Life 2.0: Harvey Castro, AI Pioneer

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SPEAKERS

Harvey Castro, **Yan Chow** (Host)

[00:00:09.69] - **Yan**

Welcome to **Life 2.0**, a podcast about the personal impact of future technologies. I'm your host, **Dr. Yan Chow**, a physician, a technologist, and an entrepreneur. This podcast explores upcoming innovations and how they will transform daily life for you, your kids, and their kids. Life 2.0 will interview thought leaders who can help us understand what it really means to be human in the 21st century.

[00:00:39.89] - **Yan**

Today, I'm thrilled to introduce a special guest, a distinguished graduate of the University of Texas Medical Branch and Texas A&M, who now calls Dallas, Texas, his home. He is not only an accomplished medical professional but also a celebrated public speaker and prolific author with seven books available on Amazon. His insights inspire initiatives aimed at leveraging AI to enhance healthcare, contributing significantly to the development of a smarter, healthier world.

My guest's journey is one of extraordinary determination and innovation. Raised in New York City by a single teenage mother, he rose to become a renowned physician, entrepreneur, and CEO. With over two decades of experience, he oversees eight freestanding emergency rooms, a medical billing company, and a physician staffing firm.

In his role as a strategic advisor for ChatGPT in healthcare, my guest is instrumental in integrating AI within the medical industry. A developer of over 30 iPhone apps and a frequent expert guest on live TV, he engages audiences in English and Spanish, sharing his expertise. His dedication not only to his profession, but also to education and advocacy, is unwavering as he strives to realize the full potential of AI and healthcare.

Who is my amazing guest? His name is **Dr. Harvey Castro**. Dr. Castro, welcome to the show!

[00:02:06.09] - Harvey

Thank you so much for having me! Honestly, this is a big thrill and honor for me, so I appreciate it.

[00:02:11.40] - Yan

How can our listeners get a hold of you if they want to follow up?

[00:02:14.50] - Harvey

Great. Feel free to hit me up on all the major social networks under 'HarveyCastroMD.' It's exactly the same for LinkedIn, Twitter, Facebook, Instagram, and YouTube. Then I also am on Amazon Books, so just type in my name on Amazon. Then two websites, one is just harveycastromd.com, and I'm creating a bot with all my books so you can have a conversation with me. And that'll be just a bot that's there. I'll have it ready here in about three weeks. And then the other is just harveycastromd.info, and that'll be my AI healthcare course. And I have another course on how to be successful.

[00:02:50.09] - Yan

It's wonderful to have you here. You've had an amazing and unusual career path, and I haven't even mentioned half of your accomplishments. As a physician, how did you get to where you are today?

[00:03:01.09] - Harvey

You know, I think it all boils down to my strong 'why.' You know, life has been really, really tough and that toughness has been a blessing because I think it's just pushed me to be that more empathetic, that more servant towards society.

I have this huge scar on my left hand, and it's a reminder of my first big experience in healthcare. And the skinny is, I was in New York City being a teenage boy thinking I was Michael Jordan, hitting the tops of signs in the parking lot, signs that said Do Not Park. And I thought that was really cool. If I could just hit them, that means I was jumping really high and on one of the attempts, I didn't realize that there was a piece of metal sticking out and when I came down, it slashed my hand open.

And long story short, I had a horrible experience in the emergency room, waited forever, and then the doctor never gave me anesthetic to sew me up. And that was just such a reminder to say, God, I don't want to be that kind of guy. When I grow up, I want to be this amazing empathetic doctor that really cares. And I really think that just pushed me towards medicine and pushed me to be who I am to some degree.

[00:04:10.00] - Yan

That's a great story. And how did you come to the point where you felt like you needed to do more than just practice medicine? What was your 'why' for that?

[00:04:18.69] - Harvey

You know, when I realized that, yes, being a doctor is amazing and you can help people. But then when I realized, wow, if I can leverage myself, if I could teach others, or if there's a platform that allows me to help more than just one person, then in my mind I thought, well, maybe I'll be doing a different type of good and different help.

And that's when I decided, you know what, let me start programming for the iPhone or let me start creating better websites or let me do stuff that's not typical doctor, but it's doctor dependent, where if I could use technology plus doctor combined giving more of an effect for society than just me working and seeing, you know, maybe a thousand patients a year or something. I know I see more than that a year, but I'm just throwing a number.

[00:05:04.19] - Yan

It's amazing that you had the time to be so creative, because most physicians I know are just exhausted by the end of the day. How did you find the time?

[00:05:14.19] - Harvey

You know, it's interesting. I think it's a Catch 22 being an ER doctor. You know, having the shift work, you know that this time when you're not working, you're technically not working. So, then I knew for sure. And then I kind of cheated in the sense that if I knew I was working a 12-hour shift and I was like, wow, there's still 24 more hours left. I know I need to be sleeping, but I could do stuff. Then in the rare, rare occurrence where it was like 3, 4 in the morning, I had maybe a few patients in the ER and I'm just waiting for labs to come back or something, then I would take advantage and say, okay, let me work on this idea. Let me expand on X and Y. And then the horrible thing I did too is even when I was driving to and from work, I would turn on a voice recorder and just gather my thoughts and then transcribe it to help me start writing my book.

