

Extended Reality (XR) Ethics

Living Room Session by House of Beautiful Business

April 15, 2021

29:19

Tim: Hello. Welcome to this Living Room Session by the House of Beautiful Business Extended Reality XR Ethics. My name is Tim Leberecht. I'm a co founder of the House of Beautiful Business and I'm joining you here today from Lisbon, Portugal. So some of you might actually recognize the space that I'm in. It's the Dear Lisbon Gallery House. It's where we held our 2018 annual gathering and we have very fond memories of that and I must say I got back into town yesterday. It's amazing to be back in Lisbon. We're here this week to scout locations for our annual gathering this fall in Lisbon which will take place end of October early November with the theme Concrete Love

30:01

Monika: Hello, and welcome. My name is Monika. I'm the head of content and community at the House of Beautiful Business. And I'll be co-hosting the session today and hello from Berlin.

30:14

Tim: So just a few words about the House of Beautiful Business. For those of you who are joining us for the first time today, the House of Beautiful Business is a global community with a mission to make humans more human, and business more beautiful. We try to do so by creating brave new spaces for this brave new world including XR technology, which is what we're going to talk about today that we're all facing, we publish podcasts reports, we also publish a weekly newsletter called Beauty Shot, which comes out every Sunday, we have our annual gathering that I mentioned earlier, it's kind of a flagship event this year, again, in Lisbon and online. We run social circles for our members. We're a membership based organization, we call them Resident Circles. We do that once a month. And we run these Living Room Sessions for our members. And occasionally, we also then open these Living Room Sessions for everybody, for the public, which is the case here today.

31:12

Monika: It's ethics week at the House of Beautiful Business. And our topic today is the ethics of extended reality. So in short, XR. XR is the umbrella term for augmented, virtual, and mixed reality technologies. And it actually starts right here on Zoom. Because depending on where you would draw the line, we could actually say that we're already in sort of extended reality being connected here on Zoom right now, virtually, but each one of us in your homes or offices or wherever you are right now across the world. And of course we could spin that even further, right and make it more radical and more extreme. And maybe some scenes from sci fi movies

come to mind if you think about it. And some of these technologies are actually already here and much more real than we might assume.

So let's start indeed right here with a little experiment to see how we can create our own immersive environments ourselves. So note that this is a voluntary exercise, and you may choose to opt out. But if you want to play a little bit with us, then you're very well invited to get ready. So we're going to do this in two rounds. So listen up. If you have had an experience in XR already, whether that is playing Minecraft, for example, with Oculus Rift or playing Pokemon Go with your phone, then please get up now, from your place where you're sitting, and turn around your laptop. Yes, and then show us your space and play a little bit with the perspectives of what we're seeing there.

Very cool. Thank you. And now the second group. So this was really cool, actually. Every one of you and you can switch by the way to gallery view if you want to see more, but I tried to show you a few perspectives. All of you who have not had such an experience before, so you never had this headset on, or anything like that. You'll try for yourself.

All right, thank you all for showing us your spaces. We asked you to do this exercise, because it immediately raises a couple of questions. Right? So are you comfortable sharing your home with us? Do you trust this community enough to do so? And why? And who owns and has access to the data that you just created? And how does your sense of self also change when you're shifting the perspective from only watching and looking into the camera.

35:57

Tim: And these were really questions that we asked ourselves at the House of Beautiful Business, when we for the first time, employed a virtual reality application last year as part of our festival which had the title of The Great Wave. And back then we were working with a Berlin based startup called Waltz Binaire. And they created from scratch a virtual 3D island for us that was an integral part of The Great Wave experience. And you can see some of the footage here some of the photorealistic cloud based rendering. And we were really quite intrigued by how the thousands of people who participated in The Great Wave change their behavior once they entered the island. There was a sense of being lost first, of reorientation, and also the avatar design, you can see the one here very fashionable clothing, but we decided actually to create very neutral avatar designs, in terms of cultural, ethnic, gender identity. And we'll definitely talk about that later. Those decisions. So that was really interesting. And I think the name of the application, by the way, was Journee, and that was done by Waltz Binaire in Berlin. And I guess one of the key takeaways was if you look at it in a very binary way that at the very best XR applications, they can give us an opportunity to reinvent ourselves across all aspects of the human experience to explore a more fluid version of ourselves alter egos, unstifled identity expression, new forms of social recognition and status. At the very worst to speak of dystopian scenarios these XR experiences of course can also represent closed worlds, walled gardens with captive audiences that are brutally exposed to unbridled surveillance capitalism.

37:46

Monika: So the question is, how can we create experiences that are more conscious and inclusive? And specifically, what are the ethical frameworks that we need to develop those? We have an amazing panel of speakers to dive into that topic and some of those questions today, and we'll introduce them to you in a bit. But just one last housekeeping item—please note that the program of the session will run for 60 minutes. And we actually decided to add another 30 minutes from the hour mark, basically, for all of you who would like to stay on for another q&a with the speakers and to continue the discussion.

38:28

Tim: Last thing before we start, we are very delighted to co-host the session today with our partner the IEEE Standards Association. IEEE stands for Institute of Electrical Engineers and Electronics Engineers. It is the world's largest professional organization for engineers with more than 400,000 engineers worldwide. So quite an influential body. And we're also really thrilled to be joined as a moderator today for the next 40 minutes or so by our longtime friend, House Resident, former actor, and all live passionate harMonika player, John C. Havens.

39:08

Monika: John is the executive director of the IEEE Global Initiative on the Ethics of Autonomous and Intelligent Systems. And he's also the executive director of the Council on Extended Intelligence, which is an interdisciplinary cohort of experts founded by the IEEE Standards Association and MIT. And he's also the author of the books *Hacking Happiness* and *Heartartificial Intelligence*. So please welcome John, who will take it from here. It's really great to have you back on.

39:39

John: Thank you, Monika and Tim, for a lovely introduction. And I miss Lisbon, man do I miss Lisbon. I have so much fun at the House events. And I forget, I actually saw a different virtual reality thing you did there where there was a couple, it was a virtual reality experience with a script with a couple that I think was divorcing. It was really moving. And that was also the room where the band jammed. So Mark in the band, I have such fond memories of playing a blues guitar, I think it was like midnight, and the windows were open, and you could hear voices from down below. Anyway, I just miss Lisbon. And thank you so much for the experience that you create so beautifully.

So you already mentioned IEEE. I'm honored to lead what is IEEE's largest AI ethics community, there's about three or four thousand people who've touched different aspects of our work. One of the biggest projects that we've been working on since 2016 is a document it's more of a treatise called Ethically Aligned Design. And I'm going to put a lot of content right now into the chat room, enjoy. But it's mainly two big links. One is, I had the pleasure of meeting Monique Morrow who is going to be speaking later, who is an industry thought leader and so many things. She'll give you her bio in a moment. But really, she was the perfect person years ago when we were working on ethically aligned design. And there were sort of a lot of the kind of now traditional principles of accountability, transparency, the things that we may be used to, hopefully with artificial intelligence principles. But I've been in the augmented reality space since

about 2011. I wrote a piece for Mashable back then about virtual air rights. I could see when I was still working as an EVP of a top 10 PR firm, so the business community, that's where I used to be in versus IEEE, which is a nonprofit and engineering driven, and I saw once this immersive reality at the time, it was more augmented reality becomes real, then this is an entire different world. And certainly things like advertising, like we'll talk about today come into play identity.

Another one of our panelists, Mathana will speak on this later, Kent who is going to speak in a moment has done an incredible job, just amassing a list of all these different areas to help break down ethical areas within this immersive or extended reality that we can all be thinking about.

