

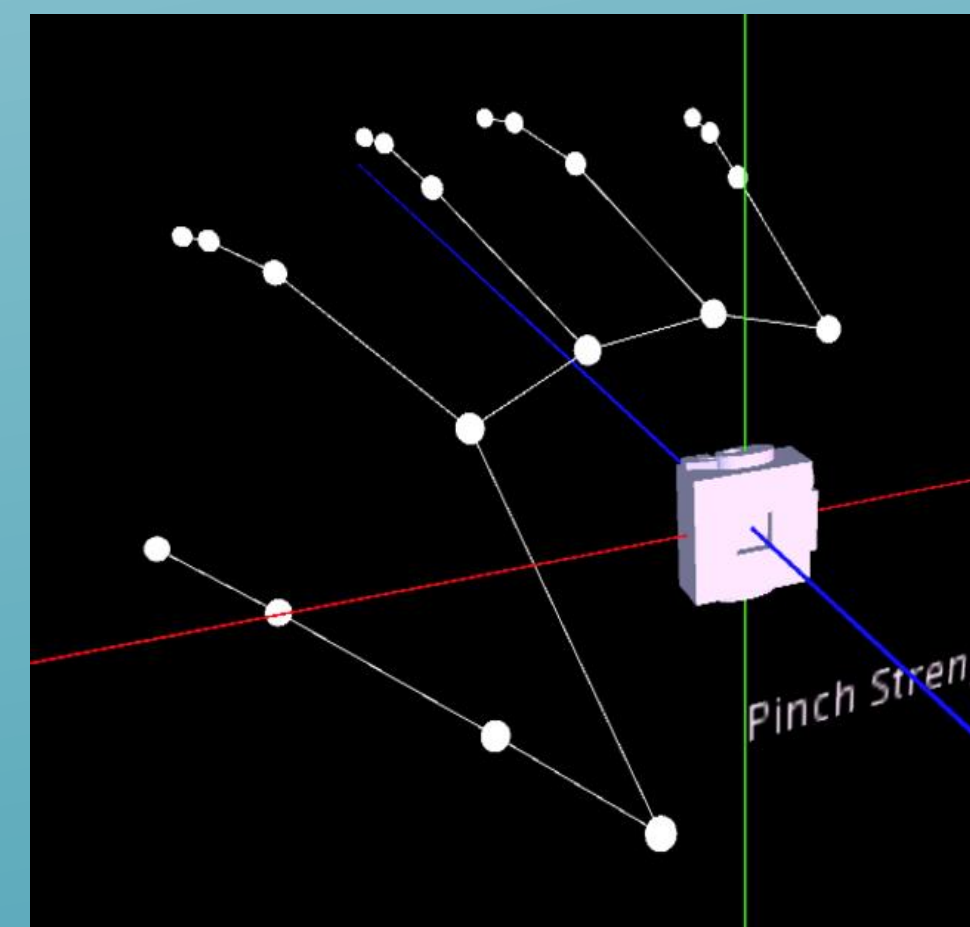
H O L O V I E W

Interactive Holographic Display

Desktop Prototype

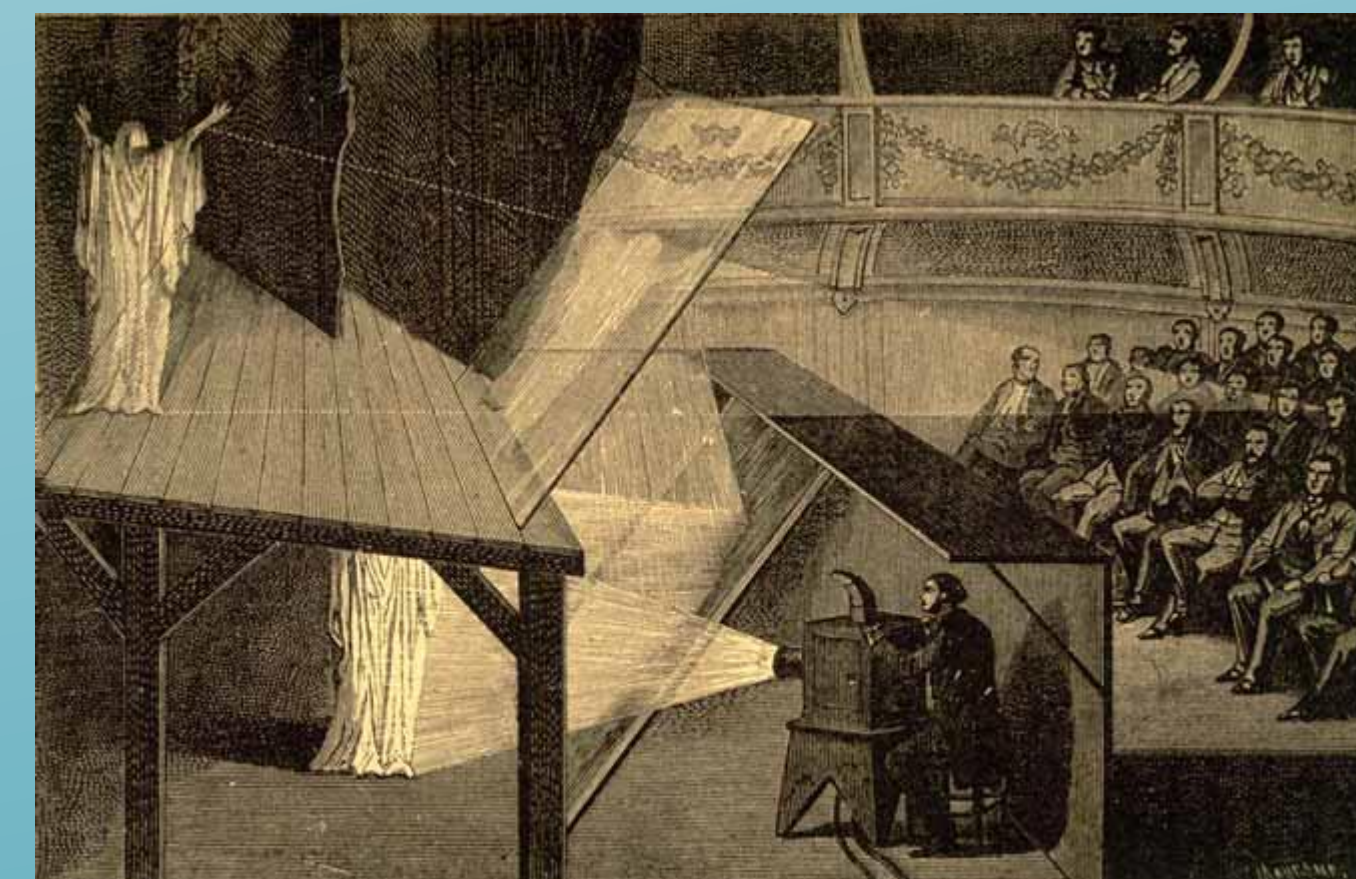
The HoloView Desktop prototype is an interactive semi-holographic display that responds to hand gestures. By pinching, users can rotate the semi-holographic image inside.

- Hardware development in Google Sketchup
- 3D Printed model of the final structure was made
- Structure made out of wood and hand painted
- Monitor fits above PETG
- Interaction is implemented in Java
- LEAP motion controller used for input
- The software recognizes the shape of the hand, and allows users to pinch and pull the hologram
- The program can display any 3D .obj file, which can easily be exported from Sketchup
- Future plans include adding more interactivity, and adding a second “background” display
- The HoloView Desktop Prototype was debuted March 1st, 2016



How It Works

By using the famous “Pepper’s Ghost” illusion, we are able to create what is seemingly a hologram using an ordinary computer monitor or projector, and a thin sheet of PETG plastic. As long as the image is bright enough, it will be refracted through the plastic. The image is clearer if it is at a 45 degree angle with the refraction material. When viewed by an audience, the image appears to be directly behind the refraction material, regardless of the image’s true location. This lighting technique has been used since 1862 when it was popularized by scientist John Henry Pepper. The famous Tupac Shakur hologram, Disney’s Haunted Mansion, and teleprompters are all examples of Pepper’s Ghost.