[00:06:03.00] - Yan

What a great idea. What are you working on today and what do you hope to accomplish?

[00:06:07.30] - Harvey

You know, now I'm really transitioning more towards using AI at another level. Yes, I'm teaching doctors on how to use AI, but now I'm thinking, what if I can just help create better products? And so my business partner and I are working on several AI products for healthcare, but the one that I'm the most excited is, he started a company called Helpp.ai, and the skinny is, as we know, unfortunately when older patients fall, if they break their hip they're more likely to die or have really bad pathology, and what he created was a really interesting concept. It's pretty simple. It's just a little tiny camera over the patient's room, but then it uses predictive analytics. It masks their face so that there's no way anyone can tell who that is, for HIPAA reasons.

But then the really cool part is if the patient tries to reach for the remote or reach across, it doesn't give a false alarm. But this algorithm has been trained to give time to the provider. So, I would say depending on what the situation is, it could give you a few minutes heads up. You know, if the patient is starting to rip off their IV or taking off the telemetry, the device sees it and automatically notifies the doctor or nurse.

My part in it is I'm trying to add more AI to it. And so, what we're adding is now a speaker that tells the patient in their language. So, if they registered as a Hispanic patient that speaks only Spanish, then the device would speak to them in Spanish and say, "Hey, so and so, please do not get out of bed. A doctor or nurse is coming, give us a minute." So, it is really cool. The other parts of this is we're working on this device just to be in the hospital, but we're looking at putting it in the nursing homes and eventually we're gonna put this in people's homes. So that's a really cool project.

[00:07:49.69] - **Yan**

What was the process for training this video contextual analysis?

[00:07:55.00] - **Harvey**

Yeah, excellent question. You know, my business partner, he created this before I came to this, and I honestly haven't asked him what exactly, which data he's using. I know that he's very careful with everything that's going on being transparent. I am sure he's probably using some open-source hours of algorithms that are out there for patient falls. But with that said, I know that the beauty of AI is that it can train itself. So, I know he's in about a hundred beds right now. So, I know that if the hospital gave permission, then that data itself can also train them up.

[00:08:28.69] - **Yan**

You mentioned that you're trying to take AI to the next level. And I know it's been a very early journey for some physicians and some physicians much more advanced. What do you think would be the goal we should shoot for? How should AI be used in healthcare and what would have to happen first before that happens?

[00:08:45.29] - **Harvey**

I think honestly, the goal for me personally is to see healthcare professionals love medicine again and not leave the profession. And so, with that goal in mind, I'm thinking what can I do to make sure that our healthcare professionals are less likely to burn out? Obviously, everyone's heard of summaries of medical records and using AI to help leverage the point where our workflow is better, not worse.

Let me give you a quick example. I've had some doctors tell me, look, I like AI and all that, but if the AI tells me something I disagree, now I have to type all this information on why I disagree, and now it's actually creating more work for me than it's worth.

And I thought, you know what, that's a very valid point, which brings me to the next point. We need healthcare professionals that have had experience in the forefront there of the trenches and say, hey, how do I fix this? And have the physicians alongside the

developer working together, not just in silos where the doctor's working and then the IT department says, here's your new widget, here, add this to your workflow. It needs to be done together before they even get to that point.

Yeah, I think that's a pitfall that may be among many pitfalls as we learn to train this new tool and this new assistant. One of the interesting things that's been happening is that every physician is different. Every physician thinks that they were trained to be autonomous, to be independent, to take responsibility.

And I think the interesting question is, if you have a digital assistant that's been trained on hundreds of thousands of cases and they make recommendations, as you mentioned, that's different from their own gut feel or their own training, will we be forced to be in a sense, as physicians, just technicians or how do we justify a different opinion?

I love that. You know, I honestly think, you know, with all the different verticals out there and people worried about losing their job, I'm a little biased, obviously, because I'm an ER doctor, but I honestly don't see us, quote unquote, being replaced, per se, Two reasons. One, empathy. You know, there's no human being as far as I know right now who would want to just see a robot and take a human totally out of the loop in their healthcare.

So with that said, I think it's also important to have a human in the loop, even if the AI is doing, let's just pretend it got so good and it did 99.999%, but would you want to be the 0.1% out there that, you know, missed something or that the AI messed up. So, the AI will, in my opinion, will always have some sort of bias because it was created by humans. And so, by de facto, it's going to have bias. But we need to have the human in the loop. And in this instance, it's gotta be the doctor or professional in the loop, that's going to be able to catch things and give that empathy.

And my favorite phrase is, let's look at AI as, look at it this way, it's human plus AI will always be better than your best AI and your best human. And let's use both technologies, which is I'm calling your brain, your own technology, plus AI and you're gonna give an amazing experience.

