Dave Rael has been podcasting about software development since June 2015. In our chat, the key turning point was when he said, "algorithms are neutral." I explained how they're not, starting around eleven minutes in. Developer on Fire Podcast Episode 265 ... just two transposed digits away from episode 256! (transcript coming soon) **Transcript below**

See To Fix a Broken Internet by Louise Lief for more about algorithms.

Dave chats with a different guest each episode and publishes up to 10 episodes a month.With so many episodes, you might think each person's message gets lost in there--but Dave does a fabulous job of breaking down each episode into descriptive topics, giving you shortcuts to the audio on those topics, and listing plenty of links that were referenced during each episode. The information is all there, but you still have to poke around looking for keywords.

## transcript: Developer on fire - empathy in the problem space

Dave: I'm stoked to present today's special guest, Indi Young. It's a pleasure to have you here Indi. Let's light this thing up. How does that sound to you?

Indi: Awesome! [laughs]

Dave: Indi Young has written two books which are loved by thousands of practitioners and referenced by many curriculums. She has presented at 40+ conferences globally. In 2001, she was founder of the UX agency Adaptive Path. She got her start as a software engineer with a Computer Science BS in 1987. In her early projects, she realized that there was a gap between what her team knew as engineers and creators and what people were trying to ultimately accomplish. Her career has been dedicated to closing this gap. So, Indi, that tells us some of the focus of the things that you have made out of your career and that it's not your typical geek developer who just wants to bang on a keyboard and I appreciate that. I think that's been kind of an emergent theme of this podcast and we will get into all of those kinds of things and your focus and all of that. Before we do, I want to find out about you, the person. Who are you personally and what makes you tick?

Indi: That's my favorite question, what makes you tick? I'm very interested in what makes people tick and I do bang on the keyboard a hell of a lot. When I was much younger, thought that I would be a writer. And I really loved writing, but I also really loved math and I really loved logic and all of that. So, I still do a hell of a lot of banging on the keyboard all day. But, I try to mix it in with a lot of talking to people, or rather listening. **Listening is my thing right now.** Pretty much from the beginning of my career, all the way until now, I've been doing the same thing which is **trying to really understand what we're trying to support.** The thing that we're going to create, this usually digital thing, could be anything. We've got an open field here and that's the thrilling part of it. I remember, as an undergrad, sitting on the beach, talking with my other undergrad computer science folks going "You know, one day we'll be able to do our software here on the beach and have an umbrella that has, like, solar panels on it." It was really awesome to think of that future and that future is here, clearly, and the opportunities are also still as broad. You can still sit on the beach and go, "okay, one day we're going to be able to" this kind of thing, but as we've seen, especially in the past couple of years, some dark patterns crop

up. Some things that are unanticipated, as well as some things that were carefully manipulated. I'm talking about some of the fake news bubbles. I'm talking about some of the debates that are going on about diversity and whether diversity and whether diversity has an impact on teams, a positive impact on product and all of that sort of stuff that's been coming. I keep falling into this little emotional hole, this whole past year, in terms of depression about the future because all of my career I've been very excited about the future. You know we can build anything and it's going to be great, but really, you know you we have to be careful and I've known we have to be careful and I've been encouraging people to take more care, to be more aware, to be more mindful of what we're creating and how we're creating it and what it is it going to do for whom. And yet, all of that work, my entire career's worth of work has still allowed this sort of thing to happen.

Dave: Very easy to despair when you look at the divide that there are among so many people. I think that gets directly into the whole idea of thinking about what we're trying to deliver, rather than just shipping features, right? Is that kind of where you're going with that?

Indi: Kind of. And I think a lot of people are talking also about the complexity of systems. I was just reading this morning, Mark Reddig was talking about systems and autopoiesis (I'm not sure I'm saying that right). Things that occur, not because of the components, but because of all of the components working together. And this is true of humans and we're used to it when we're thinking about the human world, but then when we turn to our digital world we have, somehow, this innate feeling that it should be all well understood and hierarchical and easy to get in and fix, where it's not. It's not anymore.

Dave: The expectation is that software is deterministic, which in a lot of ways it is, but yes, there are combinatorial explosions of the different factors. Every path that you have in your cyclomatic complexity (to use a fancy computer science term) creates many, many more – it's kind of a geometric explosion of the number of paths that you can take. And it does get well outside of what somebody can fit inside of their head to cognitively grasp in a moment.

