

Transcript for Rob Reid | After On (Episode 649)

Full show notes found here: <https://theartofcharm.com/649/>

ROB: We need to think about AI safety not because we're sure Terminator is going to happen -- there is a possibility and it's not just a microscopic one, it's a very, very real possibility that things can go horribly wrong.

JORDAN: Welcome to The Art of Charm. I'm Jordan Harbinger. I'm here with producer Jason DeFillippo. On this episode we're talking with my friend Rob Reid. He founded and built [Listen.com](https://listen.com) which then created the Rhapsody music service, during the early days of the old dot com. He also invented the on demand streaming model that Spotify and many others have since adopted. But that's not what we're here to talk about today. We're here to talk about tech. Rob is an awesome guy and brilliant. He's managed to excel in two vastly different fields: namely he's a best selling sci-fi author and he's a super tech entrepreneur. And this sort of duality can be a tremendous success factor.

We're going to discuss how society is being reshaped by our ascent of the tech of the tech curve here. We'll discuss futurisms such as AI, synthetic biology, and how our future will be shaped by emerging technology. Rob has spoken to and interviewed some of the greatest minds in science and some of what you'll hear today will really amaze you. We'll also explore a great mindset to approach interactions with others that maximizes value and learning, and we'll discover how to find your true north. Jason, have you checked out Rob's book yet?

JASON: Yes, I have. It's an amazing book. I actually worked on his podcast for his book so I am well, eyeballs deep into it, as they say.

JORDAN: Eyeballs deep, right?

JASON: Yeah.

JORDAN: That's what they say. All right, here's Rob Reid. Speaking of things that are untrue, on the outside you appear to be a white dude who probably grew up carefree.

ROB: Mm-hmm.

JORDAN: I assume that's probably not the case.

ROB: I grew up -- I wouldn't say carefree. I was born -- actually I was born into foster care in New York City.

JORDAN: Right, so the opposite of carefree in many ways.

ROB: At that moment, yeah --

JORDAN: Yeah.

ROB: -- but I was still very young.

JORDAN: Okay.

ROB: And I got adopted at a pretty early age by a great family in Connecticut and then it was relatively carefree.

JORDAN: Right.

ROB: So I mean, I don't look completely different. But I think that there's something that really informs your perspective. If you know that you essentially, momentarily an orphan and that you are growing up in a context that is in some very fundamental way divorced from your physical or your genetic roots -- and you can't do a genetic experiment of that. I feel extremely well adjusted as an adopted person --

JORDAN: Yeah.

ROB: -- I always did, but I don't know what it's like to not be adopted. Not adopted people don't know what it's like to be one of us. But

it does have a very powerful and forming, I think, perspective or impact on your perspective.

JORDAN: It's easy for us to just think, "Look, this happened when you were a baby. How could it possibly effect your identity unless your parents were growing up and every time you forgot to put something in the refrigerator they're like, "You're adopted!"

ROB: Yeah, yeah, yeah.

JORDAN: I mean, how could it possibly be such an impactful thing?

ROB: Well I think there's actually a lot of positives about it. I mean, one thing is, you realize that the relationships that you have with people -- the content of them is very much what happens between you. I do believe I felt every bit as close and integrated with my family as anybody. Now the fact is, the four of us would look like four strangers who met on a bus. We didn't look a thing like each other because there was no genetic tie between any of us.

I think that when you grow up with that reality and you understand that that is the underlying fact of the deepest and most important relationships that you have, maybe it makes you a little more comfortable at going into other cultures, bonding with people who might seem completely different from you because the people who raised you are completely different from you, maybe it makes marriage a little bit less of a terrifying proposition in some ways. You have gotten into the deepest and closest and most permanent relationships with people that you don't have any kind of magical connection with. They're people who a bureaucrat assigned you to.

JORDAN: Yeah.

ROB: A very good bureaucrat, a very talented one.

JORDAN: You're telling me that you're like, "Look honey, I'm not afraid to get married because my relationship intimacy is capped at a certain level since I'm adopted."

ROB: No, no. Very much the opposite. You know, it's like, I know that three people -- my parents and my sister -- who were essentially randomly assigned to me --

JORDAN: Right.

ROB: -- I have a profoundly deep connection to.

JORDAN: Gotcha, okay.

ROB: So I know that that's a forgeable connection with anybody. Perhaps if you grew up with a much more traditional family, you might think that there's something that is very spiritual --

JORDAN: Right.

ROB: -- or something that's, God knows, happening on a quantum level or something --

JORDAN: Physiological even possibly but --

ROB: who knows -- that kind of creates that most deep and intimate tie that you have with your family. By the way, I could be wrong.

JORDAN: Yeah.

ROB: I could be actually very sociopathic compared to a normal person. I don't think so though.

JORDAN: You were an exchange student in Cairo at the same time that I was an exchange student in Germany.

ROB: Yeah, it's a cool thing to do.

JORDAN: It is very cool.

ROB: You did it in high school, then?

JORDAN: I did in high school, yeah.

ROB: It's an amazing thing to do at an early age. I lived in Australia as a kid. My dad had a job down there for -- it was like a temporary assignment, eight or nine months. So I had gone to a fairly distant place but I'd never been outside of the English speaking world and to get hurled into a place that's radically different and thrown in with a family --

JORDAN: Right.

ROB: -- and in a place where suddenly you don't understand 99 percent of what's being said around you, it's a really cool and growing thing at any phase at life.

JORDAN: Yeah.

ROB: I think we were really to encounter that in high school.

JORDAN: We were and I'm thinking, "Wow, Germany really reshaped my view of the world," but I was still surrounded by a European Western culture.

ROB: Right.

JORDAN: But you lived in Cairo and it must have been just like, "Okay, this is not only another country another language," you might as well have been from mars.

ROB: I was very exotic there.

JORDAN: Right.

ROB: I mean obviously Cairo is intensely to me and this was before there was a whole lot of tourism in Egypt as well. There's a lot more now. It was a very unusual place for an American teen to show up.

JORDAN: Yeah, no kidding.

ROB: And it was a highly unusual place for an American teen to show up for more than just two and a half days of gazing at the pyramids with his parents.

JORDAN: Right.

ROB: It really utterly shaped me because I came back fascinated with the Arabic language and with Middle Eastern history. I went off to school, I wasn't sure what I wanted to study or major in but there was this really cool class on modern Middle Eastern history that I took and things snowballed from there. So, I ended up becoming a very serious -- I'm a lifelong student of Arabic. I continue to struggle with that mighty language and love it. I don't have as much time for it as I used to. That became my major focus in college. I ended up going back as a Fulbright scholar.

JORDAN: Wow.

ROB: And then I ended up getting into the high tech world, where none of that was particularly relevant but --

JORDAN: Yeah, no kidding.

ROB: -- what would be more boring than a life that was just one linear path? So that was a really cool, pretty chunky experience that started in high school, radiated through college, went out of college, and it's something that I'm still in some ways -- in many ways -- connected to because I go back to the region as an elections observer, I'm a pro bono advisor to a bunch of startups in the area, I've been involved in not for profits in the area, I try to get back to the region theoretically every year but it's not that often. It's probably more every couple of years. I have a deep, deep, deep connection to Egypt in particular because of the Fulbright time there as well but I've been to

Syria, Lebanon, went to Iraq under Saddam, which was a little bizarre.

JORDAN: Ooo, what was that like?

ROB: Morocco -- it was terrifying. It was like stepping into the pages of [1984](#).

JORDAN: Yeah, like North Korea, kind of.

ROB: You've been there, I understand, right?

JORDAN: Right.

ROB: Probably a comparable experience.

JORDAN: Wow.

ROB: And at the time, there was very little tension between Iraq and the United States because we had recently helped them win the war with Iran. They had not yet invaded Kuwait. It was a very narrow, safe time for an American citizen to be there. But you did have this overwhelming realization that there were capricious elements in this government, peaceful as relations were at that time, and if you fell afoul with the wrong person, there was no rule of law. And it wasn't just Saddam. I wasn't about to piss off Saddam. I was a backpacking tourist, let's face it, I wasn't going to run into him.

JORDAN: Yeah.

ROB: But there are tens of thousands of people in society who have enormous power over anybody they happen to cross paths with in a police state.

JORDAN: Sure, right. So, any government official, military, police, tribal leader --

ROB: Yeah.

JORDAN: -- mafia, organized crime type of people.

ROB: The whole shebang.

JORDAN: Yeah.

ROB: And I would add that the populous -- that fear was so pervasive. There was a term that somebody later coined, "The Republic of Fear," to characterize Iraq under Saddam, and you could feel that.

JORDAN: How did that manifest itself, the fear? Because you feel the fear around you but the people aren't saying anything, obviously.

ROB: Right.

JORDAN: It just comes up in different ways.

ROB: Correct me if I'm wrong but I believe in North Korea, you are required to travel with sort of a chaperone.

JORDAN: Yeah, so you're not even getting an authentic look at society, whereas I feel like -- this is just an assumption but I feel like Iraq under Saddam, at least you could theoretically make some friends or --

ROB: You could.

JORDAN: -- hang out with people or something like that. You can't do that at all.

ROB: Now here was the weird thing. In North Korea, because the chaperone is there, the fact that people are acting in a stilted manner and praising the dear leader or whatever the latest adjective is for the new guy --

JORDAN: Right.

ROB: -- you sort of like discount that.

JORDAN: People don't even talk to you. They're just basically not allowed to.