Just to wrap up my opening thing that the two links I put in the chat, one is the chapter on extended reality that Monique—she was the chair of the group that again, I had the honor to be a part of for about two and a half year—she wrote a document, you can already get it, it's Ethically Aligned Design, and that chapter, are free to download, they're Creative Commons and they already have, it's already got a lot of content in it. What then happened is with Monique, we said, for IEEE, we want to create what we call an IEEE, an industry connections group. All that means is it's a program that, it's also free and open for anyone to join. My email address is already in the chat, information about that ethics initiative, and our three panelists today are the executive committee of that initiative. We started only about two months ago, and I think now we have over 110 members, it's really busting at the seams. But we need more people we would love all of you to join.

So, when we talk today, one thing about IEEE, first of all, we're very focused on being consensus driven. The invitation is there for all of you to join. So if you're thinking that it's Monique, Kent, or Mathana who are saying, you know certain things, they are, they are thought leaders and incredibly passionate gifted people in their space. However, they are also leading these other 110 people, who are via consensus, that whole group will work together to come up with papers, etc. So that's one thing. The second thing is that, as Tim pointed out, any technology can be good, you know, and I'm paraphrasing can be used for good or evil, but it is also not inert. Right. It is not just going to kind of sit there and wait. And we should hope for the best. Proactive IEEE's tagline is advancing technology for humanity. The goal being and this is my personal interest in this space. What does human wellbeing look like in extended reality? And we should know before you put on a headset before you put on a pair of goggles, and especially things like data privacy, and agency and protection. We'll talk about more today.

Okay, I think that's about five minutes. That's enough from me. We're now going to introduce all of the panelists. And what we'll do, no actually, I'm sorry, let me look at my correct agenda here. So I think first actually, forgive me, we're going to go to Kent, who I mentioned, to give a quick sort of 10 minute, 12 minute introduction into the space. And then we'll come back and I'll introduce the other two panelists. So Kent, over to you and again, thanks, Tim and Monika, for this great opportunity to be here in the community.

Kent: Thanks so much, John. My name is Kent Bye, I do the Voices of VR Podcast and I'm going to be giving a quick primer on XR ethics here. So we'll be covering three main points here like just giving an overview of what is extended reality a little of the socio political context of technology in general, but also setting a context for the discussion we're going to be having today on XR ethics. So what is extended reality? So there's a Milgram's mixed reality spectrum, which on one end is physical reality. And then on the other end is these virtual environments. And so you have the real environment is kind of blending together with these virtual environments. And so with augmented reality, you're kind of like, you can see it's blending both, you're in the context of the real world, but you're overlaying different layers of virtual aspects over it. And then in virtual reality, you're just completely immersed within a virtual environment in a virtual world. And Microsoft, they have their own mixed reality spectrum where they were very inspired by Milgram's approach where on one end they have the physical world and the other in the digital world. And you have the augmented reality headsets here, and then virtual reality headsets. And you can see that augmented reality is sort of taking in the aspects of digital world, and you're still in the center of gravity of your existing context wherever you're at. But in virtual reality, your ability to be in one context and completely shift into another context.

So there's a number of aspects about contextual dimensions that we're dealing with here with virtual augmented reality. If we look at a lot of these other communication mediums from video games and the internet and World Wide Web and cinematic filmmaking, in some sense, virtual reality is tying together all these other mediums, and also architecture and theater, embodiment. But the thing that's new about virtual reality is that it's able to directly half your sensory experiences, all your sight, your touch potentially, but also your hearing. And it's able to kind of trick you into believing that you're in another world. And it gives you this sense of being embodied in the world, but also giving you the sense that you're being completely transported into another world, and that you believe that you're actually there, which I think is different than a lot of these other media, where you still kind of feel like it's a mediated experience.

So these virtual augmented reality technologies are trying to kind of blur that line. And then if you look at, this is from a slide from Frank Steinicke, from his keynote at IEEE, he has these different loops of the perception action loop. So you have your perception, your cognitions, your mental frames around making sense of what that world is, and then you're taking action. And in some sense virtuality is at each phase doing different aspects of perceptual filtering, or selective attention, or motor adaptation. So it's really this level of perceptual engineering, we're really getting down into the core aspects of how our brain works, with the neuroscience and all of our ways of where we perceive the world. And you have the ability to kind of create these worlds, and what are the implications of that. So that's kind of an overview of extended reality in general, kind of often abbreviated as XR, which includes both VR and AR.

Now, I'm just going to give a brief overview of some of the social political context of technology, because I think this is, once you start to look at the ethics and the tech policy, you have to kind of see how all these different aspects come together. And there's two main approaches that I like, one is Lessig's pathetic dot theory, and also, this other similar approach was just having a nested approach. So let's break these two down. So with Lessig's pathetic dot theory, he's

basically just trying to say, for any individual, that there's these four major collective dials that you can turn when you're trying to shift different aspects of culture and technology and how they all relate to each other. So first, there's the cultural norms, which is just human behavior, people are gonna be people and how they react with technology, there's only so much technology can do. If people are gonna be bad people, then there, that's the technology can't prevent that always. But you can do things to mitigate it. But there's still going to be a center of gravity of those cultural norms that are being mirrored within the technology. There's also legal aspects where the governments can come in and set different laws. And that will also sort of create the different market dynamics that are created in that context. And then there's the underlying technological architecture and code, which breaks these network effects that also are kind of feeding back into all these different aspects as well.

So Lessig's approach is taking you as an individual, and you're in the center, and you're having all these different vectors that are approaching you, but there's another way of looking at that, which is that you know, that the cultural norms are actually kind of driving the law and the laws driving the market. And you know, that in some sense, you could say the technology is at the bottom. So another way to look at that is that the most broadest context is the culture. And then the laws are created within the context of that culture, and then the economy is operating within those laws. And then you have the different guidelines. And this is in some sense, where IEEE's global initiative is trying to come up with some of these different guidelines that are working within the context of existing economic and legal structures, as well as cultural structures. Then you have the actual user experience, and then the application code and then the operating system, and then the hardware and technology. So this is kind of like a nested context that I like to think about, but there's that hierarchy. You can also look at it in terms of like there's high level human rights principles that are informing the governments and the laws and those laws are dictating what those companies can do. And then the users are down here using the technology in the context of that, and then there's the experiences. And this here, again, are the ethical design principles, which are kind of like coming in from the side trying to influence the laws. And so we have a policy track influencing the ethical guidelines for what the company should do, but also the content creators, these actual experiences, like what are some guardrails that we should have for the content creators.

So that, I think, and actually if we want to dive into a little bit of the nuances for how complicated this can get, this is the same graph here, but sort of broken out into more nuance. And so we have everything from the XR companies and the users down here at the bottom, you have the context in the data. And you say that in order for an individual to use this technology, they have to go through the policy, the privacy policy and the terms of service. And then you have up here, like these human rights principles and your rights of initiative. And there's like this generalized right to mental privacy that we'll dive into later. But, you know, that feeds into the design principles, are we gonna have a new federal privacy law, anywhere, there's red or kind of like, unknown questions that we have at this point. And we have the ways that the companies are making money, they have the app store they have selling the hardware, but they also have the potential to monetize user data and take all this biometric psychographic data that we have from XR and be able to turn that into a revenue stream through surveillance capitalism. And is that

something that is a bad path to go down? and to what degree is the government and oversight going to potentially intervene into these companies to be able to sort of change this fundamental dynamic?

So again, we're over here in ethical design guidelines, and we're trying to kind of influence this whole ecosystem. But you know, how this all plays out is a big open question still. So the final point I just wanted to sort of help set the stage for some of the different topics that we've been exploring in this XR ethics initiative, but also, as we start to have this conversation today.

