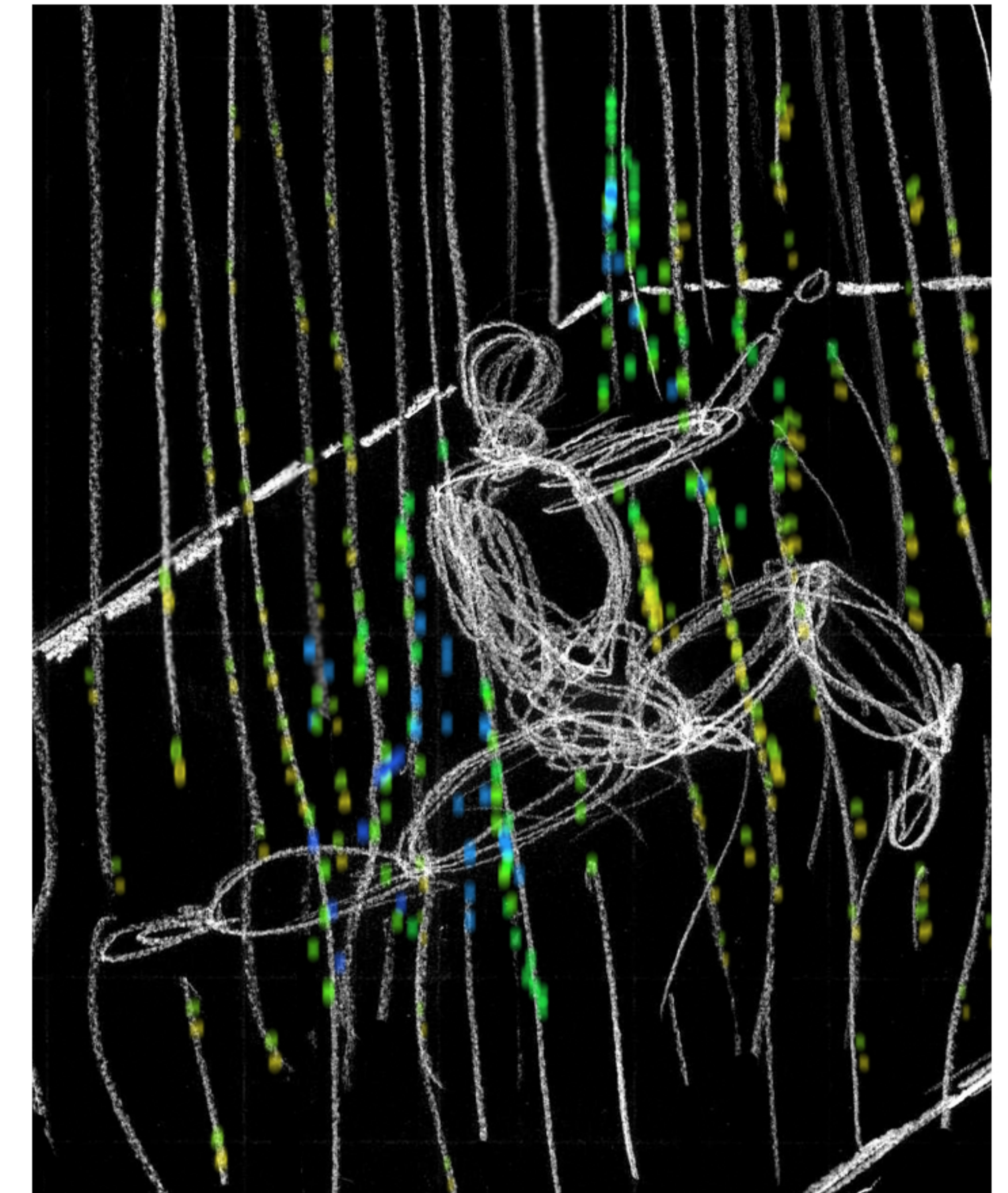
