VR, WEBVR, A-FRAME

How to Build Virtual Reality Worlds

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

Beaver Barcamp - 16 April 2016 - Corvallis, OR

STATE OF VR

- Oculus Rift
- HTC Vive + Steam
- Playstation VR
- Google Cardboard / Project Tango

STATE OF THE ART VR

- Space Pirate Trainer - https://www.youtube.com/watch?v=2CVkwBoRczM
- Job Simulator - https://www.youtube.com/watch?v=bpoCQJPCP8w
- I Expect You to Die - https://www.youtube.com/watch?v=V3ILn8HbxZs
- Keep Talking and Nobody Explodes - https://www.youtube.com/watch?v=T0JuwmXPmWE

LESS STATE OF THE ART VR

- Catch the Baby - http://gfycat.com/HarshAccomplishedKestrel
- Cat Petting Simulator - https://twitter.com/_Pandy/status/707716963443851269/photo/1

WEBVR

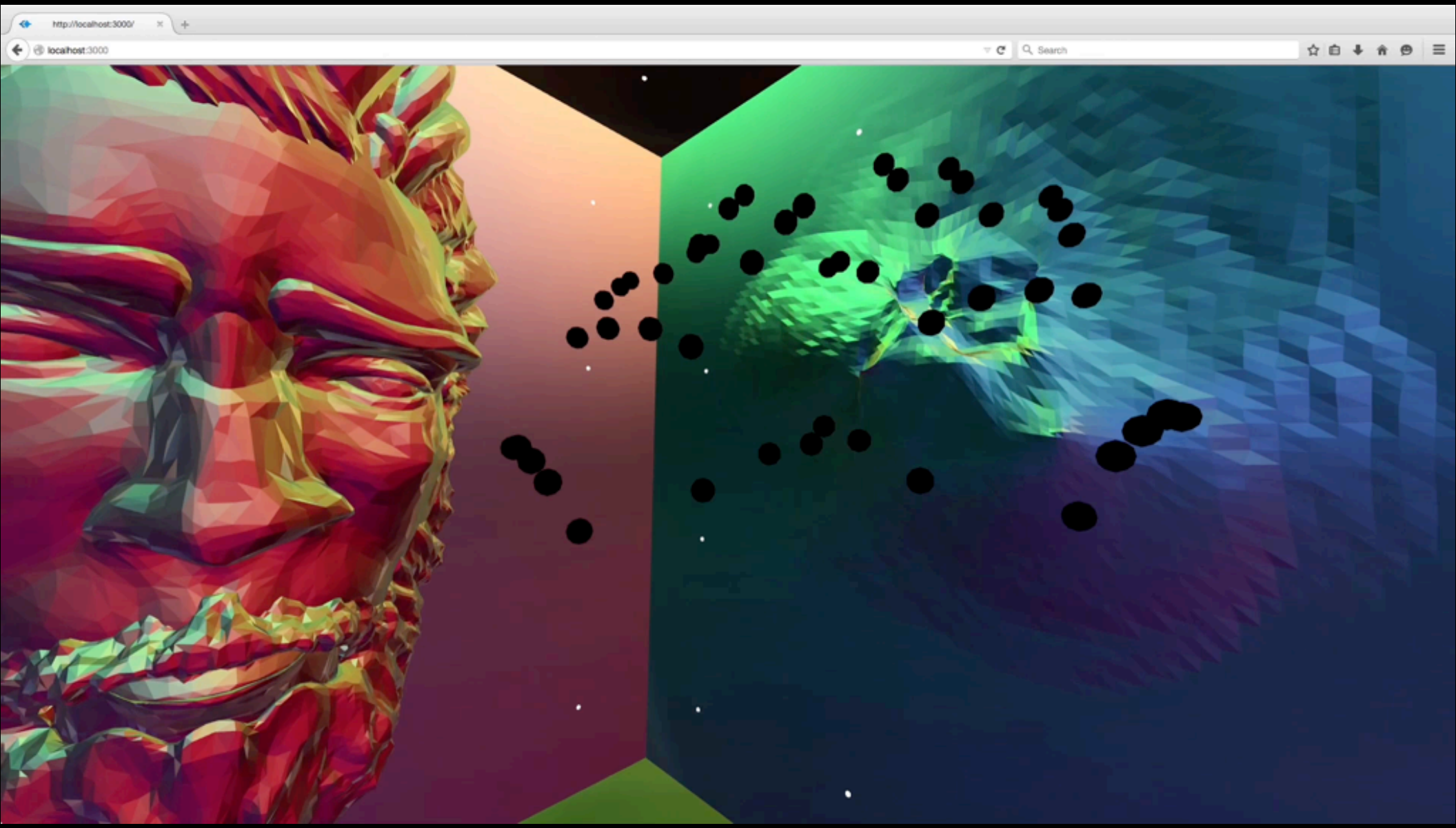
- No content gatekeepers, publish anything
- Connected worlds
- No need for downloads and installs
- Runs on multiple platforms and headsets
- Hundreds of millions of users, distribution

