

A-FRAME

Build the Virtual Reality Web

@ngokevin_ / Mozilla VR / aframe.io / mozvr.com
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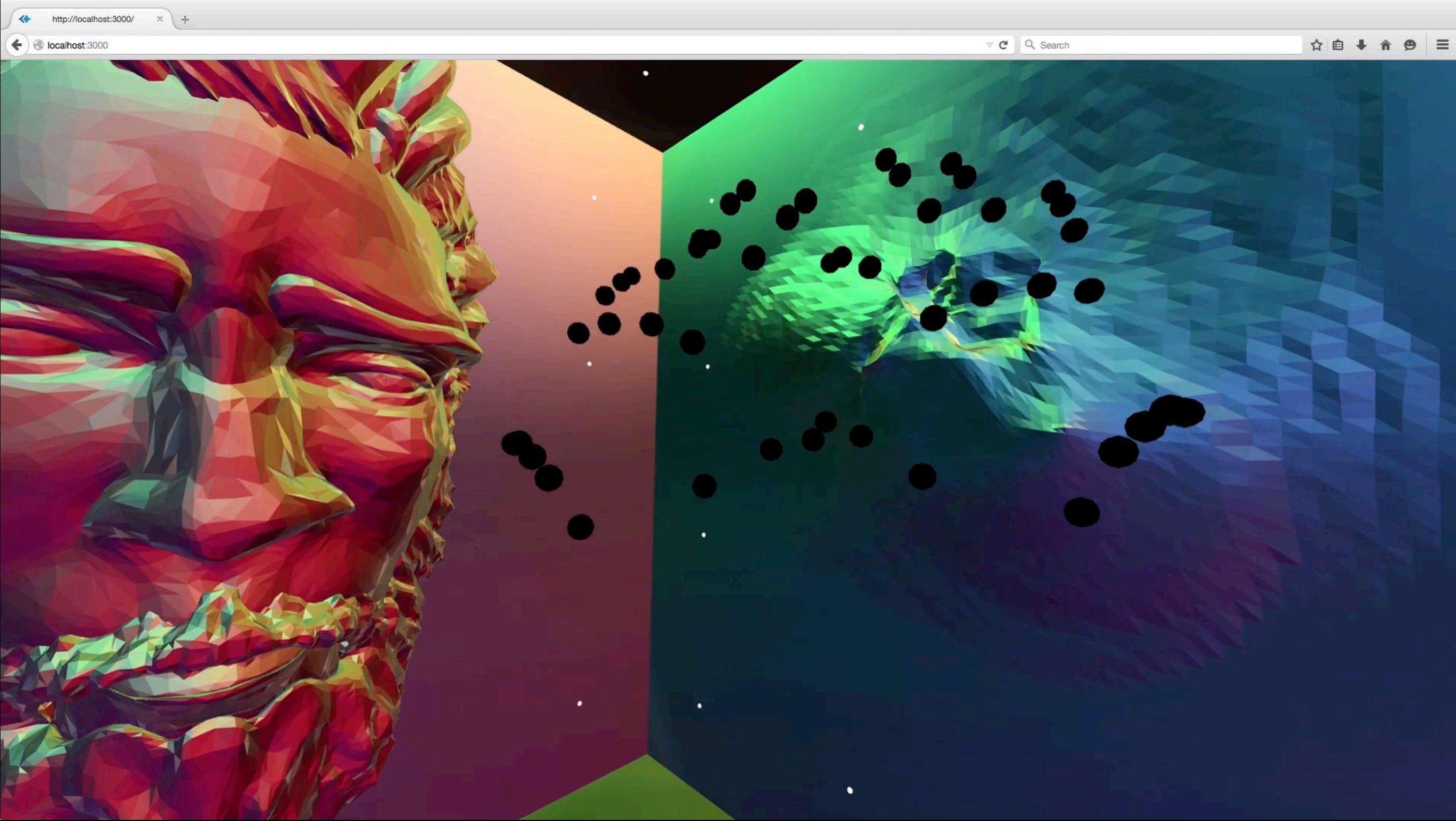






MOZVR

@cwanw @dmarcos @fernandojsg @kearwoodgilbert
@ngokevin_ @whoyee



It's too hard to create WebVR experiences.