So I do the Voices of VR podcast, I've done over 50 interviews about ethics, specifically coming up on my episode 1000. But as I, you know, have been listening to the community, there's all these ethical concerns that have kind of organically emerged. And just sort of a quick timeline, there's a think tank that I went to in 2019. And we did this big brainstorm of all the different ethical and moral dilemmas of XR. And then it was like, how do we actually organize these different issues? On my podcast, I would ask people, what is the ultimate potential of VR? And they would answer and, you know, well, it's going to be entertainment or medicine or being able to hang out with your friends or connect to your family or find new ways of training and education. So each of these different contexts, we then took and sort of mapped out a lot of these different moral and ethical dilemmas. And that seemed to be a good way to sort of look at these ethics through the lens of context, because there's a high, big, contextual dimension.

So in the XR ethics Manifesto, I sort of map out a little bit more of these different contexts and just do a bit of a little bit of a survey. And you can see like this is, you know, and there's a lot of different issues. And we're going to only sort of scratch the surface here. But part of the intention of this XR ethics initiative is to take this map and say, Okay, what do we do about it? What are the ethical principles that as each of these different stakeholders do? How should they navigate all the different trade offs between these things? So just to kind of give you a little bit of a flavor, there's the psychological impact of what it means to be embodied in an avatar, how that changes your behaviors, as well as your perception, you have biometric data that is going to be available, and what are the implications of that data? And what happens to that data? Is it going to be recorded? Do you have access to it, it's going to be able to enable things but also that data could be used to undermine your agency, or to undermine your mental privacy because there's things like eye tracking that if you take the individual aspects of what your eye is looking at, and you have the context of what the world is, then you can extrapolate all these different biometrically inferred information about who you are your personality traits, and, you know, your sexual preferences. And this is what Brittan Heller is calling this "biometric psychography." So all this biometric psychographic information that's going to be able to be extrapolated from biometric data.

And then you have spatially commodified attention. So what it means to be able to start to add different layers of contextually relevant advertising, in this sort of sense of sensory overwhelm, that we're able to kind of hack and modulate our worlds and who, you know, what right do we have to augment other people? We have volumetric privacy, we have consent to augment and so like, you know, having augmented reality in the Holocaust Museum, we have, you know,

people who are getting distracted and start to fall off cliffs, escapism and addiction, what's the line between what's natural entertainment and what's the line between you're now being escapist and or exhibiting addictive behavior and how as creators, do we mitigate that. You have virtual violence, and so what's the line between once we start to embody and interact in different violent interactions, online motion sickness is a big issue. And so what are the ethical obligations for content creators to be able to mitigate these different aspects of things like motion sickness? You have medical x or ethics. You have information that's going to, medical information that is available for people, what happens to that but also just in terms of what's the line between what's okay and not okay, in medicine, dual use technologies, what, you know, to what degree is this used to be able to take legal force and take legal action? Virtual being influencers, what degree we have AI anthropomorphize, to be able to influence us in different ways? Virtual harassment is a big issue. How do you mitigate that?

Technologically, there's certain aspects of personal space bubbles, but then there's other aspects of, culturally how do we sort of mitigate different aspects of harassment and content and content moderation? Algorithmic bias, and so making sure that algorithms that are impacting people's lives. There's always going to be bias in all technology and all systems, so how do you mitigate that bias and make sure you have diverse representation and not unduly bring bias against certain populations? Accessibility is a big issue as well, in terms of being able to make different technologies available to people who have disabilities, but yeah, that's, that's sort of an overview of all the different sort of different contexts. And again, this is something that we're diving into. And just sort of a final thought is that there's, you know, things like human rights principles that are feeding in here, that's a big vector, I see something. And you know, and for what we're doing is we're gonna be writing some XR ethics guidelines. And that's kind of what we're working on here. And we'll be talking about today, there's a recent proposed neuro-rights where it says you have the right to identity, right to agency, right to mental privacy, right to fair access, so that everybody has access to these technologies, as well as the right to be protected from algorithmic bias. So these are human rights, but how do you actually translate that into the tech policy, and there's lots of different trade offs. In conclusion, there's this XR ethics whitepaper, if you're interested, there's an email that we'll probably put in the chat as well. And with that, well I'll hand it back over to John and introduce the other panelists that have been working on this effort. And we'll get into discussing all these different issues. So thank you.

56:56

John: Kent, thank you so much. I was amazed how much you do in 10 minutes. So thank you so much for that. And I didn't get a chance to, maybe Monika or someone, can you pop that email address into the chat? Or if not, I'll do it later. And again, just an open invitation would love anyone on the call to join the work that Kent, Monique, and Mathana are leading. Okay, so we can get right to the panel, Monique and Mathana, this is a real time update. If you guys wouldn't mind, I'm gonna have you introduce yourselves for about a minute or so. And maybe kind of give an opening statement. We were going to have you each do about four or five minutes each, but just timewise, Monique, if you can, again, introduce yourself, and then kind of give a thought starter that we'll use for the panel, but maybe in about two minutes versus five. And thanks for your flexibility.

Monique: Yeah, sure John. And we've come a long way since the Hague right? So for the past several years. Yeah, my name is Monique Morrow. And actually, I am a distinguished senior architect at Xenoverse and emergent technologies. I've been in this space for many years now. And one of the things that I wanted to say is I'm very, very concerned about the intersectionality, between what we'll call safety, what we call data governance. And, and also what could be perceived as you know, for benefit in these technologies, and especially for what we're doing in ethics and in extended reality. I also chair this group, I have the honor and pleasure of chairing a very stellar group. And as stated before, we need more thoughts around the issues that we're talking about. So my issue here is, how do we deal with data policy across the board? I'm also involved at the World Economic Forum, in data policy. And the whole notion of how data is being handled in these technologies concerns me deep

59:03

John: Monique, thank you so much. Mathana, the same to you, one to two minutes and again, thanks so much for being flexible in real time.

59:12

Mathana: Thank you, everyone. Hi, everyone. My name is Mathana, pronouns they / them. I'm a tech ethicist and interplanetary philosopher. Couple years ago, I guess I, the last few years I've been working inside the IEEE process on technical standards around ethical AI and autonomous systems. I was invited into the process by John and Monique a couple years ago, and we co-authored, along with some other authors, the chapter on extended reality for ethically aligned design John had mentioned earlier. About 18 months ago, John, Monique, myself and Kent started putting together the framework for the initiative for ethical XR and extended reality. It's been an awesome process. I think, as John mentioned earlier, we've got over 100 people that are interested now. There are some massive issues as everybody saw in Kent's presentation. I mean, this is really, each one of these slides really is kind of a vast unknown thing. There's so many interesting issues around identity, and how we explore how we grow, how we learn, how we love, how we die, are all tied up into this new immersive ecosystem in which the rules and laws don't yet exist, and what our fears are that things will only be written and codified into legal frameworks after something bad happens. And so we're really trying to be the tip of the spear and working towards these issues of the ethical principles, ethical paradigms, to ensure that notions of identity and agency are codified in some way or another thought through by a multi disciplinary, multimodal group of experts in order to ensure that we're not just reactive, we can at least have conversations or neutral environments to be proactive. And I'll just say, my closing statements, I think that, as I mentioned earlier, this is not just a cradle to grave situation, the XR I think, really before we're born, even our parents, where we come from, we can be disenfranchised from even the biometric data and other things that might offer predictive analysis. That and also, after we die, what happens to our essence of being, who owns the essence, whether it's our affective states, or the likeness of ourselves, and if we haven't put into place these conditions should, do we all need a living will for each one of the systems we've ever engaged with, in order that we're not used, our likenesses or, or EEG readings are not used without our consent after we die. So we'll get into the panel discussion,

but I, I just want everybody to know that this is one of those issues that people don't say, who was thinking about that, or why wasn't somebody thinking about that, because hopefully what we're doing with this initiative is trying to be proactive about these issues.

