Jeremy Bailenson: A Conversation on VR and its Potential for the Arts

Prepared by Ms. Alexandra (Mac) Taylor *(Class of 2020)*

Introduction:

Jeremy Bailenson is the Thomas More Storke Professor of Communications at Stanford University. He is the founding director of Stanford's Virtual Human Interaction Lab, particularly focusing on the psychology of Virtual and Augmented Reality and how virtual experiences lead to perceptual shifts for individuals. Outside of Stanford, Bailenson consults pro bono for government agencies like the State Department, Congress, and the US Senate on Virtual Reality policy. Bailenson's recent book, *Experience on Demand: What Virtual Reality Is, How It Works, and What It Can Do* (Norton, 2019), served as a guiding source for this interview conducted at Stanford University on February 12, 2020.

Interview:

Taylor: Hello Professor Bailenson, thank you for joining me this afternoon to talk a bit about VR and its implications and potential for the arts. To get going, our first question is: do you envision VR "interactive embodied agents" as capable of training young artists? Is there a limit to what type of teaching VR training can conduct?

Bailenson: What we know about VR is that more than anything we have done in the past VR tracks your movements. VR works with something called tracking, rendering and display. You have to move your body so that the scene updates. So, the cool thing about VR, more than any personal tutor, is that it can measure the micro-movements in the flexion of your wrist and how you hold a brush or how you're touching clay. Just from a pure sensing standpoint in VR, we can sense what you're doing right and what you're doing wrong mechanically. I love the idea of VR for kind of capturing movements and then giving feedback on them. In terms of training young artists— young being an experienced artist, right? — VR can be teaching us the basics. So, I think there's one answer: the tracking ability, you know, which examines moving algorithmically to give feedback would be really neat.

Number two is what's cool about using visualization. Imagine the ability that you're a third of the way done with something and VR lets you fill in the gaps. You get to see what it's going to look like without having to do everything. And there's this aspect of

playing and allowing scenes to autofill based on how you can, you know, have sets of geometry. There's some neat work by computer graphics professors at both Stanford and other places where you can basically figure out the type of tree someone's trying to produce using 3D graphics and by a set of exemplars you can create new trees. It's a way of visualizing things without having to do them and playing more.

Taylor: If you could succinctly summarize the “unique power of the medium” of VR, how would you do so? And how or in what way do you think these aspects can pertain to either displaying or creating art works or experiences?

Bailenson: Most people think VR is about display— what you're seeing— and display is great. Being able to see in stereo and high resolution is awesome. But in VR, what our data shows us, is that being in the field of psychology and studying people's use of VR, surprisingly, your brain is very forgiving of resolution and is very forgiving of graphics impurities, and sometimes you don't even need to have stereoscopic vision (I'm covering one eye for the audiotape). You can have monovision. What's critical is measuring the body movements as body tracking to update the experience. So, when you say the unique power of the medium of VR— I have a joke, I give at talks and I say the joke is one of the top five things that make a viewer experience be fantastic? And the answer is tracking, tracking, tracking, tracking and tracking. When we're building VR experiences, we always err on the side of accurately, quickly and often measuring your body movements. Accurately meaning just what it sounds like, quickly meaning low latency (a small delay between your physical movement and the scene updating), and often how we frame it.

And so surprisingly, most people think graphics are the most important part of VR. Our work has shown that it's really not necessarily about what you see, but how the scene responds to your body. The second part of this question is how does it affect artists? The neat thing when you think about VR is that it certainly can be static, but because it's digital, it can be dynamic and interactive and moving. If you're going to really leverage VR, you know, an analog painting is for quite some time going to look better than a digital painting. What's going to be neat about VR is the ability to have this thing dynamically change based on what you're doing. And that's what I think VR artists should be thinking about, which is not just trying to do what we can do in the real world, but trying to have body movements changing and by body movements it doesn't need to

be something grandiose, it really can just be where you're looking and interacting with the content itself.

Taylor: Do you think VR will make art making and art objects more accessible to a broader global public?

