Nicole LaCharite

[Music]

Margaret Flinter: Welcome to Conversations on Health Care with Mark Masselli and Margaret Flinter, a show where we speak to the top thought leaders in health policy, health innovation, and technology, and top thought leaders who are shaping the health care of the future. This week, Mark and Margaret speak with Noelle LaCharite, principal program manager for applied AI and cognitive services at Microsoft, helping developers apply their artificial intelligence technology to develop apps that will advance their business and industry. She's also one of the original voice skills developers for Amazon's Alexa.

Lori Robertson also checks in, the managing editor of FactCheck.org, looks at misstatements spoken about health policy in the public domain, separating the fake from the facts.

We end with a bright idea that's improving health and well-being in everyday lives. If you have comments, please email us at chcradio@chc1.com or find us on Facebook or Twitter @chcradio. We love hearing from you. Or you can find us on iTunes, SoundCloud, or ask Alexa to play the program, Conversations on Health Care.

Now, stay tuned for our interview with Noelle LaCharite, principal program manager for applied artificial intelligence at Microsoft here on Conversations on Health Care.

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Mark Masselli: We're speaking today with Noelle LaCharite, principal program manager for applied AI and cognitive services at Microsoft. She has spent many years as a coder, developer, system architect, an evangelist for IBM, Red Hat, EMC, and more recently a lead evangelist and solutions architect at Amazon, where she was one of the first developers of skills for Alexa, Amazon's voice technology platform. She's also founder of several of her own enterprises, including Lady Coders podcast, also Voice Skills Inc., where she and other developers have created thousands of skills for Alexa.

Noelle, welcome to Conversations on Health Care.

Noelle LaCharite: Thank you so much. I'm very excited to be here.

Mark Masselli: As you were thinking about careers, you were early on thinking that you'd like to be an astronaut, but it seems like you've forged your own frontier as a coder, developer, systems architect in the computer space. I think the public saw this dramatic shift from the mainframes to personal computers. We saw the launch of the iPhone, which really started a huge revolution in the smartphone space. You say you're poised again for another dramatic shift with voice as the next major disrupter in the industry.

I wonder if you could just talk to our listeners about the current emergence of voice technology and applied AI in the computing world and how do you think these technologies will help transform the user's experience?

Noelle LaCharite: I have multiple aged children in my house. One of the things that I see them doing today more than I've ever, just clicking on the microphone button and being able to say the word, bus, and the Wheels on the Bus come up on like YouTube Kids. I have this vision and really like proof in the pudding right now of what our life is going to be like 30 years from now. When my kids are working, they're going to have the same expectation that they're going to be able to click a button or better yet just be able to talk, and the world's going to mold around them.

When I was six years old, I was reading like Asimov and Bradbury, and The Martian Chronicles, and Star Trek, and The Jetsons. It was so interesting to me to look back now at things. I don't even know at that time if I thought that was impossible. I now realize that our technology has caught up to our vision and our dream. Literally today, if you have a dream in your heart to build something, it's more than likely that the technology is there to help you build it. That's why I'm super-passionate about this space.

Margaret Flinter: I've heard you describe Noelle as an evangelist for artificial intelligence and voice technology. You've led seminars and hackathons all over the world, teaching people how to develop voice recognition skills to meld with Alexa and other digital platforms. You've taken all that collective experience to Microsoft. Share with our listeners how the marriage of voice tech along with applied AI technologies are changing the game.

Noelle LaCharite: First, like applied AI is the ability for us to use models that were built by someone else. The benefit of that is that companies like Microsoft, Google, Amazon, they've been building machine learning models for a very long time. The ability for us now as developers to leverage those models, and Microsoft, the reason I went there, is, A, of course they have this incredible social good philosophy, which I'm very passionate about, but also because they have this elaborate selection of prebuilt models to choose from.