1:02:20

John: Thanks very much Mathana. And also to be clear, and guys, if I get some of this wrong, remind me, Mathana is leading a subcommittee, a group on identity issues, Kent is leading an issue about his white paper subject. So if you're really intrigued to know more, you can also just join the meeting, you just sign up for a meeting you join, and there's no commitment, you know, you don't have to stay long term, but I'm pretty much sure when you do join, you'll be hooked. Okay, to get to questions. Now, we're formally into our panel. And I know we're going to be able to go for about 20 minutes. So one thing we talked about in prep for this is how do you kind of wrap your brain around this, if you're new to this space, even if you're in this space, right, Mathana, Kent, and Monique just went through all these different areas. So one thing we talked about yesterday was, especially for anyone on the phone, where this is new to you in the business community, again, we don't want you to feel overwhelmed or freaked out. But we do want to make sure you understand this is something to think about. Now. One thing also to remember is that in general, any entry point into augmented, virtual, or immersive reality still happens through some kind of connection point where a person knows hopefully, that they're giving away their data, right? So there's cookies right now for GDPR. People, a lot of times just click to get involved in there, right? As a business person, an advertiser how you're going to reach people, it becomes a fascinating question demographically. How do you reach people to buy your stuff? How do they give permission in ways through real meaningful disclosure that they know? Anyway, I just wanted to give one key thing data entry that's critical also in terms of EU regulation, this is relevant for you now period, right? So and things like gaming, etc. immersive reality is very broad. But I want to go to Kent, Kent along those lines, maybe it's data, but maybe it's something else. Do you have one key takeaway for people who may be new, the business people, this audience has a lot of business folks, a key takeaway, you've given 1000 interviews on this subject, what's one thing that sticks out in your mind that's maybe a top takeaway for people for today?

1:04:22

Kent: Well, I think that a big thing about immersive technologies, that it's an incredibly powerful tool. But at the same time, it could also be used as a weapon. And like the line between when it becomes a tool and when it becomes a weapon is where those sort of ethical lines are drawn. And there's so much of this that I'd say I point to, like Helen Nissenbaum's contextual integrity theory of privacy, and how context dependent everything is and how a lot of that context currently is being collapsed. So as an example, a lot of information that's coming from biometric data, it was going to be information from your body, and if people get ahold of that, they will be able to determine, and whether or not you have certain medical conditions, so if you have like neurodegenerative diseases or autism, or you know the certain ways in which, or attention deficit disorder, so you have ways in which this data are going to be made available. And then depending on where that data goes, then that may be revealing certain information about yourself that you don't want to have revealed that may have biometrics icon psychographic data,

your sexual preferences, but the contextual dimension of it, I think this is where the tricky part is because we don't have right now, privacy laws that really have nuanced takes on how to navigate these different contexts and when it's okay. And I think that the challenging thing is when I talk to people from XR, and just from the medical XR industry, a lot of this data is going to be able to do neuro rehabilitation, consciousness hacking so many different ways that this is unlocking incredible new potentials, the challenges, who has access to that? And what context is it being used? And how do people have consent over all those different contexts. And trying to draw that line right now, our legal frameworks just don't cover a lot of this stuff. And it's going to be, it's a little bit of a wild west of, you know people just figure out new business models. And to what degree, all this data are going to be harvested and mined and sort of fed into existing surveillance capitalism machines. And this is the final point. Whenever I hear someone like Facebook talk about this, they'll say, well, we want to make this content as accessible as possible, right? So they are subsidizing the cost of these technologies. But at what cost? Is it going to be because it's we're mortgaging our privacy? And we're giving up that as something is that an exchange that as humans, we as an industry, we want to do? So there's an element where, to what degree? Can we consent to give over our data in order to get exchange for access to services? And are we willing to subsidize all these technologies with giving over all this data? And that it's not such a simple issue of the government saying no, you shouldn't do this, because that could be artificially stifling innovation in the field. There's a lot of things to navigate here. And I think where those lines are, is a part of why this is such an intractable problem. And do you wait until like all these harms get done before you take action to intervene with laws? Or are there things you look forward to in terms of saying, Yeah, we can see that this is going to be a problem to have access to this amount of mental data, especially when it comes to preserving the right to mental privacy? How do you balance the right to mental privacy with allowing people to make these contextually relevant decisions about them to consent to giving over this data, because they're going to get something out of it? And there's not any clear lines there. And I think that's part of what we're trying to navigate here with this effort. So that's what I would say,

1:07:35

John: Oh, thank you, that's really helpful. And, you know, what I hear you saying is all the complications of the AI data conversations that are happening there, if not magnified, certainly, or verticalized, and again, thank you for doing all the work you're doing with the group. And I want to go down to Monique, yesterday, when we were preparing, first of all, Monique, if there's any of what Ken just said, you want to touch on great, but I think one thing is the emotional side of this technology, right? It's so visceral. And I think yesterday, you were talking about like a grandmother. You know, like, a lot of times, it's easy and can't really cover the, you know, the urgency of taking care of this stuff now, like thinking about this. But in terms of the positive side of things, and how the technology can really help with an emotional connection. You had some great examples about that.

Monique: Yeah, thank you, I do want to pick up a little bit on what Ken said, and then go to the emotional personal story concept here, I think Kent really deconstructed the issues quite well. And insofar as the concern here is around data governance and data policy, you know, we talk

about safety, or, you know, this whole notion of do no harm, but it has to be sort of embedded and imprinted in whatever we do. And we have to come collectively as an industry and as academics and all of the organizations as possible to look at how we define what that looks like, and how it looks like for business, how it looks like, for government officials, and so on and so forth. Because we are in the wild west and I think rather than companies that are big companies that can just go and pay because they violated certain laws because they can, we have to get out of that. Right? So that's one big issue that is of deep concern here and we are on the cusp of doing some really great work as an industry as a body of great thinkers here. Our personal story because there we can always, it's this polarity between what is for good benefit or what is also sort of this dystopian where we are walking a very fine line.

I was in San Francisco a couple of years ago and, this was in a restaurant and I happened to strike up a conversation with a lady who was serving at a table I was at and she basically said, you know, I work with elderly people, and mostly they're, you know, they're suffering from dementia. And what happens is that, or even to the service, you know, dementia and also Alzheimer's, she said, what happens is when we use personal instruments like music, or visuals, music particularly how this just sort of livens the person and what we find, especially in using, you know, extended reality, that an experiential, something that's very experiential, for people who were in, in this, you know, case here, it's amazing how they like how you're able to capture a moment, it's amazing to see the tears come out, it's amazing to see, to hear these individuals go back into a past that was forgotten for them for a variety of medical reasons. And so, that is, you know, that is what I would consider a positive view. So I mean, and certainly for what we are seeing, more for diagnosis of trauma, and especially mental trauma, but then again, we have to be careful of how that data is used here, and how the data is collected and for what purpose. So this walking the fine line between what is positive, what is dystopian is something that we see as polarities. But being part of a personal story being part of, of, you know, working, I have colleagues with whom I work on all the elderly care, we see some we see a positive outcome here, what could be potentially a positive outcome. Thank you.