Indi: It does and I don't think that should scare us. I don't think it scares a lot of people, but there's still this theory – I mean, I always think of computer scientists as being sort of purists. Like let's make sure that we're NP-complete, right. Let's explore all the possibilities and understand all of the little edge cases. So, there's like a superman feeling, like I can figure out all the possibilities and I'm going to make sure I take care of them. There's this idea of taking care of - there was one project that I did once. I was talking to – it was a research based project, trying to understand how software engineers solve a bug. And the most incredible thing that came out of the project was that most of the people that we talked to also spoke about when they got help, especially when they went to say a forum or something to get help on a certain bug. They would always then spend time giving back. There was this quid pro quo. It was like somebody helped me, I've got to help them out. I want to participate in the community. I want to play as a member of this whole citizenry. And I think that that sort of speaks to what I've always thought of as a computer scientist. It's like we've got this sort of idealistic bent.

Dave: Returning value for value, right? An idea of giving in return.

Indi: Yeah. But even more so. Like idealistically, "Oh it's a meritocracy." Everybody contributes and only the people who contribute the most are the people who get the power. That idea is really not realistic. It doesn't happen in real life because of our human software – the wetware between our ears and the way that we grew up and our cultures and histories and all of that. So, I think what's happening a little bit, just within the developer world, or at least within my little world, it seems like there's this dissonance between this we can build anything, we're going to support everybody. We're going to figure out all the edge cases. It's going to be great. And the reality of like, oh no, not so great. It's a bunch of humans and we have like these things that happen inside our minds that we have to spend effort to become mindful about. Things like assumptions. Things like judgments. Things like assuming a statistic or a correlation is the causation of something. All of these little things that we just – most of the time it doesn't really matter in our lives, but when it comes down to making some of our design decisions, it can matter and it really does make a difference.

So, Eric Meyer – I don't know if you guys have had him on the show?

Dave: No, I haven't.

Indi: Okay, Eric and Sara Wachter-Boettcher wrote a book Design for Real Life. One of the episodes in that book, one of the stores they tell – it's a really powerful story. Eric had a little girl. She was 5 years old when they found out she had cancer.

Dave: Oh, man.

Indi: And his Facebook friends were like "oh my God, we're here to support you. We're your community" – through all the chemo, through all of that. And then she passed away. I think it was the day before her 6th birthday and everybody was in grief and still supporting the family. I don't know what time of year that was. Let's say it was summer. End of the year Facebook algorithm popped some picture of the poor little girl and says "wow, what a great year you had." Super powerful story. And I think the corollary to that super powerful story is that Eric didn't just go, "you guys are a bunch of idiots." He said, "this algorithm is written in a very simplistic way." We have written thoughtless algorithms and we need to be better at writing algorithms that can embody a little bit more mindfulness, or at least can embody the knowledge that we cannot – there is no way to explore all the edge cases.

Dave: It's a powerful story. Obviously, it definitely tugs at your heart to the way that that expresses pain being brought on by something presented. At the same time, that same feature brings people a lot of joy, right? My daughter's birthday was two days ago and when I saw some pictures of her four years ago, I was overwhelmed with joy looking at those pictures. **In a lot of ways, the software is neutral, right?** The impact that it has on humans can be remarkably different. The point is trying to understand those edge cases so that you don't deliver those enormously negative experiences.

Indi: I think it's actually slightly different than that. **Software algorithms are not neutral. They embody the thinking of the team that created them.** And the thinking of the team that

created them has explored a lot of edge cases, but there's no way to be NP-complete on exploring all edge cases when you're interacting with a human.

Dave: It can't be exhaustive, for sure.

Indi: Okay, you can't. You just can't. You have to embrace that and then emphasize it or present it as a part of the algorithm to say, "Hey, we might have reached the edge of our understanding." I'm just an algorithm. I'm not a person. I don't have all the social cues that go along with this, even if AI comes around and becomes a little bit more sophisticated. It's still going to need to represent the edge, or the boundary, of itself. Do you see what I mean?

Dave: Yeah.

