

STEAM Talk Episode 4: Let's Talk Composing Music in VR with Dr. Roy Magnuson

Intro

C: Hello this is Courtney!

K: Hi this is Kara, and you're listening to STEAM Talk.

C: Last episode we talked with Illinois State University professor of music composition and creative technologies Dr. Roy Magnuson. In the episode, we talked to Roy about the intersection of technology and music, and his experiences composing using rapidly changing technology. Today, we are here to learn more about Dr. Magnuson's virtual reality software, solsticeVR.

K: If you haven't listened to part one of our interview with Roy, we highly suggest checking it out before hearing this episode. SolsticeVR is a brilliant platform developed by Dr. Magnuson that allows for users to compose music in a virtual reality setting.

Inspiration for solsticeVR

Courtney: Let's jump back into our conversation with Dr. Roy Magnuson by having him discuss his project, solsticeVR.

Roy: Solstice is the first piece of VR software that I made. It's kind of what it's like the way I learned how to do this was by having the project right, you decide you want to make something like okay and then you start thinking backwards you're like okay well what do I need to do to be able to get to this. Okay, I need to learn how to use an engine I have to learn how to code, okay what is coding. You sort of step back all the way through. It's a piece of VR software, and it's created for any VR headset. As long as it can also be coupled with a Leap Motion hand tracker, which is what allows you to use your hands in VR, and not use the actual controllers that you would get with like an Oculus or a Valve Index or HP Reverb all the any of these different headsets. So it's it can be used with any of them so long as you can get the the Leap Motion hand tracker. So yeah, it's it, the software I made because I got into VR I got a grant and was able to buy a VIVE in 2017, and was like, 'Wow! This is super cool' like this. I love to be able to make content for this. How can you write music for this? And it sort of became like I want to be able to draw on VR Can you like draw and make music in VR like is there a way to write music in VR, and, I mean there are ways to do that, but there wasn't anything that did what I wanted to do which is, I didn't want to do what I could do in reality. If that make sense like. There's a lot of software for virtual environments that are there to recreate reality, which is cool, like in theory, like you can create a huge music studio with the mixer boards and like, you know, all kinds of stuff. People are making pianos in VR and things like that but it's like, we have pianos, we have mixers we you, you can do that, if you don't have access to those like that makes total sense right. In a virtual space, the thought process I had was okay what does the computer do well, what is what is using a software like Pro Tools or Ableton or something like that where you're going to make electronic music. That is really precise it's very exact it's very slow, though. If you have a high level of skill you can be sort of improvisatory but it takes a long time to get good at it. It's pretty obtuse but it's insanely powerful I was like, 'What would the inverse of that be?' What would have a piece of composition software, where it's intuitive and fast, it is imprecise.

It's like childish, in a way, and it's not overwhelming because there's like, you know, all these sliders and knobs and stuff. It's just do these things here. Like it becomes very like driven it kind of pulls you through the experience. And that's, that's what it became. It became this, it's a 3d environment where you can go into VR, you can bring in your own custom audio and manipulate it. And in so doing, you're engaging with the sort of like 3d audio engine that the game engine provides where you get spatial audio, in the same way that if you were playing a video game you hear birds flying by you or something right. You can do that, and engage with that. You also have physics so you can throw sound and bounce sound and like do all kinds of, like, sort of weird mixed metaphors like you can make sound sticky, or bouncy by like having it ricochet around and change Doppler levels like you make a sound really bouncy and you throw it against the wall and it ricochets around the room and it's like, you know, creating all these Doppler effects like a train going by so it's pitch shifting and, you know, all kinds of stuff where that like that idea right if you want to generate that sound. That's, you can do that in a traditional, you know, Audio Workstation but it's like, time consuming like that takes some time in solstice, it's like you pick up a thing and hit it with your hand. And that that was my goal, like to figure out how to create an inverse, like this, this sort of like supplemental thing where most of what you do is terrible. It's just like, it's improvisatory it's like a sandbox like a little kid just making stuff. But every once in a while, you make something in it, that can't be made anywhere else. And it's like that 5% or so, is, is really like novel, it's like that, you can't, you can't experience that anywhere else and you can't make it anywhere else. So that was the goal, and that's that's kind of what the software ended up being.