ROB: Right.

JORDAN: You don't even have but most cursory interactions with them, like, "Do you want salad with this."

ROB: Yeah.

JORDAN: That's it.

ROB: So you don't really have any notion of what's going on in their heads and it could just be like, "Hey these are the rules. Don't talk to the foreigner," and that, you know.

JORDAN: Yeah.

ROB: But, when you don't have that imposition -- so no, I didn't have to have a chaperone. I could go anywhere and I spoke reasonably good Arabic, albeit with a really thick Egyptian accent at that point. But, I could communicate with people just fine.

JORDAN: They probably noticed that you were a foreigner regardless of your language skills.

ROB: Oh, it's clear. But, in the interactions --

JORDAN: Yeah.

ROB: -- these unchaperoned interactions, it was the enormous amount of self-censorship that was going on and awkwardness and nervousness. It's like, this guy is not acting weird because there is a chaperone, this person isn't acting weird because somebody is enforcing the rule, they're acting weird because they're scared to death.

JORDAN: Yeah.

ROB: Generally speaking. What happens if somebody knocks on my door tonight and says, "What the hell were you doing talking to an American?"

JORDAN: Yeah, geez.

ROB: It's like, "Get out of my shop as fast as you can."

JORDAN: Oh, really?

ROB: Not saying that but you could feel --

JORDAN: Right, they just -- the nervousness that you were even nearby was --

ROB: Yeah, I could cast a scary shadow on them. It's like, "Why were you talking to an American?" And by the way, the person wagging the finger and making that accusation, might be completely clear that I was not a bad guy at all --

JORDAN: Right.

ROB: -- but might have just always had it in for this guy. He's got an angle to play. So I was very relieved when I got on the plane to go out to Jordan.

JORDAN: Do those sorts of experiences inform things that you write about in your fiction, with like the prevalent AI and the super intelligent computers and the authoritarian robotics, or --

ROB: There's nothing quite that crazy. This is actually set in present day San Francisco.

JORDAN: Mm-hmm.

ROB: Actually, I'll correct that. It's set nine seconds in the future.

JORDAN: Nine seconds in the future?

ROB: Precisely nine seconds.

JORDAN: Got it.

ROB: So whenever you start reading the book, it takes place in nine seconds, hence it's incumbent on you to read very quickly. So it's basically set in present day San Francisco. So, there aren't authoritarian -- there's no [1984](#) like thing or robots marching through the street. What did get very informed by my time in the Middle East though, is that a theme that is in this book is nihilistic terrorism. And that's something that I've thought about a lot because of all the time that I've spent in the region and so forth. So basically, to give you a sense of what it's about, it's a tale of an imaginary startup here in San Francisco. It's a rather diabolical social media company.

JORDAN: It's called Shmacebook.

ROB: It's called Phluttr.

JORDAN: Okay, got it. Oh, that's great.

ROB: P-H-L-U-T-T-R.

JORDAN: Naturally.

ROB: Naturally, you've got to have the double 'R' and the lack of vowels.

JORDAN: There's an 'E' though?

ROB: No, no. P-H-L-U-T-T-R.

JORDAN: Oh, okay. I thought --

ROB: There's a 'U' but no 'E'. No.

JORDAN: No, the 'E's are passé.

ROB: 'E's are so passé, yeah. And so, it's called Phluttr and it basically embodies everything that's wrong with social media, dialed up by about 20 percent.

JORDAN: Okay.

ROB: So let's say it's in the realm of satire but definitely not farce. And this will sound like a spoiler -- it's not because you'll see it literally coming hundreds of pages off -- but eventually Phluttr wakes up, attains consciousness, and then rather than going all Skynet and trying to kill us all, she takes on her character and she self-identifies for reasons that are deep in the book. She takes on her character from that which she is, which is a social network. And so she basically becomes a hyper intelligent, super empowered 14 year old brat. A certain amount of hilarity ensues from that. There are a lot of aspects of the book that are very, very playful, but it also takes very deep and serious looks at a lot of very significant risks that I think we face as a species. There's a few issues that I think we really need to think hard about and even resolve in the coming -- not years, but in the coming decades, if we're going to make it through this century.

One of them is the genuine actual risks that artificial super intelligence could pose and some of the smartest people in our society like Elon Musk and Bill Gates have opined that this is something -- Stephen Hawking -- we need to be careful about and think about. That's one of the issues. Another one is synthetic biology, which is bursting with promise and one of the most exciting things that's happening right now but there are also potentially terrifying downsides to what we might start doing with synthetic biology in the quite near future. It's another theme. But the third one that I want to come back to is this nihilistic terrorism.

JORDAN: When I think terrorism, I think what everybody else does, blowing up airliners or buildings.

ROB: Yes.

JORDAN: What's the difference between that and nihilistic terrorism, or is that nihilistic terrorism? And then, what are the other kinds?

ROB: Yes, that's nihilistic. That is a worldview that says the afterlife -- which is to say, let's just call it death. Death is so awesome for reasons that might vary from theology to theology. But death is so awesome, the most important thing to do is to die as quickly as possible and take as many people with me as possible. That's nihilism, basically. I mean you can say that was Heaven's Gate, that cult where they all committed suicide back in the day.

JORDAN: Right, the web design cult?

ROB: The web design cult who saw the comet. You could say that was Jim Jones, you could certainly say that a lot of the religious movements that are going on right now. So, that's nihilism. So that is a theme in the book and the thing that frightens me about that -- well, there's a lot that frightens me about that. There's a lot that should frighten anybody about that. But, when the raw material that these movements use, particularly the ones in the Middle East right now, I believe the raw material is the millionish people who are going to kill themselves this year. There's a million people worldwide, year in, year out, across societies, across socioeconomic groups -- a certain percentage of people get to that tragic point where they become suicidal and go through with the act.

JORDAN: So kill themselves on purpose.

ROB: Yeah, commit suicide. A tiny, tiny fraction of those people -- again, across societies -- for whatever reason, get to a point where they want to take as many people with them as possible. And they literally take as many people with them as possible. They're limited by their weapons. So, in China -- this is a chilling fact -- there were 10 random mass killings in school

over a period of about a two and a half years in China, that ended by bizarre -- I assume it was a coincidence -- the day before the Newtown massacre in Connecticut. All 10 of those mass killings were mass stabbings because you can't buy a machine gun at retail in China.

JORDAN: Right.

ROB: All 10 of them combined had about the casualty count of Newtown. So you have this force multiplier -- Newtown, this guy has access to an automatic weapon. Then we go to this German pilot who crashed his plane. He had an airplane. Osama bin Laden had airplanes. There's a force multiplier in these weapons. You get a certain tiny group of people who A) want to kill themselves, B) want to take as many people with them as possible. Whatever weapon they got is going to do its worst damage. I worry about synthetic biology.

JORDAN: Ah, because of the force multiplier present in biological weapons.

ROB: It's a huge, huge force multiplier. And I think that most people who get to this horrible place -- and by the way, they are on a very obvious level horrible criminals, but on another level, these are people who are going through immense suffering that you and I will never wrap our heads around --

JORDAN: Right.

ROB: -- because they're getting to this incredible domain. So, I don't pretend to understand the psychology. But it certainly seems that some of those people, if they could take everybody with them, would do it. Because they're taking everybody they possibly can. And that's frightening.

JORDAN: Yeah.

ROB: Because syn bio could eventually -- not next year, not next decade -- but could eventually bring really frightening capabilities to a lot of people.

JORDAN: So in creating [After On](#), you had to -- I would assume -- interview people that really knew this field well instead of just going, "Let me make up some stuff." That's not really your style, right?

ROB: No.

JORDAN: You're not just crafting this out of whole cloth. You want to go within the boundaries of what might be possible in --

ROB: Nine seconds.

JORDAN: In nine seconds.

ROB: In nine seconds.

JORDAN: Right.

ROB: It doesn't have to happen now. And that to me is actually one of the great joys of writing, particularly as a science fiction writer. It's basically this great calling card to talk to any scientist and technologist --

JORDAN: Sure.

ROB: -- that you want because most of these folks grew up on science fiction. And they get called by journalists a great deal, they called by academic papers, they get called by other academics, they rarely get called by a science fiction writer who says, "Hey, I want to interview you for a new book."

JORDAN: Right.

ROB: So I had this really fun process at the beginning of writing this book where I accessed neuroscientists, people who were

experts in quantum computing, people who were experts in synthetic biology, people who were experts in neuroscience, all kinds of really, really cool fields. And then also things that I didn't end up developing like material science and so forth. It was great education. And having done that, i've told a tale which could really happen right now, probably will not, but there's a couple wildcards in the deck right now that could bring things forward very, very quickly.

And on the super AI front, the interesting one fascinating field is quantum computing. Quantum computing is potentially at a tipping point where it's about to become radically powerful and if it delivers on its maximum promise, the transformation to society and to our technological capabilities, could be absolutely mind boggling and to 99.99 percent of us, it'll seem to come out of nowhere.

JORDAN: Tell us what quantum computing is because I know what computing is but a lot of people, including myself, aren't totally dialed in on what quantum computing is and why that's different from what we have now, other than just a better microprocessor.

ROB: Okay, so what quantum computing does is it basically says -- this is going to be a simplification and real purists out there listening to this will probably chastise me --

JORDAN: Yeah, you'll hear about it on Reddit.

ROB: Which is fine.

JORDAN: Yeah, as long as they link [After On](#).