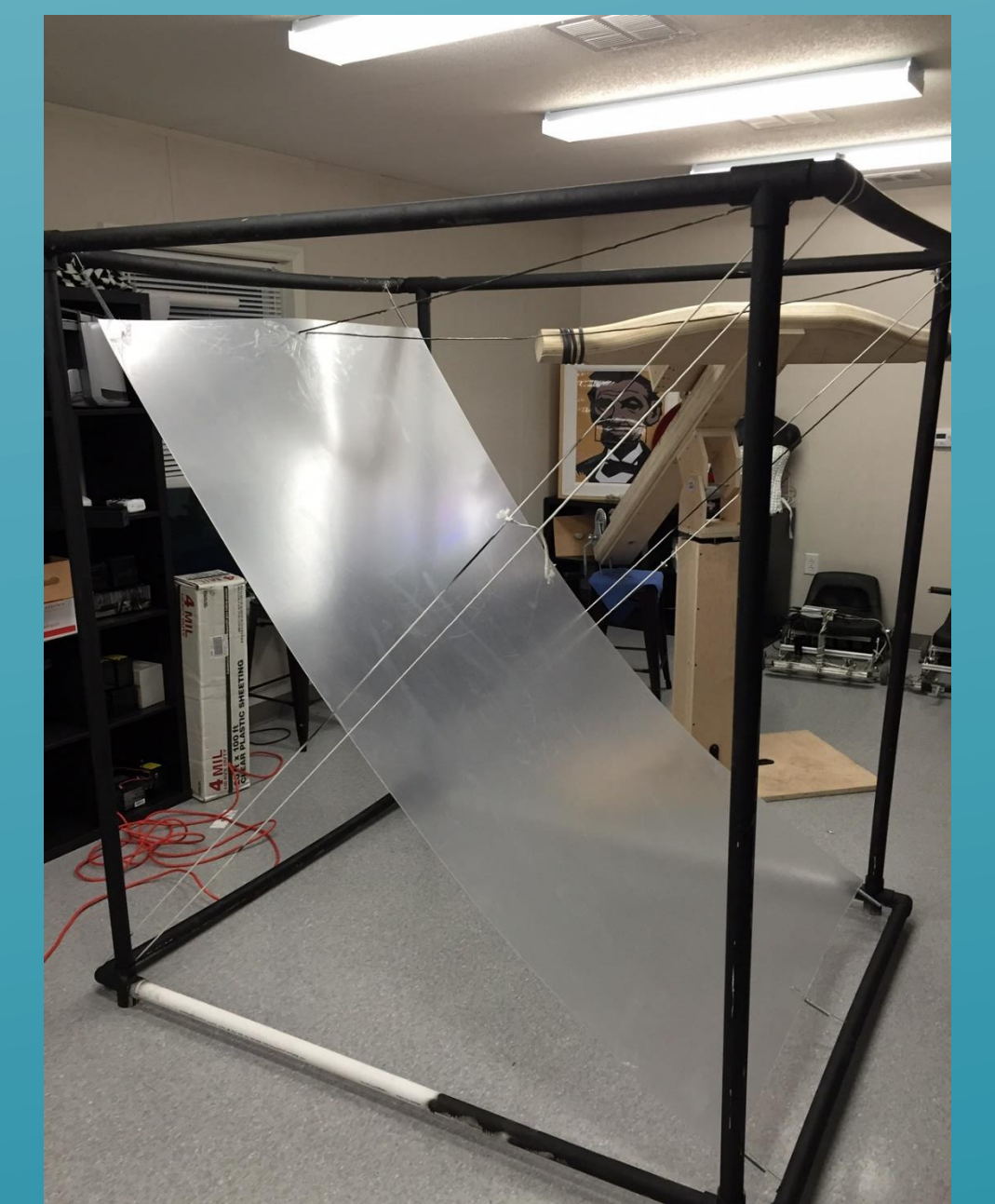
