**JACOB COLLIER:**  Honestly, I think mastery is a myth. I don’t think it exists. I think that no ideas are ever finished or new. Everything is just recombined. And I love that. Because it means that we get to be artists rather than inventors. We can paint with what we know. And so I guess my job as a musician has been to learn as much as I possibly can.

[MUSIC]

**KEVIN SCOTT:** Hi, everyone. Welcome to Behind the Tech. I'm your host, Kevin Scott, Chief Technology Officer for Microsoft.

In this podcast, we're going to get behind the tech. We'll talk with some of the people who have made our modern tech world possible and understand what motivated them to create what they did. So, join me to maybe learn a little bit about the history of computing and get a few behind-the-scenes insights into what's happening today. Stick around.

[MUSIC]

**CHRISTINA WARREN:** Hello and welcome to Behind the Tech. I’m Christina Warren, senior cloud advocate at Microsoft.

**KEVIN SCOTT:** And I’m Kevin Scott.

**CHRISTINA WARREN:** And on to day’s show we have two very special guests. Ben Bloomberg and Grammy-award winning musician Jacob Collier.

And for those of you who tune into the show to geek out about tech and AI and you’re thinking, okay, so what does a Grammy-award winning musician have to do with tech. Well, hmm, kind of everything.

Jacob Collier is a musical artist that has fully embraced tech as an integral part of the music that he creates and he partnered with MIT’s Ben Bloomberg and the two of them have collaborate to bring their genius into the creation of song and video.

And Kevin, I know that you’ve been so excited for this interview for quite some time.

**KEVIN SCOTT:** Yeah, I’ve been unbelievably excited. We’ve been trying to get Ben and Jacob on the podcast for a while now, and, you know, I have to say I am an enormous fan of the work that these two do. I think both of them are outrageously talented.

It’s probably the first podcast that we’re recording where my children are legitimately going to be interested in, you know, in listening to it, because everybody in the house has been bopping around all summer long listening to *All I Need*.

So I’m just super excited to chat with these guys about their approach to creativity and, like, how they have very cleverly merged art and technology into a set of creative endeavors that really have, I think, pushed the boundaries of how it is we think about music and live performance.

**CHRISTINA WARREN:** Absolutely. Absolutely. And I think actually, you know, this might be the sort of thing where the conversation might be so great, that this might even be something that we do in two parts, right?

**KEVIN SCOTT:** Yeah, for sure. So, like we will split this conversation with Jacob and Ben into two parts, just so we don’t have to cut short any other conversation.

**CHRISTINA WARREN:** Absolutely. Well, let’s chat with Jacob and Ben, and this is the first part of that conversation.

[MUSIC]

**KEVIN SCOTT:** Our guests today are Jacob Collier and Ben Bloomberg. Ben is a creative technologist who imagines, designs and builds everything from electroacoustic musical instruments to AI-driven performances and tours. He’s a recent graduate of MIT earning his PhD.

Jacob Collier is a multi-Grammy Award-winning instrumentalist, songwriter, arranger and producer based in London. He’s up for three Grammys this year, including Album of the Year.

Jacob and Ben began collaborating about seven years ago, partnering to create Jacob’s signature Harmonizer and a truly groundbreaking one-man audiovisual show. Ben and Jacob, welcome!

**BEN BLOOMBERG:** Hey, how’s it going?

**KEVIN SCOTT:** I’ve been so excited to have you guys on the show. So, why don’t we start with, with you Ben, actually, like how did you get interested in music and this intersection of music, and technology?

**BEN BLOOMBERG:** Let’s see, so I – I grew up in Western Mass, in a town called North Hampton, and in North Hampton, there’s a ton of music. There’s sort of venues – it’s a small town, but you know, a lot of big names would sort of stop-through. And so from when I was really young, you know, my parents would take me to see, you know, all kinds of people, Ladysmith Black Mambazo, Bonnie Raitt. Bob Dylan, even stopped in Northampton one time. And so, I grew up, you know, I grew up with a lot of music, and both my parents are sort of musical and then pretty early on, I got interested in computers, probably starting in fourth grade, and sound too, so I started working with PA systems and running sound for local bands and thing like that, and I was – I guess I was only nine so I couldn’t even really lift any of the gear at that point, but I would get really into plugging things in, and –

**BEN BLOOMBERG:** I grew up and started getting into all kinds of stuff, building phone systems and running sound and mixing, and got interested in high school in adding sort of computers to live theater, and so I started kind of designing these systems where a computer would sort of centrally control all of the sort of infrastructure in the theater, and we would, we would try to figure out how to sort of tie everything together so that the lighting and the sound was sort of integrated – and at that point, I started looking for college, you know, college programs that had both good computer science and good sort of live theater. And I found the MIT Media Lab and this group called Opera of the Future. And so that was a graduate program. So, you couldn’t actually major in that as an undergrad, but you – well, I could work there as sort of an assistant.

And so, so I went there, started working, and sort of freshman summer ended up mixing an opera in England for my professor who was Tod Machover, who’s a composer, and so – this big project with a – you know, a huge orchestra and a lot of singers, and it was live and my first time sort of on a big mixing desk, and so that kind of, that kind of snowballed and I started doing lots and lots of things, like robot opera.

And then 2014 came around, and I saw this video, which was Jacob’s “Don’t You Worry about a Thing” video, and then “Fascinating Rhythm,” and I was just like blown away, of course, and started showing it to all my friends, and like friends back home in North Hampton, music people and people at MIT, and then, and then one day out of the blue, I just sort of went, “What the heck,” and I sent a Facebook message to Jacob, just saying, like, “Hey, like your awesome. I’m at MIT, I like to build things. You know, I don’t even have, have anything specific in mind, but if you every want to like talk and build something together, or just think about like what’s possible, that would be so, so cool.”

And so, I sent that sort of into the ether, and it – and didn’t necessarily expect to get anything back, but then a couple weeks later, I got this message back from Jacob. And we had a Skype conversation, and it turned out to be pretty awesome timing because – and actually, maybe Jacob, you want to take over here, but you had just been offered this crazy show.

**JACOB COLLIER:** Yeah, absolutely, I had, I had this gig opportunity, kind of like my first-ever gig. Because I’d never really done a gig as Jacob before. I’d made lots of music here in my room, and I’d been sharing it with the world through a different – a variety of different avenues. But I’d never really done a gig. And so it was this funny moment where I had all of these kinds of arrangements and these songs, and I didn’t have an outfit that would really work on stage, per se.

And so here comes this message from Ben, and it was, it was one of those moments from my perspective, where I remember thinking, “Well, I don’t know what this is, but it just feels right. It feels like it’s the right moment to jump in and see what is possible and what this is about.” I jumped on that Skype call with about – I don’t about, sort 10 hours’ worth of Google Doc ideas of stuff to build, and stuff to explore, and all that stuff, and Ben was just so incredibly patient with me.