I started in voice, but even more maybe fundamental things like what if I could translate my text face app into 60 languages without actually needing a translation team or a machine learning person, what if I could analyze all the texts coming in from every comment someone sent on my blog and determine if people are mostly happier or mostly sad, or maybe I could do text analytics on feedback that I got on social media and make sure that I guide my podcast down that way.

These are all things that even five years ago I couldn't easily do as a developer. I really think like anyone can learn to build applications today. Now, you can actually, as a novice, build elaborate applications, things that can translate and speak, all without really having to know the underlying technology behind it.

Mark Masselli: There's some real aspirations for those of us who think about AI. We saw IBM Watson and others with the promise in this health care space to really make big changes, but we seem to have fallen short. We're sort of at this infancy stage, it still seems. I'm wondering if you could just help us understand the difficulties of applying artificial intelligence. When I think about that in health care space, I'm thinking about the critical thinking. You probably read too much Isaac Asimov and these entities have this malicious capability of doing bad things to us. Give us a sort of the bigger picture.

Noelle LaCharite: My dad would always remind me, even today when he sees the work I do, he's like, these stories don't end well in most cases.

Mark Masselli: That's right.

Margaret Flinter: Thanks, dad.

Noelle LaCharite: Well, it's funny because he actually encouraged me all the skills that I built for Alexa are all like mindfulness and kindness based. I was like, at least the AI will be nice choice [PH 00:06:23] about it. One of the things that I think is really important that the AI we are building, our goal is not actually for it to do the critical thinking. We actually think humans are much better at that than machines will ever be. In my early days of building weak AIs to my dad and to my children, they were like, this is amazing. I can't believe you built this voice skill that does this.

The reality was is I wrote 200 lines of code that did that work. It was literally artificially intelligent because to the user, it seems like magical. The reality was is that me as an engineer, I wrote all those lines of code. Being part of Alexa early on, I had that same realization that artificial intelligence is literally artificial because there are people like me with a computer, writing every decision that these computers will make.

A lot of it is realizing like we are building that, like literally training it on how to do that work. We call this supervised learning. I think the more interesting side is the unsupervised side, right, like how do we get to that point where machines are doing more on their own because there's a recent article, how do we make artificial intelligence less artificial and more intelligent. Now that we're building software that will evolve and potentially get to the point where it evolves on its own, you have to be much more deliberate about the things we

enable, the processes that we train into these models because unfortunately the world is biased.

It's one of the saddest things. I go into Google and I type in CEO, and someone like me, a Latin American woman, I'm sure that there are other colored women that are CEOs, but I have to go to page 3 to find one. When we think CEO, we think white male and that's who shows up for the first three pages. Companies like Microsoft are taking very specific and deliberate actions to unbias the world's data and make sure that our models are consciously considering this.

What that means is that we have to do extra work. It's not just letting the world learn on some because if we let it do that, it would actually be wrong, which we found already if you do some research on facial recognition. We realized, oh, my gosh. The world actually thinks everybody looks a certain way. We have to make deliberate efforts of going around the world and going to places that do not get photographed often and making sure that the world's data includes these perspectives.

Margaret Flinter: Well, it reminds me of the work we're doing with the national All of Us project to make sure that when we're thinking about precision medicine or genomics, that we're getting the whole world in there.

You've led developer competitions and hackathons around the globe, addressing certainly some of the biggest health care challenges like chronic disease management. You recently presided over a competition, looking at how to improve the management of diabetes using voice technology as part of the solution. I'd love for you with your vision to expand upon the role of this in managing complex chronic illness and maybe adding on health consequences of loneliness and lack of social engagement. How are you marrying these two things together and thinking about the outcomes they might produce?

Noelle LaCharite: Yeah. This is one of the areas that I'm so passionate about, one, because we think about using the world's data to [inaudible 00:09:32] just very dramatic large scale challenges that we have. The reality is that there is so much that we can do, especially with the kind of applied AI technology that we could do to actually impact people today right now immediately.