Bailenson: Thus far, I don't think it's true that VR has changed the general art scene yet in fundamental ways. I could be wrong. I'm wrong every day, but I think there's some amazing artists that work within VR and it's a fairly niche thing right now. I think when I see people going to art museums, I think we're going there because the last thing we want to do is strap on goggles. We're kind of there to enjoy that experience. What I love is this notion of exporting art out to people. The problem with that is that it requires people to have goggles. So, we're in this kind of weird purgatory right now where if you go to a location that has VR (we call this location-based entertainment), you could see art. But, it's probably better to go to an art museum currently. Where the epic win is going to be is, fast forward a couple of years when instead of there being millions of HMDs, mostly in the hands of gamers and scientists and some others, lots of people have them and now all of the sudden, everyone can experience it. This past weekend, for example, we took our family and we were just running around the Cantor Museum and kind of playing there. Not everybody gets to physically come here. The ability to export that as well as making it more interactive is going to be special.

Taylor: Do you think VR's ability to allow viewers to engage in "perspective-taking" will change the way people interact with artworks?

Bailenson: Boy, here's a fun idea that's really hard to implement, which is, you know, if you take some classic scene, do I get to go in that scene and do I get to change things in it? This is a nice philosophical debate to have. For example, we have "The Thinker" sculpture here at Stanford that was created by Rodin. Let's say you wanted to go there and moving him around a little and add motion to a static figure. Think about Rodin's "Gates of Hell." What if you got to go in there and become different people to see and experience their backstory? These are the things that are possible.

The fun thing about watching artists get involved in VR is that they come up with things that we haven't seen. One fun thing I do every year is I go to the Tribeca Film Festival,

where they have a very neat art installation, immersive storytelling arcade. People are always doing just fun and exciting new things. I think we're still in this kind of playful exploration phase, but I definitely think perspective taking as becoming the characters or objects or animals in scenes is what makes where we are in VR really cool.

Taylor: How do you think VR will fundamentally alter the museum's space?

JB: Personally, I like museums how they are, however, I like the concept of a museum with many, many zeros of scale to export the experience out. Now, if we separate VR into tracking, rendering and display, I do think there is a really nice world in which things change, whether it's lighting on a picture or digital scenes that are changing based on your body pose even if you're not wearing goggles. However, I feel like that's a short-term thing because we can do that with sensing cameras. I'm not seeing a large role for goggles in museums in the short term.

Taylor: In your recent book, you mention this concept of stories in the round, and this idea of world creating through VR. I think this is quite interesting in terms of the potential for VR and artmaking, as VR uniquely could serve as a special medium for artists. Do you think world-creating might be a focus for the future of VR in artmaking?

Bailenson: I'm getting a little bit outside of my element here when talking about art because I as you know I'm a fan, but not a professional artist and a tiny bit of knowledge is always dangerous. I like how artists create series that are made, like a series of themes. You can imagine building a VR story world and that's a world. Stuff happening in there, the same way you think of the *Sims* or *Second Life*. It's a place that exists even when you're not there. And art emerges from it. That thing is always going on. AI is playing around in that world and there is a creation or a series of artworks that all comes from this narrative. The narrative is from this VR world and that world is just going on. I like that idea. That's neat.

Taylor: The interesting split here would be between wearing the goggles versus walking into a room that's an immersive installation experience.

Bailenson: I think we can too often focus on the goggles. The most important thing when we define VR, it's not about wearing goggles, it's about tracking your body

movements, how the body moves, update some digital scene and then rendering that is showing the user the digital scene on the eyes, ears, skin and sometimes the nose (never the mouth). Think of it as tracking, body position, updating position in some digital scene, and then displaying sight, sound, and touch and sometimes smell. That's VR. If it's not goggles right now, then you can think about other things. You know, the issue for museums— I'm hopeless at predicting 10 years out, but I'm really good in that kind of two to three year range— what we've learned from places like Tribeca and elsewhere is that when you've got goggles, you have issues of throughput.

How do you get hundreds of museum visitors into goggles and walking down a gallery in a museum? The answer is: you just can't. Thinking about non-goggles, if you want to have a lot of throughput, you've got to think about not wearing goggles.

Fast-forwarding: everyone’s got the goggles anyway, and now our travels can begins.

Taylor: Thank you so much Professor Bailenson, this was very insightful!

Bailenson: Of course, my pleasure.