



Interactive Mona Lisa

Jung Who Nam

Computer Science and Engineering, University of Minnesota

Motivation

A painting is like a window between two worlds: one that a painter created and the other one that we live in. While looking at a traditional painting, it feels as if we are the only one who can see the world on the other side and that world is static. What if the painted world is dynamic and the people in it can see us as well? How would Mona Lisa react to us then? We could realize our imagination of how she interact with the people she sees through developing an interactive system.

As a person walks around in front of the interactive Mona Lisa, she looks at the person (her eyes follow the person). As the person moves closer, farther, faster or slower, she smiles, genuinely smiles, frowns or gets sad.

Methods

Input and Display Devices

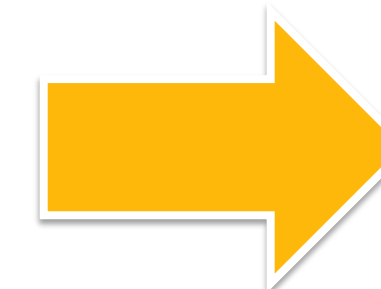
We want users to feel that they are looking at a painting and also applying our idea that a painting is a window between two worlds, we display the interactive painting on a 2D screen. We use a Microsoft Kinect to detect how far the user is and how fast the user is moving, and use those factors to change the Mona Lisa.

Mapping between Movement and Emotion

The continuous inputs we use are the user's relative position to the painting and the speed of movement. The emotional strength of the Mona Lisa is determined by the relative position of a user and the speed of movement. The emotional state is determined by the relative position of a user.

Interacting with the Mona Lisa

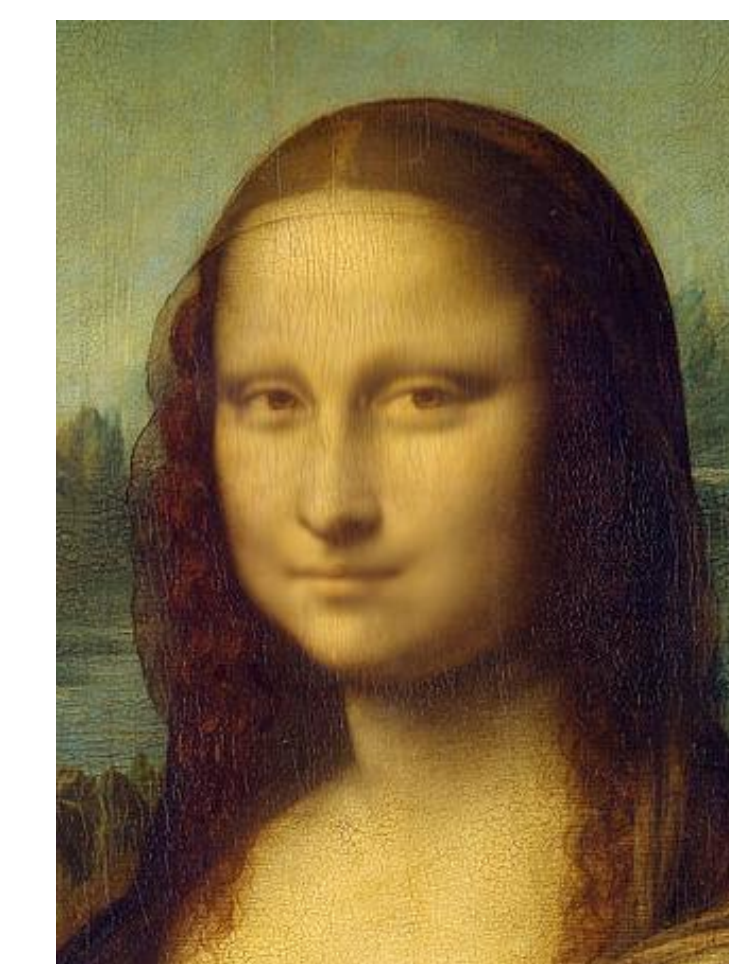
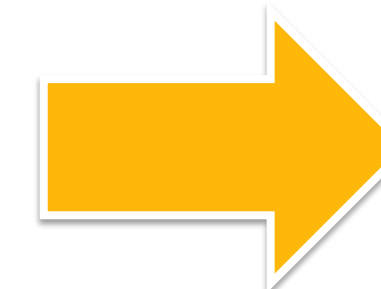
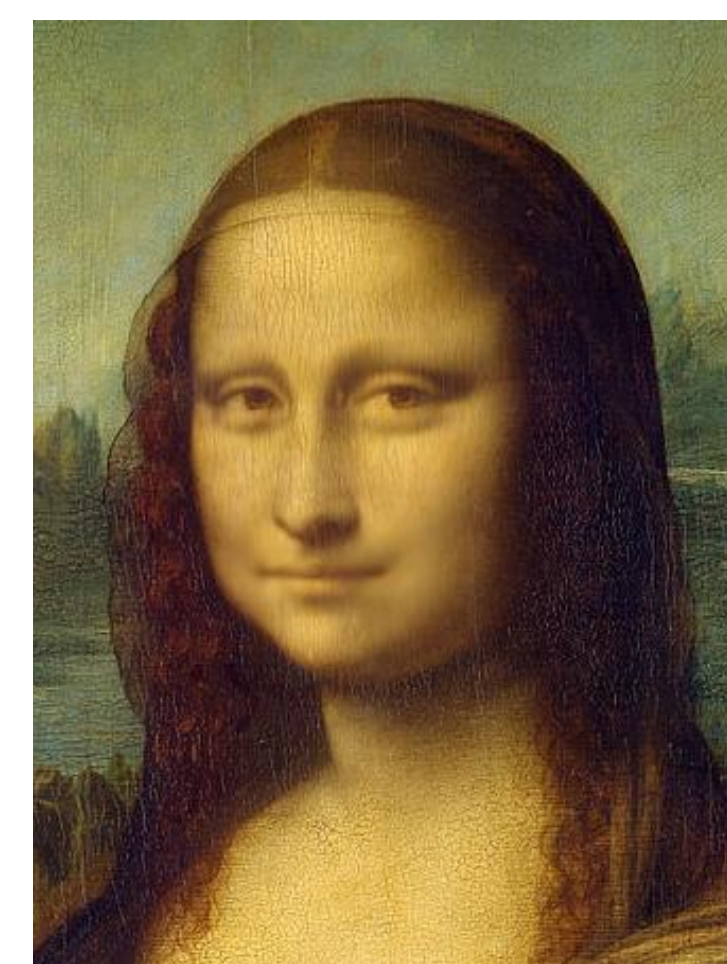
As a user notices the painting far away, Mona Lisa is initially sad because she feels lonely. As the user walks closer, she begins to smile.



