

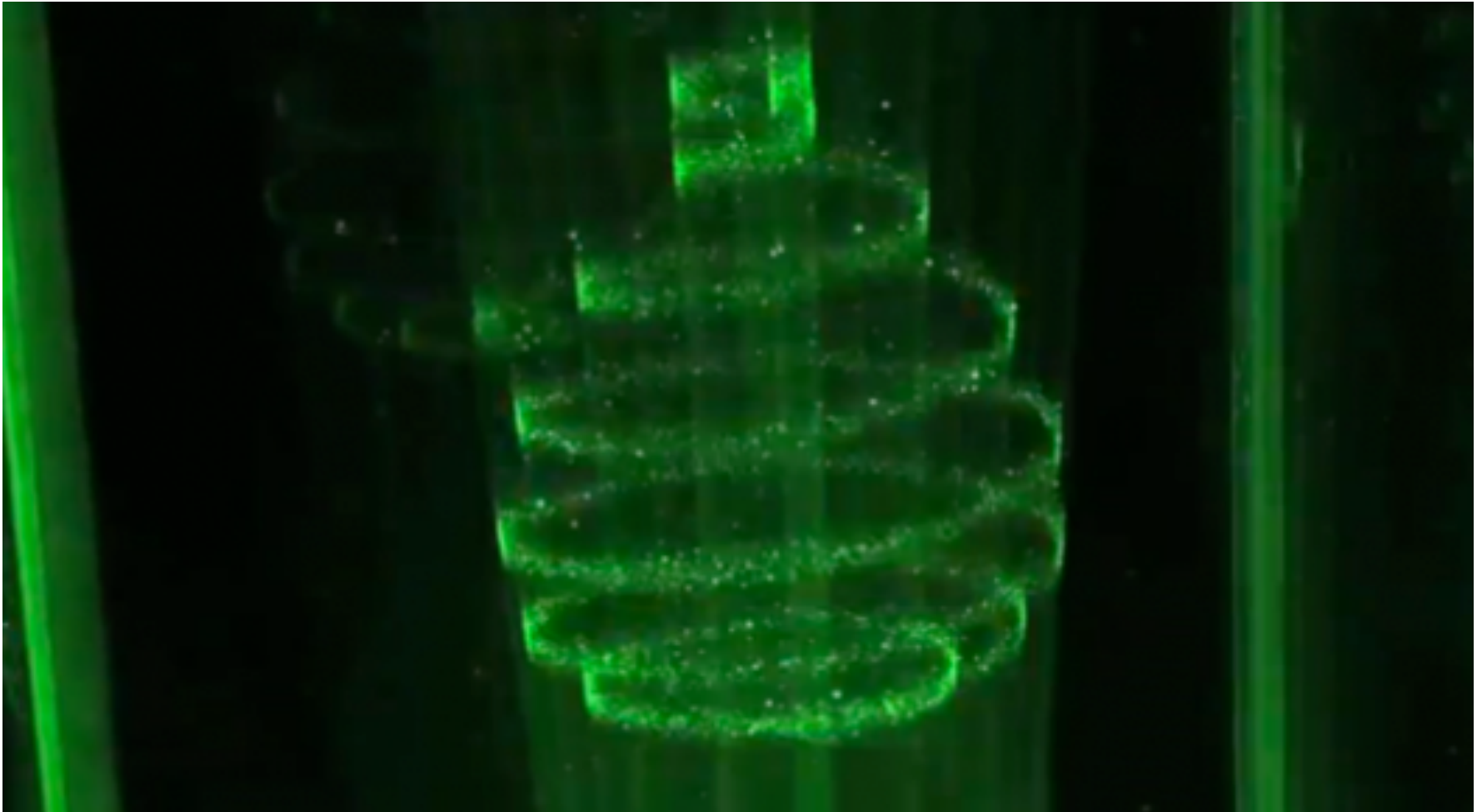
Expand the Vision

Megan Ogle

Abstract

- Project will be installed in a small gallery setting
- The gallery space will be dark
- Floor will be filled with rows of 3D lights
- There will also be a DJ in the gallery space
- As viewers walk in the lights, shining 3D images, will coordinate with the “music”
- Technologies:
 - Aerial 3D System
 - Nano-Ear
 - Music Visualizer