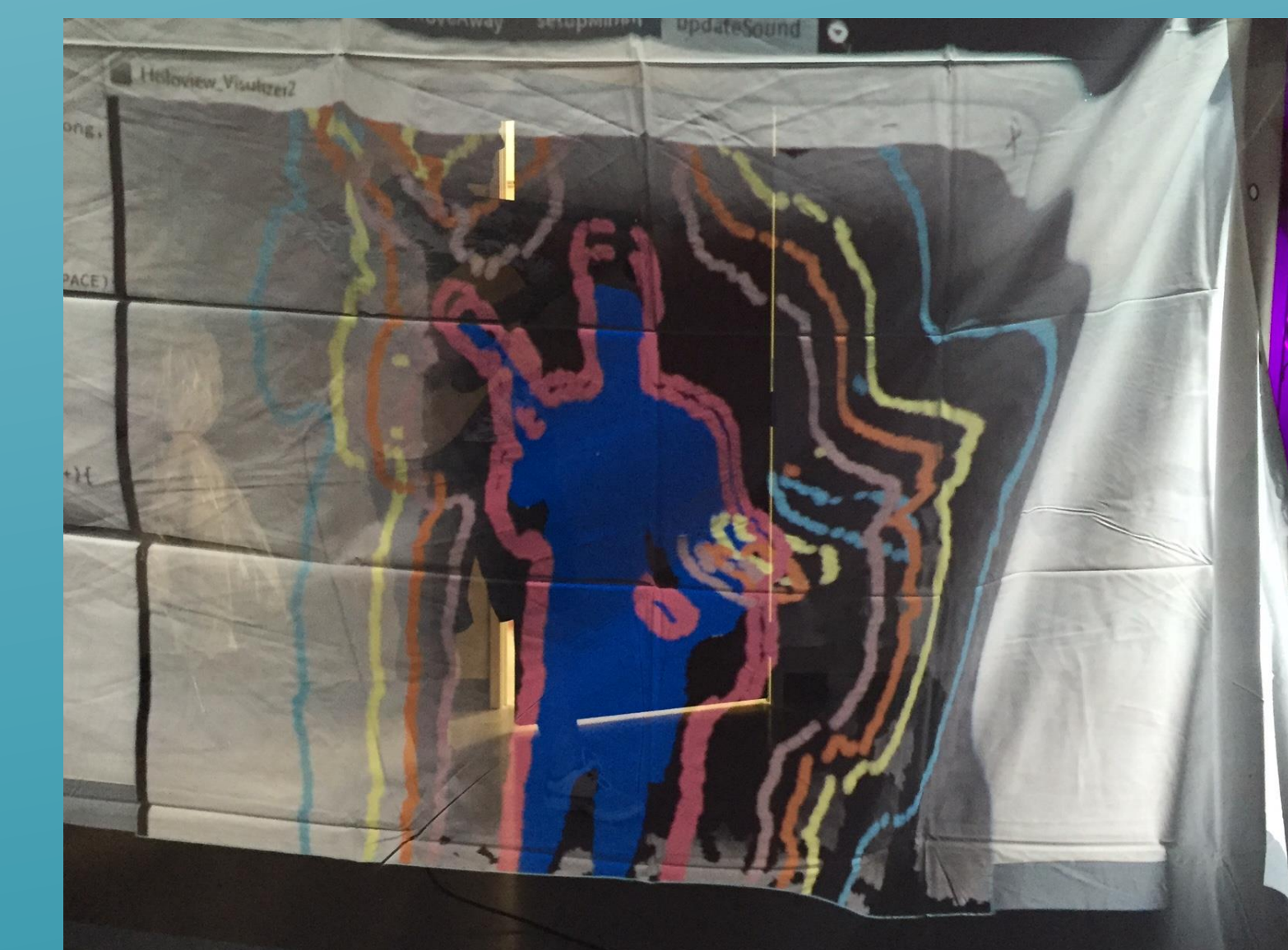
How it started