Indi: So, take yourself. Put yourself in a stressful situation. I'm going to tell you a story. I was going to meet some friends – my niece and her little 16 month old baby. We were going to go for lunch at this sleepy little town that's halfway in between our two houses. And we show up and they're having this huge fair with antiques and vintage stuff and there's people everywhere and trouble parking everywhere. Anyway, we had our little lunch, our get-together, and as I was going to go back to the car, I wanted to pick up something to eat in car. So, I went in this little bakery. It looked like a great little bakery with home baked stuff and the little old lady behind the counter and this other woman there. There was a line, so I'm standing in the line and I swear to God, 15 minutes later, the little old lady behind the counter had not finished serving the first people in line. And then finally they get to the next ones and then she takes like another 8 or 9 minutes with them. And then, the woman who was a part of that couple being served was like "well wait a minute, what's in that case?" There's like 14 of us and it's super-hot and we're all hungry and low on sugar and I said out loud, "and she still hasn't finished serving her." Okay, a little failure, right? So, you're in a stressful situation. My own wetware told me, "You shouldn't have said that. You shouldn't behave this way. Just be patient. She's trying to do the best she can." But I also noticed a whole bunch of other clues that the woman she was working with, they refused to talk to each other. They were both doing sort of the same thing on top of each other. Like there were no napkins and so the one lady went to get napkins and then this other lady went to get napkins. So, I'm like okay, there's a back-story there. So, this lady is flustered because of that back-story, probably flustered because of all of these people around, and yet my brain blurted out those words, right? I'm still upset that she's taking so damn long.

Dave: Which is completely understandable. It's a normal reaction that we all have.

Indi: Right. Exactly. But I think this goes back to that dissonance. We want to believe that we can get a beautiful, perfect, wonderful world and we can support every case, and we can't. It's not going to happen. So, if we maybe back off – to sort of embrace that, be mindful of the fact that people are people and back off and say, "Okay look, I am just an algorithm and here's the edge of me." Maybe as a human you're incredibly smarter than I am, because an algorithm is not that damn smart. Even a human who is 5 years old is smarter than an algorithm. If an algorithm can admit this, "Oh yeah, I've crossed over that boundary," then the human can say, "Now I understand that you're not serving me the way that I expected. I'm not going to get upset." Or, be able to control or redirect the algorithm.

Dave: In the story of Eric, he was a very emotionally mature person who was able to respond with a suggestion, rather than a rant, and a lot of people probably wouldn't have. What's the answer then? Do you have to keep your algorithms so that you don't take the chance on causing this kind of hurt and at the same time – it sounds a bit like a country song, right – I could have missed the pain, but then I would have had to miss the dance. I don't know what the answer is and I don't know that anybody really does.

Indi: I'm suggesting that you **don't treat your algorithm as the be all to end all. I'm suggesting that you treat your algorithm as a very limited thing with boundaries that it admits to**. That you delineate, you let the world know, "Hey look, this is the edge of me. I don't know anything past here. I can't behave very well past here." And in addition, the other thing that I really try to encourage people, is to **have different algorithms for different thinking styles**. So, one of the things that I do with my research – I do what's generally called user experience research. But very specifically, I do problem space research. That is trying to understand what a person is intending to accomplish, or what their purpose is? It's a larger thing. It's not like book a flight on a reservation system. It's not even plan a trip to the Grand Canyon. It's take my mother to the Grand Canyon so that she can have that experience of walking up to the edge for the first time because she's 80 now and time is getting short and I want her to have that experience. She's always wanted to do. How the heck am I going to get her there?

Dave: Depth is what you're seeking in the motivations of the person.

Indi: What I was just describing there is the idea that a problem is not the way somebody interacts with a solution. So, it's not make a reservation on a reservation system. The problem is not even as general as I want to plan a trip to the Grand Canyon because there are lots of different ways to plan trips to the Grand Canyon and reasons to plan trips to the Grand Canyon. So, exploring the problem space is exploring each of those ways, and all of those ways – well, not all of them because you can't ever do that. But a lot of the ways that then your algorithm might be able to support and a different algorithm that might be able to support a different thing and these algorithms can know the edges of themselves and hand somebody off between them, if they see something coming up. So, the idea right now – this purist idea – is I can have this algorithm do everything and be everything to everyone and I've got all the edge cases explored.

Here's another analogy. Imagine the West, back in the 1800s, and there were little towns starting to pop up and intrepid people coming out to pioneer – they call it that, but really you're coming out to "oh hey, I've got a chance to be a baker. So, I'm going to go out to this little town and I'm going to be a baker there." Well, that little town had to be big enough to support a baker. If you were in a real little town there was no baker. Everybody sort of did their own baking at home. Or maybe there was a community oven that people would come into. But eventually – and also maybe in that little town there was a general store. You'd go to that general store and you'd get your nails and you'd get your flour – general.

Dave: Right

Indi: But as time goes by, that little town starts growing and there is a place for a baker and there are people who will come and buy bread from a baker. And then as that town grows some

more, there's room for another baker. And it grows some more and there's room for specialized bakers who bake breads of a certain ethnic group, say, and that reminds them of home and makes them feel more comfortable and happier in this new world. And as it grows some more then there's even more specialized bakers. Or there's bakers for different parts – geographic locations and neighborhoods.

