International Conference on New Interfaces for Musical Expression

Virtual Sensory Interfaces

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PROJECT TITLE Virtual Sensory Interfaces

Thomas Tucker, Associate Professor at School of Visual Arts at Virginia Tech, Ariana Wyatt, Associate Professor at School of Performing Arts at Virginia Tech, Tohm Judson, Software Development Engineer for Microsoft and Multimedia Artist and David Franusich, Adjunct Professor at School of Visual Arts at Virginia Tech

1. ABSTRACT

This project asks what are the boundaries of virtual reality? Are there ways we can have real experiences, engage all our senses, or feel transported into another world? Virtual Sensory Convergence is an exploration of our reality *through* virtual reality. This project takes an immersive virtual reality experience and extends that world outwards with behind-the-scenes theatrical and puppetry elements. What is usually an isolating technology experience is transformed into a world where participants can interact with the world around them; touch things that respond, smell things around them, communicate through interactive sound experiences, and be an influence on the environment itself.

We are pushing the boundaries of the senses by utilizing spatial and sound environments created with the latest developments in Virtual Reality, VIVE, Unreal gaming software, real-time and 3D sound. This project, currently under development, presents a virtual ecosphere with its own living entities. Each creature is created as a physical prop, has retimed VIVE spatial tracking and triggers, and is puppeteered by a live dancer and musician. My collaborative team will be developing a rich array of scents for this project and are building a library of organic scents. We will be creating unique smells for each of the characters within the Virtual Reality Scene. Once pandemic issues have been resolved, we will also be including a live vocalist and instrumentalists, which will serve as transitional and environmental for the sound in the room and to respond to the participants' movements. This entire exhibit is a sensemaking metaphor for Thomas Tucker's meditations on his art derived from his mind's eye.

We are now in the Production stage of our collaborative VR project. After our first research and development testing, we received vital feedback which we plan to

implement over the next academic year and will continue to test each iteration to make it the VR experience more engaging. Due to the pandemic, there were several things which had to be altered. The creation of scent was put on hold, but beginning next month, we will be growing flowers and herbs from which we will develop fragrances to be used for character development. We will also be creating prototypes for the delivery of the scents and will be working closely with the chemistry department at Virginia Tech to produce these prototypes. We will also be improving the interactivity with the puppets by adding more reactive conductive touch surfaces. We are also improving the internal coding for the sound, making it easier for the puppeteers to physically react to the participant's touch in addition to the conductive material. Live performers, which had to be prerecorded prior to the event, will return and vastly improve the interaction.

2. BIO(S)

Thomas Tucker (US): Thomas Tucker received his BFA from Kansas City Art Institute and his MFA from School of the Art Institute of Chicago where he was a Joan Mitchell MFA grant recipient. He has been evolving complex drawings into animation/kinetic sculptural pieces using 3D software and sound design for over two decades. Prof. Tucker maintains an international profile through his exhibition record and his collaborative research, which often takes him to Japan and the Middle East. Some of these projects include: dealing with body mechanics using motion capture, using technology to create a responsive virtual heritage environment in collaboration with art historians, using animation to describe internal organ movements in collaboration with bimolecular imaging specialists, helping city councilmen visualize new traffic simulations and designing serious games.

Ariana Wyatt (US): Ariana is Described as “brilliant” (Opera Today) and “alluringly complex” (Opera News), Ariana Wyatt’s recent opera engagements include appearances with Gotham Chamber Opera, Opera on the James, Opera Omaha, Opera Roanoke, Glimmerglass Opera, Florida Grand Opera, Santa Fe Opera, the Juilliard Opera Center, and the Aspen Opera Theater. She has appeared in venues around the world including Carnegie Hall, the Kennedy Center, the Jerusalem Synagogue, and Martinů Hall, performing large works including Haydn’s *Creation*, Brahms’ *Requiem*, Orff’s *Carmina Burana*, and James Whitbourn’s *Annelies*. An enthusiastic advocate for contemporary art song and opera, she has premiered and championed chamber works by Alan Louis Smith, Daron Hagen, Gregory Hutter, and Lori Laitman. Her 2020 recording *Let Evening Come: American Songs Old and New* was named one of the best classical recordings of 2020

by the Chicago Tribune. Ms. Wyatt is a graduate of the Juilliard Opera Center and the University of Southern California. She is an associate professor of voice at Virginia Tech.

Tohm Judson (US): Tohm Judson is a Software Development Engineer for Microsoft and Multimedia Artist currently residing in Redmond, Washington. I am a former academic, having spent the last 2008-2015 as Associate Professor of Digital Arts and Music at Winston-Salem State University in North Carolina. As an artist, my pieces have been performed and exhibited in the Brazil, France, Germany, Italy, the UK, and throughout the United States, including the College Art Association, the SEAMUS National Conference, Society of Composers, Inc., Electronic Music Midwest, the Festival of New American Music, the Santa Fe International New Media Festival, and was a featured artist at the EMIT festival.

David Franusich (US): David Franusich is a transdisciplinary artist, designer, and image maker. He works at the intersection of the physical and the digital, exploring materiality through immersive environments, new media sculpture, projected video, and sound. David holds a Bachelor of Architecture and a Master of Fine Arts in Creative Technologies from Virginia Tech.

3. LINKS

<https://vimeo.com/508602988>

4. ACKNOWLEDGEMENTS

Artistic and Creative Director

Thomas Tucker

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Ariana Wyatt

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Kyle Hutchins

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3D Printing

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