1:11:59

John: Thank you, Monique. Mathana, I'm going to go to you next. But one thing I just want to put out, my son, like four years ago, God bless him, he's 18, and we were talking about augmented reality, because he's forced to listen to me, because I buy him food. And he was the person that mentioned, if we all have augmented reality goggles, and video is going to get cheap enough, we can go to the cloud, we can start recording all of our conversations, where then people behind us are sort of recording a different angle of those conversations. And so he said, we could kind of time shift and revisit this conversation from multiple different angles in the future. And it occurred to me that you know, and again, I'm being aspirational, who knows if everyone has access, yada, yada, but there's so many issues about how time will actually change. And how time does change even now if you're in immersive gaming environments, but anyway, thank you for that emotional side of things. But in terms of your opening statements, so many aspects of identity here. Is there maybe one or two top aspects that you're either most concerned about, or maybe one really concerned and then one excited about, you know, I know there's a lot of great stories of people having freedom from oppression and being able to go into

different, you know, avataristic type settings, and they are able to kind of be their true selves, even though their visual selves is different. Anyway, over to you Mathana with your thoughts,

1:13:14

Mathana: Dystopian before utopian. One of the things I'm very worried about is that the legal system that we have now in the current regulatory environment, is not all prepared for some of the very real issues that are going to come with the fusion of technologies. Right now we have GANs, people have maybe seen thisisnotarealperson.com sort of websites that were able to now create composite images using neural nets, and GANs to make what appears like real people. This is problematic both for the protection of children, this comes into the ways of being able to take one photo and then run it through an algorithm and now create a virtual deep fake of somebody in a compromising position. On the first example, if there is not, I'm really concerned that if there's not a quote unquote, real victim, as a human being has kind of standing before a court of law that we're able to replicate the visual representation of whether it's sexual child sexual exploitation imagery, or it is a new website dedicated to I don't know, revenge porn that is slightly off, different color hair, that it was, that person never was, only sees something in themselves, only sees himself in this image, but a court is not able to actually say that is actually you. I feel that like right now we don't have structures in place for if there's not a quote unquote, human victim, that the law really has a lot to do to actually stop these things from happening. If they exist, you know, out there, if it's a platform, if it's a Facebook platform, and so really the question comes, if not, if the law is working to who's gonna have to work to keep up with some of these exploitation imagery that's going to come out, then it's going to be up to platforms, hardware manufacturers, headset manufacturers, and we're going to maybe have to have this constant surveillance of every bit and byte that goes through hardware. And that's also going to impact the way that we then communicate with people. Yeah, if there's an invisible filter or an invisible gatekeeper to make sure that exploitation imagery is not reaching us that it also means that everything that is reaching us is also monitored and surveilled in its own way. And so I'm quite worried that our legal structures, we need to think about ethics, we need to think more holistically about the way that we address this, this larger phenomenon about the intersection of AI composite imagery, synthetic imagery, and the sanctity of self and also dignity. What does it mean to be able to have dignity of wholeness, but also not be put in an algorithmically moderated, mediated compromising position. Dystopia.

Utopia, I think for most of human history, whether it's for the short term history of capitalism, of the long term history of the patriarchy, that societal roles have somewhat been predetermined a lot of ways there was feudalism, and other things, but now we're to this place that although we can still be a victim of our socio economic context of where we were born, the source of our passports, things like this, but now we're talking about, and Kent did allude to this admission earlier with kind of the escapism, the good and the bad, that now we have the ability, perhaps through immersive realities of avatars and other things, to start manifesting the self that we feel inside. That we are no longer anchored to our physical bodies, perhaps, this is, I guess, the utopian vision, that we can exist, and not alternative reality, but an extended reality in which we can still have some of us. And perhaps, if it all goes well, perhaps even after we're no longer here, that those people that love us may even have a record of us to seek solace. And be able

to go into a VR world and just talk to us in their time of sorrow and longing and loneliness. But even that phenomenon, if not done properly, if it has gatekeepers, if it's done for profit maximization and not for human dignity, it can be incredibly problematic. But I think there is a way, that I see this utopian side of things that perhaps we can get to a place that this technology can be used in order to foster human flourishing.

1:18:04

John: Thank you so much. We have about six or seven minutes. So I'll probably ask one more general question. If someone can answer in about two minutes, and then please get your one minute: "what's your best future that you see with extended reality based on the work we're doing and all the people from this group that are going to join our work?" No pressure on the attendees. But let me ask this question, I'm going to start with you because you've done whatever it is, like 1000 interviews on this. What's the thing you get most surprised about that people don't know about extended reality where someone will say something and you're like, Really? And I know it might be a tough question because you interviewed so many people, but I want to think about people here in this audience who maybe aren't as used to these issues.

1:18:49

Kent: Well, I think that this is a new communications medium, so I feel like we're in this big paradigm shift from going from 2D into 3D, but also immersive. So getting beyond just our sight and our sound and into our other senses as well. And so I see this as a technological inevitability. And I think there's still discussions out there as to whether or not this is just a fad. But I think when people look, when I look at things like the principles of embodied cognition, the ways that it's going to completely change the way that we are interfacing with computers with the human computer interactions, these neural interfaces, brain computer interfaces, which we haven't even talked about here, what are the ethics of putting chips in people's brains? And to what degree can that undermine your agency, if there's like these outside things that are writing code to your brain? Like, if that's even philosophically possible, we may find that you can't sort of do input like that. So I'd say there's a lot of exciting potentials, but also really dark paths of where this could go. And so, I guess the thing that I've learned from this and things that surprised me, are things like being able to rewire the inputs of your brain, so being able to cure a lazy eye as an example. So the idea that you could put on a VR headset and then be able to sort of train weak eyes. It's literally rewiring your brain. So what's the potential to be able to like, you know, you put on this device and you're able to rewire your input. So when you take off a device that actually changes the way that you see the world, it literally is changing the way that you're perceiving reality. Because it's sort of rewiring the ways that you're seeing. So I think that's the thing. When I ask people the ultimate potential of VR, Tom Furness said, well, it's going to change the way that we relate to reality. And I think that is another thing that Jaron Lanier has said he's like, Jaron Lanier says, the real virtuality experience happens when you take off the headset, because then you were changing your relationship to not only yourself to the world around you and to, you know, to other people, as well. So I think it's going to change our relational dynamics. And I think that's the thing that, as I look at this, that's the thing that continuing is like there's a lot of potential there. But also a lot of things that we have to figure out what are the guardrails to make sure that this doesn't go down a dark path? And that to me is

the question that is—I don't know what that answer is—and it just keeps me driving to keep that conversation going.

1:21:10

John: Well, it's actually a perfect segue. That was a great last statement, at least for this portion of the show, because we're gonna wrap up and just to let everyone know, Kent may be humble about this, but I don't have to be, he's done, what 1000 interviews in this space, and the fact that he's leading, along with Monique and Mathana this work is just amazing for our IEEE, so thank you to Kent. Monique over to you.

1:21:44

Monique: Yeah. Once again, I'm just humbled to be working with such great thinkers here. Listen, I have several points I want to make. One of the issues I think we should start paying very much, and I know we're doing this now, is the issue around the brain interface in telepathy. I think we need to understand what that's going to mean for us in terms of do we have a privacy button that we can put on our brains going to be open for hacking. So that's kind of one that does concern me. But on the other hand, we have to look at once again, how we deal with a macro view of issues, such as, for example, having a serendipity button on or off, so that we're not too programmed. But here's the thing that I want to end on, on a top note, we need you. And we're just on a cusp of looking at all of these complex issues, and they are complex, they're complex from an identity perspective, they're complex from a society perspective, from what my colleague Mathana has pointed out and add a perspective on legal issues. We're on a tectonic shift—I hate to use that term—of changes. And I'm excited about what we can do together to define what that can look like. And I'd like to turn it over to my very dear colleague, Mathana.