ROB: Exactly, exactly. Every bit that the computer is manipulating, in a classical computer is either a 0 or a 1. In a quantum computer, it's both simultaneously.

JORDAN: So it's Schrodinger's cat of computing?

ROB: Precisely.

JORDAN: Okay.

ROB: And so now imagine, let's say that you're trying to crack a certain code. We'll make it simple. Let's say it's an 8 bit code. So, it's got 256 possible solutions. It's two to the eighth, so I think that's 256? Reddit's going to kill me if I got that wrong. Let's just say it's 256 possibilities. If you were going to go at that step wise, with a classical computer, you might try all 256 combinations. It'll take a certain amount of time and eventually you'll get it right, right? But you'll get locked out because you got it wrong.

JORDAN: Right.

ROB: Quantum computer is going to basically try all 256 at once.

JORDAN: At once, yeah. Sure.

ROB: Yeah. Now, as you get into a much bigger problem space than what I just described, that at once-ness starts getting shockingly powerful. And here's the thing that is crazy about it. You talk to people who are very deep in quantum computing and I talk to a number in my research. You ask them, "Well what's going on there?" and the answer is -- the consensus is like, "Well, what we think is happening, for this particular problem," -- and this is again, hyper simplification --

JORDAN: Sure.

ROB: Imagine there's 255 parallel universes and those sister computers -- all identical, populated by people like us having this conversation. But in this universe, the quantum computer has this particular code and then the other ones it has all the different ones, one of them gets it right and yells, "Bingo." The other 255 computers all hear, "Bingo," they say, "Ah, got the answer." Kind of nuts.

JORDAN: Yeah.

ROB: And that's one interpretation. The other interpretation is, "I don't want to think about it." That's pretty much it. Those are the two interpretations and so that first one, which seems so crazy and mind boggling and it just doesn't feel right from an Occam's razor standpoint, is one way of looking at it. And jokingly, somebody recently explained it to me, really the only other explanation is, "Ugh, I'd rather not think about it because it's so weird and terrifying and frightening."

JORDAN: So if we're able to try all 255, 256 -- whatever -- at once --

ROB: Yes.

JORDAN: -- and that's not a hard number, what we could do then with really powerful quantum computers is theoretically try the number of atoms in our entire universe in just a few short moments in time.

ROB: In a vanishingly brief period and when you talk to people -- David Deutsch [has written a lot about this](#). A local venture capitalist Steve Jurvetson is incredibly deep in this stuff, who you may know. There's a guy named Hartman Nevin at Google who is just brilliant stuff. You talk to any of these folks and you talk about the maximum potential and it's just insane. It's like that kind of thing.

JORDAN: Yeah.

ROB: It's like a laptop, if everything got dialed in and worked as it could, could outperform a classical computer that is literally made of all the matter in the known universe, perfectly configured for the purpose of computing, running the best algorithms we could possibly run. A quantum computer, of about the size and halfth of a laptop, could blow that thing out of the water. And I just --

JORDAN: Wow.

ROB: -- take it on faith that these calculations have been precisely done because they've been done by people who are way smarter than me and have no incentive to lie, but I can't vouch for the math myself. But that is the thing that comes up repeatedly.

JORDAN: So you know how now we're like, "Look, I've got this iPhone and it's 1000 times more powerful than this computer room from 1968."

ROB: Yes.

JORDAN: And you see the computer room and it's got like giant buttons and switches on it and that was the computer --

ROB: Oh, yeah.

JORDAN: -- from 1955. It's going to be millions of times that, only it's actually going to your laptop versus something that's so big that it would take up --

ROB: The universe.

JORDAN: -- the universe.

ROB: Now let's just say, "Could be."

JORDAN: Right.

ROB: So this is if -- this is the giant if -- if it really, truly delivers on its maximum promise. There's a lot of smart people out there who are very skeptical about that ever happening. There's a lot of smart people out there who are betting their careers on it happening.

JORDAN: Sure.

ROB: If it happens, it could -- probably won't happen tomorrow, but it could.

JORDAN: Could happen in nine seconds.

ROB: Which is why it could happen in nine seconds.

JORDAN: Right.

ROB: Which is why I dump that into my novel. That's one of just a couple places I played my science fiction card. I had quantum computing work well enough for Phluttr to wake up.

JORDAN: Look, if it falls short by a factor of 1 million --

ROB: Right.

JORDAN: It's fine.

ROB: Yeah.

JORDAN: We really won't know the difference.

ROB: Yes.

JORDAN: Right? It's impossible to wrap our minds around even now. So if it falls short of the universe by --- and only comes in --

ROB: Right.

JORDAN: -- at the size of our solar system --

ROB: Exactly.

JORDAN: Which is a speck of nothing in contrast to the universe --

ROB: Yeah.

JORDAN: -- then we still end up with a mighty powerful machine.

ROB: Very, very big things could be ahead.

JORDAN: Wow.

ROB: And then like I said, some incredibly smart people are deeply skeptical that a quantum computer will ever be what's called a general computer. There's a school of thought that says it will be extremely good at cracking certain fairly narrow problems, but it will never have the robustness of general computing a computer that can basically be programed to do anything within it's might. That's where my knowledge gets so far beyond what I can parse. That's where I get to say, "I'm a science fiction writer."

JORDAN: Right, you're just like --

ROB: It's a little story telling going on here.

JORDAN: You can sort of smear the chalk line with your hand and go --

ROB: Absolutely.

JORDAN: -- "Tada."

ROB: And I do feel very good about all the research that I've done. People will understand that this is speculative fiction --

JORDAN: Sure.

ROB: -- and not history or whatever.

JORDAN: It's not in the business section, the self help section --

ROB: Yeah, it's not in the business section, it's not in the self help. But nonetheless, I think it's incredibly anchored. And I think hopefully it teaches a great deal as well. You don't want to get into 20 page digressions about synthetic biology. That's lousy storytelling. But I think that you can impart a great deal of knowledge in the course of telling a tale and impart it in a way

that's hopefully a lot more exciting than a lecture, because you're hopefully reading a page turner that keeps cooking alone.

(COMMERCIAL BREAK)

JORDAN: How do you know what to ask these particular scientists and researchers? Because for somebody in your position, for somebody in my position, it would be really easy for me to go, "Tell me about quantum computing," and then just proceed to get the most boring rundown --

ROB: Right.

JORDAN: -- of their field, because they're so deep in it they don't know what would even be appealing to the masses or they don't know how to simplify it or it's impossible to really simplify that much. How do you know which questions to ask them, because you -- I would imagine you have to get their imagination going too.

ROB: You do.

JORDAN: Like, "Hey man, this is where it is now, what do you think it's going to look like at the end of your career if you've done your job right?" or something like that. And then you've both got to go, "Oh, man, maybe it'll look like," -- and then that's a big mumbo jumbo casserole --

ROB: Yep.

JORDAN: -- that you've got to go, "Okay, what does that mean for somebody like me? When you're telling your kid --

ROB: Yep.

JORDAN: -- what this does, what do you say?" I mean, are these the types of questions that you're asking?

ROB: There's basically three things that I do to try to have a maximally successful conversation. It usually but doesn't quite always work. So the first thing that I do -- and you couldn't have done this even five years ago because very few people were out there in video online, but now so many people are, even people who have completely non-media careers. They're giving a talk at Google, they're doing something or other -- I try to hear or see them doing their thing, even if it's like a three or four minute conversation to see if they are somebody who's comfortable rendering things accessibly. Okay, so that's thing number one -- can't always get that.

I do read up immensely before I go in and try to make myself as smart. And there's a lot of stuff out there. There's a very good story in Time Magazine about four years ago about quantum computing. Really in depth, it was surprising. Before I got ready for my first interview with that gentleman at Google that I mentioned, I read that and seven or eight or nine other articles. I got pretty deep into it and then the third and most important thing is to try to take the feeling of the conversation out of a professional and into a personal setting. If I can get this person to dinner, I'm going to do that. And I usually succeed, even when they're busy. Maybe one out of three times I can do that. If it's a 20 minute conversation, it kind of sucks because it's just going to be narrow.

JORDAN: That's too much, yeah, to come to the surface.

ROB: Try to make it as unbounded as possible, over a meal, whatever it is. And if I can't do that, what I always do is say, "Could we quick phone call before a meeting so we can get set up." A quick phone call always goes way over time and you get a lot of broken ice --

JORDAN: Right.

ROB: -- accomplished on that call so by the time you're sitting down, you're really connecting in a way where they start enthusing and they're not just giving a professional recantation of what they're talking about. They really want you to understand.

JORDAN: They come in warm, essentially, yeah.

ROB: Yeah, and they want you to understand the way that they want their roommate or their buddy or whoever to understand. And that you start getting an explanation with more urgency, more accessibility, more energy, more, "Are you sure you understood that?"

JORDAN: Right, more passion for sure.

ROB: Yeah. I mean, this is true of any field, I think.

JORDAN: When you create these types of relationships, do you maintain them as well or is it kind of like, "Hey remember me from five years ago? I did that book." Are you putting these people in some sort of rotation? Are you keeping them updated on how you're using their information in your work.

ROB: Life is finite, so I wish I could stay in touch with absolutely everybody but you know what? I mean, email makes it pretty damn easy.

JORDAN: It does.

ROB: I have tried to get in touch with every single person and I have actually succeeded -- with one exception, ironically -- had gotten copies to everyone who was generous with their time with me up front. Because I feel like they were part of the creation of this thing. I did about 200 interviews for a book that I wrote about the rise of the Internet as a commercial medium in 1996.