If the user dances, she becomes happier and so smiles more.



But she has a personal boundary like everyone else so if the user walks too close to her, she is shocked at first. If the user gets even closer, she begins to get angry.



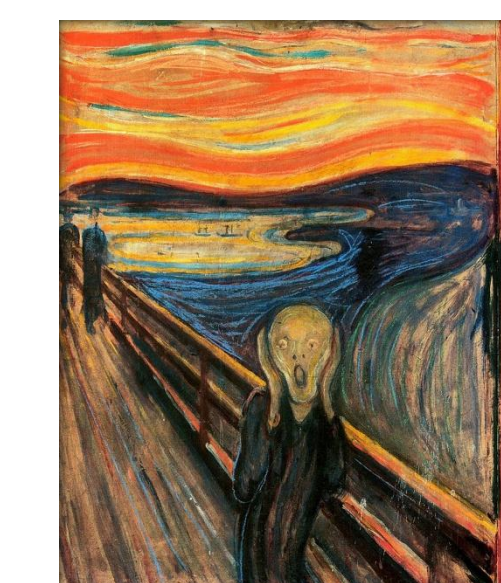
Continuous Input Space

Rather than using specific gestures as inputs, we use continuous inputs to map the changes in the Mona Lisa. In doing so, a user does not have to spend much time and effort to perfectly perform a specific gesture. Therefore, a user has more freedom to do various movements he or she feels. Another advantage of using a continuous input space is that a user can be more expressive about their feeling. With a continuous input, the Mona Lisa can detect a range of values and can sense the expressiveness of the user. Since more expressive movements get more attention and have more impact on our emotions, the Mona Lisa is the same. She can show strength of an emotion from the continuous input

Future Work

Other Paintings

We create different personalities for people in a painting. In the American Gothic, the husband and wife would grin as a user dances violently. In the Scream, he would panic even more as a user moves abruptly.



Movie Posters

With the 3D models like the ones in Monster University and Despicable Me, we have much more freedom to produce more creative, playful, and comical interactions. As a person walks by an interactive poster, the characters start following the person. When the person dances, the monsters dance along in their own ways. There are unlimited possibilities for various interactions.