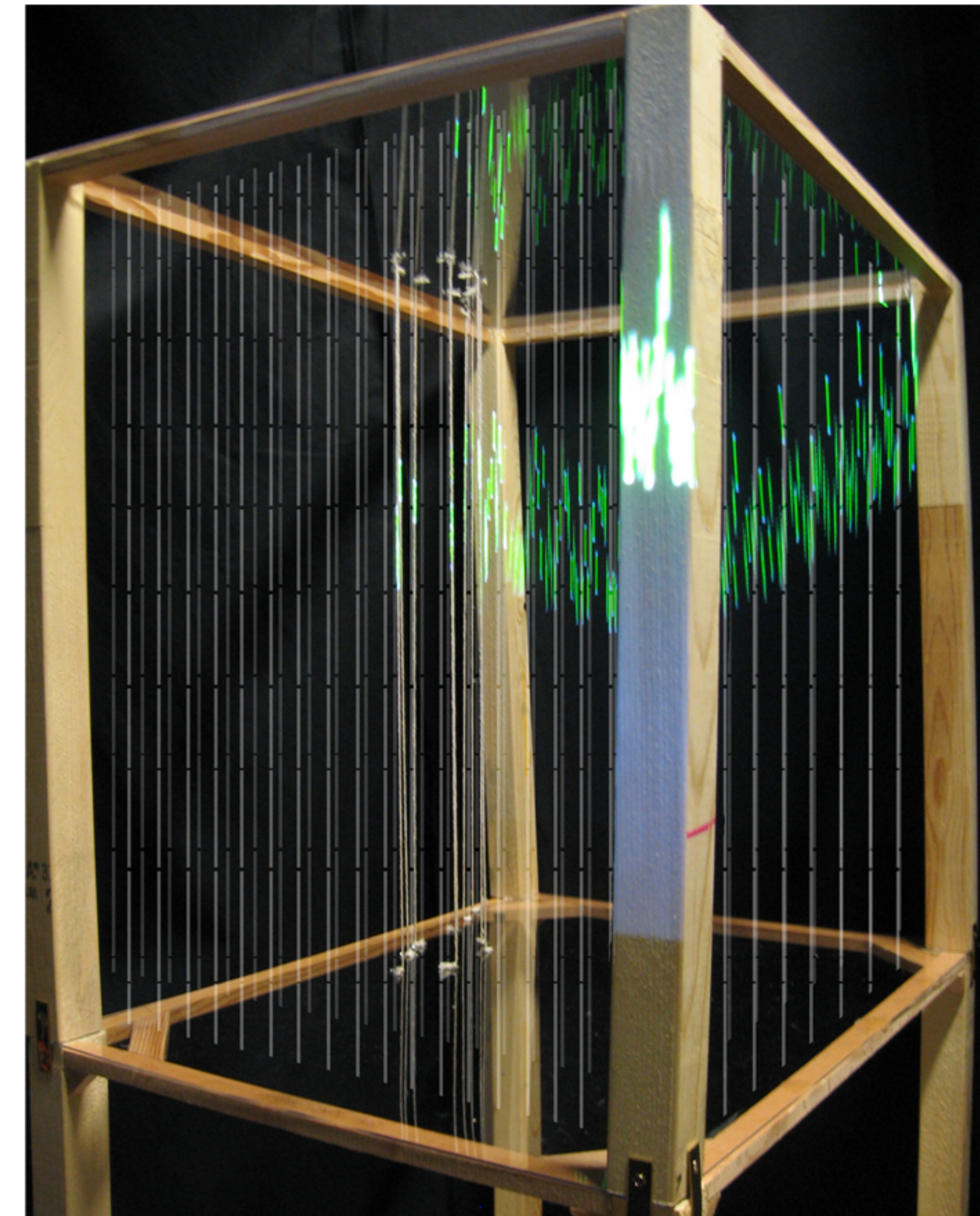
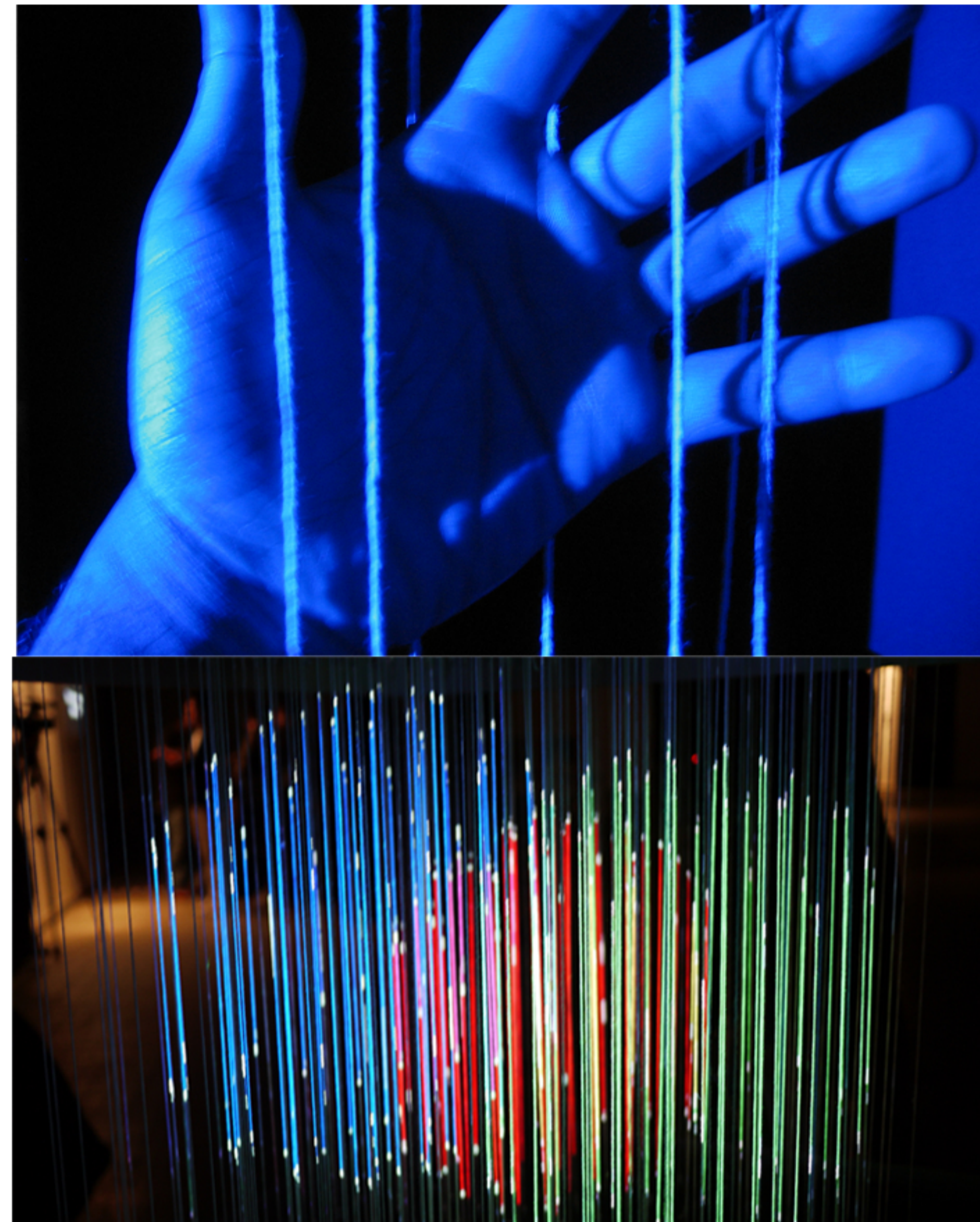
