Jaron Lanier: Co-Founder of Virtual Reality

Charlie Morrow interviews Jaron Lanier

American computer philosophy writer, computer scientist, visual artist, and composer of classical music. Considered a virtual reality founder, Lanier and Thomas G. Zimmerman left Atari in 1985 to found VPL Research, Inc., the first company to sell VR goggles and gloves. In New York he was part of New Wilderness Foundation 1960s-80s. In 1978, he created his wonderful EAR Magazine cover with Manhattan subway stops as woodwind buttons.

Charlie Morrow: As an investigator of shamanistic things in my early years and then as an explorer in 3D immersive sound experiences, I have become very interested in the whole concept of immersion. What does it mean? I've been interviewing colleagues and asking two questions. One is, what is your relationship to immersion? The other question is, how did you get there? What was the first exciting immersive experience you had, like singing and blowing bubbles as a baby.

Annea Lockwood: Jaron Lanier and Charlie Morrow met when Jaron was 18, visiting New York in 1978. Jaron played in Charlie's ocarina Orchestra, a weekly meeting of improvising and composing for the ancient clay instruments. Jaron and Charlie worked together with Rip Hayman and Carol Tuynman on *Ear Magazine*. Jaron's famous cover design for *Ear Magazine* is a map of Manhattan with real instrument finger holes at subway stops. They continued their friendship, including performing together in Copenhagen, New York and Tokyo [Three City Performance on the CU-See Me online]. Danish animator and professor of animation, Gunnar Wille co-produced the pioneering global online show with Charlie.

Jaron Lanier: I don't even know how to begin. I made my first technically supported immersive environment when I was 9. I don't know. No, no, no. I was about 11, yeah and what had happened is my mom had died. I was very, very lonely and we were living in the area west of El Paso where Texas and old Mexico and New Mexico meet. And I had met a guy in the services in the military who worked with radios and electronics, and he had taught me a little bit. And I picked up some electronics magazines and had learned to make the things we used to make in those days if you were into electronics, like radios and whatnot.

But then I'd become very excited by Theremins and I made a Theremin and I wrote to Bob Moog who wrote me back. Which is very sweet. Those days it would take weeks for an exchange like that. I did this crazy thing of connecting a homemade Theremin to… I took an old TV and turned it into a poor-quality oscilloscope. Except that I set it up to make Lissajous figures, which are the diaphanous kind of 3D-like spooky figures you can make when you're moving both the X and the Y side of this oscilloscope at once with related signals. You can get these incredibly beautiful shapes

and forms and they can evolve slowly and they can shimmer and hover and seem almost alive because they're a little unstable.

And then I found an enlarger lens that would be used for printmaking prints in photography and I put it all together and then a big bed sheet over a space. And I suddenly had this face that when you walked in, you controlled these weird spooky organic forms on this sheet. And so this was in about 1971 in the desert. And was very weird. I set it up as a Halloween haunted house. And the sad thing for me is that I thought it might be a bridge to some of the kids at that time, because I was extremely lonely and felt completely disconnected from everybody. And it was the kind of mean-spirited neighborhood and dangerous. And so the bad news was that that didn't work. No kids came. The good news is that it gave me a little bit of a reputation, which I think protected me because they weren't sure what I was capable of, who I was, or what was going on. And just the uncertainty I think, created a little bit of a pillow of protection around me, so that I was a little less likely to get beat up. So I think it was functional if not entirely functional. I sometimes think that in a way I already had my career with that one little weird thing I did as a kid that later on turned into virtual reality.

Charlie Morrow: That's a fantastic story. I had a parallel experience in that I was living in suburban New Jersey and the son of two shrinks, which was really weird. First of all, they had their office in the basement of the house where we lived. It was a separate area, a big place. And shrinks were considered to be very, very weird. And I found it very hard to relate to the community. I built a ham radio and I got a ham radio license. I built my own gear and I strung my own antennas, climbing on roofs. And I learned to speak Morse code. And that had the same effect.

At the same time, I discovered that the radio frequency would affect tubular fluorescent bulbs and it would give me an instant analog readout, so I would have a whole experience going on with the conversations I was having. My furthest contact was Ulaanbaatar, Mongolia. I got the card because, you know as a ham radio operator, you exchange QSL cards. So that was my effort to live someplace else other than where I was.