**KEVIN SCOTT:** And for folks who may not be familiar with you, like the – you know, one of the just extraordinary things about what you do in those early YouTube videos is that you have these beautiful, layered, textured performances where you do all the vocals, like this mind-blowing harmony and you play all the instruments. And it’s, it’s a lot of vocals and a lot of instruments, and so I’m guessing translating that to a live performance has to be daunting. Because usually live performance, like you play one instrument, you like – maybe two, like you have an instrument and your voice.

**JACOB COLLIER:** Exactly, it was, it was profoundly a challenge. I didn’t know what to do, really, but I knew that I wanted it to reflect, in some way, the process of recording here. And when I record here, I have all these different layers, right, of sounds, instruments, chords, grooves, vocals, whatever, all layering up to make this kind of mosaic, almost like a tapestry of sound, and for those early videos, I would record a video clip of me playing each instrument, and I’d sort of arrange them on the screen in these organized shapes and you’d see the Jacobs as it were, you know, playing all the different ingredients.

And so, you know the one of the first questions I had for Ben was “How is this something that we could translate in a way that’s not going to be a gimmick?” Because a of the sort of live looping gigs that I’ve ever seen, just they don’t feel that great, you know, and it’s a very linear pathway too, to the end of the song. It sort of starts small and builds high, and then you have to press stop, and then everyone claps and you start again. And you know, I think – I think what I was excited about, and it turned out that Ben was sort of incredibly in line with this, was the human experience, something that felt like the music had multiple limbs, more limbs than I physically have, but still felt like it was an expression of one person, one thing.

Much later, slowly but surely, into this idea of what a one-man show might look and feel like, and how on earth you go about designing that.

**KEVIN SCOTT:** Yeah, and I saw an interview of you on the *Harry Connick Show*, where I don’t know whether you had the Harmoniser at that point, but like on that show you were sort of frantically running around, from like one instrument to another, like trying to like make this performance with all of the tools, but like there wasn’t – there wasn’t a simultaneity about it, like did you have the harmonizer at that point?

**JACOB COLLIER:** I believe so. I think the Harmoniser is pretty much the first thing that we dreamed up and built together. And Ben, I remember coming to your place. It literally would have been six years ago, I think like almost to the day, actually, and I stopped by, and we started this thing. Because you know, as you mentioned, Kevin, one of the things I love to do most is multiple voices, and so kind of like 101 dream on stage was to be able to sing multiple-voice harmonies spontaneously, you know, and not need to loop myself and stop time, or press play on a track, and all this stuff, that sort of felt like it wasn’t really spontaneous.

And so, in my mind, there was this way of me standing on stage and playing the notes I want to hear my voice sing, and then you hearing all of those notes sung by my voice in real time as a sound producer. That was the thing that we sat down on your couch, Ben, and sort of dreamed up, and we made really early version in about five hours that we kind of chipped away at, and then I ended up going home, and I came back to finish it a couple of months later.

**KEVIN SCOTT:** So Ben, maybe you can explain what the harmonizer is and like, and I really want to hear about how you – like this is not a trivial piece of technology. I want to understand how you got the prototype done in five hours. That sounds very impressive.

**BEN BLOOMBERG:** I think the, the key thing, especially when you’re trying to build these prototypes is sort of not to get wrapped up in implementation details. And so when we were trying to build it, we really just wanted to get as quickly as we could to something that felt really good. And so you know it wasn’t about necessarily like we’re going to try this weird algorithm, or we’re going to do that thing. It’s just like, well, what do we have at our fingertips right now that we like, and what can we sort of combine together in a way – you know, maybe we like these qualities of it, but we don’t like this thing of it, so we’ll – you know, we’ll work on customizing something, and I – you know, I think, I think with these performance systems, a lot people sort of have this idea that like we’re going to build everything from scratch, and actually that gets pretty scary when you have a huge audience and things like that. So, yeah, we – I remember, Jacob, you brought this thing called TC Helicon VoiceLive 2 Touch, which is sort of a classic kind low-coding harmonizer, and we tried it out, and thought, “Okay, yeah, this is great, but it only plays four notes.”

So, like that’s not enough notes for Jacob. And so, we should add more notes, and how can we do that? And so, a lot of that first day was just trying to figure out how to take a bunch of four-note harmonizers and allow us to have let’s say 12 notes or 16 notes. And then we started thinking about sort of the quality of each of the voices in the Harmoniser, and so most harmonizers, you know, they’ll have some attack and decay for each voice, and a lot of the ones that we found, we didn’t quite like that envelope, and Jacob wanted to play so quickly.

A lot of the harmonizers had like a little fadeout, a little decay. So then a big part of it was figuring out how to get each voice to stop, like instantly, after we – you know, after Jacob would release a key. And then we started looking at latency, because again, with a harmonizer, you want to be able to sort of be nimble and have lots of sort of agility in terms of the notes that are being played and everything. So, we then tried to figure out how to do something that was sort of as low latency as possible.

And so, you know, we started taking a lot of parts and basically combining them together, and some of it was running on the computer. We had, you know, in the end we had the TC Helicon in there too, but we like, we modified it a little bit, and it ended up sort of in this 3D printed enclosure with some custom sort of analog stuff on the frontend. And that would sort of be triggered for certain parts, and then things in the computer would be triggered for other note ranges. And then because we were running the computer in there, we could sort of do it like a studio mix where we would have you know lots and lots of sort of processing all of the voices, and then processing on the whole stereo mix. So we were able to sort of control dynamics that way, and make it so that low voices were sort of in the center, and high voices spread out.

And so, you know, it’s sort of all these little details. And it’s really about figuring out how to get the feel to be sort of what we want. And then the hardest part actually is just making it so that it doesn’t break when you’re trying to use it on stage, and it gets dumped off the back of a truck or you know whatever, whatever happens on tour and checked as checked baggage. And in some ways, that’s the hardest thing because it’s just incredibly hard to make really, really rugged, really rugged gear.

**KEVIN SCOTT:** Have you, so this is a weird tangent, but have either of you watched the Wintergatan videos, the Marble Machine videos? Like that looks like the most fragile like machine I’ve ever seen. Like I don’t know how Martin kept the thing together for the tour that he was on.

**BEN BLOOMBERG:** It, that kind of stuff is super scary. And actually when we started working together I had just finished this robot opera which was – it’s a long story, but it was commissioned as a birthday present for the Prince of Monaco, and we did, we did this crazy production, you know, sort of Broadway scale with all these – you know, it was three 50-foot trailers of gear, and it was all custom hardware, all sort of custom robots that had been built from scratch at the Media Lab. And just seeing all that hardware sort of on tour, and seeing all the really scary moments when things would fall apart, or catch on fire, or almost squish somebody, or – you know, and it was an amazing show. But if it was just going to be the two of us, and just starting out, I think when we started working together, I was sort of really sensitive to that.