And I really think, for example, you and I combined God knows how many decades together we have in healthcare comparing us to someone that just graduated that's using AI, you know, you and I would kill it because we have so many clinical years or clinical gestalt. We have that human side, we've better bedside manners just from years of doing it as opposed to someone coming out. And that's why I say this is so important to take that in.

Yeah. Different healthcare organizations, especially academic centers, are training their own AIs based on their own clinical records. Obviously that AI will reflect that organization's strengths and weaknesses and gaps and so on. So, in a sense, if you go

to, let's say an AI at NYU versus an AI at the University of Texas, you'll probably get a different opinion. You may get a different opinion. So that makes it very difficult to standardize the standard of practice for AI.

[00:12:49.00] - **Harvey**

Yeah, no, I love that statement. And I think you're right. And I think that is going to be the future. Just because, and I'll take it even more global, just because I created, let's say, ChatGPT here in the United States, doesn't mean someone out in West Africa used ChatGPT. It's totally different populations. The reason it was created for was totally different. And I love your example because you're right, our data sets at NYU are way different than the Cleveland Clinic. And even if you are in New York and across the street from another hospital, those two hospitals are also different, you know, due to pay er mix and whatnot.

And so, not to get too geeky on you, but I really do believe that federated learning is the way to go where each hospital will have its own data, but then together they'll be training a bigger data set. And then when that data set's being applied, it'll only be applied within that hospital's walls and their certain data set. And I think that is going to be the future for healthcare and AI.

[00:13:44.00] - **Yan**

I agree. I think that combining data is going to make us stronger, especially if you have more variation you can account for. But that's been a challenge. I think it's gonna be a long journey because even during COVID when we as a software company tried to get the local medical institutions in the San Francisco Bay area to cooperate, it was very difficult, not because of lack of intention or ill will, but because of the structural challenges.

[00:14:10.89] - **Yan**

How do you think the roles of physicians and nurses and other medical professionals will change in the next 10 or 20 years? And the reason I ask this is because once in a while, I talk to a young physician or a medical student and they are very worried. It's not the traditional practice anymore. In fact, the solo practice is going out of style. What's your opinion?

[00:14:31.60] - **Harvey**

Love it. Love the question. This is how I see it, how I call it. I've been wanting to do a post on this, and I keep forgetting, but I call it the Great Shift. And how I see the future is literally the Great Shift. If I'm being honest, I see the Great Shift that follows. Today, if I'm, let's just pretend I'm a dermatologist, I may be seeing a lot of things that I'm saying, you know, this family practice doctor, whoever sent this probably could have taken care of this. Why did they send it to me? I really just wanna focus on, you know, the bread and butter of dermatology. With that said, I really think that's how the Great Shift is going to happen. We are going to start seeing different roles take on different parts of medicine that they didn't do before, And things are just going to start being shifted.

Dermatologists are now using AI. In, saying lovingly, Podunk, Texas, that a lot of individuals with dermatology diseases may have to go to the big city. Now that local family practice doctor could take a picture, analyze it, and then say, you know what, I didn't realize it was this, but yeah, I'm pretty comfortable. This is a diagnosis, and I can take care of this one, and I'm going to do it. And I think that's going to be the shift.

And so fast forward, the other one that people won't like, and I know this is coming with the age inverting here, in the sense that we're gonna have more people that are older than people being born and then we're not gonna have enough people take care of us. I really, really believe we are gonna start seeing robots and not just any robot, the eyes of the robots, it's gonna be ChatGPT4 maybe 5 or whatever the latest will be at that point – and what does that mean?

Well, as you know, our poor nurses have to lift sometimes heavy patients or they're doing a lot of stuff and their backs are usually gone out, and most of them hit a certain age and say, you know what, I can't do this anymore. I knew personally as an ER doctor, the older I get I'm like, no my body can't do that anymore, and so if we have a robot that can be an assistant to help lift a patient, help you with their vitals.

I mean, a lot of people don't realize, my voice here during this podcast, some people that have this algorithm can tell me what my sugar is right now, just with my voice, can tell me what my hemoglobin A1C is. If we turn on these cameras, you'd be able to know my blood pressure, my age, do I have early onset of Alzheimer's even. I mean, so many different diseases. So, imagine if you've a robot as your assistant now, walking into a room, being able to give you all these extra vitals and all this extra information.

[00:17:03.70] - Yan

Yeah, that is amazing. You know, it's almost impossible to imagine where we will be in terms of health technology in five years, 10 years at the pace that we're going now. The other question that goes beyond sort of empowering physicians and nurses to have better jobs in a sense, is to extend it to this trend in consumerism and healthcare. That is, will the future patient, you know, talking about personal impact on technology, will the future patient actually have a personal AI that may differ from the doctor's AI? And so, we could have AIs talking to AIs. Do you think AI will get to be a point where first of all, it becomes an obvious assistant, and second of all, beyond that to be invisible?

[00:17:45.90] - Harvey

Yeah, no, I actually been advocating to my patients, and I know some doctors will cringe that I say this, but I'm advocating that they create a personal GPT, create their own personal digital twin in the sense that obviously you got to make sure HIPAA -compliant and all that, but assuming you do it correctly, that before they go see the doctor, that this AI is already giving them the questions, what questions they should ask their doctor.