Dave: From very general to more specific.

Indi: Yeah. I think where we are with software right now is back in the little town days. We're getting ready for some bakers. So, we can get some specialization going here. We've got room for bakers. We can start to get some specialization.

Dave: It sounds a bit like – Philip Morgan has been on the show, talking about positioning yourself in the market and going into a niche rather than just "I'm into software." It's I'm into software for some specific vertical in some industry, or something along those lines. That's an appealing idea. So, one of the draws for me to software is that I'm not pigeonholed too. That I'm able to jump around and get some exposure to some different industries. I don't know that one is right or wrong. But I think there is a direction toward solving specific problems and really in order to get to know a problem, you've got to spend time in that specific problem.

Indi: Yeah, that's the key. One of the things that I get asked all the time is how do you fit problem space research into an agile environment? You know what my answer is?

Dave: You fit agile into a problem space environment? That's my guess.

Indi: **My answer is you don't. It's a completely separate thing**. There are places in the agile spinning cycle where you evaluate things. You evaluate an idea. You evaluate approach. You evaluate with actual users and things like that. There are places in that same cycle where you can generate ideas. That cycle includes the ideation, but before you get to an idea you have to fill up your brain with content that will be the foundation of the idea. So, when you're coming up with an idea, that generally isn't the result of a very sort of logical process. Inventing an idea is more like letting a bunch of stuff rub together inside your head, and then ooh, in the shower one day you're like, "hey, what about this?" Or out walking the dog, or running. All these different places where your mind is not on the problem you're trying to solve or the work you're trying to do. It lets all of those good content ideas inside your head rub together and then something new comes out. So, what I'm interested in is making that content richer.

You know how I said a little bit earlier is how the algorithms are not neutral? The algorithms are coming from teams. Teams are humans. The humans have things in their brain. And the humans that have things in their brain have incredible amounts of things in the brain. Somebody, to the best of our knowledge, when we were talking about Paul Bloom's book, Against Empathy, he asked me, "so is it a deficit of empathy" and I'm like, "no, it's not a deficit of empathy." The humans on the teams, they're full of empathy. It's a deficit of breadth. And now I need to define empathy here because now everybody is all like *empathy*, right. So, I'll define empathy, but the thing is that they have all these life experiences. They have all the reading that they've done.

They have all the discussions they've had amongst the other team members, and that is what gets coded into that algorithm. Right?

Dave: Sure, yeah. You can only express what you know is the gist of that.

Indi: Exactly. And you know a hell of a lot, but I want even more breadth because we're growing. We're not that little town on the frontier anymore. We're growing. We can specialize. We can start to support different thinking styles in different ways. So, let me define empathy here. Empathy has about 6 or 8 different definitions and they're all valid. There are different kinds of empathy. So, one of the things that I see people getting confused about is they think of empathy as, oh look this person – like me, I'm looking at this woman at the bakery and she seems flustered and I'm like, because I'm not doing this – if I were doing the empathy that's also known as emotional contagion, I would be getting flustered too and I would be running off looking for napkins in addition to those two ladies – and that is not helpful. And this emotional contagion is the kind of thing that Paul Bloom is writing against; this article that just came out on Mule Design is writing against. They are writing instead, let's be more compassionate. Let's not get caught up in one person's agony or difficulty, but let's make sure we understand – not ignore at least – the other 1,000 people who aren't caught up in this agony.

Dave: There's something to be said for that, I guess? There's something to be said for making sure that you take care of the core case – perhaps favored over the edge case.

Indi: That's a good thing, but they're saying it wrong. What they're saying is cognitive empathy. So, emotional contagion is one thing, which people are sort of thinking about empathy as. They get it confused with what is known as affective empathy. Affective is the psychology word for emotional. So, emotional empathy is another way of saying it. They think emotional empathy and emotional contagion are the same thing. They are not. What I was doing with that lady in the bakery was I was noticing what her emotion was and then the next step should have been I could support her through that emotional process. Like if there weren't a ton of other people around I could say, "hey listen, the other lady has gotten the napkins, let's just focus…" Or I could say, "oh God, so many things happening and let's see if we can sort of enjoy the scene." Maybe she likes having all these different things happen. Trying to suss out what she's going through and trying to support her through that process. So, that's what emotional empathy is. Have you watched that Pixar film, Inside Out?

Dave: I have not, actually.

Indi: But you have kids. [laughs]

Dave: My kids went to that without me and didn't tell me they were going which is unfortunate.