JORDAN: It's never going to happen.

ROB: Yes, recorded them all on cassette. I bet that in one way or another, I crossed paths with most of them in any given 18 month period. And some of my dearest friends I have gotten to know through researching a writing project. Now, I was an entrepreneur for most of my career but I always loved to write. So, even when I was running a company, I would write little stories for Wired and The Wall Street Journal or whatever, and so I met a lot of people through just researching articles that I've fascinated enough about that I wanted to write that were books. This is my fourth book, the first two books were nonfiction. And a huge number of those people have actually stayed in my lives, because they turn out to be fascinating folks, great people, good people, the kind of people you want to be friends with, or you just get really ravenous about the topic that they've introduced you to, and so you want to keep learning more.

JORDAN: I want to hear about how you came to start Listen.com because when I was younger, I remember the first Mp3 I saw on the bulletin board system that I was on, which was pre mainstream Internet.

ROB: Way pre, yep.

JORDAN: Probably 12 or 13 years old -- '92 maybe? I don't know.

ROB: Yeah, way pre.

JORDAN: And it was like a Snoop Dog track or something. Some very popular track from the radio --

ROB: Yep.

JORDAN: -- and I thought, "I'm going to download this. It's only going to take an hour and ten minutes," --

ROB: Yep.

JORDAN: -- for this mp3 file." I was using the ZMODEM protocol, which can download things in chunks and resume them if you get knocked offline, which happened every two minutes --

ROB: Resumption was vital back then --

JORDAN: Right.

ROB: -- because you'd always get knocked off, yeah.

JORDAN: Absolutely, right.

ROB: Yeah, yeah.

JORDAN: So I'm downloading this and I remember getting a piece of it, opening up whatever the equivalent of Winamp was back then --

ROB: Yep.

JORDAN: It may have actually been Winamp.

ROB: No, that was pre Winamp.

JORDAN: Pre Winamp?

ROB: Yeah, yeah, yeah.

JORDAN: And playing a piece of it. And I was like, "Wow this song is coming out of my computer. This is amazing."

ROB: Yeah.

JORDAN: And another piece would come in, and then the file would grow in size and it would be able to play just a little bit further. And I thought, "Well, wait a minute, wouldn't it be cool if one day Internet was so fast, that you could just play the pieces as they came in, on your computer? Obviously computers will be

faster," because I think I had to close everything else that I was running in order for...

ROB: Oh, yeah, '92?

JORDAN: And even then it was like just barely -- the cooling fan was going crazy --

ROB: Oh, yeah, yeah, yeah.

JORDAN: -- trying to play this MP3 file.

ROB: Yeah, the lights are dimming throughout your neighborhood.

JORDAN: Yeah, yeah.

ROB: Yeah, yeah.

JORDAN: I'm thinking though, "In the future, when all these things are stepped up a couple notches, we'll be able to stream," -- we didn't call it streaming.

ROB: We didn't call it streaming, but yeah.

JORDAN: but, "We'll be able to stream the music." And then you went just a few years later, "Oh, yeah, that's totally possible. I'm going to build a website that does it, get all the music I can get my hands on, and build this thing that does it." What's the difference between somebody who can conceptualize an idea, like me as a kid, and then somebody who goes, "No, I've got an idea to make this a real thing."

ROB: I was a little older than you so I'd already written that book, so I had already written that book that I just described in which I'd interviewed everybody who was doing anything remotely interesting on the Internet in 1996.

JORDAN: Gotcha.

ROB: And I did it because I love to write and I was fascinated by the topic, but the result of that and the unintended genius of it, was I had this sick network of people.

JORDAN: Right, yeah.

ROB: Because I interviewed everybody who was doing something significant and as a result of that, I became a venture capitalist, which I was way too young to become a VC. That just didn't happen to people who were right out of school in the mid '90s. But, in my case it did because there was this incredible scarcity of business oriented people who were deep in the Internet and I was pretty deep after writing this book.

So, being a VC at that point, gave me access to capital because I knew a lot of people who were providing capital for startups. Having had the eight months of just interviewing the smartest people in the field, and being deep, deep, deep in the Internet on a professional level, gave me the confidence to say like, "I think we're just at the pivot point where music is about to start happening in a meaningful way." The bandwidth had gotten there. I started Rhapsody and the company is called Listen.com, the product was eventually called Rhapsody. So I started the company at the very end of 1998. The bandwidth was there for anybody in a university or a white collar setting that used the Internet, so that's already millions of people.

JORDAN: I remember getting super fast ethernet in '98.

ROB: Lightning. You were on campus at that point?

JORDAN: Oh, yeah.

ROB: Lightning.

JORDAN: University of Michigan --

ROB: Yes.

JORDAN: -- downloading Mp3 in seconds --

ROB: In seconds, yeah.

JORDAN: -- which was just unfathomable. Videos --

ROB: So you had, you had the tip of spear there, right?

JORDAN: Right.

ROB: You had millions of people who were tech forward because they were students, and also culturally forward in the case of students, and then they were also people in workplaces that were high tech workplaces. So it's like, okay, the tip of the spear is here and at that point I'd been doing Internet stuff full time for almost five years. I got on the Internet very, very early.

So, I'd seen this pattern often enough and I also knew a few things about where broadband was about to go and it was about to become a consumer phenomenon. And the one thing I'd been waiting for, and I was very --was and remain -- deeply, deeply, deeply passionate about music and it's essential. If you're going to start a company, do it about something that you love because if you're truly mercenary, it's never going to work. You're not going to have the intuitive understanding of what needs to be done, you're not going to have the internal fuel to punch through all kinds of devastating things.

Love music had been waiting for music to happen on the Internet and I knew what we needed was a way to get the music off the Internet and into our lives, and I happened to be at an Internet World where the first MP3 showed up, late '98. It had capacity for 15 minutes of music. And I looked at it, knowing enough about Moore's law and how things improve, I was like, "By the time I get the company off the ground, that thing is going to be ready. You could have portable music." So it was all that set of insights and access to capital. What I didn't count on was that the music labels would be so suicidally obtuse --

JORDAN: Sure.

ROB: -- that they would essentially take the greatest platform transition in music history and there have been plenty before. You know, from the cylinder to the record to the cassette to the 8-track to the CD, this is just another platform transition and I thought that they would embrace it. They basically boycotted the Internet for about four years and in doing that, they gave piracy an unbelievable advantage.

JORDAN: Oh, man, tell me about it. I mean, Napster, eDonkey --

ROB: All that stuff.

JORDAN: I was throwing that on my -- what was it, the Diamond Rio or something?

ROB: The Diamond Multimedia Rio, yep

JORDAN: Yeah.

ROB: That was the third or fourth Mp3 player.

JORDAN: Yeah.

ROB: That was the one that -- I still have one. I've got a little tech museum. Those of us who had this nerdy idea that we were going to license the music and sell it, are suddenly like, "We're not being licensed anything."

JORDAN: Right.

ROB: And the labels are basically training people to become technically capable, and frankly, morally comfortable with piracy because there is --

JORDAN: Right.

ROB: -- no alternative to it. So we had to do a whole bunch of things to keep the lights on. Ultimately we were the first company to get full catalogue licenses from all the major record labels, even before Apple did, and way before Spotify. And that was pretty cool but it required a lot more patience than I imagined. Not for technological reasons but because of craziness at the media companies.

JORDAN: Right. Is there another area where companies are being equally obtuse, equally --

ROB: Yep.

JORDAN: -- annoyingly stubborn --

ROB: Yep.

JORDAN: -- and you're just thinking, "Hello, you're just making the Napster of X."

ROB: A lot of people learned from the devastation that befell the music industry. I'll tell you one industry that did not. It's pretty impressive how publishing dove in. When Amazon came out with the Kindle -- it was like the first Mp3 player for books -- the day they released that thing, I think it was close to 90 percent of the books in the New York Times Bestseller list were available on it. Publishers were actually pretty smart because they'd seen this lesson from the labels.

The closest thing I can think of right now is actually what's going on with video. Piracy thrives when reasonable people who are perfectly happy to pay a fair price for something that somebody else worked on, are unable to do that. And so, video is going about thing much more intelligently than the labels. They're not boycotting the Internet. But, you get this weird thing like, "I want to see this movie. Is it on Hulu? Is it on Netflix? Is it here? Is it there? Is it on Amazon? Do I buy it on iTunes? Do I rent it through here?" There's such fragmentation. My wife and I cut our cable quite some time ago.

JORDAN: Sure.

ROB: We're big Raiders fans. We live in New York City. So, we got Sunday Ticket, okay. We got Sunday Ticket for digital but there's all these exotic rules that get layered on that. It's like, "Well, you're Sunday Ticket but you can't watch Thursday night football, Monday night football, you can't watch this Raiders game," --

JORDAN: No, you can't play it on your tablet.

ROB: -- "You can't watch every night there. You can't watch the Raiders when they're playing in New York City."

JORDAN: Right.

ROB: "You can't watch the Raiders if you're in your San Francisco apartment." When you start saddling things with all these rules --

JORDAN: Right.

ROB: -- and when the base of content is fractured all over all these other places, that's when people start getting Plex servers and opting out of the entire system. So I'd say that the video rights' holders are not being anywhere near as dumb as the labels were, but they are definitely training a lot of people to pirate stuff because it is so fragmented.