One of those is voice technology. Oftentimes, getting real-time data is difficult, and so being able to provide a conversational interface. The nice thing is you could use Alexa and ask questions kind of on a daily basis to make better choices. Then imagine if you don't need an Alexa. This could be on a phone app. That phone app could send a text message twice a day that just says, hey, want to have a quick conversation? Click this button and talk to me. We can literally enable

chat on any device.

The combination of Alexa and Cortana allows us now to use Alexa on any device that has Windows 10. Now you think about like if you're even a doctor and you want to be able to do certain types of voice enablement. Not everything is a super-tough problem. I will tell you one of my sad stories. I go into a dentist office. I have four children moving into a new city and they literally hand me four stacks of paper. Now I was like, can I please buy you an iPad? How can I help you?

Today with things like chatbots, you could get my information. I could be sitting at home, or I could even fill it out at home, and you take a picture of it. You could use OCR to pull that into your system. You don't need any special data science skills to do this. This is just standard web application development that you're already doing.

I want to make sure that everyone in health care realizes that, yes, there are big problems we're trying to solve, but there's also so many kind of things that we could do to change the lives of people like right now. The value of having voice involved creates this kind of level of comfort with our end users and with our patients.

I'm very passionate about custom speech. Wouldn't it be interesting if we could create a voice that provides that level of soothing? When somebody is like, hey, I have a stuffy nose, you have a voice that represents your brand as a physician telling them, oh, don't worry. That's probably only rhinitis, but it could be something more. Why don't you come in. It's called [inaudible 00:11:44], just supernaturally sounding speech as opposed to the robotic stuff we hear kind of from banks and airlines today.

It's conversational. Oh. this is my friend. This is someone who cares about me. When it starts to sound more natural, we feel more comforted by it. This is something that we've done studies on just how easily we can delight our customers and help them by just creating an interface that's more natural.

Mark Masselli: We're speaking today with Noelle LaCharite, principal program manager for applied AI and cognitive services at Microsoft, where her focus is on helping developers apply Microsoft's artificial intelligence technology to create conversational apps.

Noelle, you seem to be all about empowerment, and, Margaret, I think we've had a couple of fascinating people when you have that same energy on the radio show. Todd Park liberated data, a great friend. You're really a part of that vanguard of let's just open this thing up for people. You've created tutorials for Alexa skill development for anyone to access it. I'm wondering if you could just talk to our listeners about some of the tools that are out there for people who

want to develop their own voice technology apps. Tell us more about that.

Noelle LaCharite: Yeah, absolutely. The nice thing is you go to Alexa today and there are dozens of blueprints. I'm a huge fan of learning by doing. These code snippets are fully functional right there. Granted, one of them is like about space facts. They're not about the content, but all the code is there. I always encourage people like just go. You'd be shocked with zero technical skills, if you know how to follow instructions, you could build a skill for the first time, publish it to 10 million Alexa users, and have never built code before. I've many, many people that I work with, they do this every day that are like, oh my gosh, I can't believe I just built a production app. Even Alexa today will even host your app. You don't have to worry about infrastructure or how to do it.

The most important thing today is thinking about how can you create content and create an experience on Alexa that your users will want. The nice thing of course is that today, people are more tolerant than ever because voice is just still very cool. Another place to see speech and voice integrated with other technology is in the AI School. There's this free online school, called AI School at microsoft.com. We have skill development, all of these technologies kind of coming together to create scenario-based applications. There are blueprints you can do in an hour. These are more like eight-hour projects, but you end up with a portfolio of work that you can literally claim that you've built.

It helps you refine your résumé, add these skills to your toolbox, and just get super-excited. Of course, I'm always trying to share all of it. There's a Channel 9 on YouTube with the AI Show. It's on YouTube. Anything you could do to immerse yourself in this. If you have a desire to build, the technology is definitely available and ready for you to do it.

Margaret Flinter: I can sense your mission drivenness. We're very mission driven and our work as well. I've picked up on in what's been written about you is your drive to empower everybody, but especially women through your Lady Coders podcast where you see to encourage women technologists to embrace their tech skills. We often hear that women have been under-recognized in the tech world. That's really starting to change. Share with our listeners your quest to empower more women tech developers.