Swimming in Sound – Unique elements in solsticeVR

C: Sounds like it's so cool at giving physicality to sound like, Oh, it sounds so fun!

R: Yeah, It's weird. It's really, it's weird. You don't think about interacting with sound that way until you try it. One of the really powerful things about virtual reality is that it makes you ask questions. I never I never thought sound can be bouncy and heavy but what if this now could happen. And the reality is it either already can using the software or combination of software and existing like technology, or it's going to be. It's in development. What if sound can literally hit you, it's, like, not a metaphor, it's not like the wave of sound from the group hit me it's like know what is it like you felt it and you use haptics and chest things and like you're you feel it pushing on you and what can that do for a musical experience or what can I do for emotional response or how can we use that to treat anxiety or to test like, any number of I mean it's just there's so many cool applications.

K: It's almost like swimming and sound like how you describe how you described it the sources VR is almost like you're sitting and swimming in sound.

R: Yeah, it's really immersive, it's like, it is like that. One of the things that you don't experience until you throw a headset on, or you can actually listen to the recordings that people have done with the software. If you listen with headphones. You can hear it because it's recorded in the sort of like 360 audio. What will you don't notice is until you do it is that if you place a sound like in front of you and you turn around, it sounds like it's behind you. Right, because it's using positional audio and the spatial audio so that it's what VR does it creates this like immersion. It's really there and you're really here, and the power of that is like that if you, you know, throw a

bunch of sounds around, and listen to them and start spinning around or crawling around on the ground, you're mixing. Like, that's what you're doing to creating a mix. And it's very physical and it becomes this almost like dance kind of thing, which is again sort of childish and silly but also totally different. I mean it's there's so many like applications for it to do things that are either difficult in another environment, and easy here or just like totally new.

Developing solsticeVR

Kara: You wanted to create this alternative kind of space. What initially got you thinking VR is the space for the new space for composing?

R: Yeah, so totally honest, I got two \$500 grants internal grants at ISU as a faculty member and I was like, I want to buy a VR headset, I was like this would be awesome. I just would love to have access to. A lot of things start like guys just like you just said something really intrigues you. And I think that's partly why grants like that exist like there's just follow your bliss man like go see what is out there and how can you utilize it. I didn't really know anything about it I had done like one of those VR things where you put your phone in and it's like this is pretty cool. And it wasn't until I got a VIVE. And it was like running it on my system that really should not have been running it like you know it's like, barely, barely running the experience. And I was like sitting in this environment that someone had made, they just made like a place where you go hang out, and there was no music, there's some ambient sound like waves. And I thought, oh my god like I want to write music for this, like I want to write like music for this moment this space like it is so cool to be able to go to places and listen and have the visual sort of thing happen too. And that's that's when it kind of hit me, but it wasn't actually I had no experience, I thought it would be fun. And I knew it was new and emerging and people seem to be really excited about it but I didn't really have a plan, I guess the honest truth.

C: I love that honest truth I think that's a really fun kind of funny you don't really think about often that maybe people don't always have plans when they set out to make something new, you know, they just want to do something new.

R: Yeah, And I think it's it's beholden to the person, the responsibility of having access to that kind of funding to that sort of like opportunity is to push yourself.

Kara: So, you tried out this VR and you're in this space with waves and you kind of thought, I could compose music in this space. So, take me from that to your next step to start this project. What were the early steps that you took to become a VR software designer?

Roy: Yeah. Um, Like, I Googled it. [everyone laughs] I was like, 'How do you make VR?'