And then when they're in front of the doctor, you know, how many times that we think we break it down for our patients, but in reality, they don't understand. And a lot of times they're too shy to say, Doc, can you explain that to me? Some of them do, but some of them are so intimidated by us, unfortunately, that they won't.

So, my thing is use AI while you're in the room, have them translate. Sometimes we use big words, and we don't mean to, but we think they understand them, and they don't. And so that's one thing that I do see: us having our own personal AI as a patient. And then as far as a physician, it's going to be automatically in our workflow. So, unfortunately or fortunately, depending on how you look at AI, some doctors won't have a choice. It'll be inside their EMR, it'll be reading their x-rays, it'll be part of the workflow.

And the scary part is hospitals aren't really sharing a lot of this stuff with the doctors. So, I know the AMA is out there fighting and saying, "Hey, doctors need to have a say in this. At the end of the day, we're going to get sued for this and we've got to know what's going on."

[00:19:11.40] - Yan

That's very, very true. I mean, if you think about that, the question that comes up is what is the governance for AI? And I know there are a number of organizations very interested in launching responsible AI initiatives, things to make sure that whoever's developing AI, especially on the business side, is ethical, you know, is thinking about fairness and things like that. So, what do you think is gonna happen there? Do you think we are actually going to have a successful framework for developing AI?

[00:19:38.40] - Harvey

Yeah, I think that this is, I kind of am torn here. I wanna see progression, I want us to do really well, but at the same time, I want to make sure we do this correctly and safely and ethically. Just because we can doesn't mean we should. I think we need to make sure we move at a pace that the culture is ready. Not to go on a sidebar here, but I do believe there's a reason why ChatGPT didn't release all of its power on day one. Our society wasn't ready. It's still not ready, and they're still pushing ahead.

And so, I think as we move forward, this technology is moving so fast that, you know, literally a lot of people still don't know all the capacity of what it can do, and our hospital systems are still using fax machines. And so, we need to do things that are done correctly and safely, but at the same time we have to move forward.

If we want to help patients, if we want to address all these healthcare issues using AI, then we need to move forward and we can't put handcuffs on our leaders that are creating this technology, which puts us at this interesting dilemma. We want to move forward, but obviously healthcare is different than anything else. So, we want to make sure we do it correctly. Thank God for HIPAA, but at the same time, it doesn't cover everything.

[00:20:53.59] - Yan

So it's interesting you mentioned about patients feeling unempowered, and that's very common, especially when there's such information asymmetry and maybe lack of healthcare literacy. You know, recently I saw an amazing thing, a video generated by Gen AI. That was probably not possible 10 years ago or even five years ago. Certainly, Gen AI is generating professional quality music and things like that. Would it be

possible for us to develop a program where Gen AI can actually simulate a doctor visit so that the patient can train or learn to interact with a doctor on a more equitable basis?

[00:21:30.29] - Harvey

Oh yeah. This technology is changing so fast that I think it, I had never thought of it on the patient side, but obviously it could train future leaders, future healthcare professionals. You know, how many times have we been taught, see one, do one, teach one? But then how nice would it be if we could have done it with the VR headset and really practice a couple times before we actually touch the human being.

I remember I was scared the first time I had to intubate because I literally had seen one and said, okay, Harvey, now your turn. I'm like, oh my God, this is crazy. But I had read about it and all that stuff, but how nice would it be? But I love what you just said because that is awesome. If we can help our patients and have them see, you know, I'm thinking of a child, a child that's never seen a doctor or gone through an MRI machine. If we can train them before going to the actual environment, how nice to decrease this anxiety – that'd be really, really great to do.

[00:22:26.20] - Yan

Or on the doctor side, training a physician to, let's say, handle a Hispanic patient or handle an African patient. Being able to pick up on the nuances and ChatGPT is very good at doing that, you know, to reflect that culture and to train the physician to know what to ask in a sense.

[00:22:43.29] - Harvey

Yeah, and I'm gonna expand on that. I love that. I talk about that. Let's not just use AI to help me translate because you're from another country. Let me be more sensitive and let me learn things that are culturally sensitive in your area of the world. And now when I speak to you, I'm in Dallas, Texas, I can talk about football, and everybody gets it. But if I say football in Europe, they're thinking soccer. And so, I need to be very sensitive how I say things and what I do. So, if I really want to make an impact and I agree using AI to help me become more empathetic, hey, what are the top 10 things that I should do as a doctor to be more empathetic and ChatGPT will tell you. And you can create your own course to help you become an even better doctor.

[00:23:23.70] - Yan

It's interesting that, you know, moving even beyond the language lens, the cultural lens, is it possible, do you think, for AI to discern, let's say a new patient coming to the ER, ED, to discern their personal preferences, their personal beliefs, their personal disbeliefs, things like that, where they've been influenced by many, many channels of information, misinformation. How do you pick that up with AI? Would there be an interesting way to screen them and try to find out what they think healthcare is about?