Understanding Aerial 3D System



Understanding Aerial 3D System

- Without using a screen this system as the ability to create three-dimensional objects in mid-air
- Laser system
- Projects beams of light from below to create plasma excitation in atoms of oxygen and nitrogen in the air



Understanding Aerial 3D System

- Creates 50,000 points of light per second (frame rate = 10-15 fps)
- Result = floating 3-D image that has the ability to be viewed in 360 degrees!
- So, this is the first component of my project. There will be rows of these aerial 3D systems lining the floor of the gallery space.

Understanding the “Nano-Ear”



Understanding the “Nano-Ear”

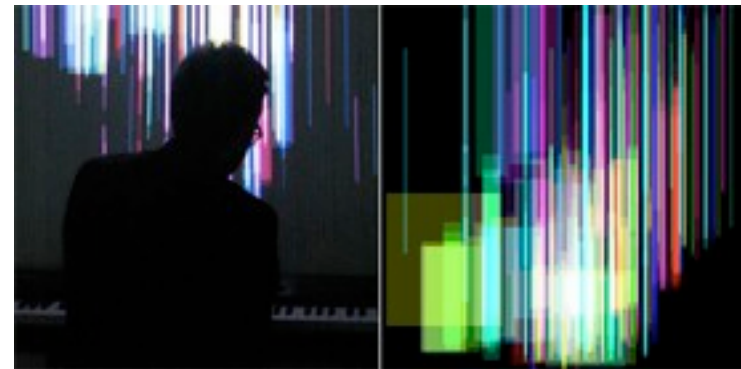
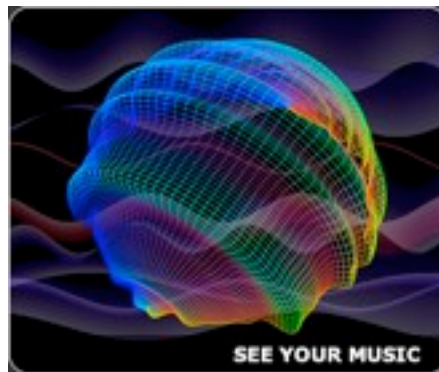
- Capable of detecting sounds six orders of magnitude below the threshold of human hearing – able to hear sounds made at the bacterial level.
- Tiny piece of gold attached to a laser beam – powerful acoustic microscope
- Created from an optical tweezer device
- Optical tweezers – discovered in 1980s
 - Laser device
 - Use beams of light to trap a microscopic particles
 - Draws the particle to the most intense point in the electric field
 - The particle is then unable to move by itself, unless something nearby disturbs it
 - Able to listen to small vibration by trapping the nano particle and measuring the influence of multiple sound waves of the particle

Understanding the “Nano-Ear”

- Extremely sensitive and minuscule sound detector
- Researchers discovered that when a particle is trapped it can be used as a sensitive sound detector
- The optical tweezers allow any disturbances to the particle to be tracked and recorded.
- Vibrations from nearby sound waves have the ability to move the trapped particle from its equilibrium position
- By analyzing how much the particle had been displaced can allow the frequency to be calculated
- This is the second component to my project. Using the Nano-Ear, I will record sounds on the bacterial level and use them to create music.