Indi: That's a movie that is about emotions that every adult should see because it helps you be more mindful of them.

Dave: The personification, right, is my understanding? The emotions are personified in the internal kind of…

Indi: Yes, they are. There's one little scene where the emotion called Sadness is working with the emotion called Joy on a quest. They're trying to get something done and they have a third party with them. This little pink elephant. The pink elephant has a prized possession of his destroyed and they're rushing around. They're up against the clock and his prized possession gets destroyed and he sits down and they're all like, "he is key to this. He has to keep going." So, the emotion called Joy tried to tickle him and make him happy so he'll get up. It isn't working. Sadness sits down next to him and says, "oh my God, you must have loved that thing. That must have had so many memories."

Dave: Wow

Indi: And the pink elephant said, "yeah" and talked about the memories, cried, and 4 seconds later stood up and was ready to do the quest again.

Dave: Wow. That reminds me of my experience, right. My wife is constantly telling me about how I do it wrong. I tell a joke in the midst of something, trying to lighten the mood and bring it up and sometimes with the right people who are in the right frame of mind, that's the right thing to do to help to get through something, but often, especially with her, that's not the best optimal solution for the problem.

Indi: Exactly. I think what it is maybe work a little bit on your skill at emotional empathy. Your skill at recognizing what the emotion is she's going through and like being in it with her. I see so many people – I've had parents tell me not to say this – but I've seen so many parents tell their kids, "don't cry. You shouldn't be upset." Instead, my neighbor who is a meditation teacher, she says, "emotions are like the weather. You can't make them go away. You can't blow at the cloud and make it go away. But you can bring an umbrella and protect yourself. You can be aware of the weather." One of her favorites is you can let then knock and at the door and you can answer the door and say, "Oh, there you are anger. I don't want you to come inside," and close the door. But they're there. They're not going to poof! go away.

I was working with folks at an airline and the team members had the hardest time doing emotional empathy with a passenger who is upset. The flight got cancelled. There was on person and she was on a business trip and she was taking a flight home to get home in time to see her 4-year-old do her first recital and that fight got delayed and she was irate – because she's losing something. And of course, the gate attendant is all like this woman should not be upset and so I am going to be disgusted with her and I'm going to feel superior to her and I'm going to tell her, "no, there's nothing I can do. Go away." Whereas, the emotional way of it is like, "Oh my God, yeah, when my daughter was 4, I was at her first recital. I totally understand what you're going through. Is there somebody there who could maybe Skype it to you, or something? We've got a quiet room back here. How about I let you sit there so that somebody there can Skype it with you and you'd kind of be there?"

Dave: That's a pretty remarkable reaction. If you can get to that point. You talked there about not only an offer of support, of understanding – the I remember what it was like to be at my daughter's recital. But, at the same time an offer to help. Please correct me if I'm wrong here. I, in fact just today, answered a question in the Facebook group for the podcast. I had mentioned cognitive empathy – the show with Andrew Goulet, where she was on and we talked about empathy. She mentioned your book, the Practical Empathy book, and the different types of empathy and all of those things. The way that she described cognitive empathy was a way that I felt like I had a connection to that. The emotional empathy I felt was a little bit more out of my reach. I think I've refined my understanding of that since then and I think it is more in my reach than I think because I do have those experiences of seeing somebody upset and kind of connecting to that. But when I was talking about cognitive empathy somebody said a co-worker had said something about informed compassion and was that the same thing as cognitive empathy? And my response – I'd like to tell you the way that I understood those terms and see if you can tell me if it's in line with what you're thinking?

You asked me about seeing a movie. Are you familiar with the movie White Men Can't Jump?

Indi: No. I'm more into kids' movies, personally.

Dave: Understood. There was a scene in this movie where the woman – these two live together as though they're married. I don't think they were actually married, but the woman wakes up in the bed and she says, "I'm thirsty." So, the man dutifully goes off and brings back a glass of water and she says, "well, if I tell you I'm thirsty…"

Indi: She has him well trained. [laughs]

Dave: Yeah, but she says, "I didn't want you to go get me a drink of water. I wanted you to understand. I wanted you to connect with my experience." To me that was the difference between empathy and compassion. Compassion is the drive for a solution, right?

Indi: Yes, yes

Dave: Typically considered to be masculine, which I don't think is necessarily male, but I think that's the way that it has been given…

Indi: No, you can't say that. [laughs]

Dave: I wouldn't say that that's necessarily the case, but I think that's the way it is portrayed, certainly in this movie. It's the woman who wants the empathy and instead gets compassion; these two things. Tell me if I'm close?