Kara: Yes

Roy: Like I honestly liked it because I I talked to some of my colleagues. We were at a meeting with Rose Marshack who's now the director of creative technologies and Rick Valentin, and Kristin Carlson, who are all other faculty members in create technologies about their backgrounds in VR and they all have some like similar like they've done some stuff and Rose has a long history with it. And I was just like, what do you do, like, and they give me some like direction, like you know general stuff. Which was really helpful. I could just like, Yeah, can you narrow the scope, I googled like how do you make VR. And, and it comes up with, Okay, well, you have some options like,

Courtney: Yeah

Roy: You can do boxed things like there's some experiences where people have made authoring software where you can do it without learning, all the nitty gritty, and that didn't appeal to me because I wanted to build it, like I want to really make this I want to, I don't want to, you know, just do, do it halfway. And then it's just, okay, you need to learn a game engine and pick one, and at that point on, Unity was easier. That's basically what everyone said, I was like, 'Okay cool. I'll do that.' You know Unreal is the other option really and. And then once you get into the game engine it's like, what, what is this like it's like, it's it's really overwhelming if you jump in for the first time because every single element of it is a job, it's someone's career. Lighting like digital lighting that's a career, like that something that someone does. And you have to learn how to do it like do it you have to be great I'd be going to know how to do it well enough that you aren't going to break anything, and it's going to function. Yeah, and then I started taking up classes which are like Coursera classes online with kids probably. I was taking classes, like how to make games, basically didn't it was just learning how to code in C sharp, which is the language for Unity and just learn the interface and like how to model. I took a blender class like just insistent I was like addicted to these like classes or just keep joining them and when they're on sale they're like \$11 or something like you just buy it when it's on sale and jump in.

Courtney: Yeah

Roy: Because the knowledge is basically free, like that's the cool thing about the world we live in now is that it's you know 11 bucks but if you have the internet, it's. That's a pretty good bargain, man, to get all the knowledge you need. And then, yeah, so it was just time that I was doing these things. Coincidentally, when you know we had a one-year-old and a three-year-old, so like this was, I would sleep from like nine to two and wake up and do a bottle with the kid or like put a kid to bed again and then take classes from two to five.

Courtney: Wow.

Roy: Basically, most days. And it was just. In hindsight, it's like I don't know how I did that.

Courtney: Hanging by a thread.

Roy: Yeah. The difference between the difference between 34 and 38 is extreme. [Everyone laughs]. And like I can't, I can't do it anymore.

Courtney: Crossed a threshold.

Roy: Yeah. Oh man, it's like you fall off a cliff and some point like it feels so much older. The pandemic has probably not been good either [everyone laughs].

Courtney: Oh, Yeah. I hadn't considered that

Roy: Yeah, I just feel older now. Yeah but you know i still wake up really early I'll get up at three or four sometimes but just like the grind to do that I don't know if I could do it again but that's what it was. It was that for a year. Like honestly I taught a class. A year after that. So I started those in the fall I had a rough demo something that showed my those people Rose and Rick and Kristin. Aaron Polucci the people in CTK in December. So I started in October I showed them something really rough in December. And they said, 'Do you want to teach a class on this?' I was like, 'What, okay,' it's like, but it was a year later I asked them that

Courtney: Can I also take the class while I teach it? [everyone laughs]

Roy: It was, it was a year later so I had like nine months basically to figure out what I was doing.

Courtney: That's a lot of time.

Roy: Yeah it is. And that's the thing like it seems like that a lot of times it's just work, it's just you break it up and I had a few like sort of existential meltdowns in there but like, like what am I doing, like, kind of thing. but you just you, you break it up you learn the components you build the syllabus, you figure out how you're going to learn each thing. And then you just grind it out

and. Yeah, so that's how I started and then my first piece of software I released, like a really early version of it in 2019, so it was after I taught that class in the fall. It's coming out with something that looked kind of like what it is now.

Courtney: Cool

Failures along the way

Kara: I was reading the *Redbird Scholar* article about Solstice and they talked about experimenting and like all the failures. Can you talk about how those failures like helped in the development of the software itself?