QuickTime Player File Edit View Window Help

index.html — rainbowmembrane

FOLDERS

- rainbowmembrane
 - audio
 - examples
 - img
 - lib
 - models
 - shaderChunks
 - shaders
 - .index.html.swn
 - create.js
 - GEM.js
 - GUI.js
 - index.html
 - initTones.js
 - Opening.js
 - RayMaker.js
 - RepelerMesh.js
 - Tone.js

```
24     opacity: .6;
25     float: right;
26     text-decoration: none;
27   }
28   a:hover{
29     color:#fff;
30     opacity: 1;
31     text-decoration: none;
32   }
33   a img{
34     width:35px;
35     height:35px;
36   }
37 }
38 </style>
39 </head>
40
41 <body>
42
43
44 <div id="links">
45   <a target="_blank" href="http://twitter.com/share?text=Touch%20the%20Rainbow%20Membrane%20with%20%23WebVR%20and%20@LeapMotion%20(%20Code%20by%20@Cabbibo%20)&url=http://cabbibo/RainbowMembrane"></a><br><br><br>
46   <a href="http://webvr.info/">WEBVR</a><br>
47   <a href="http://cabbibo/">CABBIBO</a><br>
48   <a href="https://www.leapmotion.com/">LEAP MOTION</a>
49 </div>
50
51   <script src = "lib/leap.min.js" ></script>
52   <script src = "lib/three.min.js" ></script>
53   <script src = "lib/underscore.js" ></script>
54   <script src = "lib/jquery.min.js" ></script>
55   <script src = "lib/TrackballControls.js" ></script>
56   <script src = "lib/OrbitControls.js" ></script>
57   <script src = "lib/SubdivisionModifier.js" ></script>
58   <script src = "lib/PhysicsRenderer.js" ></script>
59
60   <script src = "lib/VDEffect.js" ></script>
61
```