JORDAN: It reminds me of when I was in law school. I remember the LexisNexis, which is this -- it's for non lawyers. It's this giant database that has a billion other databases in it and you can search for things but you have to navigate to those specific databases, like you did with Gopher in the '90s on the Internet. We said, "I just want a home screen search bar."

ROB: Right.

JORDAN: "So I can search for, 'Cases involving satellite TV.' and she's like, 'We can't because then we're creating a derivative work and these jstor won't allow us to,'" -- so then the tragic story of, what is that movie, The Internet's Own Boy. And when he stole the jstor documents, a lot of what it was was why should people have to pay to then do this and this and this?

ROB: Yeah.

JORDAN: And it just made no sense and a lot of us who are looking at things like this in the legal realm in law school, we're thinking, "Will somebody just steal all this stuff," --

ROB: Right.

JORDAN: -- "and put it in a place where I can control + F the damn thing? I don't want to have to take a class," because we had classes on finding the right database.

ROB: Yeah.

JORDAN: What a waste of time. Imagine a class on which library you have to drive to to get the right book --

ROB: Oh, insane.

JORDAN: Or you can steal it. And it's like, look, I'm willing to pay but if you're not willing to sell it to me, I'm just going to take it.

ROB: Anybody who uses the deliberate inconveniencing of their customers as a business model, really, really abuses an ability to provide something in an area of scarcity, is ultimately going to lose. I mean, here in San Francisco -- Uber could not have come up anywhere else, other than San Francisco. The San Francisco taxi lobby had deliberately suppressed the supply of medallions in the city because most of the people who were powerful in that lobby, were medallion owners.

JORDAN: Sure.

ROB: It wasn't necessarily good for drivers but if you own medallions and they're artificially scarce, then your medallion becomes valuable. And so basically gave their passenger base in the city -- joyously gave us the finger, for years and years and years. You could not get a taxi on a Friday or Saturday evening. You would call. You'd be on hold for 30 minutes. Young women were walking home at 2 in the morning because there was no way to get a taxi. People were driving drunk. People were refraining from going out and refraining from patronizing the restaurants and bars. All of these things were happening because some greedy people who owned a lot of medallions -- not the working people who were moving the cabs necessarily -- were like, "Screw you guys. We're doing great from this." At some point, the dam breaks, and that damn was Uber. You know, and the record labels were doing very, very well by basically every year, they would raise the price of a CD. It got to the point where it's 17 dollars and 99 cents for a compact disc that had --

JORDAN: Right.

ROB: -- a cheaper bill of material than the 7 dollar vinyl record album it replaced. You can do that to a certain point. The hotels that used to charge us five dollars a minute to be on the phone.

JORDAN: Right.

ROB: At some point, the dam breaks. If you've really been abusing your customer, the resentment is so high, that people are just going to have great joy and go on around you.

JORDAN The reason I'm harping on this so much --

ROB: Yeah.

JORDAN: -- is because a lot of people who are listening to The Art of Charm are thinking, "I really want to start businesses. Is this a good idea? Is that a good idea?" The idea is, look where there is friction --

ROB: Yes.

JORDAN: Look at where there is rampant resentment or abuse or some sort of other artificial lock that you could theoretically undo, with some code. Just like Bittorrent, if I can't find the movie on Netflix --

ROB: Right.

JORDAN: -- and I can't find it in iTunes, I'm not going to install 70 apps to figure out where it is.

ROB: Right.

JORDAN: My third or even second stop is, "I'm just going to take this offline. I don't care."

ROB: Yeah.

JORDAN: It's not going to be that hard. Even if I download a couple bum copies, one of them is a camera, one of them is a fake one from the movie company, I'm going to find the good one and it's going to take me less time than it would to download the right app and then do the search and then put my credit card in and figure out how to buy it.

ROB: Yeah.

JORDAN: The example I'm looking at now is Internet and speed of the Internet. You've got a virtual or non-virtual monopoly on the provider.

ROB: Monopoly as in duopoly.

JORDAN: Right.

ROB: And they're doing very well but yeah.

JORDAN: Yeah, and they've got notoriously terrible customer service --

ROB: Yeah.

JORDAN: -- and things like that but, the second there is a viable wireless Internet option that is even remotely the same speed as the artificially limited and throttled broadband that you find in your home --

ROB: The dam will break.

JORDAN: -- it is over. The dam is broken.

ROB: Yeah. And I mean, look at, you know, hotel supply. I mean, it used to be going to New York City -- I'm living there now. My wife and I are doing our junior year abroad in Manhattan, just because we thought it would be fun do and we have flexible enough jobs that we could. I used to go and will once we move back to California -- will again go to New York all the time. There were times when New York was sold out. The wholesale's supply was simply gone. The hoteliers, in obviously many municipalities have howled, "How dare Airbnb exist? How dare they? These hotel customers are our property. How dare anybody else? It's our --," you know. And it's like, no. At some point, the dam breaks.

JORDAN: Mm-hmm.

ROB: So, yes. Where's the next dam to break? I think that's something that all entrepreneurs can ask themselves.

JORDAN: Exactly. Where is the next dam that you could break. It might be hard to make global or countrywide wireless Internet service, right?

ROB: Well, a lot -- I mean Facebook is working on it, Google is working on it, because they want to get it in the developing regions where there isn't a lot of infrastructure. Stuff's going to be out there.

JORDAN: Sure. Let's talk about synthetic biology.

ROB: Let's do.

JORDAN: This is a strangely cool slash possibly super dangerous. Are we talking about Crispr here?

ROB: We're talking about Crispr, we're talking about --

JORDAN: Gene editing.

ROB: -- a bunch of stuff. So let me start with a really unbelievably powerful set of numbers that are very demonstrative. In 2003, the Human Genome Project finally came to a conclusion. It was a 13 year project to sequence a single human genome. Sequencing a is a fancy way of saying reading. It wanted to read a human genome. It took thousands of the best minds in life sciences, it took \$3 billion, it took 13 years, and it ended in 2003. That's not long ago, right? Today, you can replicate that act for a couple hundred dollars of reagents and if you have a relatively inexpensive -- tens of thousands of dollars -- box, a lab tech who is, you know, an extremely smart high school grad or an undergrad in the bio lab. That price improvement is far, far faster than Moore's law, which of course has driven the technology curve, and we all know how transformative that has been. That is the rocketing down cost collapsing what it costs to read DNA.

JORDAN: Can we talk about what Moore's law is real quick?

ROB: Yes. So, Moore's law is basically that mathematical ratio that illustrates how quickly computing power gets cheaper, on a year to year to year basis. Gordon Moore was -- I believe he was the CEO, he may have been the founder as well, of Intel, the big microprocessor company. And back in the '60s with relatively little data, he traced out on a cocktail napkin -- he said, "Computers are basically doubling in power roughly every 18 months," and that became called Moore's law.

And we have stayed on that curve pretty much ever since and there's all kinds of debate about whether Moore's law is going to end and that's a whole 'nother subject. But if you think about everything astounding that has happened in computing over the last 20 years, 30 years, 50 years, whatever period of time -- you know, going to that iPhone that's more powerful. That's because of Moore's law. What's happening in biology is much faster.

JORDAN: How much faster?

ROB: Because it gets into logarithms and exponentials, it's kind of complicated and I can't --

JORDAN: You lost me at logarithmics. Me and a lot of other folks.

ROB: Put them on a chart, it's steeper steeper drop.

JORDAN: Right.

ROB: What took \$3 billion and 13 years, you know, when today's high school kids were probably in kindergarten, can now be done for a couple hundred bucks and a couple hours. That's Oh, my God, and that's continuing. Now what's changing is, we can read genomes all day long now. What we're starting to do is writing them. We're starting to create DNA that does not exist in nature and it's getting faster and cheaper at the same or comparable speed. There's some very smart people who think it's actually going to get faster and cheaper, even more quickly than the reading did.

So basically, Human Genome Project, we're learning to read genomes, we've now gotten really good at it, next thing we're going to be able to write them. And when we start writing DNA, we can create critters and biological substrates and biological products that just simply don't exist. We can start out evolving ourselves and evolving the world around us or creating terrible

pathogens that could kill a lot of people. Who in the world would want to that? Very few people but --

JORDAN: Nihilistic terrorists.

ROB: Nihilistic terrorists may one day choose to do that. So a lot of great things are going to come out of what -- the cool kids are saying syn bio now because --

JORDAN: This is scary though because at first I was like, okay well who's going to make a freaking disease, you need a whole -- I mean, maybe a nation state, but now you're saying, "Well no, some guy in a basement in 10 years might have the technology to edit genes and create a pathogen.

ROB: And it's not speed, it's exactly what you said. It's that 10 year-ness. And so, think of this. There was a time when only one really smart person could flip a switch and make a light go on and that was Thomas Edison.

JORDAN: Yeah.

ROB: And he wasn't really good at that. His light kind of sucked, he had to do all this work. There are now stocking stuffers that Thomas Edison couldn't possibly have fathomed.

JORDAN: Right.

ROB: And most of the people who pulled them out of the stockings on Christmas morning are not as smart, as capable as Thomas Edison at the peak of his powers. The thing is, the passage of time makes wizards of us all, with all technologies really.

JORDAN: Well, sure. Like writing a computer virus was impossible for most people in probably, what? 1968? In the '90s there were kids my age, 14 and 15, and they were writing crappy viruses.

ROB: Right, and now their heirs are writing really, really good ones.