WEBVR TECH

- WebGL
- three.js
- WebVR API

MOZILLA VR TEAM

@andgokevin @cvanw @dmarcos @fernandojsg
@kearwoodgilbert @whoyee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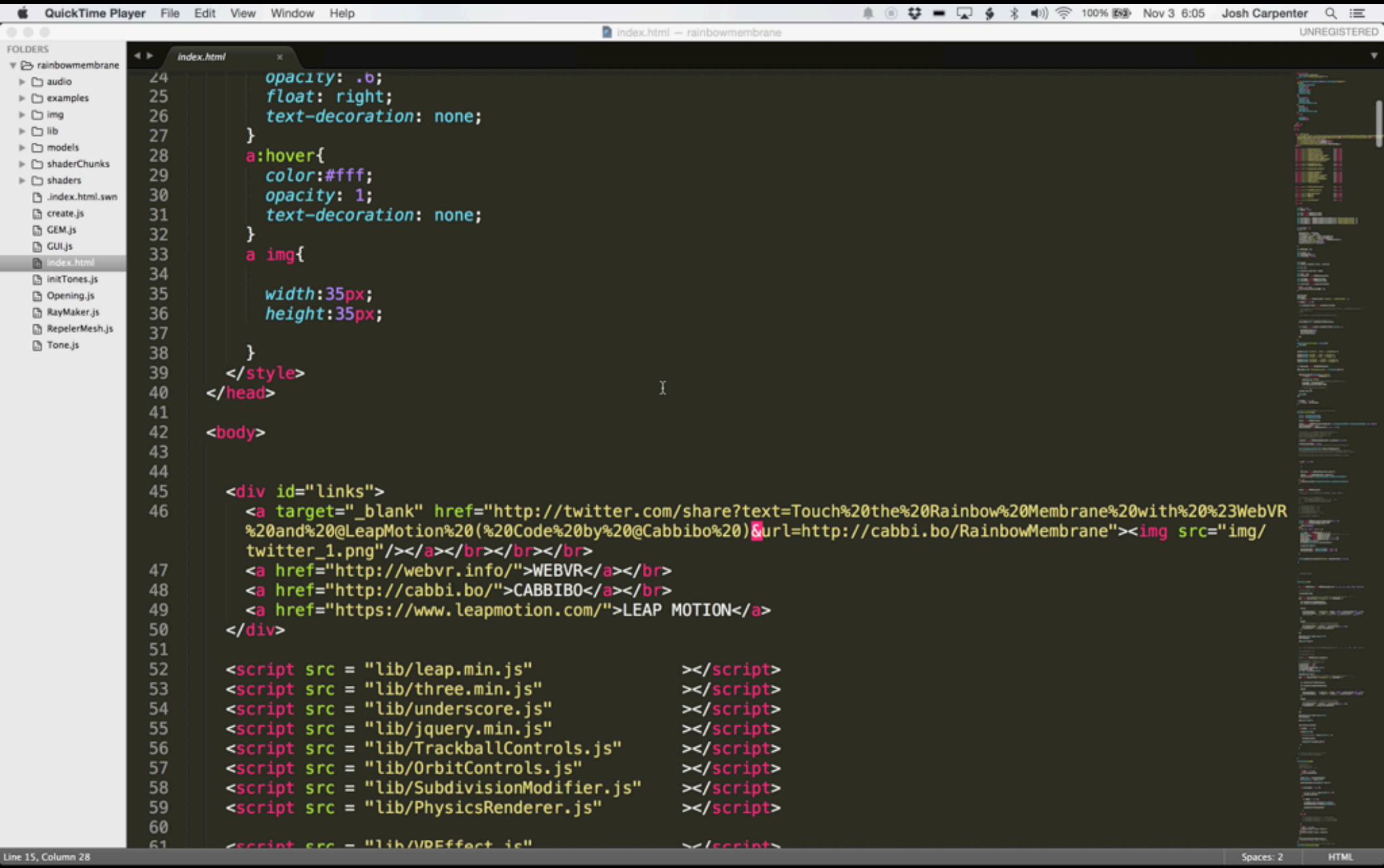
localhost:3000
Search