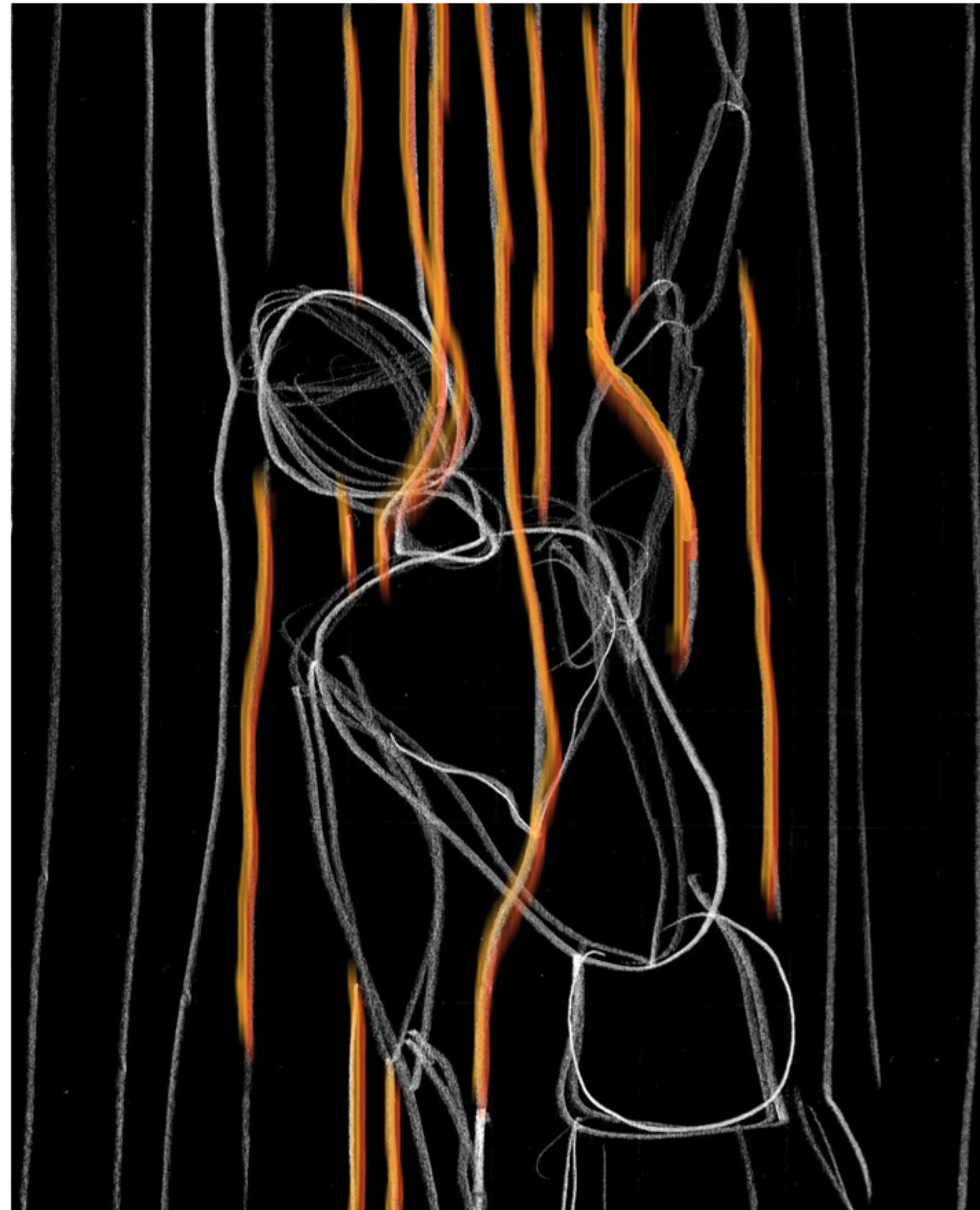