So, we were, we were really cautious at the beginning, and I think we’ve gotten sort of more and more adventurous as time, as time goes.

**KEVIN SCOTT:** You know, what I’ve done over the years with technology, like you’re sort of building things, and you’ve got billions of people who use it, and so you’re like constantly worried about the fragility of things, and robustness and fault tolerance and reliability and whatnot, because you know, the consequences of something failing are – like you just impact a lot of people. For you all, it seems to me that, you know, one of the special things about what you do with music is that, you know, done well, like you are completely capturing someone in this immersive emotional state, and like mistakes, you know, like a cough, or like there are very easy ways to sort of pull you out of that immersion, and so like in that sense, like the stuff really has to be robust, right?

**JACOB COLLIER:** I think it’s a mixture of things being robust, and then leaving space for being spontaneous, you know. And I think that this is something that I’m kind of forever indebted to Ben doing, was on that first Skype conversation, and in those kind of initial dreaming phases of the one-man show and the Harmoniser and all sorts of other things, there was never a moment where it was kind of like, “Oh, no, no, that’s too – we can’t do that, that’s going to be too fragile, or that’s not going to work out, or that’s not reasonable for you to be expecting” – you know, whatever. It was like, well, if it’s not possible, then we’ll find a way to make it possible.

And then I came to trust that process, not necessarily to end up where I was expecting it to, but you know, there are a few different examples of things where we’d set out thinking I want to be able to do this live, and then by the time we do it live it’s – it’s changed its nature.

I mean, I remember when we started with the one-man show, having about 10 different foot pedals across the whole stage. And I had to run around, hitting all the pedals as I would play each instrument, and then spring away from that instrument, but I figured out – well, what we figured out in trials was that if I hit that pedal, even a fraction of a second after the downbeat, it would loop the following bar, you know. And so there’s – there’s only so much processing that my mind can do in one go about when I hit a button, and also how – there’s also only so much I can do physically with my body on stage, at one moment, and still be a human and musical and give energy to a room. And so you know, that’s something that we – you know, we kind of looked at each other and said, “You know what, maybe we should just lose the pedals,” and let’s have the loop – the loop invisibly, and let’s just tell them when to start and stop looping. And then my job would be to land, to sort of just land in front of them at the right moment in the song, play them for the right length of time, and call that in my head, and run away and keep playing.

And so you know, things – things do change, but I think that the thing about Ben is that there is always space for an idea to kind of be impossible for a little bit because there’s a very important fragile moment when an idea is being had where you can’t stamp on it and be too realistic. You have to dream. You have to say, this – no one could ever do this, okay, let’s go and do it, you know, and then obviously once you get started that’s when kind of my wealth of experience of being guiding by what’s my idea of good and bad creatively steps in, and Ben’s massive wealth of experience about how things work the best, and what things work well, and what is a no-no, and what is a yes, those kind of come into fruition, you know, but there’s that, that lovely – there’s that lovely moment at the beginning where you just think, “Whoa, yeah, we could do this.”

**BEN BLOOMBERG:** We can do it, let’s go for it.

**JACOB COLLIER:** I’m curious, Kevin, actually, to ask you, as somebody who is so successfully – sort of had ideas and implemented them. How do you have ideas, and how do you assemble people around you to help those ideas come to life, where the idea can be as sort of safe but yet impossible as it needs to be to be a good idea?

**KEVIN SCOTT:** Yeah, I think it’s really, really – I mean, it’s sort of the hardest thing about creativity, right? Especially--so, with engineers, you know, I think there’s this mindset thing that maybe you’re even born with where you sort of look at the world in terms of like all of the things that are wrong. So you’re just sort of constantly scanning things. It’s like, oh, this doesn’t work as well as it could, and you know, like this is broken and needs to be fixed, which is a – you know, both a good and a bad thing. It’s like a slightly jaundiced, you know, worldview, but it’s also the thing that results in like – you know, this determination and drive to go like make things better.

And I think there’s this moment when you get a bunch of technical or creative people in the room and they come to a problem with this, they’ve got this set of tools that they have, like they have an understanding of, like how the world works, which is just that understanding at a point in time. And they have you know, they have their experiences about what they’ve tried in the past and which things have worked and which haven’t. And like it’s sort of hard at the beginning, I think, to overcome everyone’s past.

So, because you’ll have a lot of people in the room who are like, “Oh, you can’t do that, that’s going to be too hard. That’s impossible. Like, I don’t know how to do that.” And the thing that you have to do is figure out inside of those groups how you can how you can give people the permission to speak the daring, crazy thing and not immediately get shot down. Where they feel safe, it’s like, oh no, you just don’t want to tell people that idea’s stupid. So, like part of it is about language and culture.

Like one of the ways that we really admire the growth mindset work out of this brilliant professor at Stanford. And one of the things that we tell everyone is --we don’t want to be know-it-alls, we want to be learn-it-alls. And so if you think about all of as like a learning experience, it’s you have an objective in mind. And like the process of like going towards the objective is learning how to get there, then you sort of wash away a bunch of this sort of cultural stuff that can blow ideas apart before you ever really understand whether they’re going to work or not. And I’m guessing that that sounds like you all sort of approach things very similarly.

**JACOB COLLIER:** Yeah, I would say I would definitely say so. And it’s lovely to hear you talk in those terms. When Ben and I, you know, for example, set out after doing this first show, which is the Montreux Jazz Festival in Switzerland, we were opening up for Herbie Hancock and Chick Corea. And there were three thousand people who we had never heard of me or anything or which is completely it was completely new for me and for everyone.

You know having done that gig, we set out on this tour, you know, our first tour ever. And it’s crazy, and the objective of that, you know, if you think about it in those terms was kind of unclear. You know, we wanted to have a good time, and we wanted to play music, and we wanted to make people happy, but we didn’t really know past that like what exactly wanted it to be like and feel and represent. You know, we didn’t know why we were doing it. There wasn’t really a reason that we were doing it, other than it just felt like the right moment to do it. And so Ben and I set out for a month of shows, maybe about 20 shows. And we had eight bags between the two of us, and that meant that we each had to carry four, and so we – I can clearly remember having a huge suitcase in my left hand, a huge suitcase in my right hand and then a great big like rucksack on my back, with all my gear, all the computers and stuff in it, and then on my front this stick base, the like double base in a case that goes on a stand, and Ben was kind of equivalently bestowed.

And we would be waddling around the States, and we wandered around the whole of the U.S. and stayed on friends’ couches and all sorts of things. And just feeling out what was good and what we loved the most, and sort of building around that. And even over the course of that one tour, there were lots of different things that we changed.