It's too hard to create WebVR experiences.


QuickTime Player File Edit View Window Help
Nov 3 6:05 Josh Carpenter
index.html — rainbowmembrane
UNREGISTERED
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
index.html
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float: right;
text-decoration: none;
}
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text-decoration: none;
}
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height:35px;
}
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<a href="http://webvr.info/">WEBVR</a></br>
<a href="http://cabbi.bo/">CABBIBO</a></br>
<a href="https://www.leapmotion.com/">LEAP MOTION</a>

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<script src = "lib/SubdivisionModifier.js" ></script>
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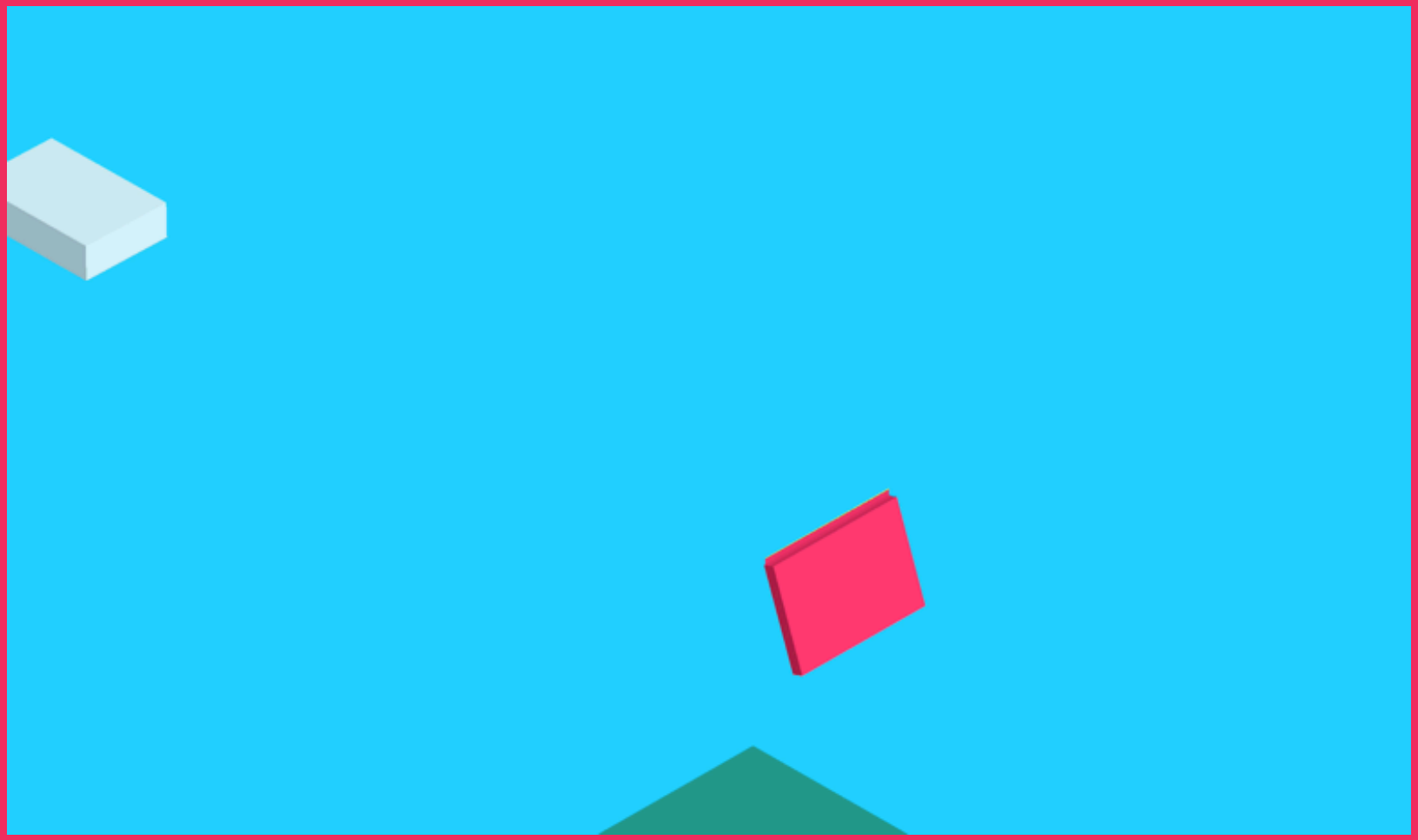
Line 15, Column 28
Spaces: 2
HTML

```
<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">
```