That's really interesting because in my brain, I'm already thinking there's so many biases in the algorithm. I usually advocate big time for doctors to use it. On the patient side, I'm very scared because of hallucination effects or if they get the wrong data. Everybody's heard of Dr. Google. Now it's Dr. GPT or Dr. ChatGPT. With that said, I do think it'd be nice to get a quote unquote biopsy of your patient to give them, instead of a questionnaire, a bot to answer certain questions and then take that information and then give it to me, the healthcare professional, so that I know how to interact with that individual. Because you're right, they may have been scarred as a child on XYZ like me. I don't like scars right now. Well, big wounds. And then if you knew that had happened to me, then you'd be like, you know what, let me be more sensitive when it comes to anesthesia with this guy. Cause he's had that. So, I'd love that example. Very good example.

[00:24:46.90] - **Yan**

Hey Harvey, I just heard a sound. What was that?

[00:24:50.70] - **Harvey**

I apologize. I have this, it's kind of geeky of me. In my office, I have this, it looks like a little train. Like, you know, when you go to Europe and they tell you go to lane one or two, to track one or two. I had that in my office, and I put every hour or so, I forget, it changes and gives me motivational speeches or quotes or images. It's really cool. Cause I look up there and it just gives me, you know, a nice little blurb.

[00:25:16.90] - **Yan**

Like an automated, motivator or rebalancing your equilibrium!

So, you and I were talking previously, and you mentioned some really interesting and exciting new technologies. What have you seen that's really got you excited lately and where do you think we're going with those things?

[00:25:34.20] - **Harvey**

You know, I think we're moving towards AI gadgets. The first one that I got myself that I enjoyed was the Meta Pro and just think of them as these fancy Ray-Bans, but they have a little tiny camera, you know, you're like, ah, no big deal. But the part that's really cool is that I can take pictures of anything, and it'll analyze what I'm looking at and then tell me what that is. And from just a Generation One, you're like, that's not really a big deal. But in my mind, I'm like, man, now extrapolate that out. If I can peg that to the top dermatology book that's in the world or different data, now I can say, no, this is squamous cell carcinoma. Or no, this is actually a basal cell. Take it to the next level.

I recently ordered a Humane AI Pin and again, I don't have any stock in any of these, I'm just kind of sharing fun technology. It's got horrible reviews, but let's just focus on the healthcare part. Think of it as a little square that goes on your chest. You just push the

button, takes pictures, videos, but the cool part here for healthcare for us would be to translate.

So imagine me holding it saying whatever I am talking about in healthcare, obviously making sure it's a simple complaint, all that, but then I say, hey, let me tell my individual in Spanish XYZ and then it automatically does it but then the cool part is when the patient responds, it'll listen to it and then tell me what they just said in English and so I don't need to find a translator or worry. It automatically does it for me, which I think is amazing because when seconds count now, I have someone that's translating.

[00:27:07.90] - Yan

One of its advantages, of course, is, it's on your body, you know, it's a wearable. So, it's essentially, it's a second brain that you're carrying around all the time. And I'm sure those kinds of devices will get much better over time. What else have you seen?

[00:27:23.09] - Harvey

I'm geeking out also with the Apple Vision Pro. I've seen some demos where they've added Epic, for better or worse, people that love Epic or not, but it's in your Apple Vision Pro. And the cool part, again, I'm going to relate this, since I'm an ER doctor, to ER. If I'm seeing a patient and I'm constantly waiting for labs to come up, now I can have my Apple Vision Pro app and automatically the lab pops up. The second it gets released, I don't have to keep checking. If I need to show my patient an x-ray or if I'm doing a procedure based on the x-ray, I can pull up the x-ray while I have it on and do my procedure and not have to like go by memory. It's literally in virtual reality and I'm seeing through the Apple Vision Pro and seeing the x-ray and the patient and the quality is amazing. It's not really crappy.

In fact, let me add by saying I haven't seen, but on day one I saw an article about the first neurosurgery case with the Apple Vision Pro on and how they did the surgery. And I thought, wow. And then a couple of weeks ago, they had someone else showing how they did abdominal surgery with the Apple Vision Pro. So, a lot of things are happening with these devices.

The other one I wanna talk about is this thing I haven't gotten. Again, I love gadgets. So, if you ever meet me, ask me and I'm sure I'll have the gadget on me. But this one's called the Rabbit R1, and I probably will get it next month or so. But the skinny is, imagine some device that's half the size of your iPhone. And let's just say for practical examples, I can push in and say, order me an Uber. And that's it. It knows where I'm at. It gets in my app. It goes, finds the Uber and the Uber's outside. I didn't have to do anything other than my voice. But in the medical world, since this is all about medical, imagine, I'm going to use this example in my next talk that I'm doing. Imagine me having this device and saying, I need to get the cath lab ready and I have a STEMI. That one statement will automatically send a copy of the EKG to all those people that need it, activate the cath lab, call the hospital administrator, make sure we have beds, and the bed's, everything's, ready -- all with one statement Something like that would be amazing in healthcare.

