over in one place and they pop up somewhere else. This is a common metaphor you see in people who are working in cybersecurity.

The problem with that is it encourages people to think about problems too narrowly rather than systemically. So that kind of thing...I call it a false dichotomy because you're looking at this tradeoff between, well, is there just going to be more and more crime because of more technology or can we really solve things? In fact, you need to look at the broader questions.

A great example of this is -- this is old research now, but it's still awesome research -- the [work](#) that [Stefan Savage](#) did. So [he was looking at spam](#) and of course we've been trying to fight spam for a long time by building better and better filters, spam identifiers, using machine learning for this and so on. Of course then people change their spam so they can get around it. That's your classic Whac-A-Mole or arms increase kind of

approach. And what Stefan did instead is he said, well, this is one small part of a larger system. Why are people sending spam? Well, they're doing it because they want to sell things and so can we look at the broader ecosystem that they're operating in. If we can understand other parts of the system that we can poke at or modify then we can do better.

Khari: Ok.

Keith: And so, through some awesome research and if anyone's listening and you haven't looked at this research, go read it, it's just beautiful. They broke into the Storm Bot, this Russian botnet, and they were able to understand the process of generating a spam campaign. They found that the weak part of the whole environment was the merchant banks because people have to buy stuff and at that time they were buying them mainly with credit cards and credit cards have to be cleared.

While it was very easy to compromise a machine to be a part of a zombie botnet, you can't change the merchant bank relations very quickly. And so if you want to stop, say, the sale of illegal software, all you have to do is say that if there is a charge for software going to one of these very small number of banks on a credit card clearance deny it. In doing so you'd knock out the economic struts of the thing that's sending spam.

So that approach, where you're trying to change the field of battle to something where you have better control, that's a really nice way to think of cybersecurity. By the way, it's also the way that people think about warfare, the same kind of thing. So in the same way that we study warfare, we develop new technologies for warfare...we still fight wars but we have changed the way that they're fought. I think a similar analogous argument is happening with cybersecurity.

Then there's some other stuff, too. I mean, there's this one paper I love by Deirdre Mulligan and Fred Schneider, where they look at cybersecurity as a common good

rather than as good guys, bad guys and asking, "What are the policies we could put in place that would help improve cybersecurity in general?" Their observation is that, for example, with E. coli, that's a terrible pathogen, can be, and people die from it all the time. We never, ever when someone dies, take the bacteria and put it in jail.

Khari: Right.

[Laughter]

Keith: That's right, it makes no sense. So even though the E. coli is a bad thing, we don't criminalize it. Instead, when we worry about disease, we have ways of tracking disease, we have ways of putting people in quarantine, we affect their civil rights. Quarantine is a great example of where you restrict someone's civil rights for a common good and so the question is, can we think of cybersecurity in that context as well?

Khari: So are there any examples of how you would quarantine a cybersystem?

Keith: So, I mean, there's some work that's going on. You can imagine the Internet of things, if you have some smart device, cheap device in your home, and it becomes a target of attack, it could be your fault for not upgrading it or it could be the company's fault because it's too cheap to be upgraded. But at that point, should you lose some of your rights in terms of that device? I mean, you could force remotely that device to stop communicating. That's a kind of quarantine.

Khari: Yeah, that's an interesting idea. Are you, as an individual, legally obligated, say, to have good, say like, password security, like if your password is "password1?" Could you be punished in some way if people start doing stuff to your account because your password was too weak?

Keith: Yeah, yeah. Or should you instead treat it as you're taking on a risk and you're going to cover that risk by some kind of insurance and so then your premiums go up if you do things like that.

Khari: Do you think that's in our future? Like 15 years down the line, everyone has cybersecurity insurance or cyberinsurance where you pay some kind of premium that if something happens they will reimburse you for your damages.

Keith: I think that's already happening at the corporate level, at the organization level. Will individuals have that? I don't know. Sounds to me we should open up a business.

[Laughter]

Khari: Yeah, that's interesting. So you mentioned that libraries are still one of the most trusted institutions. Can you expand on that? Why do you think that is?

Keith: So I used to joke -- and this is a joke -- that it is because librarians don't make any money. We do underpay librarians. I'm just going to go on the record, we should pay librarians more because they work their fannies off.

But I think it's because we're seeing a loss in trust in institutions, because there's been pressures to try to spread stories about how different institutions have violated existing trust. Some of the stories are true. This is being pushed by social media, this is being pushed by all sorts of channels.

Libraries, they have a certain role in terms of trust. In other words, we trust them to provide services for our children, for families and they do a really good job. And so far no one has figured out any reason why you should weaponize that, why should go against that. And I'm thankful for that. It could be that libraries offer so many different kinds of services and very few people understand that in totality. Certainly, when I went

in, started thinking about libraries, I thought of them as being a place where I'd go and check out a book so I'd have something to read over the weekend or maybe look at some foreign language magazine or something like that. And libraries, of course, do that, but libraries also educate. They teach people things like English if they're foreign language speakers, or they help them get information to start businesses or they help people fill out census forms.