And I think for me, having been used to a very kind of quick process of manifesting something that I liked in a recording environment, you know, it takes me 2.5 seconds to change my mind and start something fresh. On the road it happens at a different speed. And I guess, Ben, I’m interested to hear your thoughts on what this has been like for you and continues to be like. But you know, at the end of every show I’d say, “All right, we need to change these six things about these six songs, and we’re going to change the whole structure and remove the – let’s speed this one up, change the key of this one.” And Ben was really good at kind of – from my perspective, of letting me do that kind of processing, but also grounding me in the idea that we were building a show that had to run every night, and that if we changed everything about every show, every night, and you’re kind of starting from scratch. And so there was a real kind of mutual patience that I think that we had to have about how that process evolved, and our sort of goal of working together, sort of emerged slightly further, the more steps we put in the line, you know. But Ben, do you want to talk to that at all?

**BEN BLOOMBERG:** You know I think what’s really interesting, especially sort of in the world of live performances. Generally, people are really risk averse, and so every venue you go to, every house crew that you work with, people are – you know, people’s sort of reputations and everything is sort of dependent on who the show goes. And so, you know I think what we’ve evolved towards now is just starting the conversation. You know, every single time we go into a venue saying, “You know, look, let’s try if we can to set aside all of our sort of preconceived notions about what a show is and how you normally use your equipment and things like that.” And let’s – you know, and it’s actually like in big bold letters on the front of the rider, that says like “This isn’t a normal show.” You know, and let’s sort of work from base principles here and so I think that sort of – I don’t know, mindset is what has really sort of pervaded and sort of evolved, and it took me a little bit.

You know, I think Jacob, you know, you definitely stretched me a lot. Because you know at the very beginning it would be like “Oh, my god, like we can’t change that,” you know, between the shows. I remember, actually, the very first show at Ronnie Scott’s, which we actually did as a rehearsal show before the big Montreux show, and it was like five minutes before the show started, and Jacob came up to me and said, “We need to change the playback,” or we need to change – I forget exactly what it was, and I said, like, “No, no, we can’t change the playback right now.” And it was like the very first – you know, it was sort of the very first like sort of moment where we sort of had to say, okay, like – you know, we could change it, but every time we’ve changed something, there’s been a problem. And maybe we’ll get good at changing things down the road, and really flexible. But so far every time we’ve changed something there’s been like a little hiccup, so we could change it, but there might be a little hiccup. We just don’t know and we can’t test, so like what should we do, you know.

**KEVIN SCOTT:** Well, I can say, and what I’ve always tried to do with the technology products that my teams and I have built is that you’ve sort of got these two things. One is like the faster and higher quality you can gather feedback, the quicker you can learn and the better you can make the thing that you’re trying to produce. And so engineering your environment in a way where you can get that high-quality feedback as quickly as possible is like super important. So like that’s one thing. And then the other thing is, you know, if you are thoughtful enough, you can usually understand the sorts of risks that you need to be able to take. And then you build some systems to help you manage those risks, so that you can like walk right up to the edge of something, and even allow yourself to fail.

Like a thing that we have in operations is this thing called MTTR, mean time to recovery. So, with software, I mean, like both of you know this, like there’s no way to produce bug-free software. Like it is literally, from a theory of computation perspective it is-- these are undecidable problems like you can’t compute a solution to them, no matter how powerful a machine you have. And so you have to reconcile yourself to the fact that you’re going to produce things that will have errors in them. And so the question then becomes how do you catch as many errors as humanly possible before you throw something out into the world. And then like how – once, you know, knowing full well that things are going to get through, like how do you build your systems so that you can recover from failures quickly. And that is, software for products, like that’s a very useful way to think about the world, like it just lets you move faster than you otherwise would if you are constantly being crippled by the fear that you’re going to fail.

**BEN BLOOMBERG:** I think that’s really important, and what’s so special about Jacob is – you know, for all that the technology does, we really do have a lot of – we really do have a lot of wiggle room because Jacob on stage can make just about anything, you know, feel amazing, and so – you know, there have been some pretty ridiculous sort of – I won’t call them failures, but moments where things didn’t quite go as expected. And if were anybody else, it would – you know, it would have been sort of a train wreck, and Jacob is able to take, you know, even the craziest things.

I think like one time in Germany, all the loopers started speeding up and going up in pitch because one of the video operators pushed the wrong button at the wrong time. And like nobody else can handle that stuff, but Jacob can make that sound musical and you know keep the audience having a good time. So, I think in that respect we were sort of really uniquely positioned to try out some pretty risk stuff. You know, he kind of makes it possible.

**JACOB COLLIER:** I guess I could tell, just one thing from my perspective on that, would be that I think Ben and I have different kind of values, the different – different experiential values of control, and when control is necessary. And you know, so I know for example that when it comes to precision of musical information, I’m quite – I’m quite controlled because I kind of tend to know the highest resolution position for this note to be for it to mean the most in the groove for example. And I think less about you know things like – you know is this flow – is the flowchart from the element to this element within the tech going to work every night in a way that means I can – that we can all have a good time?

And I guess that means that there are elements of the tech which I’m stretching from my perspective, and absolutely the same in reverse, where you know – Ben for example will be very, very risk aware in some scenarios, but then will also highly encourage me to jump off my own creative rails in a musical sense and try new stuff the whole time, you know. And I think if there’s one thing that comes from making music in one room for ten years and then going on the road, having never done a gig, you know, I don’t tend to think about imperfections being great. You know, I tend to think about imperfections that aren’t to plan being things that I will kind of want to correct and make sure that they are right.

It’s not that they’re going to be completely in a grid-based system all the time, but it’s where I want it, you know. But one thing that I – you know, that I at first was very kind of – I guess I was quite intimidated with touring, and now I’m completely in love with about touring is that it’s one of the only moments of your life where you have no room to be anything other than just present. You just have to be present. And so a lot of the mistakes and the imperfections we’ve ended up designing the whole show to let those shine even more than we used to, you know. And so I used to think that the best gigs we did were the one-man show , or the gigs where I nailed all the instruments, but it’s just not true.

And I know you were saying about an environment where you can get instantaneous feedback, I mean, for me, that’s just going on tour. And every – every night where we got a fresh round of feedback, and it doesn’t matter, it doesn’t really matter what the audience says to you after the show. You know, they might say, “Oh, that was a great show, we loved it.” Or “It was rubbish.” You know but you tend to sense, just even standing on the stage and being you on stage how that is going down, and so I think, it was a real kind of quick learning process of people immediately responded to the moments where I wasn’t impossibly perfect at something, you know, impossibly good at something, the moments where there would be space for me to be – you know, wiggle around, or something would go wrong.

