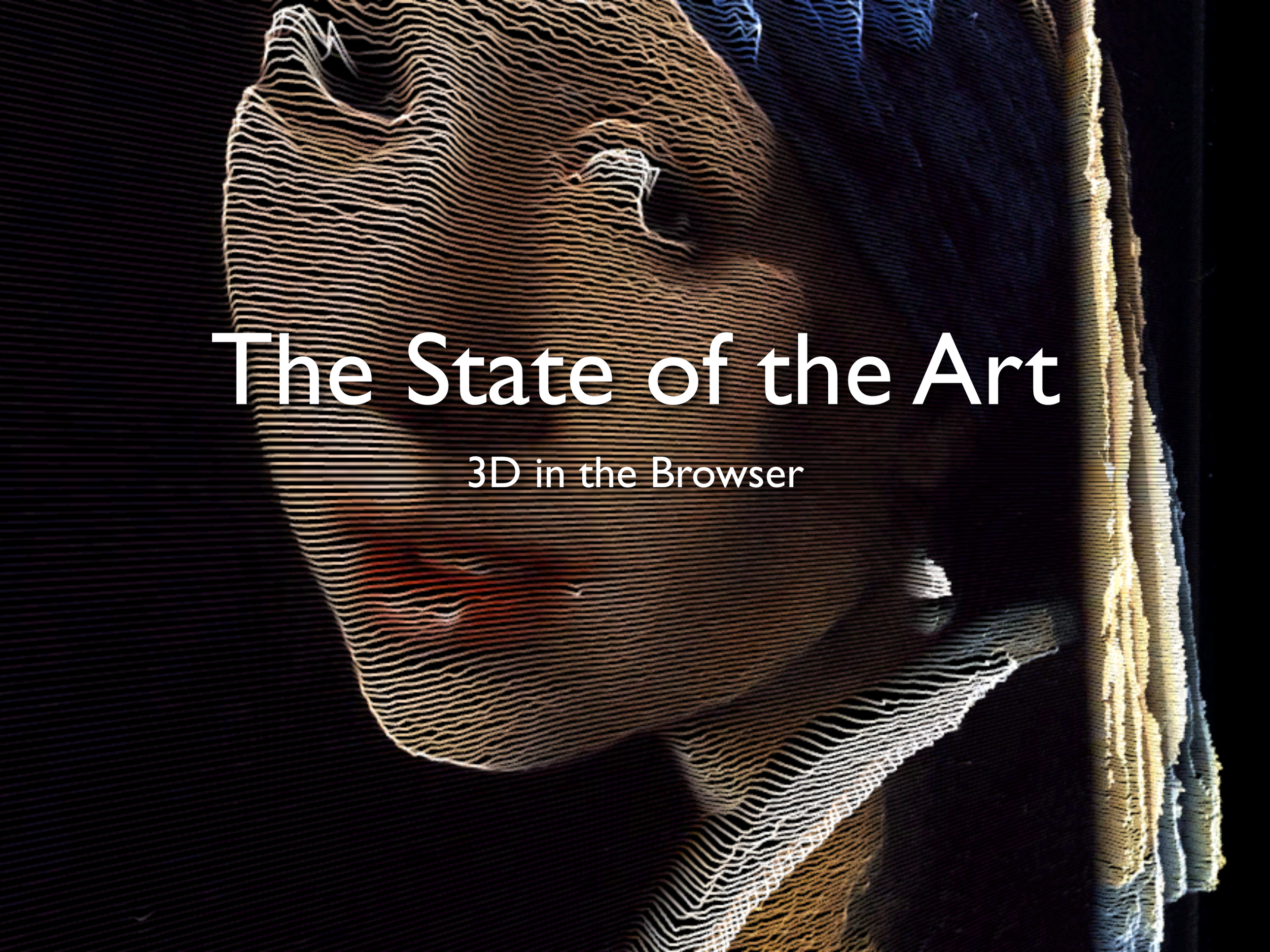

The State of the Art

3D in the Browser

Who Am I?

- Felix Turner
- Freelance web developer and creative technologist
- www.airtightinteractive.com

GPU Rendered Web 3D

- Stage3D (ActionScript)
- WebGL (JavaScript)
- Unity3D (JavaScript, C#, Boo)

Stage3D

- Flash 11API
- Enables GPU accelerated 2D/3D graphics
- 3D Engines:
  - Away 3D 4
  - Alternativa 8
  - Flare 3D

WebGL

- Open Standard Library
- Implemented directly in browser
- 3D Engines:
  - Three.js
  - J3D
  - Processing.js

Supported Platforms

- Hardware Requirements
  - Recent Graphics Card
- Browser Requirements
  - Stage3D - Flash Player 11
  - WebGL - Chrome, Firefox, Safari and Opera

Core 3D Concepts

- Renderer
- Scene
- Camera
- Geometry, Vertices
- Materials
- Lights

Code Comparison

- Away3D

```
var cube:Cube = new Cube(material, 100,100,100);
view.scene.addChild(cube);
```

- Three.js

```
var geometry = new THREE.CubeGeometry(100, 100, 100);
var cube = new THREE.Mesh(geometry, material);
scene.add(cube);
```

Particle Systems

- Allow great number of simultaneous particles
- Each particle must have the same texture

Generative Geometry

- Quads
- Lines

Shaders

- Work directly on GPU
- Vertex Shaders - modify vertices
- Pixel Shaders - draw pixels
- Written in AGAL (Flash) or GLSL (WebGL)

Ready for Primetime?

- Can use WebGL for client sites now
- Need to build alternative content for various devices

Looking Forward

- More devices will support GPU 3D
- Sophisticated 3D Games in the browser
- More powerful frameworks and tooling

Thanks!

www.airtightinteractive.com/webgltalk