JORDAN: Right.

ROB: Right?

JORDAN: They're creating Stuxnet over in Israel or whatever.

ROB: Totally.

JORDAN: Right.

ROB: So there's a guy -- I'm just going to use him as a euphemism. There is a gentleman at Harvard named George Church. He is perhaps the most prominent bioengineer in the world right now. I don't know if bioengineer is precisely the right term but let's use it. He was very deeply involved in Crispr and many many other amazing things. He's a brilliant person, he is a very, very good person --

JORDAN: Crispr, gene editing and things like that.

ROB: Gene editing, yeah. And a lot of what's going on in synthetic biology -- a profound amount of it radiates out of this one person, George Church. Now, there are probably things that only he and four or five other people can do right now. But, 10 years hence, the tools will probably literally be a 100,000 times more powerful. And things that only George Church can do right now -- and I don't worry about George Church, he's not going to try and kill us all. But things that only he can do today will be something that tens of thousands of lab techs will be able to do after X years. I don't know if X is 10 years, I don't know if it's 20 years, but someday tens of thousands of lab techs will be able to do things -- just as with the stocking stuffers and Thomas Edison -- that George Church can't even fathom.

JORDAN: Right and one of them is going to go through a hard breakup and stop taking his medication and then what's going to happen?

ROB: Let's say we can trust 25,000 lab techs. Wait another 10 years and it's everybody in high school biology.

JORDAN: Right, wow.

ROB: The stuff is going to get out there. Now, I'm going to say something very significant that you're not going to expect. I am actually an optimist. I'm a rabid optimist. My wife once made me take this little psyche test because she thought it was a little bit goofy and I was just short of pathologically optimistic.

JORDAN: Okay.

ROB: I think one of the important roles of storytelling, particularly if that storytelling is deeply embedded in what's going on in the world right now, is to paint the picture of things we sure don't want to have happen. And ergo, maybe those things won't happen. And so to take one example -- I mean, if you were occupying any square inch of the world in 1948, you could be forgiven for thinking that totalitarianism was going to take over all societies because you'd seen Nazi Germany, you saw Stalin, and it was spreading everywhere. And George Orwell writes this book [1984](#).

There were many reasons why totalitarianism failed. I believe that was one of them. He freaked a lot of people out. He painted a picture of how bad that future could be. Many, many other storytellers painted a picture of nuclear winter in the '60s, '70s, and '80s, and scared a lot of very, very smart people. Luckily we're at a time now where brilliant people are genuinely very worried about what artificial super intelligence could do. A lot of brilliant people are very worried about what syn bio could do. A lot of people are worried what nihilistic terrorism could do.

JORDAN: So mix them all together and scare the crap out of everybody.

ROB: Mix them all together and hopefully have a rip roaring tale that people enjoy, hopefully add a lot of playfulness and humor --

which is something that I do in my writing. So, it's not just dark, there's a lot of very, very, very playful characters and scenes.

And also, maybe pull these three threads together in a way that -- people tend to be monodisciplinary when they look at these three fields. Bringing them together, I think there's a scenario in here that maybe is not on the agenda yet and hopefully, like there's only one George Orwell, there always will be, I don't want to make it seem like I'm comparing myself to who I consider to be one of the two greatest writers in English literature. I am not. But hopefully I could do something on a very micro level with a cool story that gets people thinking about things so this bad stuff doesn't happen. And it need not happen. The good guys often win. Especially if they're thinking about what could go wrong 20 or 30 years in advance.

(COMMERCIAL BREAK)

JORDAN: So if we're looking at the good things that syn bio can do with thinking what eliminating birth effects of almost all kinds --

ROB: Yeah, there was a big, big story that just emerged a couple days ago about that. There are certain hereditary conditions that are 100 percent genetic. Many horrible conditions are not 100 percent genetic but certain ones are. There was work done just two days ago, where for the first time a research team successfully excised some hereditary conditions from human embryos -- they're not babies that are being born, these aren't designer babies -- done in the lab but showed that that kind of thing can happen. Something potentially very near term, which is really electrifying, is cancer therapies.

And also a lot of people don't realize that cancer detection is really important as well. So actually, a good friend of mine -- a person I went to school with and came out to Silicon Valley with and you know, we've been friends for decades -- he lost his wife to cancer at a very early age, not that long ago, and he was in a special situation in terms of his purview because at that time he was running live sciences at Google X --

JORDAN: Oh, wow.

ROB: And he also sat on the board of directors of a company called Illumina, which makes the hardware that most people who read human genomes use to read those genomes. So he was able to look, as a board member at Illumina, he could see how steep that curve was, how rapidly that stuff was going to get steeper and steeper, A. And B, he knew a lot of stuff that nobody else knows because of what he was doing at Google X. So he started a company in conjunction with Illumina called Grail, as in holy grail, that is probably within a very small single digit number of years we'll be able to -- with a simple blood draw -- detect almost any cancer in the body --

JORDAN: Oh, my gosh.

ROB: -- at a very early stage. A simple and cheap blood draw. Something that could be affordable at any physical exam. Now why this is important is if you detect cancer at stage one or two, survival rates are 80 to 90 percent. You detect it much later and it inverts. It becomes survival rates are 10 to 20 percent. My friend's wife was asymptomatic, so there was no reason to test her for the peculiar cancer that she had, until she became symptomatic and at that point, it was very late in the process.

So the idea with Grail -- and this is one of many exciting companies -- is that they will have a blood test very soon that will allow cancer victims who don't know it yet, who are asymptomatic, to realize, "Oh, my God, I got something when it's plenty early to do something about it." I do believe this one company will save countless millions of lives. This is not science fiction or deep future. This is going to happen this decade.

JORDAN: That's amazing.

ROB: It will be the early 2020s, but it will happen in a lot less than a decade.

JORDAN: That's exciting. So somebody will come by your office or your house, a phlebotomist, right, take a blood draw --

ROB: Good word.

JORDAN: They'll come by, take a blood draw every three or four months or whatever.

ROB: Maybe once a year.

JORDAN: Once a year even?

ROB: Maybe once a year or something like that.

JORDAN: Great, so --

ROB: I'm not sure the frequency. It'll probably vary with your age.

JORDAN: Sure, and then it will go off to a lab and you'll get results back and you'll be like, "Hey, this was weird. Go do a slightly more serious test," maybe.

ROB: Something like that. As it gets more and more sensitive and better and better over time, I would imagine like 10, 12 years from now, they'll be at a point where they have words like, "Stage negative one, stage negative two." The challenge will become not overreacting, you know? They're going to get so good at detecting, so early stage, and then there's also bio markers on what they find which will help them pinpoint exactly where it is in the body.

JORDAN: Sure.

ROB: It's pretty wild but yes, this will be part of being human, like going to the dentist and getting your teeth cleaned. You do certain things on a regular enough basis to prevent bad stuff from happening.

JORDAN: Yeah, you're going to go get your blood cleaned for --

ROB: Get your blood drawn.

JORDAN: -- oxidants or whatever.

ROB: For whatever it is.

JORDAN: Incredible. That stuff is really exciting.

ROB: It is. Yes, terrorists could do terrible things and it's fun in a science fiction thriller to talk about some of that stuff but so much good stuff is going to come from AI, is going to come from synthetic biology, and hopefully from quantum computing. We'll generally be much better off.

JORDAN: So do you share the Elon Musk view that AI might kill us all?

ROB: Absolutely. In 1948 you could say totalitarianism could take over the world and torture us all to death --

JORDAN: Yes.

ROB: -- as you could have said in the height of the Cold War, there could be a nuclear holocaust. The answer is could it happen? Absolutely. We need to be very careful about it. There's a lot of ways that good people doing the right things could set up a situation in which there is an out of control AI development that very, very quickly gets outside -- way, way outside of our hands. The thing to bare in mind, is that there's really nothing magical about the human level of intelligence.

We're very smart compared to the other creatures that we share, or at least most of the other creatures we share this earth with, but there's no reason to think that we occupy some kind of summit or pentacle of intelligence. And so what that means is, if you create something that has significant intelligence internally and also arm it with the ability to improve itself -- we

don't have that ability. We can't fiddle with our minds and make ourselves brighter and brighter and brighter.

A really brilliantly designed piece of software might because it might be able to figure out ways of optimising its own code. And then if it gets really smart, it might come up with ways of designing chipsets in ways that we wouldn't even have thought of. When something gets self improving, even if it's kind of stupid when it starts -- if it can evolve itself at millions of times faster rate than we can, right? Like, when did we develop our intelligence? Hundreds of thousands of years ago.

We've been at a plateau since then. It can blast past our level of intelligence very, very quickly and end up at a point where perhaps its intelligence is in relation to ours, that of ours in relation to a bacterium. The fact that it came from us initially, we can have absolutely no notion of what its goals would be. Now, that won't necessarily happen. There are a lot of folks who believe there will never be a digital consciousness, there will never be something that has true will power and goals that are orthogonal to our own.

JORDAN: I feel like when people say stuff like that, it's mostly wishful thinking or they're like, "Humans are special because I am one."

ROB: Yeah.

JORDAN: And it's like, "Eh, you might want to dig into that argument a little bit more."

ROB: They could be right but the consequences of them being wrong are so devastating that we need to think about AI safety, not because we're sure Terminator is going to happen --

JORDAN: Right.