I can think of gigs where, you know, someone would cough, and it would loop, every time, it would loop, as part of the loop [coughing] – you know, in the percussion loop because it was really quiet and someone would yell or scream or a plane would go overhead, or whatever. That would get, that would become part of the groove of the song. And that’s a fabulous challenge, musically, how do you make that make sense, but you have to be willing to look a little bit like a fool, and just sort of embrace it, and I think for me one thing I’ve learned really is how special it can be when everyone is kind of doing that together, you know, the audience and performer alike are both coping with the strange curveball, and alchemizing it into something that feels really, really great, you know?

**KEVIN SCOTT:** Yeah, so I mean, I love to like – to sort of press on this a little bit because I can’t tell whether these two things are different. So, you have these amazing performances that you do in front of audiences that feel to me at least like they have this very improvisational character to them. And then I watched you do things like your “I Harm You” videos where someone will send you a melody or a tune and like you create this harmonic texture around it. And like I’ve seen – you know, you sit there for hours sometimes in front of Logic Pro, and you know, you’ve got hundreds of tracks and like you – I mean, like your process if fascinating to me because you just, you tweak and tune. And like on the surface that seems like it’s a different thing than the – you know, than the life performances, but like maybe it’s just – you know, the same thing on a – on the same continuum.

**JACOB COLLIER:** I would say it definitely is the same thing. It’s a similar expression on a different scale of time, I guess, you know. You could say one is real time and one is stop time, but they’re both kind of improvisations. And in some ways, we’re doing the same thing right now just as we’re having a conversation. It’s like we, I’ve internalized enough of a vocabulary to kind of explain a bit about what I’ve done, or what I’m thinking or what I like, or whatever, and that happens kind of in a way that’s new every time. There’s a scenario in which it’s reasonable for me to do that. But I think for me I used to think they were very different. I used to think, “Well, oh I’ll be recording in my room, and then I’ll go and talk as – you know, touring, that’s fine, and then I’ll come back home and really continue doing what I love to do.” And then you realize it’s the same, it’s the same thing. It’s like a different limb of the same beast, you know, where you’re making an idea happen at a speed – at the speed at which you’re having it, you know. And when you’re in a studio that speed is in some ways slower than when you’re on the stage, and if I’m on the stage at the piano, then I’m playing as I’m thinking, and I’m jumping through hoops as I find the hoops, you know?

And in the studio, the whole process kind of takes longer to occur. And if I imagine an orchestra in my mind, I can’t play the whole orchestra into Logic at once, but I can play each instrument at a time and build up the layers. And that kind of concept of visualizing and executing is very similar. But I think that you need a different set of tools in different situations to do that. You know, I’ve recorded this album, Djesse Vol. 3, this – last year, in 2020, as part of my quadruple Djesse albums, it’s a four-album series. And Ben and I did a lot of sort of sonic sculpting and mixing on this album, and more than ever, I’ve learned from Ben the value of listening to sounds from a very different perspective than I’m used to, because when I listen to a sound, I hear it as music, and a piece of musical information, which is not the perspective that always makes sense.

For example, in the mastering process or the mixing process, or the spatializing process, or whatever it happens to be. And so Ben has been able to lend me his perspective, you know, one of many, many perspectives that I’ve learned from, about how it’s possible to experience something in a new way, which changes the way that I look at something, which is really valuable. So that the skill for example of getting something to sit in a space, it – when you’re wearing headphones is a different skill that applies whether it’s an E flat or an E natural that needs to be in this F major chord, you know.

But the expression of something, that the spirit of something kind of being manifested, I think is – I think it’s the same. And I would say that, you know, whether we’re sitting down building tech, or whether we’re on stage improvising with an audience, or whether we’re recording in the studio or collaborating with another artist, or whatever, there’s normally a sense of push and pull, and you normally bring a set of values in. But I guess I would concur with your – rather than being know-it-alls be learn-it-alls thing, where you have to kind of walk in with a blank canvas each time you step into anything, and just have some kind of faith that you, that it will be fine, you know. And I think that’s something that Ben and I have had to learn and have learned probably from each other about just executing thing after thing.

Because after a while you think, “Well, you know, maybe we can stretch this even further because what’s the worst that could happen, you know, the worse that could happen is that everything breaks and then you just play the piano” you know, and there’s a joy in letting go of the risk of that.

**KEVIN SCOTT:** So, one of the things that I find super inspirational about both of you is what you do is such a multidisciplinary, multiskilled thing. And like you have these collections of skills. And you know, I think one of the like really interesting things about these like crafts or arts that require a lot of technique is when you do it well, you know, it – people don’t really see like all of the struggle and the challenge and the difficulty of mastering the skills. And you know, with Ben, you know, you know, it’s software, it’s you know, and like a particular software, like you know, you probably understand signal processing extremely well, which is like very mathematical, like you were talking about in the Harmoniser. You’re doing stuff with 3D printing, you’ve got analog circuits in this thing, like you – so, you know, you have accumulated this giant bag of skills to go do something. Like Jacob…so I have this guy works with me Jaron Lanier, who was like the father of virtual reality, who is like also these polymaths sorts, like he plays like crazy range of instruments and actually has one of the largest, I think the largest collection of – private collection of musical instruments in the world.

But like you sort of play everything, and it’s not just the instruments, it’s like your voice is just what you can do with it. And then you have this, you know, the music theory that you have at your disposal. And then you’ve got these tools like not just Logic Pro for composing the music, but like you just sort of figured out, like, I don’t know whether it was intentionally or accidentally that you can use the internet and YouTube and like all of these things to collaborate with people. When did both of you decide that accumulating like all of these things, each of which requires serious effort to master that that was worth doing on such a broad scale?

**BEN BLOOMBERG:** That’s a tough one. Like I don’t know if you feel this way, Jacob, but I would say, I don’t necessarily feel like I have mastered anything. I think, we definitely do a lot. I sort of – I sort of feel like we’re guided by not – not like wanting to accumulate these skills or find new things to explore, but it’s just sort of in the moment, like, “Oh, yeah, we want to make a music video,” so we have to learn about, you know, raw camera, post processing workflow, and you know, cinema lenses and things. And it’s just like, “Okay, we’ll do a little bit of googling.” Like today I have to calculate, you know, if we’re going to shoot this video, how can we fit four Jacobs in the frame with this specific lens and that specific sensor, and it’s just sort of--well, we’ve already talked about it, it’s what Jacob said, you know, it’s the sort of, “Well, we can do this,” you know, and let’s just take this risk and let’s have fun, and this isn’t intimidating, it’s sort of a fun new world to explore. And I think we do that sort of over and over. I don’t know, what do you think Jacob?