Roy: Yeah, it was. I mean it's really painful. Especially in the place as I was as a young parent. Like time is so precious. Because you just don't have personal time, really. And I still don't, really. You always want spend time with them but it's it's really hard to carve out, creative time in blocks right like you have three hours like that's insane to me right now. So, yeah, so the failure is necessary because you learn like you have to try stuff. And then you have to figure out what you did wrong. So, I started building versions of what ended up being Solstice that I probably put 150 hours in or so and they I just broke them at some point like I just couldn't figure out what I did wrong like the code was broken. There are things I could probably fix now. Knowing enough about Unity and development but at that point, I just basically had to close it and open a new version, and just think what can I salvage like and you try to salvage some code maybe but you realize the codes probably not efficient or, or something or you're like for me a big part was like, making things performative, like, so can the software run smoothly. And for VR that's really important because it is not performative, it gets very nauseating, because if it's if it's not smooth, then the immersion breaks, and you start getting these like flickering like stuttering and then it you can make it really sick, actually, like, So really early versions were just like vomit inducing, basically. Now, in hindsight, it's great, I'm teaching my students, it's like don't do these things were just on Wednesday talking about lighting science like you can't do this and here's why. You know, three years ago when I was doing this I had 50 real time lights and like you just can't do that in VR like it's not going to happen. even though it seems intuitive when you're designing it. So there's a lot of that. And just building stuff and then having the discipline to say this isn't actually what I wanted to do. There's a great quote by the writer Annie Dillard about like the creative process and paraphrasing it's just like, you start with this image and this vision for the piece, whatever you're doing. And over time, it just distorts, and it's just forgotten, and what you have at the end is like something else and it's like, it's like, it's like you just have this thing. And the way that you get around that is the iteration, and like discipline to rip things down, and to look at a brick wall that you made and say it's a little crooked knock it down and like redo it again and again. So, yeah, that the failure was rebuilding the wall, and it wasn't until like I had done it enough that I've learned enough about the process that I could make something that was stable and intuitive and fairly creative, novel. That was the overlap and it took 18 months, and it was a long time.

Kara: Yeah, how many different times did you kind of have to hit the restart button?

Roy: Probably five versions of it. I think probably, of like things that I could point to and say like this is a, we started here, right, and you can see like basic principles here to here's the thing, you know finished. And it was. It's hard, like it was a long time. And they're one of the other challenges. We talked about this earlier is that the technology changes so quickly. In that, if you

start developing strictly for the hardware that is available now. Unless you are literally getting it the day comes out by the time you're done with the software, it's out of date. Like, so like you need to this is what I realized, you have to create flexible sort of versatile, like software that can be transformed and like transition to other platforms. That's fairly agnostic based on like whatever system you want to go to. So, yeah, that was also a challenge because like I switched from the leap from the HTC VIVE to Oculus platform like changing all that was a thing, but it's because the technology was so much better than when I started. Yeah, it sounds really bad but it's like. On the flip side, it's like, there was a lot of sadness like it was a lot of, existential like, Oh my gosh. Like, I'm like a music Professor like what are you doing in your office and trying to explain it to people and not make it sound like I was wasting my time, like I definitely felt like when it early on I was talking to my colleagues and music about it, like what are you doing, what, what is going on. And luckily my director at the time, Steve Parsons was like, Great He was just like, Yeah man, sounds cool. Like just follow your bliss man. And, but like there was a lot of like what am I doing, like, what, like if this would be life would be a lot easier if you stop doing this, and you just started writing music, because you know how to do that but again I don't think that's the point. I think the point is to to constantly have to learn.

The interface and sounds of solsticeVR

Kara: I was on your solsticeVR website earlier today, and I was watching a video with like, going into a cave and different soundscapes, there is rain and snow. Walk us through like what is the experience inside of the VR space?

Roy: Yeah. So there are two different ways to interact with it, there's a traditional way that you interact on your computer so there's actually a menu system, where you can enter in your sounds you can set up your, your world, wherever you want to be so you log you load in mp3s, or WAV files like audio files that you want to be able to bring into VR, and you can change all kinds of parameters and stuff. And that's the strictly like a UI system like you would see in any, any software right it's on your screen. And then you can hide that and put on a headset and what, then what happens is you go into this void space. So it's the starting area where you look around, and you can see there's like this cave modeled and there's a rain sort of area and like a snowy area off in the distance, you know like, that's kind of cool. And as you sort of look around you look at your hands, and menus appear and you can touch them. You have menus on your hands, and you can touch things at once it's like scenes. Click on scenes and you look over in a menu pops up and says where you want to go, say cave, snow, rain, these are very like so like paradigms I got, I was very interested in just having like these concept kind of things. Let's see what cave is and you hit the button and it like transports you to this cave was really dark but reverberous, you know space where you can then bring yourselves and they're really reverberate an echo IE and it sounds very, you know, so what is what we would call it like acoustically. But then there are other spaces the rain one, you know has ambience literally as rain sound and you can toggle that on and off. There also little like AIs is that run around that you can put sound on which are kind of fun, and they like will run around you and it creates like crowd noise or something. And that that environment has a different acoustic profile. So if you want to write music with a different acoustic profile you go there, and then the snow one. Similarly, it has a different profile it's really dry. So, it has the sound that if you've got outside after get like a foot of snow. Right and everything is dead, like you can clap and it doesn't echo like the snow is absorbing all the sound. It's very similar feeling to that so your, your music sounds very different. So if you want to write,