Line 15, Column 28

Spaces: 2

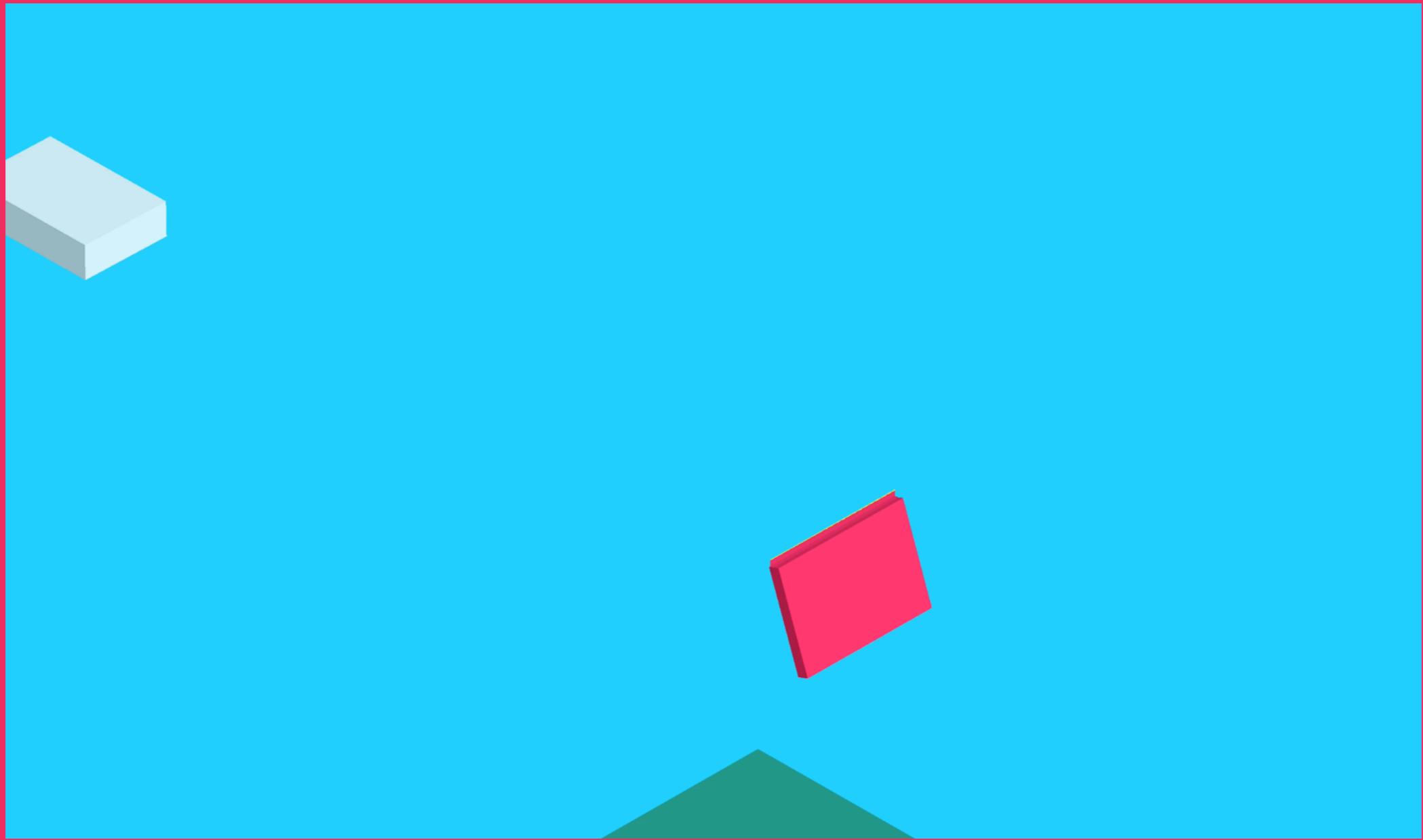
HTML

`<a-box>`

`<a-sphere>`

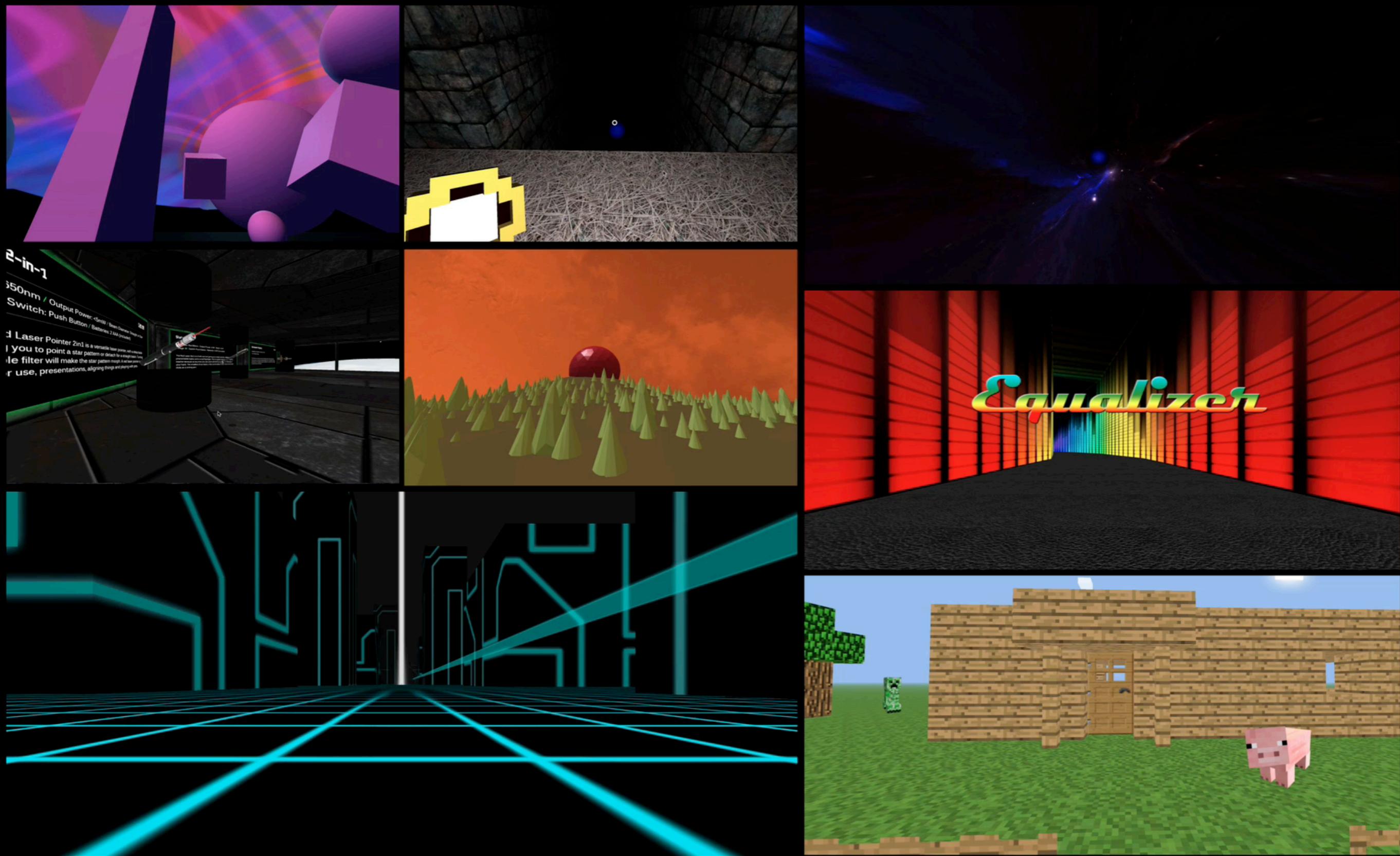
`<a-obj-model>`

```
<a-box depth="5" height="0.5" width="2">  
<a-sphere color="crimson" radius="1.5">  
<a-obj-model src="fox.obj">
```