They have a very large role in terms of education at an informal level. And they also provide meeting spaces for people, be them either underrepresented groups or just simply clubs. Libraries cut a very wide swath through our society and so far I don't think there's anyone who's been complaining too much about it. The only thing you could complain about is...well twofold: one is you could say we're spending too much money on libraries -- I don't think we're spending too much money on libraries -- and two you can complain about some of the things they are teaching. In fact, this happened in Maryland recently, where a library was allowing someone to come in and talk about, I think it was gay marriage. I don't remember all the details, but it caused the community to be a little bit upset and most libraries are very good at staying connected with their communities.

Khari: You mentioned the idea of a pressure to sort of discredit institutions nowadays. I guess there's been some commentary on sort of the idea of postmodernism as a destructive force. Like if you deconstruct everything then people have nothing to latch onto to form a community. So I guess what role do you think technology has played in this sort of shift or can it play to correct against that as it moves forward?

Keith: That's an awesome question, because technology is typically value neutral and so people do what they want to do with technology. I was just reading an article in *The Guardian* which was talking about how social media has increased our lack of trust in institutions by providing more information. But then again, you know, there's Kate

[Starbird](#) whose been doing some excellent research on showing how social media has been used to create disinformation and misinformation, which is not necessarily trying to tell you lies, but rather make you question what you know, which is again the main motivator to loss of trust.

So there's a tremendous amount of ways that technology has been working against us, primarily in the deconstruction of media. How can technology help? I mean, obviously, we have to identify the vehicles that will increase trust and then see how technology can do that. Personally, the thing I find most interesting is that at the same time people are losing trust in institutions they seem to be building trust in individuals. So [Emily Bazelon](#), who's a reporter for *The New York Times*, had this great anecdote she told about how people did not really trust her if she told them I work for *The New York Times*, which is great institution, but if they read some of her articles they said, "Wow, you are great. Can I follow your articles? How can I learn more from you?" So they're much more willing to trust her because of what they learned from her and less about the institution.

There's a kernel of an idea in there, right? Is there some way we can use technology to allow us to more quickly form these kinds of bonds, these kind of trustworthy connections that might be able to help us leverage back to more trust in organizations, to individuals to make them up?

Khari: Right. I guess you do kind of see that on the Internet now, like if someone is a popular blogger or whatever and they go to a certain magazine and then they leave and go somewhere else their audience tends to kind of follow them and they're not really fixed on whatever the organization is that they're writing for. But I guess to your point, doesn't that focus on individuals sort of leave an opportunity for disinformation like you see this with people posting fake news on Facebook. Then people believe it because, you know, my aunt shared it, so why would it not be true?

Keith: No, you're right. It creates a vulnerability, creates a new attack surface, and past that how do you increase the cognitive tools of people? How do you get them to think differently? Obviously, we'll get there, but whoever figures that out is going to win a big prize.

Khari: Yeah, ok. So I guess that's all the questions I had. Do you have anything else specifically you want to bring up while you're here? Anything you want to plug?

Keith: Yeah, so I'll give you two plugs. Plug number one is if you don't know about iSchools, they're really, really fascinating. So if you're a computer science researcher and you're trying to figure out how to plug in better with people, if you're really motivated to solve society's problems, increase societal good, go find your friends in an iSchool, because that's what they do. And iSchool people are comfortable with technology as well as information and people, and you'll find a lot of great power there. Indeed, probably some of your colleagues are already at iSchools but you didn't know that.

The second plug I'll give is for the CCC. The CCC is an incredible, undervalued resource. The CCC is helping computer scientists set research agendas for the computing community. This is a very powerful thing. Other fields use these kinds of techniques to set national agendas which then influence funding. Computer scientists are not used to that. It isn't in our DNA to do that, but we should try to do more of it because it really increases the impact of what we do. Increases the attention that governments, both state and federal, pay to what we're doing, and it also educates us in terms of what are the priorities, what are the things that we're doing now. In this age of CS plus X, for example, or just societal good, which computer scientists are moving towards, the CCC is a great way to understand the policy side of it. So I highly recommend getting involved with the CCC.

Khari: Yeah, definitely check us out. Thanks for being here Keith.

Keith: Thank you.

Outro [00:37:45]

Khari: That's it for this episode of Catalyzing Computing. I hope you enjoyed it. If you did, remember to like subscribe and rate us 5 stars on iTunes. You can learn more about the CCC on our Website, https://cra.org/ccc/. Until next time, peace.