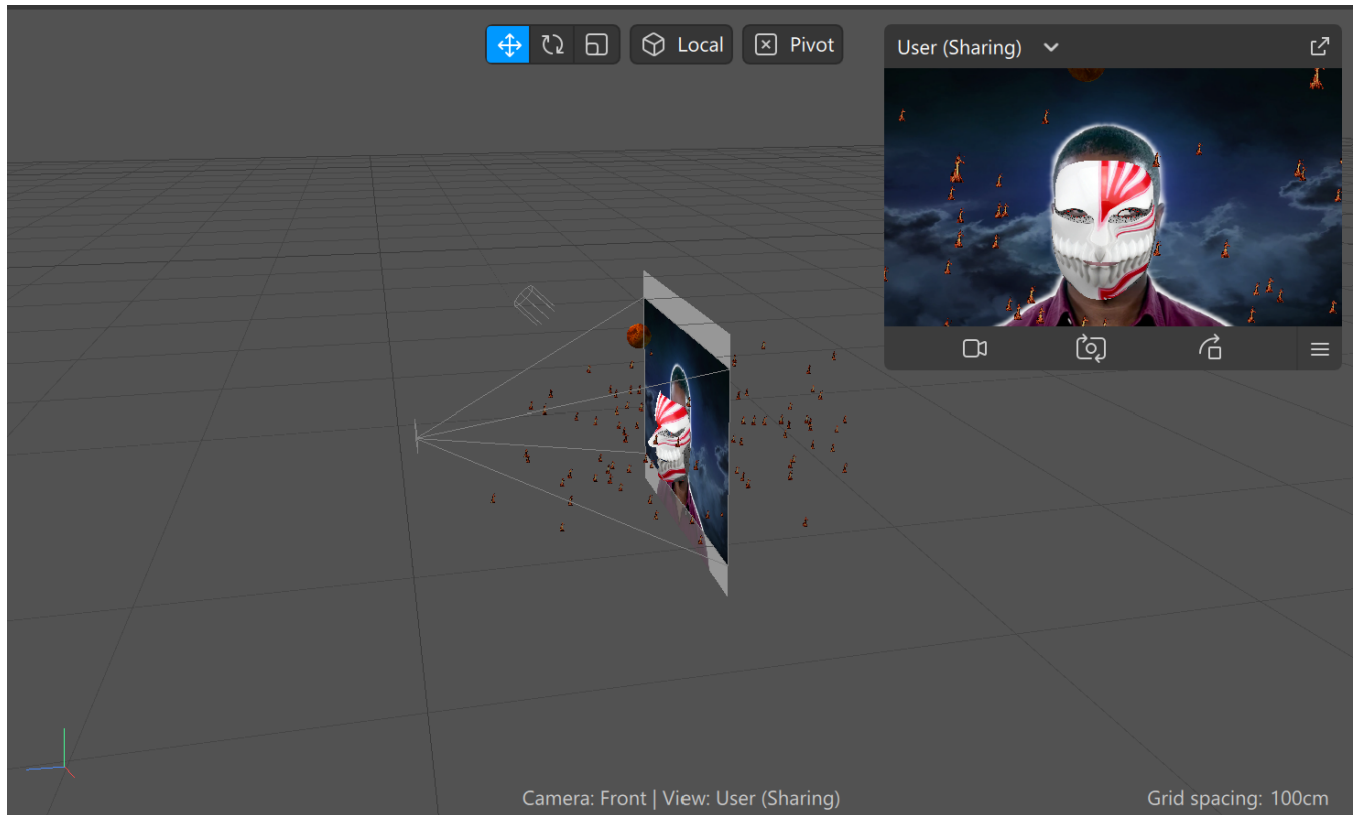


Instagram Filter

Weixin Shi
{Weixin.shi001}@umb.edu
University of Massachusetts Boston



ABSTRACT

I'm making a filter for Instagram using the official software Spark AR. This filter has a mask track user's face, when user move their head mask would follow, the eye and mouth on the mask mesh will also turn off if user close their eye and mouth. I'm using JavaScript to simulate the beam animation too. Which allow the user to shoot the beam when they open their mouth wide.