1:23:16

Mathana: John, Monique, Kent, I have had the pleasure to really not just think about these issues, but really to work very diligently and create a robust structure that creates this big neutral table, as I call. I think that a lot in the academy and universities and nation states and multinational multilateral institutions, there's a lot of work going on but I think that we're just, we're driven by passion. I think my closing statement is and I just received the comments, we are aware of both the ableism, the ablest design that goes into a lot of extended reality, we've been focusing on the accessibility and inclusion, we actually have a track that is looking at this and in our whitepaper, there is also the kind of Western-centricness, I saw some comments going by—African perspectives, Latin American perspectives, East Asian perspectives, China is also is where much of this technology is going on and I saw somebody mentioned a great Chinese sci fi anthology. And one of the things I think that that book does is it talks about Shenzhen as this kind of... I think there are multiple centers in China. I lived in Hong Kong for quite a while and really, it is not as much on the radar as it should be. And I hope that what we develop out of this is—what we develop as people working on this field—is not, it's not contributing to the “splinternet,” if you will. I hope that we're able to find people across the world to say, okay, what is a minimum viable protection for individuals everywhere, regardless of where you are, regardless of governance structure, regardless of regulatory, because of the regulatory protections that you as an individual hold in your territorial jurisdiction, I hope that

we're able to really be part of the tide that raises all boats, both IRL, and in the XR world. And the last thing is the militarized use of technology. And we haven't really talked about that. But it comes down to identity, the way that using AR for automated targeting systems, the way that humans might actually be taken out of the loop, that this box comes around you and somebody's looking through the screen and they can pull the trigger, because an algorithm has put a red box around that. I mean, we're not so far that. Microsoft HoloLens is now shipping out to the US military. So this is no longer this dystopian future. We're here now. And I hope that through these processes and conversations like this, that we can stem the tide of dystopia, if not foster, in fragments, and a whole new utopian paradigm.

1:26:08

John: I'll make mine fast and just say yes to Mathana. It was a beautiful way to end. And just also to point out the environment, our beautiful physical planet is of course prioritized in this work, it must be, you can't have these technologies without the planet. But more importantly, when you take the headsets off, we want our beautiful planet to be here for the next six, seven, fifteen, generations to come.

So I'm going to say a huge thank you from IEEE, we are proud to be a partner with the House of Beautiful Business. Thanks again to Kent, Monique, Mathana. We put all the stuff in the chat about how you can get involved with us. Back over to Tim and Monika. Thanks again.

1:26:44

Tim: Thank you so much, John, Mathana, Monique, Kent, amazing. And, we will have you for another 30 minutes. But we do want to give you if you need to leave because we had advertised the session in 60 minutes if you need to leave now, we want to give you a graceful exit, basically wrapped officially, stay on this link if you want to stay on for the next 30 minutes for q&a and to talk a little bit deeper and also ask your questions. We will transition with actually a musical interlude that Monika will introduce in a second. If you want to stay in touch with IEEE I think you have a lot of information in the chat. If you want to stay in touch with the House of Beautiful Business, subscribe to our newsletter, Beauty Shot, free, comes every Sunday, or become a member of the House of Beautiful Business in the form of an annual membership, we would love for you to become one, and then Monika over to you.

1:27:30

Monika: Yes, I'll keep it short. So we'll have some music by Jurandir Santana who is originally from Brazil, and he's in Mark's music studio as you see here. Over to you!

1:33:18

Monika: Amazing

Tim: Hey, Santana huh? I remember there was another famous guitarist named Santana but there's no relation. Right? Santana, are you related to the Carlos Santana?

1:33:36

I think they cannot Oh, they cannot hear us. Okay. Sorry. I think it was a rhetorical question anyway. So let's go back to let's go back to XR, Monika.

1:33:49

Monika: Yes. So thank you all for staying on with us for a little while. Yeah, I mean, so much stuff like my head is spinning also because this whole week has been all about ethics here at the House as I shared before. So, yesterday, actually, we had a conversation around CRISPR, the gene tech, technology tool and disability justice, and at the beginning, Kent, I think you also mentioned accessibility as a term. And then in the chat, as you mentioned, Mathana, there was this whole thread I think going on, around you know, we're questioning are we, you know, captive in our own echo chamber and sort of seeing the very Euro-, US-centric perspective on which is the case in so many fronts. So my question to you, how do we allow for a more global, diverse view on policies that represent ethics and a more diverse and broader playing field including the marginalized and including as many people as possible?

1:35:03

Kent: I'll start just by saying that, you know, I'm based in the United States and a lot of times, talking about say US law, but in some sense those US laws dictate what these companies are doing. But it's not just US law. So international law, the GDPR actually probably brought about more technological architecture changes for privacy than any other US law has ever done. So there's ways in which in order for these companies to do business in these other countries, then they have to follow the local regulations, and there's a whole EU privacy shield that was invalidated. And then there are other concerns around that, like you can't actually even buy virtual reality in Germany right now because of the certain ways in which Facebook has to sort of either jump through these hoops, or the US privacy of US surveillance law, and the government surveillance has to change their ways in order to impact that. So there's a lot of different dimensions there in terms of how these different laws impact these companies. But I think the point that you're also making is like, how do you be as inclusive as you can for these different perspectives. And I think that is an area where, just at the ground level, making sure that you are creating technology that isn't artificially biased towards one side or the next. One thing is that VR head straps, you know, they're not always made for people of color that have hair that have different sizes or constraints that it without thinking about that then there's ways in which that it's just totally inaccessible for entire demographics, because there's not taking consideration as diverse populations as you can. Same thing goes for avatars and avatar representation, making sure that you have as much diversity and inclusion as you can. And so I think that the principles of diversity and inclusion are that you try to to be as inclusive as you can, and that you will often put out something and then realize you've not been as inclusive as you can, and there's inherent limitations to those biases that happened was like, can we ever fully eliminate bias? There's folks who say, well, there's always gonna be some degree of bias, but the challenge is try to mitigate the harms that come from that bias, and also to take the steps to be able to proactively reduce that. So that's what I would say, just in terms of how that comes up for some of these different issues. But I'd love to hear if there's other thoughts.

1:37:26

Monique: Yeah, one I'll take. I'll build up on what you've stated and we'll get also to Mathana. Well, first and foremost, it depends on who, what is defining accessibility? So it goes down to what we get what has been asserted before, from which regions from which identities from which ethnicities, and so on. And so accessibility in terms of how could we understand, for example, what happens with autism? And in that space, what are we doing with individuals who are visually or hearing impaired? As an example. That's important when you're building these technologies that have, especially for extended reality, have to account for inclusion and accessibility. I mean, I have been involved also in artificial intelligence and from Smart Africa, in the Smart African region. And so you have a different, you know, you have to use in terms of languages. We're speaking in English, but should I be speaking English, right? Maybe it's German, maybe it's Swahili, I don't know. But these are the types of things that we have to consider in terms of the whole notion of accessibility, and perhaps Mathana, you may have more to add upon this.

1:38:57

Mathana: This is an issue that I've worked on for quite a while and have developed some theories around what I call active inclusion and to Kent's points, and one of the theories that Kent talks about, and maybe we'll come to it, but this idea of, I believe it's Helen Nissenbaum's incompleteness theory, I guess my bent on this is that, well, we can never have this complete picture of everything. What are we working towards? Right? Like, we delineate it almost like in a calculus like function, right? Like this, this function of inclusivity approaching infinity. Or un-inclusivity approaching zero, right? So, if we think about it like that we can never really be completely inclusive but the more that we're actively engaging in understanding our own biases, making sure that we are understanding more of the people that have not been involved in the design processes, we get to this point that we realize what we don't know. And *that* in and of itself, is a value. I believe.