ROB: -- and we're hiding under our beds, but because there is a possibility and it's not just a microscopic one. It's a very, very

real possibility that things can go horribly wrong. And when that's the case, like, put on your seatbelt, not because you're sure you're going to get to your destination without getting in a car wreck. You don't feel stupid for having put on your seatbelt.

JORDAN: Right, exactly.

ROB: You feel virtuous and smart for having done it.

JORDAN: Exactly and I think a lot of people -- they go, "Well, you know, it could fall into the wrong hands or China could get one first," which by the way, if you haven't thought of that, that's a little scary. Not just China, but anybody could develop AI.

ROB: A plot point in my book too. There's a race with China.

JORDAN: I've heard that the Chinese are already genetically engineering and this could be just one of those dumb conspiracy theories, so I'll throw that in there. I'm almost certain that I read a credible article that they're looking at ways to make children smarter using genetic engineering, things that we could never do here because it would just be considered ridiculously unethical. And they're just going to go, "Screw it," and do it anyway and not care.

ROB: They are in a position to do things without an intrusive press preventing certain things from happening. I mean, things can go on here, obviously, behind closed doors. Horrible things could go on. But with the intrusive press that gets all the more intrusive because now we're all press. But yeah, things could go on there. They're definitely doing very interesting things with quantum computing over there.

They quite literally teleported a photon into orbit -- which is a quantum stunt, it's not a quantum computing stunt -- about three or four weeks ago. That raised a few eyebrows. They are very, very interested in Artificial Intelligence. They're very interested in quantum computing, they are deeply interested in synthetic biology, and there's a lot of stuff going on inside

government controlled corporations over there that we have no notion of.

JORDAN: Sure.

ROB: Absolutely no notion of.

JORDAN: That kind of thing is scary. Anybody who creates one of these, regardless of the amount of oversight --

ROB: Yeah.

JORDAN: -- could run into -- headlong into -- issues. And it's not just, "Oh, well it's got to be at this military state that's going to create Skynet." The arm that's designed to write your name on a sheet of paper and that's what you program it to do, and then it decides, "Well I need to keep writing. So, I need more pens," --

ROB: Paper, yeah.

JORDAN: -- pencils and papers, so I cut down all the trees and now I need to make paper out of plants because all the trees are gone." So now there's no plants therefore there's nothing for the animals and then people are drowning in paper and it's continually writing and there's no plant life because it's used all the matter --

ROB: Or paper clips is another one that's used.

JORDAN: Paper clips.

ROB: When you get an intelligence that just starts to develop its own goals -- that was one which we programmed it do something silly --

JORDAN: Right.

ROB: -- and it got really, really smart and it retained its sort of Captain Ahab-like obsession, with that silly thing, whether it's

writing or paper clips or something else. What might be more plausible is we have children and our children and our children might become smarter and more capable than us and they get their own ideas of what they're going to do, and you -- I can't imagine that any parent completely controls their 17 year old, let alone their 36 year old.

JORDAN: Right.

ROB: So at some point that intelligence goes on and might become better resourced, smarter than us. Now imagine that on a crazy exponential scale, the sort that could happen with a self-improving intelligence. That thing may decide that it just wants to probe the outer mysteries of the universe because it has got such an extraordinary mind. And in order to do that, it might decide, you know, it might master nanotechnology -- we're starting to do that ourselves and we're nowhere near as smart as it is -- and it might start realizing, "Well wow, I can turn all the atoms and molecules in this room into like, essentially a computing substrate and learn a lot more and holy cow, I could turn this whole building, I could turn this whole planet. I could turn the whole freaking universe," -- as we were talking about earlier.

Something that is as intelligent in relation to us as we are to bacteria, could have really cool things to do with the atoms that comprise our bodies. Its interests could become very orthogonal to ours and it could be made by good guys, bad guys, in between guys. You know, that thing could bust out of a Chinese lab, an American lab, it could bust out of Google.

JORDAN: It's essentially the ethics involved for that machine would be, "I could build a spaceship that could travel the entire universe, I just need to kill a bunch of ants."

ROB: Right.

JORDAN: The ethics of that are more involved than what that machine would have in relation to all of humanity.

ROB: We don't hate field mice.

JORDAN: Right.

ROB: But we do treat them cruelly and if somebody wants to put their house in a field that's populated with field mice, the welfare of that field mice -- this could be a lovely person who would hate to see any fellow mammal suffer. That house is going in. The field mice are just not entering the conversation and certainly not the ants and definitely not the bacteria.

JORDAN: Right. So that's the level of consciousness on that stairway. It's just, we are to that machine as, like you said, a bacterium is to us.

ROB: Could be, yeah.

JORDAN: It's just not factoring in whatsoever.

ROB: And this is a notional machine, this is a hypothetical machine, I'm not saying this machine is going to arise tomorrow. It may never arise but we need to be very, very aware of the possibility and think of the things that we might do to prevent that from happening.

JORDAN: Now when you're interviewing people and talking with people about this, you have a certain type of mindset and you've got some great practicals as well.

ROB: Absolutely. So, well like I said, I think trying to get any conversation more into a personal sphere than a professional sphere, is simply valuable and getting it unbounded, in terms of time. Because it's very, very frequently the last quarter of a conversation where the most profoundly interesting things come out. And so, whenever I'm engaged in something -- whether it's research or it's -- I mean, it's always research with me.

I'm researching something for a book, you might be researching something from a careers perspective, you might be researching a job change. Whatever it is, the person who's the ideal person to advise you is going to just keep having ideas in the course of your conversation. Get it into a restaurant, get it out of a conference room, and get it onto like a sort of personal level. And I think another thing that is really, really important -- there's so much information about all of us online. Get in there and do your research on who this person is, not merely as potentially somebody who could help you get from point A to point B, but also just who they are as a person, what their interests are. They probably overlap with yours in a real way and it will make the conversation -- first of all -- more fun and delightful for both of you, if you inject that into the conversation, but it also is just going to get you a very, very different level, I think of engagement and so forth when you really start talking with them.

Another thing that I think is really important. All outreach should always be personal. I'll give you an example. I had a book signing here in San Francisco on Tuesday, when the book came out. I invited about 150 people. I didn't use an E-vite, I didn't use Paperless Post or any of those things. It was a real pain but I sent 150 emails.

When we're fanning out, when I want to fan out to 10 different people who might talk to me about quantum computing, if I wanted to fan out to 10 people in investment banking, if I wanted to become an investment banker who might potentially become advisors to me, it's all too easy to do some kind of a copy paste thing. I think that really, really cheapens your approach, I think it really, really reduces the likelihood that somebody is going to come back and connect with you. Whenever I approach somebody and like I'm asking them for an hour of their time to sit down and teach me about quantum computing --

JORDAN:

Yeah.

ROB: The least I can do is spend a big chunk of that time, you know, prepping for my outreach for it. So those are some of the things that I do.

JORDAN: I like the idea that you approach every chance meeting as an opportunity to meet with an individual expert, even if that person is a driver of an Uber or a Lyft.

ROB: Yeah.

JORDAN: They have decades of experience, they've met hundreds or thousands of people you're never going to meet --

ROB: Yeah.

JORDAN: -- they've got a completely different outlook on life, potentially, than you do, and now you have 20 minutes with them and them alone --

ROB: Yes.

JORDAN: -- or top 40 crap on the radio.

ROB: This is the serendipitous aspect of it. And this is one of the great aspects of life. It's like, there are times when I sit down in an Uber and I've just got to get work done, right?

JORDAN: Of course, yeah. We've all been there.

ROB: But whoever it is that you're crossing paths with, whatever relative socioeconomic status you may or may not seem to have, this person is profoundly expert, in all kinds of things and people by definition, that you simply don't know. And there is stuff that they have, there is wisdom they have to offer, and perhaps in many cases, they're asked very, very rarely to share that wisdom or to share that magnificent anecdote or whatever it is.

And I think that when happenstance throws you in with a stranger that you're sharing a long line that's frustrating, you know, an Uber ride, even something as mundane as like boarding a plane, whatever it is, it's great to take advantages of these things because you never know what gems are going to befall you. When I was in undergrad, I was going off to spend my summer in Jerusalem to do research for my Senior Honors Thesis, and it was just -- I always had a policy then as now, as like, I absolutely like my peace on an airplane but I do think it's worth -- and I grant people their peace on an airplane. Nothing drives me crazier than I've got a lot of work to do and somebody wants to talk the whole flight, but I do think it's worth spending three to four minutes just getting to know. It's just -- it's no time on a six hour flight.

JORDAN: Sure. Sure.

ROB: And I got to know this woman whose brother in law was the archbishop of Jerusalem -- where I was going for the summer in six weeks -- of the Anglican church there. I ended up staying in a hostile there, all this other kind of stuff. Serendipity is a very, very powerful force and it's not something that should ever be ignored.

JORDAN: Getting some useful nugget or fascinating or fun story from the next 10 Lyft or Uber drivers was something that you'd kind of given as homework. I love that. How do you know which questions to even ask to a elicit those types of conversations or those types of tidbits?

ROB: Always start where you're from because particularly in a city like San Francisco and New York, where I spend the most amount of time, almost everybody came here from somewhere else. Not quite all. But, wherever they're from in the world. Now, I'm a bit of a traveller. I love to travel around the U.S., I love to travel all around the world. Wherever they're from, I probably have a kind of a fun burning question about it. And what I like about that is it immediately puts the spotlight on them.