**JACOB COLLIER:** I completely I agree. I mean, I think – I mean, everyone is a fraud, right? No one really knows what they’re doing in anything at all. I definitely feel the same as Ben in the sense that there’s nothing I’ve mastered, you know, and I honestly, I think mastery is a myth. I don’t think it exists. I think that no ideas are ever finished or new. Everything is just recombined. And I love that. Because it means that we get to be artists rather than inventors. We can paint with what we know. And so I guess my job as a musician has been to learn as much as I possibly can. And I never stop to think about learning. I just learned it because, well, of course I’m going to, of course I want to understand how, why this works here. Or, well of course, it needs to be further to the left in the frame. Or, well, of course, I need to be able to sing on stage in multiple voices. Let’s just do it, you know, because there was never a moment where I thought, “Well, no, I shouldn’t be doing it, or I can’t do it.”

I think that there’s a certain attitude of just kind of believing that it’s going to be fine, that enables things to happen. Which is one of the reasons I was so curious about your process, Kevin, within teams. But I think for me I didn’t, I didn’t see anyone at school, growing up, who could play the bass, or the drums or the guitar in the way that I wanted to hear them being played. There were lots of great musicians, but I wanted to hear a particular thing, and I figured that, not for any kind of particular reason, other than just I wanted to be efficient. I figured, well, I may as well do it myself, because I know what I want more than anyone else knows what I want. And so – and that’s kind of a positive and quite relaxing realization. It’s like, well, okay, then I’ll do it. I’m not going to do it in a – in the right way, probably, or the way that’s right by the rules, but you know, I love to bend stuff.

And it’s funny when you’re looking at the industry, at the music industry, and it’s filled with people who are really trying desperately to imitate each other so that they may compete on the same kind of – on this well-trodden scale of hip and cool and accessible and sure, and over-compressed and stuff, and you sort of think, well, if I assume I’m going to have fun making music, then I might just make my own path that’s a different one from that because then I’m always going to be where I need to be on it. And there’s no kind of moment where I think, “Well, surely the right way of doing it is not there, so surely it’s x, y and z that would be more appropriate for this, that and the other.” And so I’m not a brilliant piano player or bass player or drummer or singer or anything, or arranger or video editor or whatever. But I do trust my intuition to kind of lead me in the right direction, and I guess in some ways saying, you know, is recording a song at home the same process as performing on stage? I guess it’s the same as if I play the piano, is it the same as playing the guitar?

Well, no, it’s not the same. But it’s still, it’s a different dialect of a similar thing, which is kind of like believing that you’ll learning something, you can learn something from everything you ever do, and that you’re willing to do it, you know, and that you’re willing to put yourself on the line and sort of embrace it. And I don’t think about my skills as individual at all. And I know Ben is the same, and you know, there are so many things that Ben can do, but he – I doubt you’d say, “Well, I can do this, this and this,” you know, because they’re all kind of different strings to the bow, you know. And I think that in some ways, that’s what people are, but we have a society and a culture where we kind of tend to say, “I do this, and this is me at my top level. I am a musician,” you know, but –

**KEVIN SCOTT:** Look, I think what you just said is, it’s a very, very important mindset because, look, the reality is like you may not feel like you’re a master at these individual things, but there – you know, there is like a threshold, right, of playing the piano, or playing the guitar, where like you start and like what you’re getting out of the instrument is not worthy of sharing with anyone else, like you’ve got to do work to like get the notes into your fingers, like where you can, you know, perform what you have in your imagination.

But it sounds to me like both of you sort of look at these things as like, “Oh, I’m not going to sit down at the piano and practice for three hours a day because, like, I need to get to level ten on the piano mastery chart.” It’s like, “No, this is part of a thing that I want to do or that I’m intensely curious about. And like, I’m just going to, I’m just going to play and practice until I get it to where I need it to be for this thing that I’m trying to achieve.”

**JACOB COLLIER:** I think you’re so right. I remember two things. One is I remember my mom offering me piano lessons when I was eight years old because all I would do all day long, is sit at the piano and play cluster chords, you know, [mimics chords], wow, cool! And I remember my mom saying, “Do you want piano lessons,” and I remember just saying, “No I don’t, I don’t want piano lessons at all, actually,” because I’m fine, I’m just going to go at my own, my own pace, and I don’t really want to be the best piano player, you know, I just want to be the best at being Jacob that I can possibly be. And she was really kind of with me on that, and I’m very, very grateful to her.

The other thing I was going to say was when I started making videos, I realized that in order to play them for the camera, I had to learn how to play them. Because I would record these baselines, and I remember, back in the day, you know, recording one note at the time, and editing it into the place where it sounded funky, you know. Because I couldn’t play it, but I knew I wanted it to go [mimics the music], you know, and so I would go [mimics music] and then [mimics music] and then [mimics music] and I’d edit to go [mimics music]. And that was fine, you know, and obviously it’s – you know, you’d think, “Oh, that’s not the way it should be done.” But then I’d turn the camera on to do that take, and I just had to, I had to get it together, and so I did, you know? And at that point it wasn’t a matter of, oh, am I good enough, you know, should – am I really qualified enough to be playing the – you know, it was just, well, I’ve got such a defined objective that there’s no possible way I’m not going to get this together because I have to. And so there was something really joyous about that for me.

**KEVIN SCOTT:** Yeah. And I think everyone listening should like relisten to that ten times because that mindset that, you know, having something in mind that you want to do, being fearless about like that you’re going to be able to figure out how to like put all of the skill together to accomplish the thing, and then just joyously pursuing it is the way that I think you make great things.

**JACOB COLLIER:** I’d say so. Absolutely.

**BEN BLOOMBERG:** You know it is, it easy for us to say that because we’re doing – you know, I think we’re all doing pretty crazy stuff right now, you know, and – but, and it’s the hardest to do that when you’re just starting, right. But I think, especially for Jacob and I, we sort of owe that to our families, actually, because it’s sort of our families that were there at the beginning when maybe we were just playing single notes, or like – you know, when I was building a phone system and my parents were like, “Well, are we still going to be able to call 9-1-1 if you’re like taking all over the phones in our house?” you know. And so, sort of the trust and the support there, I think we’re both really lucky, and now we’re sort of fearless, but it’s this self-fulfilling process.

You know, it’s sort of you do it once, and then it’s like, “Oh, wow, that felt good, like let’s try something crazier.” And like that’s why, you know, this most recent – like *Jimmy Fallon* thing, for example, where we’re both like doing things that we’ve never done before, you know, and the end result has to like be submitted for primetime television, you know. And it worked out in the end, which is a crazy thing, and another good feeling, right?

**KEVIN SCOTT:** We’ve had this interesting thing going on over the past year, with the pandemic where everybody is distant from one another physically. And we’re all trying to work from home, and it seems like there’s some really cool artistic stuff happening from that. So, like you have what you’ve been doing with Djesse Vol. 3, and like Taylor Swift has put out two albums, and you know, like people are like sort of exploring new ways to like make art and be creative, that I think is really, really amazing.