A-FRAME

An open source framework for creating virtual reality web
experiences *without having to know WebGL*



OUT-OF-THE-BOX ELEMENTS

<-collada-model>

<-sphere>

<-light>

<-image>

<-curvedimage>

<-videosphere>

<-video>

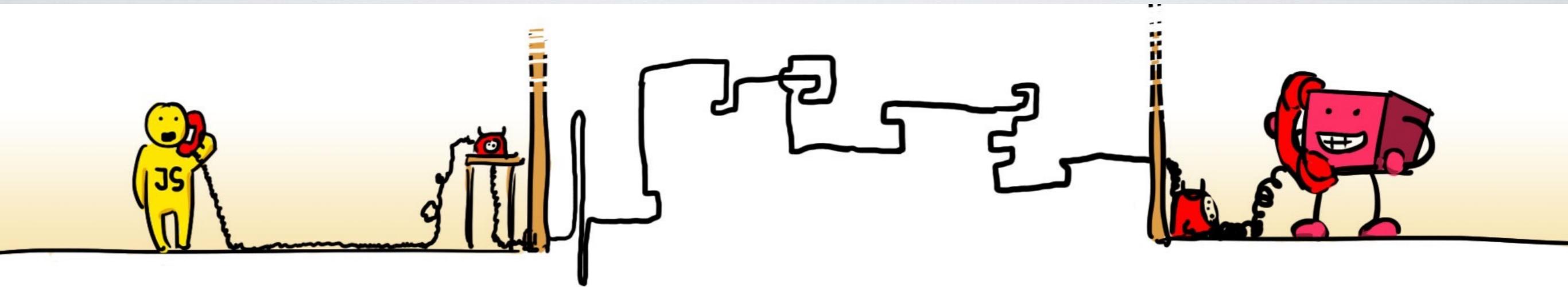
<-cylinder>

<-sky>

<-box>

<-obj-model>

WITH VANILLA JAVASCRIPT



.querySelector('a-image')

.getAttribute('opacity')

.setAttribute('material', 'color', 'blanchedalmond')

.addEventListener('collide')

.createElement('a-entity')

WITH LIBRARIES

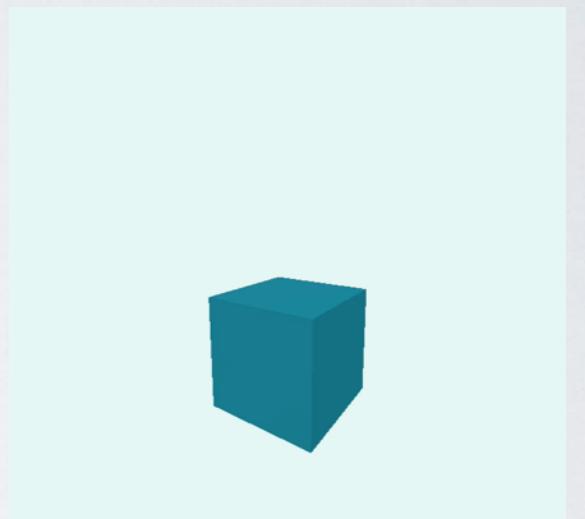
```
$(‘a-box’).attr(‘width’, 5)
```

```
d3.select(‘a-scene’).selectAll(‘a-box.bar’).data(data)
```

```
<Entity geometry={{ primitive: ‘ring’, radiusInner: 1.5 }}  
material={{ color: ‘red’, shader: ‘flat’ }}  
light={...lightProperties}  
onClick={this.changeColor}>
```