Indi: Compassion is to act upon [usually emotional] empathy. We didn't actually talk about cognitive empathy yet. There's a different definition for that and different uses for it.

Dave: I'm getting ahead of you.

Indi: Yes! So, compassion is usually to act upon emotional empathy. So, you were right, that is the definition. One of the things that I think is screwing up everybody's understanding of human behavior is Hollywood and comics. I mean we all capitalize upon these means, these sort of stereotypes, and then they become part of our characters that we really love in these movies and then it becomes part of our understanding of people. It's vastly entertaining, but it does a little bit of disservice when we're trying to really work with it. But yeah, I think that was a good answer that you gave. What I want to do is define cognitive empathy for you now. I'm glad that you think emotional empathy is something still within your reach, a little bit more within your reach. Part of becoming skillful at emotional empathy is becoming more mindful about your own emotional reactions. And that's a hard thing for some people, but it's doable. It's doable for most people. There are people out there that it is hard for and we can talk about that. That would be a completely different podcast though. Anyway, the cognitive empathy – so, in my world, when I'm doing research, emotional empathy is key to doing a listening session. I want to do a listening session with somebody so that I can understand what's behind the bubble, what makes them tick? It is my favorite question. I want to know what their inner thinking is. The little voice that's running around in your head as you're doing stuff. I want to know what the reactions are that drove decisions. I want to know what those guiding principles are? Sort of your core operating instructions which got built up when you were a kid and then come in these various substantiations and get applied in these various contexts. But, normally when you have conversations with somebody, you talk about their opinions and their preferences and they tell you statements of facts and explanations about how things work. It's very difficult in normal conversation to get a little bit beyond that. So, I teach people to use emotional empathy sometimes, or just use good listening skills as well, in combination, to form rapport and trust with that person so that you can get back to that inner thinking. You can get deeper. You can go down to what makes them tick and what were they thinking? What was going through their mind as they were doing this and follow all those little rabbit holes down to where they came from, so that we can understand them as a person. And then see differences in thinking styles between different groups of people – different thinking styles of people. I call these behavioral audience segments. And then be able to support those behavioral audience segments differently.

Dave: So, listening is not so much an exercise in keeping your mouth closed as an investment in trust?

Indi: Yeah, that could be a very good description of it. It's trying to build that environment between you two so that the person feels comfortable telling you a little bit more about themselves. You probably have this already with your close friends, your family, your kids maybe eve because there's innate trust. You're Daddy, right?

Dave: Yeah.

Indi: So, there's innate trust, but as they grow up sometimes that trust can dissolve because it doesn't seem like you're there to support them and all you're doing is interacting with their outer bubble, the way they present themselves in the world, right? I'm not saying you, but in general, parents. That's where things can start to fall apart. It's very, very difficult to build these things back up again within a family relationship because you have almost like hardened arteries of the way you've been treating each other and behaving around each other for so long. But, I

teach people – so this is actually cognitive empathy. Cognitive empathy is getting to understand what makes another person tick and the way that you use cognitive empathy – so, you use emotional empathy to form that good space for developing trust and going deeper in a listening session. Cognitive empathy then – you come away with all this information – is what forms your behavioral audience segments. It forms something I call a mental model diagram. And then your algorithms can then get mapped to these things and you can say this algorithm works well with this behavioral audience segment, or with this section of the mental model and these behavioral audience segments, but you know what, we've got some gaps in here and it only sort of like waves hands around this part of it and it turns out this part of it is really central.

Dave: Okay. I think that's starting to get a clearer to me. This is where the specialization comes in, right? Special algorithms for special profiles, I guess, if you will.

Indi: Exactly. It takes a long time for me to explain this. It's a complex systems sort of thing.

Dave: You talked about teaching people these kinds of things. Are these workshops that you do?

Indi: Yeah. I do a lot of workshops. I've got a ton of stuff on my website. And I also mentor people. What I'll do is maybe a company, like an insurance company, will hire me for their innovation group to help that group do their first pass at one of these kinds of research projects. And I'm there. I'm embedded with them. I work on it day to day with them. I lead them. I guide them through the entire thing and out the other end they have all the skills and they can do it again. The key is when you're doing cognitive empathy, when you're building it up into these artifacts like behavioral audience segments or thinking styles, like a mental model diagram, it doesn't ever go stale. It's not like solution based research, whereas the solution changes then that data is stale. This is problem space and so you add to it. So, companies will go back and do a little bit more research when they've got another question or they've got a little bit more time. Or they've got a different area that they want their algorithm to support, or a they see a little opportunity – let's go do some more research here, add to our repository, enlarge it. You know refine it. And then map our algorithms to it again and see yeah, okay, this is the area we do want to focus on. That's what we thought and true. Or no, guess what we thought this, but look over here, all these developers are giving back to their community – in that one research project that was so surprising. So, that's what I'm trying to do.