And like one of the interesting things, like I know you’re up for Album of the year, actually against, you know, Taylor Swift, not that it’s any sort of like against or competition or whatnot, it’s sort of a joyous thing that you’re both nominated and like you both made beautiful things. But like the things that you’ve made are very different. Like hers, like and I don’t know whether you’ve seen the documentary she made about her album that’s on Disney Plus, but it’s like this beautiful, wistful, like almost melancholy thing. It’s almost like she’s sort of taken this, you know, sort of moment with the pandemic where like you’re a little bit isolated, or isolated in a way that you weren’t before, and just like gone inwards, and it’s like very thoughtful, and you know and reflective.

And like what you’ve done is like it seems to me like you’ve figured out new ways to connect with people and like what you’re producing is joyous, I mean like really joyous, I mean like I’ve been – I’ve listened to your music so much over the pandemic because it just makes my mood better. And like you’ve collaborated with all these amazing people, and like you’re staging these performances, whether it’s like the BBC, or *CBC Sunday Morning* or *Jimmy Fallon*, like you’ve just figured out how to do this pandemic thing in a joyous way. Like how, like is that deliberate or like just – you know, just you’re just – you know, trucking on, keep being Jacob?

**JACOB COLLIER:** I mean, it hasn’t been easy for any of us, you know, and I think we’ve all had different struggles at different moments. I think there was a kind of natural momentum that I found going into March where I had all of these kind of ideas and energy. And we were just about to go on tour, actually. And it was this crazy moment where four days before the rehearsal started and it was sort of like, this is not happening. You have to go home now and stay at home. And I’d been running for two or three years through this kind of seemingly never-ending tunnel of like thing that’s very intense that I have to do right now and never any space to think about anything else. And I remember when I heard the news that the tour wasn’t going to go ahead, my biggest kind of emotion was – in some ways was relief. It was like, “Wow, that means that I don’t have to go on tour.” And I was devastated about not going on tour. But that means that no one knows what’s going on right now. And that was for me was a really interesting moment because you have to recalibrate. And what I find is that if I get – if you just give something space, then it will grow.

And I’ve also been very, very lucky, I guess as Ben said, with my family, you know, because my space – my family are automatically very kind of nurturing towards space and time. And so what it meant was I was able to spend time with those guys and just dream up a bunch of stuff that I hadn’t had time to dream about. And I mean, I definitely didn’t plan it out. I didn’t think, oh, well, what the world needs – you know, because I’ve looked at the numbers and everything, there needs to be joyous, and so I’m going to be joyous, you know. But I think that I was determined to make – to give myself challenges to grow through, because that’s what sustains me as a human. And I was determined to connect with people because that also sustains me as a human. And I was relieved to have more time to work on the album, which I’ve been on for some time, but you know, looking back now, I know it was nowhere near ready, back in March and I – it was technically finished so that I could go on tour and release it, but it was not finished. And so I’m really, really grateful for the time. But you know, it’s really hard to maintain perspective. And you know, we’ve had highs and lows at different times, and – yeah, but you know, Ben and I have kind of never been closer, despite having not seen each other for a year.

You know, we’ve done crazy stuff together. You know, we’ve done all these shows, you know, 350 gigs. And we’ve made four albums, and all this stuff, but actually it’s been this distanced time with a little bit of perspective where we start asking each other the questions that really matter. And I can’t help it, it’s just all so – life is all so wonderful when you sit and pay attention to it. I think that’s the thing, it’s so wonderful. And I think that – you know, what I found in the last few months is that a lot of the sort of – the unconscious fears and the doubts, and the kind – the self-questioning and all of that really intense stuff, that all comes to the surface in a moment like this, and it’s really hard. But if you can just get to the other side, you realize how lucky we all are to be here at all, you know. And then if there’s one thing I can do, in my own life, to find some kind of meaning and purpose, where nothing else seems to make any sense, that I make music. That’s what I’ve done since I was four years old, and so I really don’t have an option there. But I think the privilege is that I now I have the choice as to whether to share it with the world, and I have a kind of creative self-trust that will, that tends to get these ideas off the ground.

You know, I was thinking, during your last question, I was thinking about just the fact that when I was younger, you know, I would take something to my mom that I’d recorded, and I would say, “Hey, I made this, you know, what do you think about it?” And that, you know, any child who has ever done this, which is everyone, you know how fragile the idea is at that moment, you know. And all the parent figure needs to say at that moment is like, “Ah, I don’t know, I don’t think it’s very good,” or, “No, I didn’t like it,” you know and it’s – just crushed forever, never to return. And so in a funny sense, if the parent says, “It’s fantastic and you need to do much more of that thing, and show it to all your friends, and I’m very, very impressed,” and all that stuff, that’s almost equally, you know, almost equally damaging. And there’s just this really, really kind of careful middle ground where like the value of the idea is in the fact that you had it, not in what the idea represents or means or where it takes you or anything. It’s just that you’re having ideas means that you’re doing the right thing, and I was so, so lucky to have that kind of, that in my mom, you know, I was brought up by a single mom, and she was always open eared for my ideas. It was always, you know, open to discussion, to dialogue.

She’d bring her opinion about things in a really beautiful way, where it was always my thing and I could make up my own mind. And I think that, you know, finishing something and knowing that the value is that it’s finished, not that it’s good. But that you paid attention to it, and that you’re proud of it, is a very addictive and wonderful thing in a sense, and so maybe not addictive, but moreish, you know, once you’ve done it once, you can do it again, but bigger, and you can do it again, but bigger. And songs, songs turn into arrangements, and arrangements turn into collections of songs, and then they turn into albums, and then albums turn into tours and then tours – because you, you start dreaming in kind of higher and higher resolution, but that’s because you’re able to sit down with someone who believed in you, and I think I’ve had to be that person for myself a bit this year, in a way that I haven’t been used to.

You know, I’ve been lucky enough to have my family around me. But, you know, I mean, Ben knows literally more than anyone in the world that I’ll sit down and just think, what am I doing? I’m lost. Is this good? Am I good, is this, am I important, you know, am I too important? You know, is this all too consequential to continue? Is it not consequential enough? You know, and all these angry voices that vent at different things at different times on the internet. And you know, it’s really, it’s a very interesting time. And it’s a great big dance, you know, if you’re able to step back and observe it, and it’s tough. But I’m really, really looking forward to kind of entering back into a world where it’s possible to take the lessons that I think we’ve all be learning over this time, creatively and otherwise and kind of put them to use in real life.

**KEVIN SCOTT:** Yeah, so one of the things that you just said, I think is really – well, a lot of what you said is like very important, but like one thing in particular, which is this feedback that you got from your mother, or the feedback that you’re getting from your colleagues. Like that, it’s just so, it’s so critically important, you know, and I think your mother is a violinist and a conductor and a teacher, and so like she – you know, she has practice giving people feedback.