At its conception, HoloView manufactured and sold high-quality semi-holographic pyramids intended for smartphone use. The beginning of 2016 saw a shift towards research and the development of an interactive desktop display.

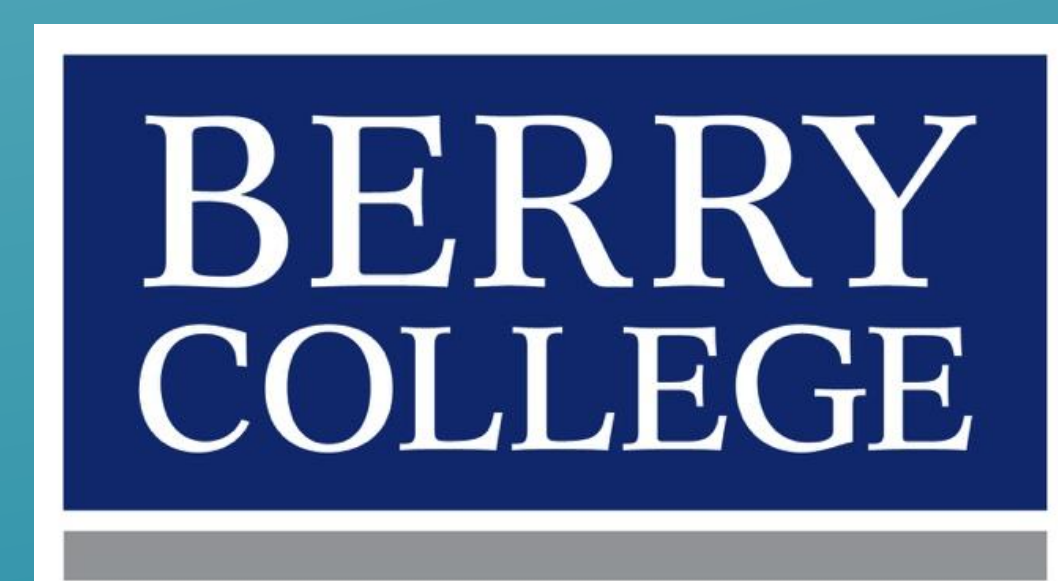
Standing Prototype

The HoloView Standing Prototype was designed to be a natural progression from the desktop prototype. Learning from our experiences working on the earlier version, we decided that scaling the projection area up so that a person could fit inside would provide for a more eye-catching effect, while allowing for considerably more interactivity. The main concept behind the standing prototype was to augment a live performance, distancing the project from other augmented reality projects which are unable to use a truly live performance.

- XBOX Kinect captures the full image of the user
- Projector used instead of a computer monitor to create the image
- In order to keep the size of the structure down, an ultra-short throw projector was used
- Image is projected upwards onto a shower curtain, which collect the light
- The image is refracted by a 4 X 8’ sheet of PETG
- Processing is used to capture the silhouette of a user.
- Different animations interact with the silhouette with different cues (microphone and guitar feed).



HoloView is Alec Leeseberg and Alan Young. Alec Leeseberg is the CEO and Hardware designer. He is a junior Creative Technologies major with minors in Business and Computer Science. Alan Young is the Software designer. He is a junior Math major with a concentration in Computer Science. Mentored by Zane Cochran. Developed in HackBerry Lab



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