REVEALING SOMATIC EXPERIENCES IN DANCE PERFORMANCE

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Introduction

To a dancer, space need not be a vacuum through which the body simply moves. “Empty” space can be usefully thought of as a medium that has physical properties: space can be imagined as being thick as honey, grainy as sand, or unrelenting as steel. One of choreographer William Forsythe’s improvisational techniques, volume avoidance, calls for dancers to temporarily imbue the space with the physical properties of a well-defined solid (e.g., a cylinder) around which dancers must dance [2]. Advancing ground-breaking work by Rudolf von Laban in the first half of the 20th century, Bartenieff and Lewis describe the notion of spatial tension in which a dancer aligns various parts of their body to imaginary lines of attraction to achieve a dynamic range of movement quality that balances the need for stability and mobility [1]. From the dance performer’s perspective, these abstract conceptualizations of space translate to a flow of somatic experiences. Shusterman’s notion of somaesthetics [4] frames this internal, hidden, aesthetic experience best. However, dance and physical theatre are primarily experienced visually by a lay audience. A gap often exists between the experience of watching dance and performing dance. The application of digital technologies to live dance performance may help narrow this gap.

Research Goals

In this project, we couple a low-cost, open source, low-fidelity, tactile, volumetric display to a range of motion recognition tools and protocols. We do so to discover whether the combination of a tangible, 3D display with abstract motion graphics can be used to reveal some of the hidden embodied experience of a dancer to a viewing audience. Research similar to this project includes two of William Forsythe’s multimedia projects, *Improvisation Technologies* [2] and *Synchronous Objects* [3], which demonstrate how “empty space” can in fact be full of meaning to a dancer. Both projects overlay images of lines, planes, and solid volumes on previously-captured footage of dancers to expose to the audience the relationship dancers forge with space and with each other. However, these overlays are added in post-production and have not been successfully applied to live dance performance. Furthermore, the overlays and the performance are meant to be watched on 2D displays, flattening the experience of depth that is associated with viewing dance live. Our project aims to apply 3D visualization tools in real time to investigate strategies for bridging the gap between the experience of viewing human movement and the experience of moving. The findings of this research would contribute to an understanding of visual strategies to facilitate kinesthetic empathy.

Methods and Materials

We build on a low-fidelity volumetric display called Lumarca, an open source project developed by Matthew Parker and Albert Hwang at the ITP/Tisch School of the Arts in 2009. We intend to expose some of the inner, hidden experiences in dance by designing a mapping between a set of gestures and abstract motion graphics that will be rendered on the display. The gestures are detected using experimental movement recognition systems being developed in the Art-Performance-Research Group at Simon Fraser University’s School of Interactive Arts and Technology. Other readily available off-the-shelf components such as the Kinect and the Wiimote will also be repurposed to provide motion recognition capability. In doing so, we wish to contribute to the range of tools available for conducting research and making new media art in resource-restricted contexts, in addition to meeting our primary research goals.

Based on our team’s expertise in movement and technology design, we will hold a series of workshops with movement experts in order to iteratively design the mapping between their movement and the visualizations rendered on the Lumarca display. The research will conclude with a performance using the display and an evaluation of the audience’s response to it.

Next Steps

The current size of the volumetric display accommodates a limited subset of the body. Also, the motion recognition tools capture a limited proportion of the physical expressivity of a trained dancer. Further steps include designing a fully immersive display and coupling it with more highly-tuned motion recognition technologies. Partnerships with new media arts institutions interested in supporting the development of this tool will also be explored.

References

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