And you know, I have the same thing with my daughter right, who is 12 years old, and trying to write a book. She’s a voracious reader, and she’s like decided at 12 years old that she wants to write a fantasy novel, and you want to absolutely encourage that. But you also want to be able to give some feedback so that there’s something constructive. It’s like, okay, like here are all the great things that you’re doing, and the most wonderful thing about what you’re attempting is that you’re attempting it. You should feel really good about yourself that you’re doing that. And here are some things you should think about to maybe make it technically better. And like, if you get that wrong, you can crush someone, especially someone who’s starting, and they’re afraid and self-conscious. So, I don’t know. It’s a blessing to have those people around you who know how to give you feedback.

**JACOB COLLIER:** Yeah, and I think if someone makes space for you, it’s contagious. You know, you start making space for other people in some ways too. I find the kind of act of giving in that way, it just never ends. It just gives and gives, and so if you give somebody room to have an idea on their own terms, then it seems to me like the kind of magic in that process will figure itself out.

I remember being 12 years old, and I wanted to write a fantasy novel, actually. I have it on my computer somewhere, the novel I wrote. Because I too was ravaging through these fantasy series and I loved it, and I wanted to make these magical things come to life. Honestly, I was trying to find my outlet at that time, right? I loved music and I listened to lots of it, but I loved writing and I loved talking. I loved playing video games. There were all different ways I was living out these kinds of, almost you could call them spiritual dreams, like I wanted a spirit of something to exist. I wanted to be putting it into the world and living it. There are all sorts of ways you can do that, and I think it takes a mixture of kind of boundaries and freedom, to end up with something that works. And no one ever gets it completely right, and that’s wonderful. That’s part of what makes us human.

Ben, I know you’ve spoken a lot about this to me as well, about how just the freedom you were granted in your school environment and home environment – just to be able to play, meant that you were kind of – it just meant that you, it might look on paper as though if someone gives you the responsibility of the school production that you would go and mess it up because you didn’t know what you were doing, but actually it doesn’t end up being like that because if you’re given the space to figure it out, then you figure it out. That’s the kind of benefit of trusting something, is that it will give something back to you. That’s something both Ben and I have been lucky with, is we’ve been trusted at times where – I don’t know, Ben. Maybe we didn’t have everything figured out but we were able to figure it out or really start figuring it out, because we were given the space to.

**KEVIN SCOTT:**  I could talk to you guys all day long, like this is so great. You guys are doing just such great stuff. I can’t wait to see what you’re going to do next, and I’m just confident, given that both of you are this fountain of creativity, that the what next is going to be interesting. I’m sending you all my best thoughts for the Grammys, like I really hope you win Album of the Year. That would be so amazing.

**JACOB COLLIER:** Thank you so much. It’s such a pleasure to connect and talk and – and yeah, honestly, I feel like we could literally talk for, you know, hours and hours and hours and maybe some time we should – we should just get a beer in the real world and do just that.

**BEN BLOOMBERG:** That would be really cool.

**KEVIN SCOTT:** That would be great. I would love to do that. All right. Well, thank – thank you all so much.

[MUSIC]

**CHRISTINA WARREN:** Well, that was the first part of Kevin’s conversation with Ben Bloomberg and Jacob Collier. Kevin, wow, that was like – that was an amazing conversation.

**KEVIN SCOTT:** Yeah, I could have spent all day long talking to these guys. They are so incredible, like, not just in terms of the things that they are producing and the prodigious talent that they have, but like, I love their approach to creativity. They’re so adventurous and fearless with what they’re willing to try.

And like they have that, you know, we talk about growth mindset all the time at Microsoft. They really do have a growth mindset where they just assume that they’re going to be able to learn what they need to learn to solve the creative challenges that they have set for themselves.

**CHRISTINA WARREN: T**here were so many notes that I was taking during your conversation because it was so good, you know, and that was one of the things that I really thought was interesting was you mentioned that fearlessness and that fact that, like, as you said, like, they had the permission to, you know, speak about doing that crazy thing, like when you were talking about engineering, without feeling like they would be shut down and having that willingness to just do something and pursue it, you know, and just to make great things without worrying about is this going to work or not. But just saying, OK, we’re – we’re going to do this.

**KEVIN SCOTT:** Yeah. And – and that is – it’s a common thing, I think, in many disciplines, not just the arts, but in science and in technology as well, where if you’re trying to do something that really is new, the definition of new is that no one’s ever done it before, and that’s a frightening thing, like, exploring the unknown.

And, having the right environment where you get the feedback that you need to ground yourself in reality, but also that gives you the encouragement to go attempt these bold, ambitious, scary things, I think is so important in any field or discipline.

**CHRISTINA WARREN:** No, you’re exactly right. And kind of on that note, you know, I was thinking, obviously what Ben and Jacob do does kind of fuse the lines of art and technology. You know, it’s very much art, but the technology helps inform that.

But I was curious from your perspective, because you mentioned you’re not a musician, listening to them talk about their approach, how much of that rang true to you and what you do with engineering?

**KEVIN SCOTT:** Well, I think creativity is very similar across a bunch of different disciplines. You know, so a lot of what they are – a lot of what they’re trying to do is to make something that other people will like and enjoy, and obviously they’re – they’re doing that. The success that they have seen, you know, the Grammy nominations, you know, sort of a reflection of the extent to which they have impressed their peers.

And then, you know, the commercial success that they’ve seen, especially recently with Djesse Vol. 3, I think is a testament to how good a job they’ve done making something that impresses and resonates with a bigger audience.

But the first thing that you really are having to do when you’re creating something is like you have to really please yourself, like you are – you’re doing something that scratches a creative itch or, you know, you have to have, you know, that intrinsic motivation, I think, to go do something like this.

And again, like I think it comes back to creating something new. So when it is new and no one’s ever done it before and you don’t have an audience or you’re building a product and like you don’t have users, you have to have that intrinsic motivation, like what motivates you every day to go really just in some cases, bang your head against the wall, because the problems that you’re trying to solve can be really, really daunting and challenging.

And, you know, in the early days, you’re not getting much feedback at all. So you have to – you know, you have to really figure out, like, where your energy is coming from to go make a thing.

And so, like that – that mix of intrinsic versus extrinsic motivation, which I think you can really see with them, like Jacob is very, very daring in the creative choices that he makes. You know, I think Ben is very, very daring in the things that he’s building to empower those creative choices. And, you know, that – that is, I think, coming from within, not because they had some desire to be famous, and I find that very, very interesting.

**CHRISTINA WARREN:** Absolutely. Well, that’s all for today. We were so delighted to have Ben and Jacob on the show. We liked them so much, that we actually had so much great conversation, that they are going to be back on the next episode. So, be sure to stay tuned to hear the rest of this incredible conversation. You don’t want to miss it.

Send us a message anytime at BehindtheTech@microsoft.com, and thank you for listening.

**KEVIN SCOTT:** See you next time.