It immediately puts the spotlight on things they know that I don't know. I couldn't be more interested than meeting somebody from Alabama, which is the one state I've never been to, because it's the one state I've never been to. I'd be fascinated to meet somebody from Turkmenistan, because Turkmenistan is this crazy country that's kind of like, isolated, almost like North Korea.

JORDAN: Yeah.

ROB: I've had drivers from both of these places in the last two weeks, which is why they're top of mind. I'd also be equally fascinated by somebody who grew up in my hometown for three very different reasons. Always start with where you're from. And I'd also be fascinated to meet somebody from San Francisco because that is so damn rare.

JORDAN: It's rare.

ROB: Just starting with where you're from, you know. Or I often start with, you know, how long you've been driving with Uber or Lyft. It's a very, very easy way entree. And then, "Well, how did you come to it?" and there's always a very interesting life story. It's the flexibility that's really drawn them or something terrible happened or something great happened or whatever it is. That's the entree. "How long have you been driving," and "Where are you from," and that's just going to lead you down --

JORDAN: So these are really simple questions. So the homework is more pursue the conversation without letting it die out until you get to something interesting.

ROB: Open up with that and it's a thicket. It's going to lead to all kinds of interesting topics.

JORDAN: Yeah, good or bad.

ROB: Good or bad, yeah.

JORDAN: And the homework is to do it for the next 10 drivers in the hopes that it becomes a habit.

ROB: Yeah, do it for 10 drivers and see if it's something that you love. But do it because having done it, you're going to get a much deeper sense for just this extraordinary diversity that surrounds us all. I'm a multitasker, I'm a very hard worker, I work more hours than I should, I really try to pack things in, but despite that, I think -- I do this sort of like breakout thing because you start poking at the surface and it gives you a sense of just this extraordinary diversity that underpins the very flat world that when we're really busy, we seem like we're skating on the surface of. And then after you've done that 10 times, you might decide like, "This just isn't for me. I feel awkward doing it. I feel pushy doing it," whatever it is. But I think having done it 10 times, you will have learned a lot and you'll certainly have learned whether it's something that's for you.

JORDAN: I want to wrap with the concept of patience. You mentioned that patience is the key to never settling. You find true north and you have to pursue this. Can you take us down that road? Because I feel like a lot of us, first of all, struggle with, "What's my purpose? What should I be doing? How long should I be doing it? How do I know if I'm on the write path?" It seems like you've thought about this.

ROB: You know, for me, like I was an entrepreneur. I started a company that did reasonably well but I always had this kind of deep sense that I really wanted to write. I felt that when I was coming out of school and I think that if I had rushed into it then, I never would have really had the certainty that I had when it continued to call to me over many, many years. I jokingly say it took me four years to get a first date with my wife. That's not quite true. We definitely had a very, very long friendship that by the time we were really actually ready to start going out with each other -- and I had to be very, very patient.

JORDAN: Was it a friendship or were you like pining over her the whole time --

ROB: I was pining over her the entire time.

JORDAN: Okay.

ROB: I was pining over her the entire time.

JORDAN: So you were just in the friend zone for four years, okay.

ROB: We were in the friend zone for four years but I was very, very careful not to be pushy about it because I knew that she was somebody who at that phase in her life, did not need to be rushed.

JORDAN: Right.

ROB: Because I felt this conviction that this is the right person, you know, it was like, A.) Don't rush it because then you might blow it, but B.) Give it time because if you still feel this way in two years, if you still feel this way in three years, then that's telling you that's a much stronger signal than "I've been feeling this way for three weeks." With me and writing, when I still felt like I am desperate to be a storyteller, when that had been going on inside of me for 10 years, when I'd been doing other stuff that I was equally passionate about -- I was rabidly passionate about the Internet and everything else that was going on there and I'm really, really glad I did all this stuff online. But when that was still calling to me after all those years, I knew that that was a very, very true and powerful signal.

And so I think sometimes when it's a high, high stakes thing, like a life calling, life partner, something like that, being patient and making sure that that's not just, you know, our ADD dragging us into something --

JORDAN: Right.

ROB: -- is a really, really important and valuable thing to do.

JORDAN: So how do you know then, whether or not it's something that is going to be a long term passion? You don't until you've actually gone down the road for a few years? So do you indulge everything like that?

ROB: What I never knew is if I love the idea of writing or do I love the idea of having written? You know, it's like, it'd be really cool to have --

JORDAN: That's funny, Ryan Holiday just said the exact same thing to me this morning.

ROB: Yeah, oh, really? That's interesting.

JORDAN: Yeah, yeah. I guess it's a quote that a lot of writers know because they all feel very similarly.

ROB: There was somebody -- a lot of people attribute it to a woman named Dorothy Parker. I actually looked it up some time ago. It was somebody who was around in the 19th century but it's been repeated a lot. And it's something that you have to fear. So I started attuning to my behavior. I realized I did weird things. I would work very hard on my emails. Sometimes, after sending an email, I would reread it because I thought it was kind of awesome. That's a sign that you probably, in fact, are a writer. Now here's another thing that was pretty funny.

So, when I was running my company, I was very, very -- you know it was stressful and it was hard work and all this other stuff. And late at night when I was done with all my emails, after midnight, I started doing this thing -- this is years ago, I'm running Rhapsody. I started writing these crazy reviews on Amazon -- very playful reviews. And this was before playful reviews on Amazon was a thing.

And what I would do, is I'd start writing these reviews about whatever it was, as this sort of crazy character that I'd invented,

Charles Henry Higgensworth III of Boston, Massachusetts. And he'd get a third of the way into a review, and then at some point, he'd do a 180 and just start bitching about his life. It was all just very kind of comical. This -- I almost became a top 1,000 reviewer. So, starting to notice things like this, I realized this isn't my broccoli. Like, writing is kind of like my Dove bar. It's the thing that I just keep coming back to, it's the thing that I'm doing when I real should be doing other things.

JORDAN: Gotcha.

ROB: And I think that when something becomes the thing that you find yourself doing when you really should be doing other things -- you're constantly researching this topic on the Internet, you're constantly like, diving into like, the history or the realities of this city that seems to fascinate you -- maybe you really ought to think about living there. If you're always like, you know -- you went to Charleston, South Carolina once and you fell in love with the place. And so, look for those signals, the thing that's drawing you out of the stuff that you should be doing. I think that's a very powerful signal.

JORDAN: Rob, thank you so much for your time, man.

ROB: Absolutely.

JORDAN: Your expertise and your know how and your network has been phenomenally educational today. And the book --

ROB: [After On](#), it came out just a couple days ago.

JORDAN: And that's R-E-I-D, the link will be in the show notes.

ROB: R-E-I-D

JORDAN: This is out already.

ROB: It's [After-on.com](#), is the website for it.

JORDAN: I've had a sneak preview or at least an unreleased preview of the some of the podcast stuff. It is very interesting. We'll link to that in the show notes as well.

ROB: Cool, thank you.

JORDAN: Great big thank you to Rob Reid. The book title is [After On](#). Of course that will be linked up in the show notes for this episode as well. Really cool future tech in here, Jason. I don't know, man. I mean, some of that stuff is scary but most of it's just exciting.

JASON: And what's crazy about it is he said his book is set nine seconds in the future and that's kind accurate sometimes, because this stuff is coming and it's coming fast.

JORDAN: Yeah, leave it to him to be like, "It's in the future, but," -- remember because now when you look at old stuff and it's like, "It's 1999, nuclear holocaust," you're like, "No that whole thing is discredited." But if you say it's nine seconds in the future, you could literally read it in 100 years and be like, "It doesn't seem like it's nine seconds in the future but okay." But it just seems more relevant, no matter when you're reading it, pretty much.

JASON: If you enjoyed this one, don't forget to thank Rob on Twitter. We'll have that linked in the show notes as well. Tweet at us your number one takeaway from Rob Reid. I'm @theartofcharm on Twitter. Of course we'll be replying to your questions and feedback for Rob on Fan Mail Friday. If you're looking for the show notes, tap your phone screen or go to theartofcharm.com/podcast. Also, the AoC Challenge. If you want to apply this stuff -- a lot of people say, "How do I know what I can put into action? There's so much." The challenge. Theartofcharm.com/challenge.

You can also text the word AoC, well the acronym AoC, to the number 38470. That's AoC to 38470. The challenge is about applying the things you hear on the show, improving your networking and connection skills, your relation development

skills, really. It's free, a lot of people don't know that. It's free. That's the idea. It's unisex, it's a fun way to get the ball rolling, and get some forward momentum.

And we'll also send you our fundamentals Toolbox that I mentioned earlier on the show, which includes some great practical stuff, ready to apply, right out of the box, on reading body language, having charismatic nonverbal communication, persuasion tactics, networking and influence strategies, negotiation techniques, the science of attraction -- there's a lot in there. Everything that we teach here at AoC. It'll make you a better networker, a better connector, and a better thinker. That's theartofcharm.com/challenge or text AoC to 38470.

This episode of AoC was produced by Jason DeFillippo. Jason Sanderson is our audio engineer and editor, and the show notes on the website are by Robert Fogarty. Theme music is by Little People, transcriptions by TranscriptionOutsourcing.net -- I'm your host Jordan Harbinger. Hey, if you can think of anyone who might benefit from the episode you've just heard, please pay AoC the highest compliment and pay it forward by sharing this episode with that person. It only takes a moment and great ideas are meant to be shared. So share the show with friends and enemies, stay charming, and leave everything and everyone, better than you found them.