Dave: So, if I'm a developer and I'm in my corporate work environment and the only window I have to the outside world is my product owner, the only way that I know anything about what a user has in their mind, what advice do you have for somebody like that?

Indi: Hahaha – well, if you are interested – if you're only interested in keeping that window, keep that window. But, if you're interested in finding out more, go talk to the product owner about getting more active with them. If you are able to do that, that product owner would welcome you with open arms, unless you hate each other, but that's a whole other thing. And more emotional empathy and cognitive empathy also apply in team situations. I talk about that in the book as well. But I think that product manager would welcome you with open arms if you are

interested. And that product manager – I actually aimed the book at developers and product owners because that product owner knows that there's blind spots. That product owner, if they're good, they know they've been making some assumptions. Now, sometimes those assumptions are fine because they're low risk. But you have to know what the risk is and you have to know what the assumptions are, or at least be mindful of them. And I think half the time, at least in Silicon Valley, people are being whipped to a frenzy with this idea that oh, you've got to get the code shipped in two weeks or four weeks – so, let's hurry, hurry, hurry, we don't have time for that. And there's so much going on and your inbox is so cluttered and your Slack channels are so much – it's like hardly able as a human to stay on top of that, much less also want to go and look out the window at the actual people you're trying to support. And the strategy of the product.

Dave: Yeah. It sounds a lot like some of the original extreme programming idea that everybody on the team is just a team member and it is your job to do all of the roles and to make sure that things are getting done and interfacing with the world and trying to understand the individual problem is one piece of that.

Indi: If you can handle that, then great, yeah. I think there are people who can't handle it. And you also might be in a stage in your life where your parents are dying or something, or you've got to take care of this other stuff. So, you know there's times to do it and there's times not to do it and there's times when you personally feel confident and curious about doing it and there's times where you don't feel confident and curious about doing it. Like I said, mindfulness about your own emotional weather going on. I think that's key. Daniel Goldman has written that book, Emotional Intelligence. I think that the business world and the software world, in engineering especially, has divorced itself from emotion for so long.

Dave: Try to anyway.

Indi: Yeah, try to, exactly. That there's this barrier. So, when I wrote that book, I actually never used the word feelings and I never used the word emotions.

Dave: Just to appeal to the audience.

Indi: I didn't want to have a barrier out there that they'd have to fight through to get the context of the book.

Dave: Wow. That says a lot. So, I think we've scratched the surface here a little bit on what empathy can do for software developers and for people in general. At this point, I'd like to just move on and ask you – your book has been recommended on the show before, right? Could you in turn give a book recommendation for something you think would benefit the listeners?

Indi: Dave Gray, he has a company called XPLANE and he's written a book called Liminal Thinking. Liminal means threshold. So, what he's talking about is the difference of the threshold between conscious and subconscious thinking. If you Google Dave Gray and the word – I don't know, maybe just the word bubble. Ah, that's what I was googling yesterday – Dave Gray and bubble. You'll get somebody's review of his book and an interview with him. He does a lot of little sketches and stuff, so it sort of clarifies things. He talks a lot about the same sort of things

that I'm talking about. I think one of the problems that we're seeing out there is we get survey data and stuff, and survey data is not going to tell you what somebody's guiding principles are. It's not going to tell you what their inner voice is. It's going to tell you how annoyed they were when they were filling out the form, right? And so, we need a whole different class of data to really guide our algorithms. I'm not saying to leave the other data behind. I think that other data in conjunction with this – I've actually had people layer some of the usage data and their survey data on top of a mental model diagram to help them – and then they map the algorithms in there and that helps them see the whole picture together. Like, where are we falling down.

Dave: More information can't hurt for sure. But adding on some of the deeper, some of the problem space, I guess is really what you're after. And so many survey questions are really in the domain of the solution which I think is basically what you've been saying all along.

Indi: Yeah, exactly. I'm just about done with an article for Interactions Magazine. It will come out I think in January. It's all about selling through problem space research in this world of solution space frenzy.

Dave: That sounds really appealing. So, are there any quick wins that somebody who is mostly just kind of shipping features, rather than really getting into the problem – is there any quick win that they can do to start moving in the direction of being more problem focused?