Noelle LaCharite: Luckily, just recently, the Gates Foundation did this huge study and released its report, called the Reboot Representation. It was good and bad. The gist of it was we've got a great new thing with girls who code and black girls code and all these things that are opening the funnel of women or girls really moving into this space of computer science. What then happens is that within your first two projects, you kind of start to get this friction. It's part of this kind of unconscious bias. The

people that are providing this friction don't even know they do it, which is the worst part about it because it's very hard to fix something that people don't know is broken. After your first or second project, you're kind of like, do I really want to live in this like inherent friction? People end up dropping out.

We see a massive amount of dropout rates across newly hired and newly graduated computer science women. They go into things like psychology and teaching. It's all because they just didn't have a better tribe to be like, no, no, no, you're fine. In my whole career, whenever something bad would happen, I'd always be like, I am so alone in this. Only now when I'm more senior, like I feel more confident to reach out to people and be like, does this ever happen to you? Almost every woman I talk to is like, absolutely, it happens all the time.

I built Lady Coders to do that just to tell the stories, so people know they're not alone. We have an event that we do every year, called Harmony Conference, where we bring women together and we do tech sessions, leadership sessions, career building sessions because sometimes you're going to be all alone and you may be the only woman on the team, so how do you not feel that way.

We're doing a great job getting women into the field. We're not doing a great job of really nurturing them and keeping them in the field. As a Latina, if I get a situation where I'm not super-happy or if I feel not appreciated, I'll just kind of wipe my hands and go to the next thing. The Latin culture is very much like, just walk away. I don't want that for the other Latin women. We went from 4%, which is dismal as it sounds, but we went to 1% over the last three years. Like I said, I recognize why that happened, but I would really like to help and nurture and encourage, not just in my specific demographic, but all women in technology.

Mark Masselli: Margaret mentioned earlier that we're engaged in this All of Us project that NIH has set out for a million lives. When you were talking about the CEOs, they don't look like us. That's exactly what Francis Collins was saying we need to do. From our population, we're really trying to figure out how to reach out to all people, so that they can be part of this opportunity for the new sciences that are being developed. As I think about precision medicine, I think about maybe the intersection that might occur with the work that you're doing.

There's a paucity of genetic counselors in the country. There are like 4,000 of them. We need tenfold on that. I'm wondering if you see any intersection of the work that you're doing really being supportive to this new field that's growing and where you have so many people who have questions to ask, and there's nobody really to answer them.

Noelle LaCharite: It's very easy for me. I talk on like global stages and I'm talking to

multiple entities at the same time. It's so much more powerful when you can be use case driven. That's something, like at Microsoft specifically and also at Amazon, we're very much focused on let's identify a specific user that we are targeting and make sure that we are building technology that enables them.

For example, you're talking about geneticists. I have a son who has Down's syndrome. I had no idea when we first got that diagnosis what was going on, but worse I was assigned a geneticist and she was like 75 and done. I think she spoke 10 words to me. I had no idea.

There's so much the geneticists that are in house, like in seat [PH 00:19:03] right now, could do to kind of expand the reach of their scope. They can build applications. They can build a conversational aspect, let users talk to what's in their head without actually having to talk to them. It could be the far reaching benefit of all of these parents and children, and families that would benefit from that. It's totally worth it. I think the precision medicine space is timed to do just that kind of work.

Margaret Flinter: We've been speaking today with Noelle LaCharite, principal program manager for applied AI at Microsoft. You can learn more about her work by going to noellelacharite.com or you can follow her on Twitter @NoelleLaCharite.

Noelle, we want to thank you for your enthusiasm, your innovations, your absolutely groundbreaking work, and good humor, and for joining us on Conversations on Health Care today.

Noelle LaCharite: Absolutely. It's my pleasure.