Jaron Lanier: That's really fantastic. I have another story from around that time, shortly after I started building my first modular synthesizer, kind of in the footsteps of people like Bob Moog and Don Buchla. And I was maybe 12 and so I was building this thing and one day – I should have known better, because I understood how to make a radio – but accidentally a patch of mine made a radio and when I thought music would come out, this booming creature's voice came out, angry at me and telling me I had to repent and that I was a sinner. And it was really kind of fantastic during that era when a synthesizer could do that suddenly.

Charlie Morrow: Fantastic story.

Jaron Lanier: Our technology is more out of control now than it was then. But the way it was out of control then was kind of more charming.

Charlie Morrow: Tell me what you mean by that?

Jaron Lanier: Well, it was smaller than us instead of bigger than us. You know, if I had a synthesizer screaming at me, it wasn't really that threatening. But if you have some giant cloud computing

service spying on you all the time and influencing your life in ways you don't know – who contacts you or what kind of oh-who-knows, just all kinds of things. That's different and of course quite creepy. But we don't need to go into all of that. It's as if I was just noticing that the emotion of technical flaws used to be much more tolerable – and even charming – than it is now.

Charlie Morrow: I think it may have been because you were in the desert. Because I was in northern New Jersey, embedded in a community of professional psychiatrists and New York people, so it was sinister from the very start. Also we were doing moon bounces and things like that. It was an idea of a large sci-fi universe that was so much bigger than us and more powerful. And you didn't know how you might

wake the dragon.

Jaron Lanier: Oh yeah. Another thing about where I lived is that it was possibly the most sci-fi place in America. It was all right next to the White Sands Missile Range and, in fact, one of our near neighbors, Buzz Clyde Tombaugh had discovered Pluto and was the head of optics research. And that was a piece of incredible good fortune because he taught me about grinding lenses. Although my father was also interested in that, and that helped me in being able to work on optics for virtual reality later. But another thing about living there is there were just weird things falling from the sky all the time and weird rumors and very weird lights up in the mountains at night when they were testing different things.

One time, Wernher von Braun shot a missile right into my town, you know. And we used to go out on walks and just find little bits of experimental things, experimental proto-satellites. I might even have some somewhere. They were wonderful machine parts. And because of all the strange lights from the tests, there were a lot of UFO rumors. I still have this weird thing where, when people talk about Roswell and UFOs, part of me kind of riles up: No, we had much better UFOs. Stupid Roswell! Why do their UFOs get all the attention. And of course, I never believed in UFOs or aliens. But if somebody were going to believe in them, I would want them to believe in the ones from where I grew up, not the ones in Roswell. So that bothered me considerably.

Charlie Morrow: Well, the difference, of course, was that you were aware of the scenery, the vastness of where you were and whatever imagery that would occur – it's an enormous theater.

Jaron Lanier: Yeah, it was. It's true that the stars were, of course, much brighter back then everywhere. But particularly there, you could see all kinds of things that I haven't seen for a while with my eyes, like Andromeda. And with the telescope, it was just incredible looking at globular clusters or Jupiter or something. The sky was big of course, as always, but also very beautiful The sky was just like this constant entertainment. It was just amazing in New Mexico… often observed… It was a little removed, like we didn't have a lot of things that hadn't come to us yet. For instance, when I was a kid I hadn't heard the Beatles, even though they were famous because there just wasn't any radio station that played them anywhere around there. We didn't have *Sesame Street* until I was well grown because there just wasn't any TV station. But a lot of stuff that was very common in the rest of the US just hadn't quite gotten there. There was still a little bit of a feeling of it not having quite been incorporated into the country.

Charlie Morrow: I could imagine. This persisted until you finally moved away and came to New York?

Jaron Lanier: Well, let's see, I think I met you the first time I came to New York. I was still a teenager, if I remember. And then I went back to New Mexico for a little bit. And then I did a period at CalTech. And then I did a little period as a game designer. And then around the start of the 80s, I started working on virtual reality systems. I started the first VR company and I named VR and virtuality. And I did all this stuff for a decade with that. I kind of felt like answering you with the earlier stories.