ANIMATION SYSTEM

```
<a-box>  
  <a-animation attribute="rotation"  
    repeat="indefinite"  
    to="0 360 0"></a-animation>  
</a-box>
```



ASSET MANAGEMENT SYSTEM

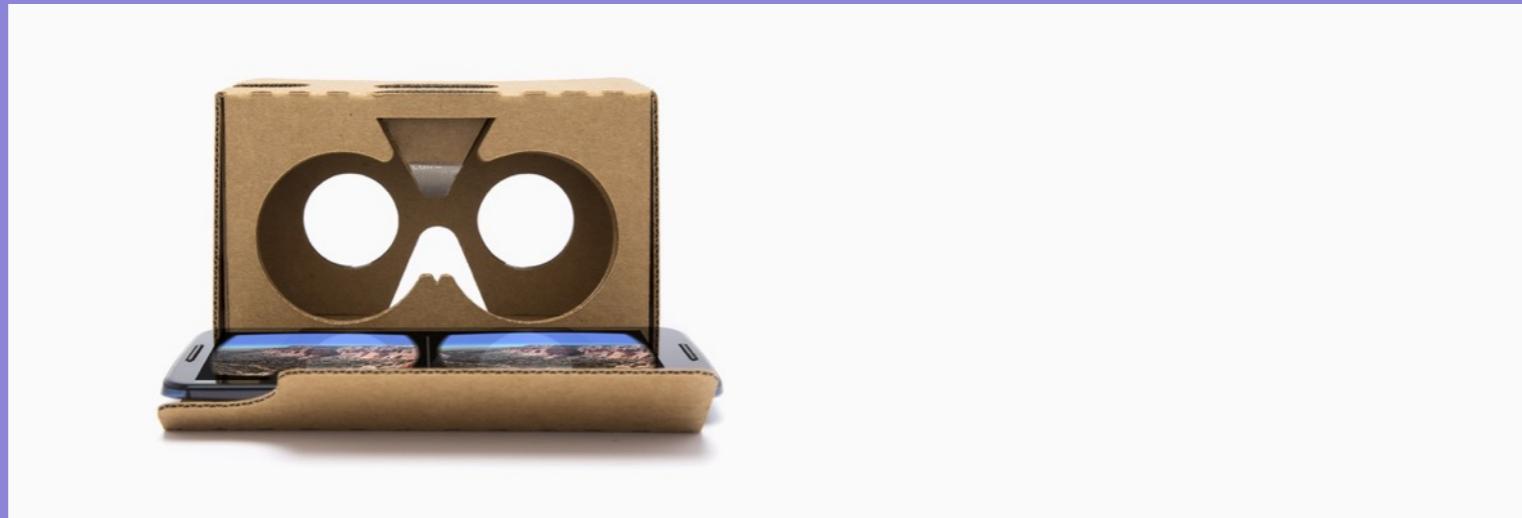
```
<a-scene>
  <a-assets>
    <a-asset-item id="monster" src="monster.obj"></a-asset-item>
  </a-assets>

  <a-entity obj-model="src: #monster"></a-entity>
</a-scene>
```