[00:29:28.29] - Yan

It would save so much time and it would be so much more accurate. I remember, in the ER, a lot of the activity is trying to find out what's happening, you know, and you have to call somebody to find out what's happening. It's a little bit scary if you have, for instance, contract labor, you know, travel nurses that don't know how the hospital typically does things. And so, you waste a lot of time scheduling the OR, calling the right team, who's on call, that kind of stuff. And I can see this becoming really, really an efficiency booster for a lot of things, especially if it has GPS, real-time location services built in. And you can even do that with Apple Vision Pro, you know, for instance, so that if you were in a patient room, or you were looking at a patient and they recognize the patient, you automatically pop up the right data.

[00:30:14.40] - Harvey

Yeah, no, I'm so excited about this. The other one, since we're geeking out a little bit, I'm going to, and again, no stock in this next one, but this one's called Brilliant Labs. Brilliant Labs, and the skinny is, imagine being able to see whatever picture you took or information, but it's on the lens itself. So, as you have the lenses on, you can still see around you, but then it's just, think of it as etched onto the glass and then you can have, take pictures, interact. One of the demos that I saw, I thought it was kind of cool. This individual was looking at different wine bottles and was able to take a picture of it and then see what kind of ratings and what it had and then what the costs were. And I thought, okay, that's pretty cool.

[00:30:57.59] - Yan

Do you think we'll get to the point someday where we're having direct, you know, brain to computer interfaces (BCI) that we wear?

[00:31:03.90] - Harvey

You know, that's funny you mentioned that. Last night, and I need to do a little more research on this, I saw Mark Zuckerberg make a statement and it kind of blew me away. I didn't put two and two together. He is working on a little bracelet that's gonna go on you that will interact with your brain waves. So, you don't have to insert a little chip, like Elon Musk wants to do, in your brain. And you'll still be able to get those wave patterns in your brain towards this device.

And I thought, man, I told my wife, I was like, I need to sleep on this one. This one's a lot of information. Like, holy cow, because if you could really interact with your brainwaves, then all of a sudden you can just start doing a lot of stuff that you're just thinking through that bracelet and then out to the world. So, I was like, whoa, this is gonna be way, way big if this is happening.

And apparently, he has a device, he's using it for internal reasons, and his goal is to release this device. Now, I don't know when, it might be a year or two, but still, if you're able to capture your brain waves and interact with those and start doing things with it, that's going to be another world that that'd be a whole other podcast you and I need to do.

[00:32:15.09] - Yan

It reminds me of a quote from way back that says that anything sufficiently advanced in technology will look like magic. And this is where we're coming to, you know, we're hearing about things that don't seem possible. And that's both scary, but very thrilling.

[00:32:31.09] - Harvey

Yeah, yeah, yeah, actually for the first time, got a little pause. Usually, I want to take it all in and this one I was like, whoa, I don't know if I like this one. It's a little scary. But I always try to put a positive spin on things, you know.

There's some videos out there that show with the brain-computer interface where a lady had a stroke, cannot speak for years, but now had an insertion of this BCI into the computer and now the computer, she can think of what she's trying to say and then the computer is taking those waves and converting them into voice. And now a stroke patient that could not speak can now speak. And I thought, you know, that's amazing.

And so, putting a positive spin on this, I'm thinking if we had these tools, then my goal and job if I'm alive is to continue to help and create some iPhone apps, I'm sorry, applications to help people with these kinds of idea.

[00:33:20.40] - Yan

Yeah, so do you think the mobile device is going to be around for a while? And what kind of form do you think it'll take? Because you've developed many applications for the mobile phone. Is that the device of choice, or is it going to be like an Apple Vision Pro or a bracelet or something else?

[00:33:38.70] - Harvey

That's a great question. And later when you're off, everyone, take a look at the Humane AI Pin. I know it's got horrible, horrible reviews, but with that said, I think it's just Gen 1. And so, what this thing does is you reach out your hand and it projects your phone there and you can start dialing into the virtual world. You can hold a picture on this little device, and it'll take a picture and analyze. Right now, it's taking forever, it takes like 8, 10 seconds, and we're used to using our phone where we can take a picture and boom, we have the answer right away.

But to answer your question, I think this is the first steps towards having something just wearable where maybe it's a part of your glasses, maybe it's your bracelet, maybe it's this device that combined all three, now you have a phone that you're not really having to look down or anything. And maybe it's etched into your screen on your glasses. So, I do see a world where our phones will change and morph into something else.

[00:34:33.50] - Yan

Where do you think AI is going in the future, you know, both in healthcare and more broadly? Do you see the point where AI is going to do most things for humans? And if so, what are the things that it won't be able to do?

[00:34:46.80] - **Harvey**

That's a really good question. I love it. And I pause and hesitate. I feel like AI will do a lot and things that we don't think it can do, it will do. And I know people like, well, never take my creativity. And I agree and disagree. And let me preface by saying, as of last year, ChatGPT had an IQ of 155, Albert Einstein was around 160. As the models get better and better, this will be at the highest IQ level where it'll be higher than any man or woman in the world to know. And so, we won't know if ChatGPT is lying to us because it's way, you know, 10 times smarter than that smartest person. And so where will this be? Unfortunately, I think it's going to be hard on our economy.