you know really dry present music you use that environment. And you can freely move between them. So if you want to transition between what environment to dry, you just switch, snow to rain, snow to cave and, Yeah, you just play around playing the, the, all of the sounds and the menus everything that you can control is persistent across all of the environments. So what's changing is the world around you, and you are stationary which is a really important concept for VR, I think that you are in control you never change. You as the person you are, you are there. Their VR environments and experiences where that is not the case. And some people really enjoy those, they're really disorienting like you flip upside down, but your body does not. That makes me want to lie down I'm like I like I immediately and queasy like from doing Yeah. But, yeah, it's really disorienting and just watch people do this you're like, how is your brain doing that. But for me, what I found really satisfying is like that, you manipulate the world but you It's you, you're present in that space and your body is moving, and you're moving the space and that's, that's how you interact. So that's the gist of it you have those three environments that you can move between bring sound in and change the parameters.

sample selection of sounds composed in SolsticeVR play
sounds fade out

Roy: It was one of the ways I was learning how to design, is I would bring photos into Unity, and try to build on top of them, like to create perspective and stuff like that.

14:17:13 I'd try to draw them, like I had my iPad at that point I was trying to like actually draw out like what these things would look like I'm terrible graphic artist. [Courtney laughs]

14:17:22 It was really helpful to get perspective and like shape.

I made some of the models licking those part of the process to is to learn how to make objects.

Technology requirements to run solsticeVR

Courtney: You said that this program works with basically any VR set. So if we're new to getting a VR set and wanted to run solstice, what would you need?

Roy: So, yeah, it'll work with any, any VR, that you can plug into a computer. The most popular headset right now is the Quest2, it's the one made by Facebook. It's tremendous, it's like the absolutely insane how good it is for the price point at \$300, it's, It's basically full-fledged VR. The problem with it is it's not really a problem is that it's standalone. So it does not require a headset so you just need to be able to plug it into a PC that can run VR, so you need to, at that point a fairly powerful gaming PC's is usually what people have. We have those at ISU, we have several labs, with computers that can do that. And then the real tricky part with solstice and this is really more. It's partly like the product of what it was made in 2017, 2018, is that you need a Leap Motion controller. So there's actually a dedicated hand tracker. That allows you to interact with the objects, it's what it's what makes your hands appear and control the physics. Since then, since 2018, the headsets have been able to have such advances in the tracking and camera systems. And also there's the AI in them that there's hand tracking that's built into them. So you don't even need a controller. Select the quest is again 300 bucks, and it has hand tracking in it. Like, built into it. I mean a Leap Motion \$130 so like, it's like 120 bucks or so. Which is crazy. It's the Lead Motion is a little bit better than the Quest stuff but there's a long way of saying like you can do it with any headset, so long as you can grab a Leap and attach it to it. My goal, it's on

my, my to do list is to to rebuild it. For the Quest, so that you, I mean it just be as simple as having, you know the the most ubiquitous headset and downloading it, and that's it. Just go.

Kara: Alright, so future design on the way.

Roy: Yeah, I just need like 300 hours like just carve that out somewhere. [Kara laughs]

27:06 – Releasing solsticeVR to the public

Kara: Yeah. So you went through and did multiple iterations and failures along the way and then you came out with this product solsticeVR. What was it like kind of sending that product out to the public?