I think that we're now looking at a global paradigm, which is not just about us. I mean, we look at the internet, the people that are digital natives, right? What about the people that are going to be XR natives? So I think it's important we also remember that not all design decisions are ours to make. If we don't take an intergenerational perspective on the design of these issues, and we don't take a global perspective to say that somebody in Kashmir right now, and somebody in I don't know, the Upper West Side of New York City, we're all people. And I think that this is one of the things we need to realize. And we can't change where we're from necessarily, but that does not mean that we are destined to be here forever. And we all want, there is this imperative I believe inside humans, it makes us ask why, but also to look around us in this interconnected world, and say, why not me? Why can't I be there? And so I think that if we look, what we need is theories of justice. And it's a larger technological issue, socio technological idea than just XR, but what theories of justice do we bring in that reconcile past colonialism, environmental injustice, going back to notions of slavery and conquest and say, okay, well, how do we reconcile the past in order to get to a place, maybe not us, it's going to take some time, but set up future generations.

And my last point on this is a thought exercise for you all. And it's something that I mentioned at the top of this is that one of the hats that I wear is an interplanetary philosopher. And while I am fascinated with the idea of space, and an interplanetary economics, and interplanetary philosophy is it gives us an un-demarcated domain, that we can look out and say, okay, what is necessary for humanity, to be a long term species outside of the environment that we were all born into, and all live, which is called planet Earth. But just as extended reality gives us the chance to escape or immerse ourselves in a different reality, that if there are going to be even within our lifetime or the lifetime of those that have not yet been born, going to be starships, spacecrafts that go out and explore that may never come back. What is it that we need to think about when we're designing technological paradigms in which they replicate what we have known here? And so for me, it is these demarcated domains and extended reality is one of them, where I saw a lot of things in the chat about these, the books and the sci fi, but I think that we almost need to un-anchor ourselves and decouple ourselves from the notions of the past and say, okay, what, not only has been what not only the legacies and productions of the pass, but what can be

1:43:25

Monika: Beautiful, thank you. Thank you both. The three of you, sorry. You all actually can now unmute yourselves as well if you want to join the conversation and ask your question, I see that the chat has been on fire, which is great. But you can also jump in with a question or comment, if you'd like.

1:43:46

Tim: So you can also post it in the chat or you can now speak up, I'm just gonna fill the void until you're ready and you collect your thoughts. Just one more question Mathana. That was so interesting, what you just said really resonated with me. Not all of these decisions are ours to make. We need new theories of justice, we need a new moral imagination. And it basically is an intersectional one. It's an intergenerational one, which I thought was really interesting and a fresh perspective. And it's an interplanetary one. And I don't know about all you guys, I mean, the risk, of course, is listening to a conversation like this and looking at your chart Kent that you presented at the very beginning, right, that we're completely overwhelmed. I mean, there's just so many issues are possible ethical issues of humankind being represented—and more—in XR. So I want to, we talked about law, we talked about, I guess, new ethical literacy of users. I want to actually focus for one second on the tech industry in particular, because I remember Kara Swisher, a New York Times columnist, leading tech journalist, as she was one of our speakers at The Great Wave, = she was basically saying Silicon Valley does not have a moral conscience, right? There is no ethical literacy. It's not even evil in a sense, that is just not enough moral imagination. And I was curious to hear from all four of you, whether you agree with her.

1:45:09

Monique: Yeah, well, this is Monique. I started my career in Silicon Valley. So I guess I can step into that. It's amazing, I have a tendency to agree with her. There will be sort of this rubber

stamp on a moral compass, but I don't see any movement to really be concrete and what that moral compass can look like, from a business perspective. Everything is about them, you know, fast monetization, and, you know, get product out, talk about big whales in the industry, and so on and so forth. And so, no, it's just how the valley has evolved. Now, having said that, does that mean that it's impossible? I think we have to be very careful, I think there are groups that are looking particularly, perhaps in the valley, to see how that DNA if you want to call it, can be concretely changed. I think it's real important to note, when you see these fairly large companies, saying basically, they've said regulate us, and I think that we've heard that before. Then we have to understand what that really, really, really can look like, and come collectively, together in the industry. Because it's fast, it was always we think, you know, these terms is exponential, but perhaps it's always been that case. But I think, you know, it's what's being taught in academia, what's being taught when you come out, what does all of this mean, in terms of thinking, what does it mean to embed, embed these particular humanistic issues in a company, such that it really is authentic? It really is humanistic. And I look at this as an opportunity, perhaps change, but from her assertion from Kara's assertion, yes on the surface. Is it impossible to change? Not entirely.

1:47:21

Tim: Thank you, actually, Katie. Katie Cooper just raised her hand for a few minutes already. John, excuse me, maybe we'll just give you the opportunity to weigh in Katie, please.

1:47:33

Katie: Thank you. Hey, so fascinating talk. Thanks to everyone on the panel, I could listen to the kind of academic and philosophical side of this all day. However, I just want to bring it back to the kind of practical. So I am no stranger to these ideas. I've got an IEEE degree, interaction designer, and close to XR type things, but not expert in it. But I'm now working with a company that does mental resilience training. So we're actually really looking at this like, very close to humans, like psychology and the cognition, and the content itself, we know is solid and ethical. But we're moving now into the space of wanting to train in VR. So from a practical point of view, where do we start in terms of seeing like, what guidelines or ethics are out there right now? What's still in development? Basically, where should we orient to make sure that we're starting on the right foot with this new phase of technology experimentation?

1:48:25

Mathana: John, you work a lot on this. You have some thoughts on this?

1:48:30

John: Oh, sure. And thanks, Katie. I'll put the link in the chat again, this book called *Ethically Aligned Design*, it's really more of a treatise. There's a chapter that's already written that Monique and Mathana really drove. And it's got a number of ethical issues similar, that complement Kent's work, I would definitely recommend Kent's work as well. And then the new group that we keep talking about, we're kind of trying to bring all those best practices together. So another recommendation is, if you join that group, then when you ask that question, my

guess is there'll be at least a half dozen people who are doing training in VR, probably in mental resilience.

1:49:07

Mathana: And just to say, *Heartificial Intelligence* I know John is one of your books. You're an author, a published author, you've written a lot on this. Do you have any hot tips for maybe even things of what *not* to do? Or like, things to be wary of.

1:49:26

John: All I know is that I'm buying you a beer or coffee, beverage of your choice, my friend because you brought up my book. I think the thing, I was going to comment on this before, but I'll say it now, the book *Heartificial Intelligence*, and the question of sort of evil and all that. One thing. If you actually look at what Google wrote when they say do no evil, that gets talked about a lot. If you dig into it, and I put this in my book, they define the evil as short termism. Which what that means is single bottom line thinking, whether we want to give a moralistic aspect to Silicon Valley or business that's kind of, you know, let's put that to the side, the empirical legal thing that companies have to do is they honor their shareholders. It's a legal requirement. So a lot of times these ethics discussions, I love them, I lead them, but okay, the law still says every quarter I report to my shareholders. So what does start to change the tide is things like ESG, environmental, societal and governance reporting. Now, investors, shareholders, like BlackRock and others are saying, hey, companies, you must reorient your reporting, to have what's called triple bottom line, people, planet and profit. Now, that's not a silver bullet, it can still get greenwashed, but the point is, is that at the outset of design—and this is what our work about it actually is focused about. Responsible AI design means at the beginning of your design, you say with three benchmarks of metrics, profit we have set with GDP, etc. People in planet, especially the mental health stuff, whether it's the World Health Organization, American Psychiatric Association, objective and subjective metrics exist. So that before you even build something, you say, by building this, not only will we not harm people on the planet, here's how it will increase human wellbeing and environmental flourishing.