Long-term, I do see jobs being replaced, and it's going to be a matter of, is the AI cheaper than a human? And if it can, then we're going to replace that job. So, I see it replacing the very top jobs. Ironically, people are worried about AI, robots replacing factory workers. And now I'm thinking, well, if you're getting paid a big dollar and a robot can do it for less and not complain and work 24x7 and take all holidays on, then they're probably going to, you know, some company CEO out there is going to say like, well, it's quite cheaper for me to just build this out.

Case in point, you know, how many times this year have we received an Amazon package? I don't see us far from, you know, where the drones will be dropping our packages everywhere. But then if it's too big for a drone, where a Tesla equivalent car drives itself and a robot comes out and carries your package, because that's going to be way cheaper than hiring a human being. And so, I do see that happening.

[00:36:34.80] - **Yan**

You know, I just saw a video today about a crow that attacked an Amazon drone. And so, they still have to fix, they have to make that a little bit better before they can make it mainstream.

[00:36:46.90] - **Harvey**

You have to send me that video.

[00:36:50.90] - **Yan**

AI, you know, the areas where we used to think that it could not infringe on or impact, it's starting to do that. And the creativity from, you know, image generators, from song generators, poetry generators. Is there a difference between that and let's say what humans can do? People are talking about the arrival of general AI, essentially indistinguishable from humans, that's been trained and is potentially self-aware. Is that any different, let's say, than a human or is that, you know, could that be a sort of a kind of a species that we're looking at?

[00:37:27.69] - **Harvey**

Yeah, that's really deep. I like it. I know my wife gives me a hard time about technology because I'm all in and I love the counterbalance because she's always the opposite,

which is really good because then it kind of grounds me and helps me see the different angles to it.

To answer your question, I think in some verticals of life, we will see this type of technology, unfortunately, or fortunately, depending what side you're on, taking over. Having a machine to help you in your daily living is nice. For example, for me, if I'm getting ready, let's just say for your podcast, I could train AI to tell me what kind of questions he is going to ask me and what angles and what should I do. In fact, I haven't done this, but I could take all your prior interviews, put them into a GPT that I created, and then formulate what are the most common questions that you normally ask and train it and be better.

There're agents out there, AI agents, that can do a single task. And so currently I'm working on some of these agents for healthcare. But to give you a case in point, let's go back to the cath lab example. Oh, actually, let's use overcrowded ER beds. You can create agents that are doing all the stuff that the human does, meaning one agent's looking to see what beds are open, another one seeing where they can be transferred, another one seeing who can be discharged. And simultaneously, the computers are basically talking to each other to tell the human, okay, this is your best outcome for your overcrowded beds. And things like that, it's going to start taking over.

Unfortunately, your generalized statement about artificial intelligence, it's going to be really hard for us to beat the AI. And so that's why I call it the Great Shift. We need to see where we can make sure the human's in the loop. It may replace some individuals, but then it'll be kind of like the industrial age, but another era where now machines are, unfortunately, taking over some jobs. But now we have to figure out where we are in the ecosystem and how we can leverage that.

[00:39:33.19] - Yan

Right. I think the big question is what kind of spaces are left for humans, for human doctors or human lawyers or human scientists? As AI becomes more capable, and we do use it as an adjunct to what we're doing, if you get to the point where it's getting insights that we're not getting, it's actually creating new value out of previous data. Then our turf, you know, it's going to shrink.

When I talk to healthcare organizations about automation and how automation frees people up to practice at the top of their license, that is, to take care of all the mundane stuff, the usual stuff, that exception-based work, you know, that sort of the edge of the, the exceptions that, that are hard to pick up because there's no data on them. Even that's gonna shrink, I think. I think even that's going to be encroached on.

And so, the question is, what is human value? For instance, recently I saw a really amazing song generation site called Suno, and has a competitor now. Can create in any genre you want, an amazing song within 15 seconds. And then I'm thinking about songwriters, you know, what are they going to do? How about ad agencies that write jingles, you know, for companies? That's all going to go by the wayside.

So then where is true creativity? True creativity might be something that a machine has not been trained on yet. And that's going to be a very small area. Is that the new direction for humans to find value? And if humans don't have value for money, are there

other ways that we have value, that is, that society will create structures where we have value for empathy, value for creativity, true creativity and things like that?

[00:41:12.30] - Harvey

Yeah, that's a tough one. I know that I use Suno to create music. The first time I did it was last year for Valentine's; I made a song for my wife, and I thought I was amazing, and she hated it. She's like, Harvey, I would have loved it if you just wrote it and use your creativity and your words and not let AI. And I thought, but look how cool. Like it's talking about our life and our background and how we met and you know what a cool song and I'm like okay I'm too much of a dude, I gotta think like a girl, differently, no disrespect, just she values the humanity, she values creativity, and I thought, you know what, good lesson learned, so I stopped doing that. Now I write her poems and I write her letters and AI. And then the funny thing is one time I used AI to help me and she's like, Harvey, you used AI on this one. And I'm like, darn it.