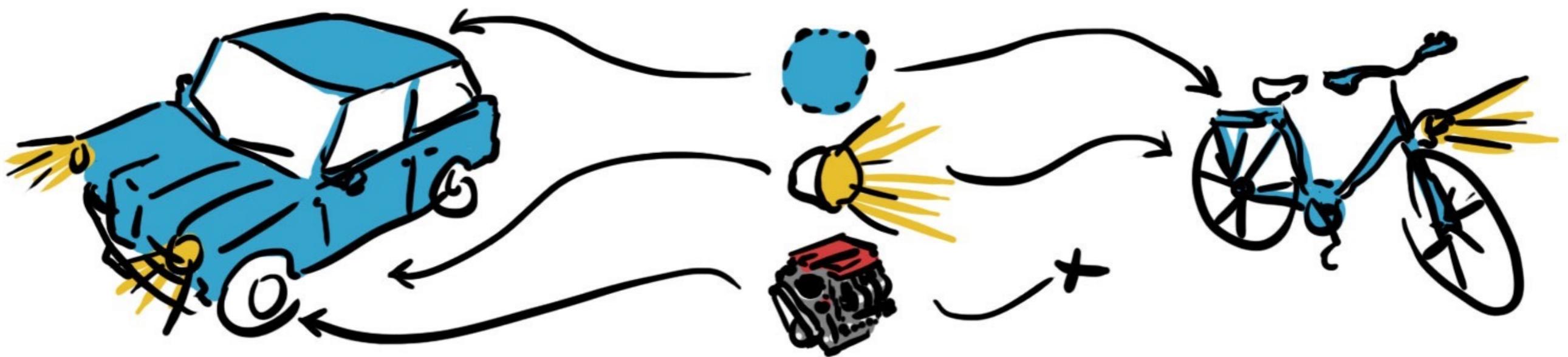
Let's build a scene

DEMO TIME



http://twitter.com/ngokevin_

Take out your smartphones. Point your browser.



ENTITY-COMPONENT-SYSTEM

Composability over inheritance

ENTITY-COMPONENT-SYSTEM



- Entities - placeholder objects
- Components - modify appearance, behavior, functionality of entities

REVEALING THE ABSTRACTION LAYER

```
<a-box width="5"  
      color="#2E3837">
```



```
<a-entity geometry="primitive: box; width: 5"  
        material="color: #2E3837">
```

COMPOSING AN ENTITY

<*a-entity*>

COMPOSING AN ENTITY

```
<a-entity geometry="primitive: sphere; radius: 1.5"  
        material="color: tomato; metalness: 0.7">
```

COMPOSING AN ENTITY

```
<a-entity geometry="primitive: sphere; radius: 1.5"  
        material="color: tomato; metalness: 0.7"  
        light="type: point; color: tomato"  
        sound="src: #rickroll; volume: 0.9">
```

COMPOSING AN ENTITY

```
<a-entity geometry="primitive: sphere; radius: 1.5"  
        material="color: tomato; metalness: 0.7"  
        light="type: point; color: tomato"  
        sound="src: #rickroll; volume: 0.9"  
        physics="boundingRadius: 1.5; mass: 1"  
        aggro="100" explode follow-player vibrate>
```

ANATOMY AND PHYSIOLOGY

```
AFRAME.registerComponent('position', {  
});
```

ANATOMY AND PHYSIOLOGY

```
AFRAME.registerComponent('position', {  
  schema: { type: 'vec3' },  
});
```

ANATOMY AND PHYSIOLOGY

```
AFRAME.registerComponent('position', {
  schema: { type: 'vec3' },
  update: function () {
    this.el.object3D.position.set(
      this.data.x,
      this.data.y,
      this.data.z
    );
  }
});
```

STANDARD COMPONENTS

position	rotation	look-controls
sound		
scale	light	obj-model
look-at		
fog	text	collada-model
physics	geometry	material

COMMUNITY COMPONENTS



COMPOSING MIXINS

```
<a-scene>
  <a-assets>
    <a-mixin id="ball" geometry="primitive: sphere"></a-mixin>
    <a-mixin id="cube" geometry="primitive: box"></a-mixin>
    <a-mixin id="green" material="color: #B4CD93"></a-mixin>
    <a-mixin id="shiny" light="type: point"></a-mixin>
  </a-assets>
  <a-entity mixin="green ball"></a-entity>
  <a-entity mixin="shiny ball"></a-entity>
  <a-entity mixin="shiny green cube"></a-entity>
</a-scene>
```

LATER ON, STYLESHEETS

```
#basketball {  
    geometry {  
        primitive: sphere;  
        radius: 0.5;  
    }  
    material {  
        roughness: 0.9;  
        src: url(basketball.png);  
    }  
    physics {  
        boundingRadius: 0.5;  
        mass: 0.8;  
    }  
    visible: true;  
}
```

A-FRAME + WEBVR

GET INVOLVED

- aframevr-slack.herokuapp.com
- aframe.io
- github.com/aframevr
- mozvr.com