Roy: Yeah, I mean at first I was really shy about it so I put on social media, like, hey, look I did this thing in my office and that actually fine, like I mean, I got a lot of good feedback and people were excited and stuff. I honestly I just didn't know how to do it, because I didn't know enough people at that point in the game industry basically or VR. I've met quite a few now, where, I can show things to people and I know like oh you're like, you work for Microsoft like you're a person and like you do this. So I've certainly talked to those people I've talked to the people at Leap Motion, that was really cool to see them. I think I made with their technology

One of the most satisfying things is getting it out to composers. You know I've done a lot of demos and stuff and like galleries and things and lay people just use it and that's awesome. They're having fun. One of the things I really wanted to see what they would work is can I give this to someone who has like a PhD in writing music. And do they find it useful, like is this, did it work? And for the most part, yeah, like it's, it's worked pretty well and it's it's had some really interesting results I mean people have, you know, build little labs, like for themselves and their students you know in schools to to write music and generate content. And that's where it sort of works out it's also a product of that was like, just happening and then like COVID happened it was at this like tipping point and then everything's kind of back which I mean there's there's benefits to that like it's time to reevaluate and stuff and let technology change and redo redo things but, yeah, it was, it was weird because I didn't really know what I was doing. But, yeah, Courtney: Well congratulations on that successful response like it sounds like the best possible outcome which is just something new and different interesting to you that became something well received by your colleagues and peers, you know,

Roy: Thanks! Like any sort of academic research it's not measured in, like, financial success or anything it's not you start to do it to do that. It is measured in like growth and exchange ideas, and, like, you know, pedagogy like getting students doing something different. And then, you know, then how can we leverage that to build a program and like, you know, until that kind of stuff here and try to create a space where this can continue.

Next directions in VR: The good, the bad and the ugly?

Kara: Um, You've talked a little bit of some, you know, wanting to do some redesign to kind of catch up with some of the newer technology with the hand recognition software. What do you kind of see for the future of VR and music composition we can talk specifically about your program Solstice, Where do you see the future directions of the technology that you developed?

Roy: Yeah, I think that we're looking at the, the emergence of an extraordinary disruptive technology that this is VR, and the marriage of it with augmented reality, which we haven't talked about which is just like the inverse where you overlay holograms and stuff like that is

what people sort of refer to as mixed reality so this idea that you can start moving into VR, but stop at a certain point so you can have virtual objects in your actual world. That technology exists already, it's \$10,000 like for a headset, so it's this [VR], in like 2013. So it's like we're not, we already like for what's what's coming and it's coming really fast Apple is starting to make a play into it, they're going to have a headset in maybe late 2021 or 2022, they're coming out with a headset, which once Apple adopts anything it's like,

Courtney: It goes off, yeah

Roy: it's over there so yeah it's just so user experience polished

Courtney: Yes, that's what they're best at for sure is UI [User experience].

Roy: like it's just going the iPhone is like a two-year-old can figure out an iPhone in 20 minutes like it's, it's so good. But it was like I see that technology, the, the, making it cheaper, faster, lighter. And then, making it so that you use it, augmenting your truly like changing your reality. Instead of virtual reality you do something like you diminish your reality you change you take away parts of it, and replace it with things that help you write help you create or bring people into your space so they can be there with you. we're not that far from that, I mean we're. I mean like literally you can do it now but I mean like from someone like me, people research it like within reasonable budgets not NASA, or something you know doing it, five years, tops from that being a thing. And just, it just becomes absolutely nutty, like what you can do then. Like when you can look down at your desk and see literally anything. What do you want to have there that you can control your environment, you can look down on a piece of music, and have it overlay, like all of the relevant data analysis on it, it recognizes its music and analyzes it for you. I mean that's possible now. So, just the disruptive that's the word right it's disruptive it's going to change the way we do things. It's inversely proportional with good and bad. Like the amount of good. it's gonna be. It's gonna be inversely proportional to the amount of bad, so there's going to be tremendous good, and that's what I'm so adamant about artists, being involved with this because I, I kind of joke like cynically it's like we don't make enough money to be evil, [Courtney laughs] like it's just like we're not like just we just want to make these guys, like, just to make good things and make things that are, are you know helpful, because there will be like lots of terrifying things I mean, because it's just the biometrics alone that you can get from wearing a headset your, your blood pressure, you're like, you know, your pulse like all this stuff is can be tracked. Like Zoom is is already like 20 years old man and I mean there are there things like there's one called Spatial IO, which is like it's Zoom, but you can be in a VR space someone can be on zoom on a wall but you and anyone else with a headset can be in a room where you're walking around together right and that already exists like that literally exists right now, and it is a couple-hundred-dollar investment to get into it. Now, like I mean it's it's going to be the sort of thing that Amazon's going to give you a headset. Like, they're gonna like provide these things for people, because for free because they're going to be able to change what you see. And like it's just there's like this whole dystopian side to it but the power of it.