[00:42:03.80] - Yan

Have to train the AI some more... so she can't tell the difference!

[00:42:08.69] - Harvey

But my point is, you're right. Where is humanity going with this? What are we going to do? I do see the following world where big corporations that are using AI will be taxed. And then that tax is going to go into a pot of money. And unfortunately, that money is going to go out to individuals that are displaced from work.

I know that I was impressed when I saw that Singapore released a law, and it's really interesting. Anyone over age 40, Singapore will pay for them to be trained in AI to be able to be competitive in the workforce. And I thought, wow, what a way to really be in front of this, you know?

As an aside, I don't want to brag, but I'm really honored to say that Singapore hired me to be an advisor for digital health. And so, I'll be working with Singapore for their country, different laws and different things that need to be done there. And I'm just honored that they asked me to be part of that advisory board.

[00:42:59.19] - Yan

That's fantastic. They're very forward thinking, you know. As I mentioned in our previous talk, I was born in Singapore. It's an interesting country. Like many countries, are trying to develop a strong advantage in the information sciences. I hope you get to accomplish great things.

[00:43:13.90] - Harvey

Thank you. Thank you, thank you.

[00:43:15.09] - Yan

So, do you think AI in its present form and maybe in future forms, can create things that we almost have no ability to do? For instance, I'm not a songwriter, but you go to the site, and you can create a song. Is it a way to sort of democratize talent?

[00:43:34.00] - Harvey

I see the following. When I use AI, I'm trying to create more. That whole statement I made earlier, it's human plus AI. I'm trying to use AI plus Harvey to do more. So, I use it a lot for brainstorming to help me. And I do believe that there's an angle here where it's the human's brain plus AI giving you more.

And let's go to your songwriter example. That individual is still being creative, but now has a tool to help them see quicker their ideas or they have a rhyme in their head, now they can use AI to give them different renditions. Now, will that bias them towards whatever the algorithm is telling them? From an ethical point of view, is the algorithm being trained on Taylor Swift songs, and now when you write songs, it sounds like Taylor Swift and it has that rhythm, but you don't know why you think this is a great hit, but you're really taking her work. So, it makes it really interesting.

Or can you make the argument that you're such a great songwriter that you're using AI and you're just creating just way things differently and better because you're now looking at different things that you may have not looked at before -- because you're using AI.

[00:44:46.00] - Yan

It's interesting you mentioned your wife did not value your efforts using AI. I think there's a pearl in there, which is that the value, and it costs people something, you know, if it doesn't cost them anything, we tend not to value it. Even though the economy doesn't really work like that. You know, we pay for things we think are useful to us, have value, you know, we pay for things that are interesting, but we don't think about the work that went into it. And it's interesting.

This is part of this different way of thinking. For instance, now we have people saying, oh, we don't want to buy these athletic shoes because it was sweatshop labor, you know, that kind of stuff. I think that's a very interesting angle, the AI and then it's true cost, you know, its, sort of, its true cost to society. Very interesting perspective. I talked with somebody about this, and she was quite adamant that if you knew the cost, you would know the price, you know, and that's very interesting.

[00:45:44.80] - Harvey

Yeah, great.

[00:45:45.50] - Yan

Well, Harvey, it's been a fascinating hour, and it has flown by. Again, thank you so much for being on the program. Let our listeners know how they can reach you in case they need to follow up.

[00:45:58.50] - **Harvey**

Yeah, I'm glad I did this years ago. You can easily find me, just type in 'HarveyCastroMD' as a medical doctor, and I'm in all the major social networks like LinkedIn, Twitter, Facebook, Instagram, YouTube, and then if you need anything, I joke with my friends and say I live on LinkedIn, so feel free to hit me up on LinkedIn and follow me there. And then if you're interested in any of the books, obviously go to Amazon and just type in my name and there's a slew of books.

I'm gonna selflessly promote a non-medical one. I wrote one on how AI could solve cold cases for people that like crime. And I have two crime books on there on AI. So, it's kind of fun and geeky, but one of the two might be of interest. And then if you want to learn more about AI and healthcare, I literally have a website. It's just harveycastromd.info that walks you through AI and healthcare. So, feel free to hit me up.

[00:46:53.80] - **Yan**

Has anyone used AI to solve cold crime cases? Or are they already doing that?

[00:46:59.09] - **Harvey**

I would think they are now. I wrote this book last year and at the time I got many investigators and police officers calling me about it and how they could learn and what they could do. And then Fox News picked me up last year and they're still using that segment we did about it. So yeah, it's been kind of fun.

[00:47:18.19] - **Yan**

Wow, that's wonderful. Thank you so much again, Harvey! Hope to have you on again in the future so we can talk about what else is happening in this fast-evolving world of AI.

[00:47:27.30] - **Harvey**

Thank you so much! I really appreciate it. Such an honor. And thank you for your time.