KEYWORDS

Spark AR, Augmented Reality, JavaScript, Photoshop, Instagram

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1 INTRODUCTION

I want to make something cool and popular. especially I am a instagram user, I have seen a lot short video using different filter. So, it might be time to make my own filter. And this project is an opportunity for experimenting what I learn in the class, I can use JavaScript to make some cool AR animation. I am also proud to be able to contribute to the Instagram community.

2 RELATED WORK

Face Mesh [1], JavaScript [3], Layer [2].

3 METHOD

First, I used Photoshop to make a mask that I like. Then use Spark AR to make a face mesh, and then import the mask as a texture. Make different layers for backgrounds, effects and users. Use JavaScript

to write a helper script to simulate beam animation. Add the particle system to the scene, so there will be fire flying around.

3.1 Implementation

Please tell the reader how you implemented the project. You can include code snippets that you want to highlight. Don't include the whole code.

```
Promise.all([
  Scene.root.findFirst('Cylinder'),
]).then(function(results){
  const plane = results[0];
  plane.transform.scaleX = scaleAnimation;
  plane.transform.scaleY = scaleAnimation;
  plane.transform.scaleZ = scaleAnimation;
});
```

3.2 Milestones

How did you structure the development?

3.2.1 Milestone 1. Brainstormed the project idea, then choose to do something relate to my favorite animation and the software I used.

3.2.2 Milestone 2. Figure out how to use Spark AR and photoshop, then make the mask and different layers.

3.2.3 Milestone 3. Figure out how to use JavaScript to make some beautiful animations in Spark AR. Then add the particle system to the scene, ensure that the filter is not too simple.

3.2.4 Milestone 4. Trying to publish the filter, but stuck on the uploading process.

3.3 Challenges

Describe the challenges you faced.

- Challenge 1: Mask was too close to the face, so some part of the mask didn't show up which is similar to Z-Fighting, fixed later by reposition the coordinates.
- Challenge 2: Writing animation scripts, related tutorials are very limited, most of them are old. After a lot of Google searches, I realized that I now need to use promises in JavaScript to access objects in the scene. Finally solve the undefined error.

4 RESULTS

Fail to publish the filter before due date. So the project can only be open on Spark AR. And it's better to see the effect with own webcam, so you can interact with scene and all the objects.

5 CONCLUSIONS

The final version is not exactly what I had in mind, I want a more realistic beam but as a result I could only use the model in the Spark AR library, and the cylinder was the only one close to the beam. But after adjusting the texture and lighting, it looks better. Of course, there is room for improvement, and I may continue to make it better and publish it someday.

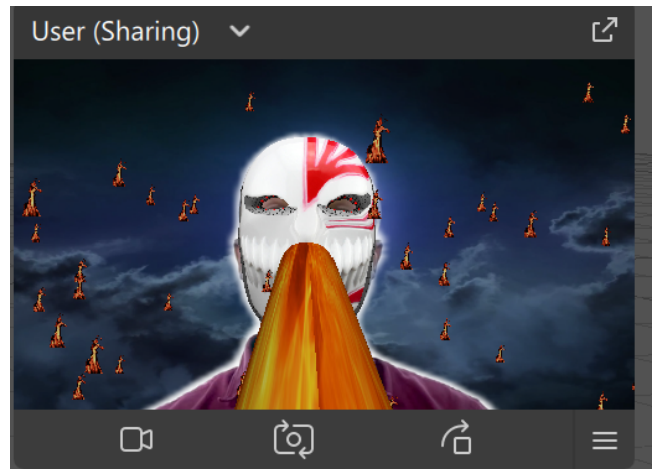


Figure 1: beam animation.

Table 1: Performance table

Device	Performance
iPhone	60 FPS
Android	60 FPS

REFERENCES

- [1] Catalyst. 2019. Face Mesh. URL: <https://www.youtube.com/watch?v=Ccp0qdTP5Hcab&hannel=Catalyst> (2019).
- [2] AR Critic. 2020. layer. URL: <https://www.youtube.com/watch?v=eb0jnRlwjDoab&hannel=ARcritic> (2020).
- [3] gowaaa. 2020. JavaScript. URL: <https://www.gowaaa.com/post/scripting-javascript-promise-in-spark-ar-for-beginners> (2020).