[Music]

Mark Masselli: At Conversations on Health Care, we want our audience to be truly in the know when it comes to the facts about health care reform and policy. Lori Robertson is an award-winning journalist and managing editor of FactCheck.org, a nonpartisan, nonprofit consumer advocate for voters that aim to reduce the level of deception in U.S. politics.

Lori, what have you got for us this week?

Lori Robertson: In response to a question about climate change, President Donald Trump falsely claimed that the United States was "the cleanest we've ever been". Data from a variety of sources show that while the country has made strides in the last decade, its carbon dioxide emissions are far from their lowest point. The President's comments came in late November after he was asked by a journalist about the latest national climate assessment. The report, written by more than 300 government and non-government experts, described in detail how climate change has already begun to affect the nation. It also

warns of future harm to people, ecosystems, and the economy if more action isn't taken soon.

We've previously debunked similar claims by Trump that the U.S. has the cleanest water and air. It doesn't, based on the 2018 Environmental Performance Index. The relevant metrics are greenhouse gases, particularly CO2. Data from the Energy Information Administration shows that energy-related CO2 emissions in 2017 were the lowest they had been since 1992, but emissions were lower still in every year from 1973 through 1992. Also, EIA projected in October that CO2 emissions will go up in 2018 by 2.2%. That would be the first rise in carbon emissions since 2014.

The President also compared the U.S. to other countries. While the U.S. has made progress on reducing its greenhouse gas emissions, it is not the lowest emitter. Data from the International Energy Agency for 2016 show that the U.S. is actually second to China in its total CO2 output, followed by India, Russia, and Japan. The U.S. is higher than all of these countries in its per capita values.

That's my fact check for this week. I'm Lori Robertson, managing editor of FactCheck.org.

Margaret Flinter: FactCheck.org is committed to factual accuracy from the country's major political players and is a project of the Annenberg Public Policy Center at the University of Pennsylvania. If you have a fact that you'd like checked, email us at chcradio.com. We'll have FactCheck.org's Lori Robertson check it out for you here on Conversations on Health Care.

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Mark Masselli: Each week, Conversations highlights a bright idea about how to make wellness a part of our communities and everyday lives. When Leanne Brown was a graduate student in nutritional science at NYU, she came to understand the enormous challenges of eating healthy foods, while doing field work with some of New York City's more impoverished populations. She thought why not write a cookbook of health recipes aimed at the millions of Americans, living on food stamps or SNAP stipends of $4 a day.

Leanne Brown: $4 a day is sort of the general rule of thumb for around how much a person who is qualifying for food stamps would have to eat per day sort of explained like a budget rate.

Mark Masselli: She conducted extensive research on shopping and healthy cooking techniques, and crafted Good and Cheap, a cookbook aimed at not only teaching these families how to shop for affordable produce and healthy foods, but how to get an entire family to cook in a more healthy way.

Leanne Brown: I really wanted to arm people with the ability to walk into a grocery store and say like, okay, this is on sale. I can totally make something delicious out of that, find the deals and find the value in order to really get buy-on on such a small amount of money.

Mark Masselli: She launched a Kickstarter campaign to make the book available at soup kitchens, women shelters, and community health centers.

Leanne Brown: The idea is that this is a cookbook that needs to be put into the hands of someone who really can't afford the cookbook. That's where the idea of doing a buy one get one like TOMS Shoes came from.

Mark Masselli: Good and Cheap, a cookbook aimed at anyone on fixed income helping to positively influence their diets and well-being, now that's a bright idea.

[Music]

Mark Masselli: You've been listening to Conversations on Health Care. I'm Mark Masselli.

Margaret Flinter: I'm Margaret Flinter.

Mark Masselli: Peace and health.

Margaret Flinter: Conversations on Health Care is recorded at WESU at Wesleyan University, streaming live at chcradio.com, iTunes, or wherever you listen to podcasts. If you have comments, please email us at chcradio@chc1.com, or find us on Facebook, or Twitter. We love hearing from you. This show is brought to you by the Community Health Center.

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