Charlie Morrow: That was the part I was the most interested in. I think the part about what happened since is well documented in your own books. And you're not only documented but your thoughts about it have changed over time and that too has been published. I'm more interested in what you've just described, those earlier moments. And then if you could jump to the present where you are now

Jaron Lanier: Right now, there are many things going on. Well, part of it is, it's an expensive hobby making new VR equipment, so I hooked up with one of the tech titans. I've been working with Microsoft on this stuff for a while and we made a new kind of a headset that Microsoft sells under the name HoloLens, which is different from the classic VR headset – in that you add new stuff to the world. We can add fake stuff to the real world and that's much, much harder to do and I think has incredible pragmatic potential for creative stuff. We still don't know as much about it as an expressive form. I've had some chances to have students augment each other like add horns and wings and this and that, tattoos and 3-dimensional tattoos or whatever things on your body you couldn't do otherwise while you still see the person physically and I think there is a lot of potential in that.

It's ultimately not as fantastical as classical virtual reality, although the two can blend together. But at any rate, that's in general one thing I've been involved in. Right at this second, I have a wonderful eccentric group of designers and researchers working with me on different projects. As is well known I'm not happy with how the internet turned out and I feel we're all going a little crazy with it. I'm interested in trying to simulate an alternate future in advance to try to figure out how various alternatives and what I and other people have been talking about might actually be experienced. Like if you imagine some future. I want people to be paid for their stuff in the future, so there's more of a distribution of rewards from the internet. So if there's an ideal like that, it doesn't mean you have to spend every waking minute thinking about whether you're getting paid. Like how much does it consume you. So we're trying to simulate what it's like to live in a future like that.

It's to try to get a feeling for how to create designs that are workable, or indeed if maybe I'm kidding myself and there's no design that's workable. But at any rate, that's a kind of design research – is what we call that. Another thing that's been very much on my mind is: the world's being more and more guided by these programs that were described as AI programs. I don't like that term, but at any rate, this idea that these programs are making decisions for us and optimizing our lives. But the problem with them is that to a scary and bizarre degree, we don't

really fully understand how the program's work or why they work or how they fail and when they fail, how to get them to do what we want. And so, I've been working on trying to describe them in new ways, both with different mathematical approaches but also just visualizing them in different ways, throwing as much visualization user interface as **I** can at them to see if maybe they start to make more sense. So that's another project going on.

Charlie Morrow: Marvelous. Last time we met, you were playing the piano and you're playing beautifully. I'm just wondering how music is functioning for you.

Jaron Lanier: Well, you know, it's been a wonderful time for me musically, lately. Mostly in terms of live performance. I've been sitting in – sometimes when I'm in New York – with Jon Batiste and the Colbert Band and then I bring the most exotic possible instruments and then we figure out some way to incorporate them into the show. I had a very nice experience playing on a number one hit tune for the first time ever, which was last year with T-Bone Burnett. And that was a good thing. I've been doing some more work with Philip Glass, whom I worked with for years. And so there are all kinds of musical things that are just really unexpected at this point in my life. And really, I'm very happy to be able to do them.

The thing that's left me puzzled is, since the traditional recording industry has kind of been destroyed, I'm not sure how to release music in a way that works for me. I just haven't found a way, so I stopped releasing music. I just haven't been a source of my own music. I've been more a performer working with people who come along. I am doing some recording but I don't know to what purpose. So, that remains a bit of a puzzle, but presumably something I'll figure out.

Immersive! Podcast 1: Jaron Lanier

Musician, author of *Who Owns the Future,* and inventor of virtual reality

Interview by Charlie Morrow
Incidental Charlie Morrow sound samples used
– Landing Apollo 11: Moonwalk One
– Distant Signals Vibes-Horns
– Distant Signals S3x
– Distant Signals S10x
– CM Dawn
– Hayden 101 with Name June Paik
– Metropolis Atlantis

Mixed & collaged by bart plantenga, mastered by Sean McCann

Charlie Morrow: Well that sums it up for me. Thanks so much for taking the time to have this chat.