Indi: Yeah, there is. And it depends on the person, but I think the quick win is to communicate with the other team members and with your product owner and the bosses and their bosses and find out where this product is going and where it came from? What is that strategy? It would be really interesting to know what that strategy is – what is it that we're trying to do? It could be that there is no strategy. Or the strategy is only profit driven and they're just chasing the competitors around. I've seen a lot of people do that. "Oh, they're doing that, so we're going to do it." And if that's the case, then your next quick win is to try to get people more mindful of the idea that we can understand the problem space a little bit better. It's not impossible to understand. And how about trying to do this? But I think the very first step is to do that communication; to build those relationships with your team members, with the people that are one step outside and two steps outside and see if you can be the force that sort of brings people together in that little microcosm – say hey, "you and your boss, let's get in a room together. I'm curious, I want to talk this stuff out. You tell me." And I'm going to be a listener. I'm not going to offer any solutions. I'm going to be a listener. I'm going to understand where this thing is going. I'm going to make sure that I understand it and then if I come to the understanding that it's really a headless chicken, then maybe I can start at the bottom offering some solutions for being able to understand the problem space.

Dave: Seek first to understand, right? And only then can you offer something useful. That sounds very appealing. So, that's cool. I want to ask you something and this might not even make any sense to ask and I'll cut it out if it's not worth addressing. I've heard some sentiments recently, related to empathy, that there are some people who are not worthy of empathy. I think you might know what I mean and that strikes me as wrong.

Indi: **There's a difference between a person and their conviction**. If you can think of – okay this is a really great exercise that my meditation teacher teaches. My next-door neighbor who is a meditation teacher, who is not my meditation teacher, but she teaches this because we talk about it. It's great fun. During the political debates – first let me back up. There's something called sending meta which means you send a wave a good energy, first to yourself, then to your family, then to your friends and maybe extended family and then to like the people you work with. You're thinking of each of these people and you're thinking gosh, I hope you're having a great day. I hope you're finding what you need. Whatever it is. She wanted her students to do that to the people at the political debates, especially the person on the side that you didn't support. And to me, when I heard this, I'm like oh that's easy because that guy up there, he's sweating. He's probably wishing he used a different deodorant. He's got all these people behind him, telling him his talking points and yet something different came up and he's trying to rise to the challenge. He's got his family who's feeling really proud of him. He's got his convictions that he's trying to stay on target with. He was younger once. He had a career that led him to that stage. He made different decisions. Some of those decisions he's not proud of. He was in school once, just like we were.

Dave: It's not hard to relate to somebody, I guess is what you're saying.

Indi: It's not hard to do that, yeah, but to the conviction it is very hard.

Dave: It depends on the conviction. It depends on a specific topic, but yes.

Indi: Exactly. But you empathize with people. You don't empathize with convictions.

Dave: Fair

Indi: And I think one of the problems is that we don't recognize when we're interacting with other people that difference, nor do we recognize that – and this is a little bit more complex – we don't recognize the convictions of preferences or opinions. And remember what I said about preferences and opinions earlier? Those are the bubble that you present to the outside world. Where do they come from? What are their roots? What's the guiding principles? The core operating instructions that you've got. And if you get down to that level – if you get down to the machine code, so to speak – the what/where code – we're a hell of a lot alike.

Dave: Yes, yes. Agreed.

Indi: It branches up and it finds leaf in different areas and that's when you can get like totally different convictions like we're seeing with some of the stuff recently in the big divide. You know, it's a very complex thing and it's very difficult. I'm not saying I can do it and in fact the meditation teacher says – you know it's really funny to her that everybody things that she's very calm because she has emotional intelligence and she has good reactions when she's in situations. But she says you should see what's going on inside my mind. I'm just as human as you are. I've just got more tools, more practice.

Dave: I like the illustration that is sometimes given of courage is not the absence of fear. It's how you respond to it. I think there's really something to be said for applying empathy in situations that are sometimes difficult and I think it always depends on your perspective as to which person you think is difficult to empathize with and some of those things. So, thank you for addressing that. I think that's great. I'd like to wrap up with my final question, to ask you to provide three tips for delivering more value. They don't even necessarily have to be about delivering value. Just three things for being a good human and for doing good stuff.

Indi: I think I already gave you one which is build those relationships with your team members and the ones above and the ones above that. I think that's super, super, super important. That's a quick win. That's something that takes effort, but that gives you value in spades. I think the second thing is to listen first. I already gave you that one too – to really listen. And the third one is to think of the idea that algorithms are not neutral.