Those three things in unison in countries like New Zealand, Scotland, Iceland, they have what they call their wellbeing economies, it's not about mood, it's about saying, those three things have to live in unison. And that is actually where Silicon Valley or anyone else actually has an opportunity to change the core of how they work, which is it's very empirical, either you are serving kind of one master, right, single bottom line, short term, every quarter growth, exponential growth, those metrics from the GDP were not built to measure caregiving or the planet, or we as a society, say, let's support business and policy and as individuals, those three things live in unison, and those three things have to be thought of before design even begins.

1:51:56

Monique: Yeah, I was gonna say, on just one one quick point there because I see Elijah Cloud's comment, you know, B Corp for benefit. What we're seeing now, not only with ESG component here on the companies, that's becoming much more compelling also is, but also what for benefit means in business, and I'm a strong believer in for benefit, and so just in the industry, itself. So

for benefit B Corp, I think this is going this is actually a very positive, positive direction for an industry like ours.

1:52:35

Kent: Yeah, I think the thing that I'd say is that there's sort of bits and pieces of this information that's out there, part of the IEEE effort is to try to gather up a lot of those pieces that to have like a canonical thing to point to to say, okay, here's what you as an experiential design creator would need to know about all these different dimensions and angles. There are things of like, say, Michael Madary's, and Thomas Metzinger's real virtuality a code of ethical conduct. I posted some links to some of these, I did the XR Ethics Manifesto, which is trying to lay all these out, the thing that I'd say is that there's a lot of these different trade offs of these, like these contextual dimensions of these trade offs. It's like, just as an example, ultrix is doing automatic transcription to make accessibility features. But if that's stored on a server, then that could mean that with a third party doctrine and the fourth amendment that that could mean that the government has access to everything that you ever say in a virtual environment. So there's these trade offs between like, okay, there's accessibility features. But if that ends up being stored, and that is transcribed, and that gets you identified as a person of interest, then there's like these things of like, Are you willing to take that risk in order to sort of, that's why the ethics are kind of like, it's contextual. So context dependent. But there are links there that I posted. And just to go back very briefly to the question about the ethics of morality, the thing that I'd say is that there's a certain dialectical relationship where the companies are going to try to push forward the full extent of what is possible, but they haven't limited themselves with the ethics they haven't put the guardrails on themselves, they've relied upon the law, to be able to come in and put on those in some sense that there is a like, can Facebook regulate itself? I don't think so. I think it actually we need a larger community and the frameworks to come do that. But at the same time, if you've watched any of these lawmakers ask any questions about technology, they're a good five, ten, twenty years behind where technology is. So this is what Thomas Metzinger called the technology pacing gap, which means that the technology is going so fast that the concepts and the tech policy around it is having a hard time keeping up and how to close that gap is a big big, big issue. I think that's in part what we're trying to help close with the IEEE effort.

1:54:49

Mathana: Just say that well is it like or the policy is going so slow, right? It's either technology is going fast or policy is going so slow, and I think it's the both of those things happening is actually creating even a wider gap.

1:55:03

Monika: Eleanor I wanted to give you the mic, just raised your hand.

1:55:09

Eleanor: Yes. Hi. That's that point on policy and is something kind of a segue. I think the things that— it's sort of a half question half feedback, I think there was like, super interesting discussion. I'm doing a PhD at the moment in human computer interaction, looking at ways in

which we can improve our methods to account for the social impact. So essentially, seeing design, the whole field of design, having come from paying attention to enhancing the relationships between individuals and technology, and having overlooked in a sense, the impact that those relationships have had on our relationships with each other as humans. And I think when it comes to the talks that I've gone through on ethics in design, it's been really great to see that more and more discussion around ethics. But I think that the times that you've touched on law seem to be the direction that needs to go towards. And I think it was the earlier discussion around the potential dystopian issues where there were, it was raised about, like, sort of deep fakes and pornography, for instance, and who would be accountable? And I just think the, I have a question if there's, from all the research that you've been doing, if there's a bridge in a way, so things are going really fast, and technology's slow, and policy, and in a way to think of all these things that you, that we're trying to forecast and these potential unintended consequences or intended mal use to just start with now, and is there a body of work or a current research program that maybe you're doing or you know of, that goes from where we are now. So for instance, in the UK, at the moment, I know that they're struggling to get through a really sort of very basic piece of policy, which would address children viewing pornography. And the government response has been that technology is really complex. So we can't do anything, and sort of to take these issues that are happening really now. And here and now. And to see like, if we're grappling with this, and we're not happy, where are we having success? Where are we not having success? And how could we then road map from here out to all these future things rather than maybe these things seem so broad and potential, but there are these current issues, which would seem in the scale of things really tiny that was where we're struggling at the moment and I just wondered if you come across, or if that's included in your work at all? Because that would be really helpful for me to know about that.

1:58:00

Tim: Thank you so much, Eleanor. Firstly, we have to come to an end. So maybe if just one of you wanted to, to comment or respond to Eleanor's question, John, Kent, Mathana, Monique? And then we'll close?

1:58:13

Kent: Yeah, I think it's a good question. And I think part of what we see is that there are these complex nonlinear systems of the culture, the laws, the market, and the technology. And then there's a feedback loop with the networked nature of the technology that then goes and changes the culture. So you have this thing where it's a really, I think part of the approach that I've seen at least is like, we need to take a more iterative approach where a lot of the laws that get set, they never change, right? So like, how do you have an impact to see like, if you do make a policy change, then how, what are the impacts of that? Or to find ways like just as you develop technology, to kind of like do A/B testing and say, okay, well, how do we really see what the impacts of some of these changes are with changes in behavior? But then when you take that up at this collective scale, I think if you look at some of the different discussions in the United States at least, around filter bubbles and algorithm bias and all this stuff, it's like, it's still it's a really difficult question to say, how can you make a tech policy change that then sort of ripples out and changes collective behaviors? And I think the thing that I've seen is, at least we need

more sunset laws, we need more ways to kind of box things into have these little areas to maybe experiment a little bit with some of those policies. And so this is an unsettled issue. This is like, we're trying to deal with the implications of this as a society. And I'm not sure if the IEEE initiative here is going to be able to come up with any magic solutions, but just say, finding ways to more rapidly test these out and see maybe small scales as small communities, does that extrapolate out? But, yeah, it's sort of an open question that no one's really figured out yet.

1:59:59

Tim: Thank you all so much for staying on. Thank you, Kent, Mathana, Monique and, John, I thank you all for your questions, a really important conversation. I mean, obviously, this is just the beginning. To be continued. I think what I take away is that we will live in very different realities and more realities going forward. And that is awesome. However, we will live in more realities and very different realities that can potentially be very different for all of us. And that is also deeply concerning and very terrifying. So lots more to unpack. We have recorded this conversation, we will publish it for everyone, very soon. Also a transcription of the conversation as well. And just the invitation to become involved in IEEE is important work and stay connected to the House of Beautiful Business.

2:00:51

Monika: Yes, so thank you all. And I also want to give a shout out to everyone who has been contributing to the chat during the session and sharing all of the links. We'll try to summarize it and compile it and send it to you in an email so you'll have it. I said it now, so I'll do it. And so yes, thank you for your presence. Hope to see you again, and Mark, let's head over to your music studio again.

2:01:24

John: See you everybody

Transcribed by <https://otter.ai>