For good and creativity and teaching and healing and just like medicine and it's just profound It's very exciting, like the places that you can go with it. And again it's being committed to like constantly learning is it's it's just now the next thing it's like eye-tracking okay what is eye-tracking how can we use eye-tracking. There's like brain computer interfaces like people are there these things for 200 bucks you can put on where you can think about doing something and it happens in VR.

Courtney: Wow

Roy: That exists, it's like \$200 it's not i mean it's it's not inexpensive but it's like...like what?
(laughs)

Courtney: That sounds like an episode of *Black Mirror*. That is so cool.

Roy: Yeah! You can go order one, and it's got it as a, as a developer kit that works in Unity that interfaces with your VR stuff already it's like, oh my gosh, it's like,

Courtney: Technology is exciting and scary at the same time [chuckles].

Roy: It is it is. But it's really, I think it's I try to focus on the beautiful like really found the cool things you could do.

Courtney: Yeah,

Social media shout out

Kara: Yeah, we're about out of time, so I guess I wanted to give you an opportunity to give any shout outs to websites or Twitter or whatever if you want to promote any of your work.

Roy: I'm also super bad at this. I'm on Twitter, I'm @roydmagnuson. I basically only tweet about politics sports and VR music occasionally. But you're welcome to follow me. I don't know how interesting it will be. Actually, I mean I use Facebook a lot begrudgingly at times but it's like linked into VR so tightly so you can find me in there a few like wonderful things Solsticevr.net is my website for the, for that and then

I think we're doing a lot of really cool things at ISU with, you know, CeMaST and relationships with that and creative technologies and school of music, which right we're pushing to develop a VR actual major, and possibly a master's degree right now

and it's just, I think I'm really excited about it ISU being a center for this kind of stuff, because there's literally no reason it shouldn't be. It's like we have the faculty that are interested

It's just, it's, it's one of those things that we can own.

That is, is super cool. So, yeah, I guess that's my shout out.

But yeah, if anyone has questions I mean like, just this thing I tell people as a composer just talk to us like send me, send me an email. We're human beings I'm happy to chat about any of this.

Courtney: 14:31:37 You can find all the links to your SoundCloud as well as a link to the technologies program ISU on the website for Solstice VR, and that's solsticeVR.net.

Roy: If you go to the website to there's a couple of pieces by students on there too, which I think are really cool.

Courtney: Definitely listen to the site listeners and check out the software it's limitless it sounds like.

(outro music fades in)

Kara: Well, Thank you.

Courtney: Thank you so much for coming on today.

Roy: It was really fun.

Courtney: It was so much fun. This was a really, really interesting conversation like.

Kara: It was great.

Courtney: It's crazy to think about the possibilities that are right on our campus.

Roy: Yeah, it's it's going to be nutty.

Courtney: Yeah.

End Credits

Thank you for listening to season 2, episode 4 of the STEAM Talk Podcast, brought to you by CEMAST at Illinois State University.

We'd like to thank Dr. Roy Magnuson, it was exciting to talk to him about his project solsticeVR.

Visit steamtalkpod.blurry.com for show notes, episode transcripts, and more.

Thank you, Dr. Roy Magnuson and his students, alumnus, Kyle Waslewski and current Illinois State graduate student Brennon Best, for sharing Virtual Reality music compositions with us for the show today. All clips featured on the show were composed in Solstice VR. Visit solsticeVR.net for more information and samples.

Check out Dr. Magnuson's website, roymagnuson.net, for more of his compositions.

Our season 2 theme is Devotion by Jim Hall. You can hear more of Jim's music by following a link on our website.

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See you next time!

[end of Podcast]