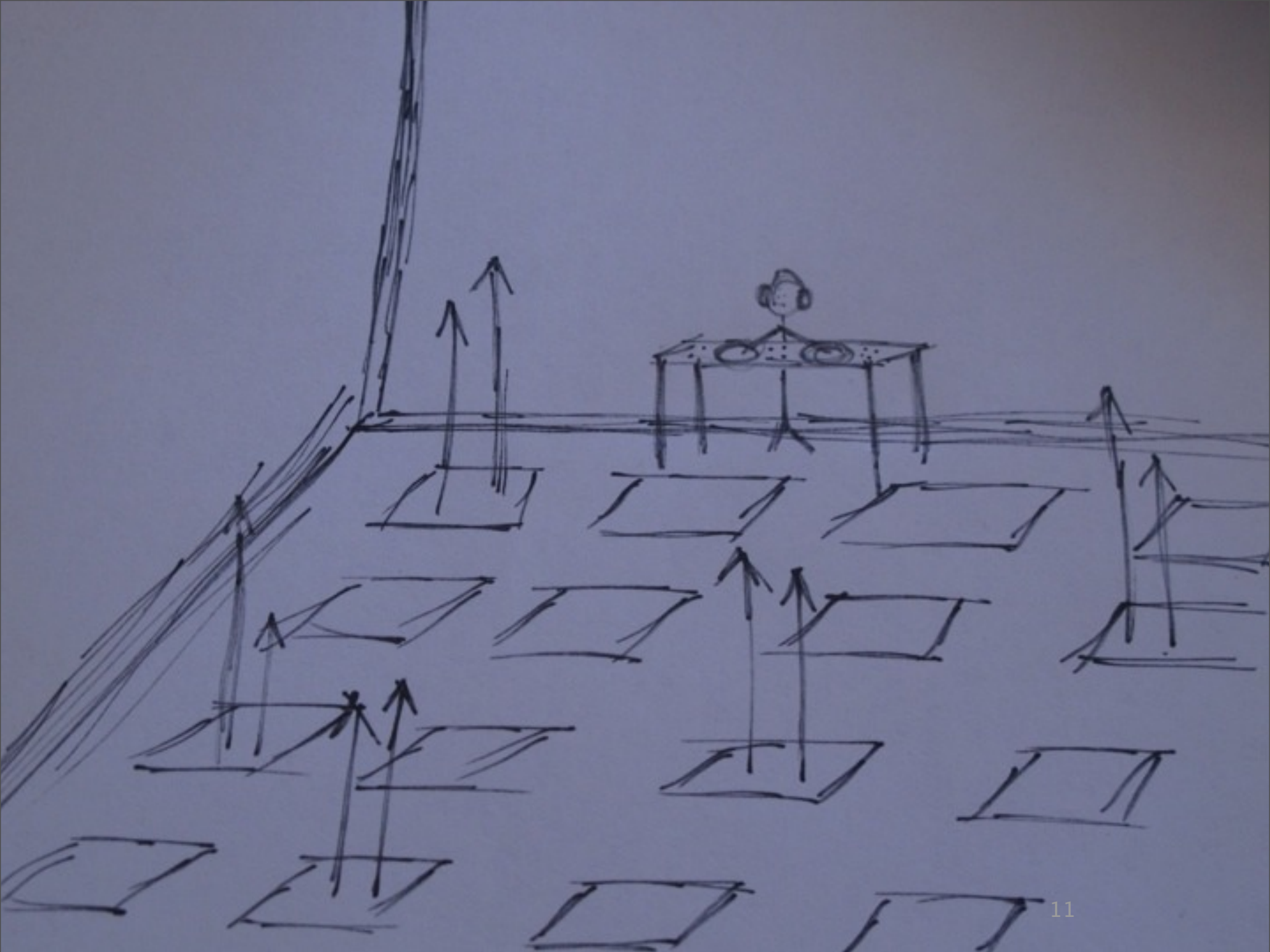
Transforming Sound Into 3D Images

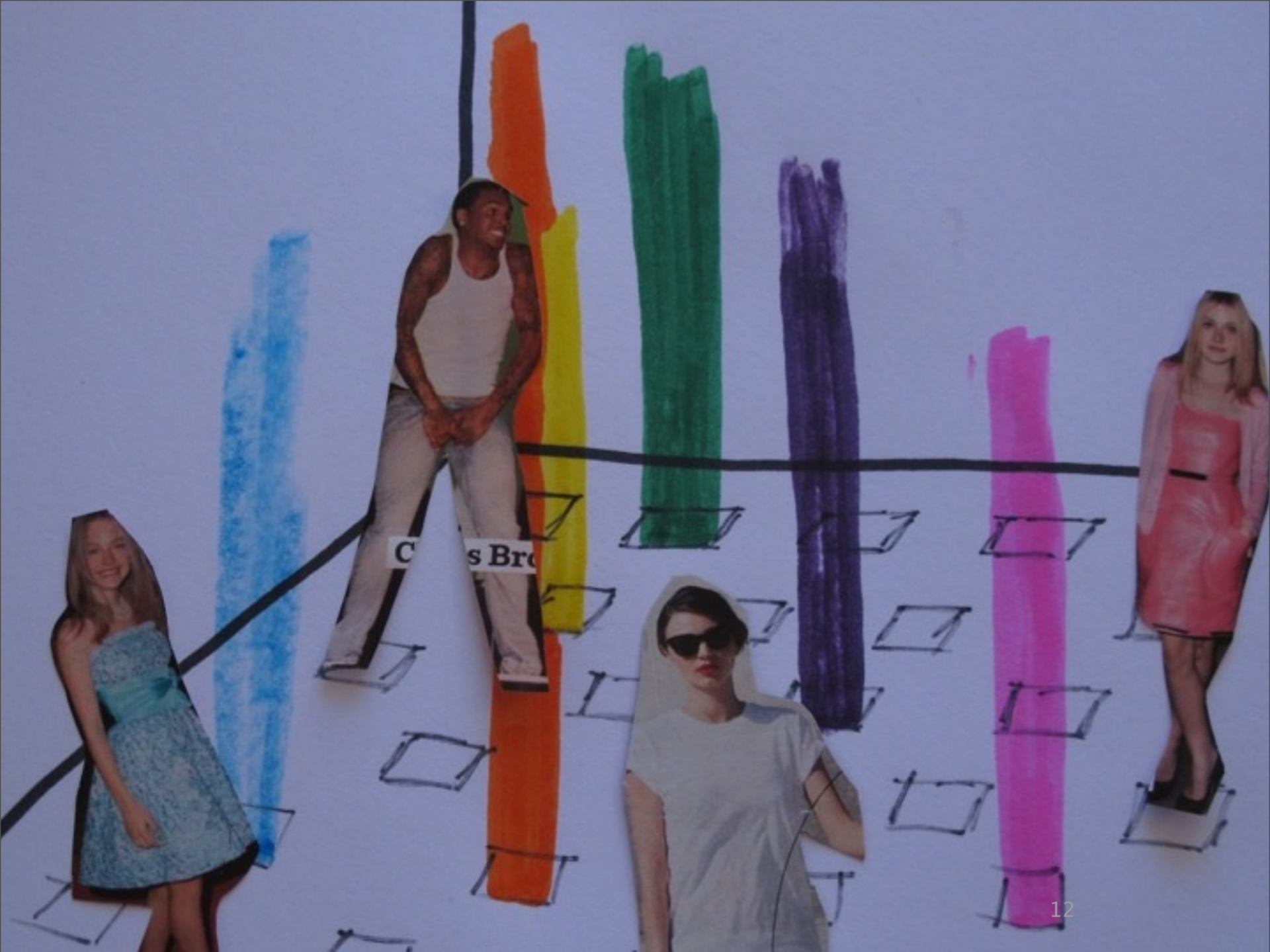
- After the music is produced, I will use a music visualizers and media player software to create imagery based on the bacterial music.
- As the music is playing throughout the gallery space, the 3D system will generate images that is synchronized with the music being played.
- Notes which belong to a certain bacteria correspond to certain color



Conclusion









Tuesday, March 20, 2012

Conclusion

- My goal is to create a space in which the viewer feels surrounded and trapped by lights and sound. Once in the gallery space the viewer will be engulfed in an extremely interactive and immersive space. In a way, I tried to transform the way two of our senses work in everyday life. In essence, what I am trying to create is a musical light show in a way that no one has ever done before. Using these two new technologies will hopefully make the overall experience more enriching. This project will transform the gallery space and hopefully have a thrilling effect on the viewer.

Sources

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- [http://www.popsci.com/science/article/2 ...tter-world's-first-
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