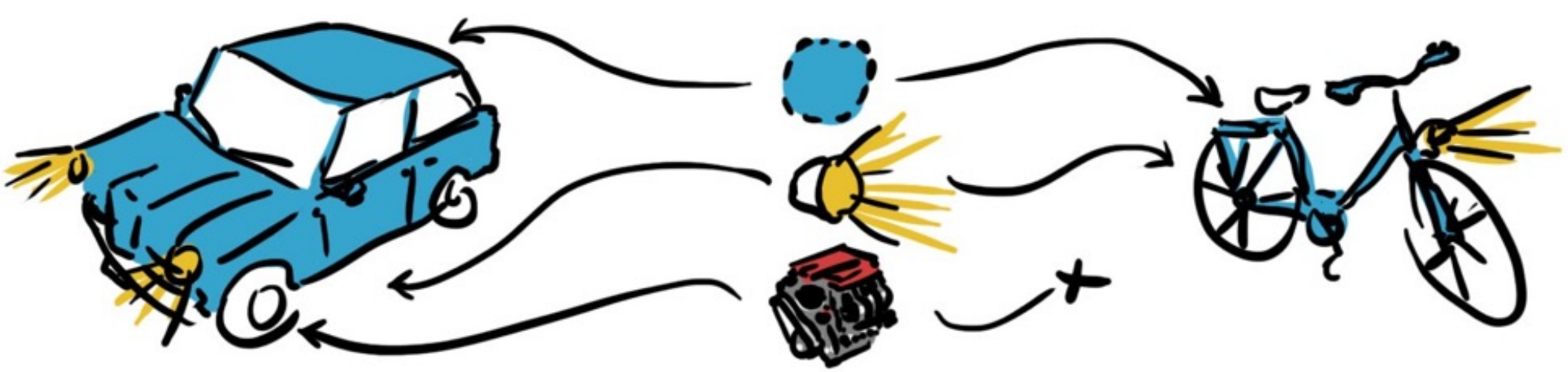
A-FRAME

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

A-FRAME EXAMPLES

- Amnesty International UK, 360 Syria - http://360syria.com/
- The Washington Post, Mars - https://www.washingtonpost.com/video/mars/public/
- CadaVR - https://www.youtube.com/watch?v=eYyuEjhD-k8
- DrawVR - http://drawvr.com

Let's build a scene



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"
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```

COMPOSING AN ENTITY

```
<a-entity geometry="primitive: sphere; radius: 1.5"
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```

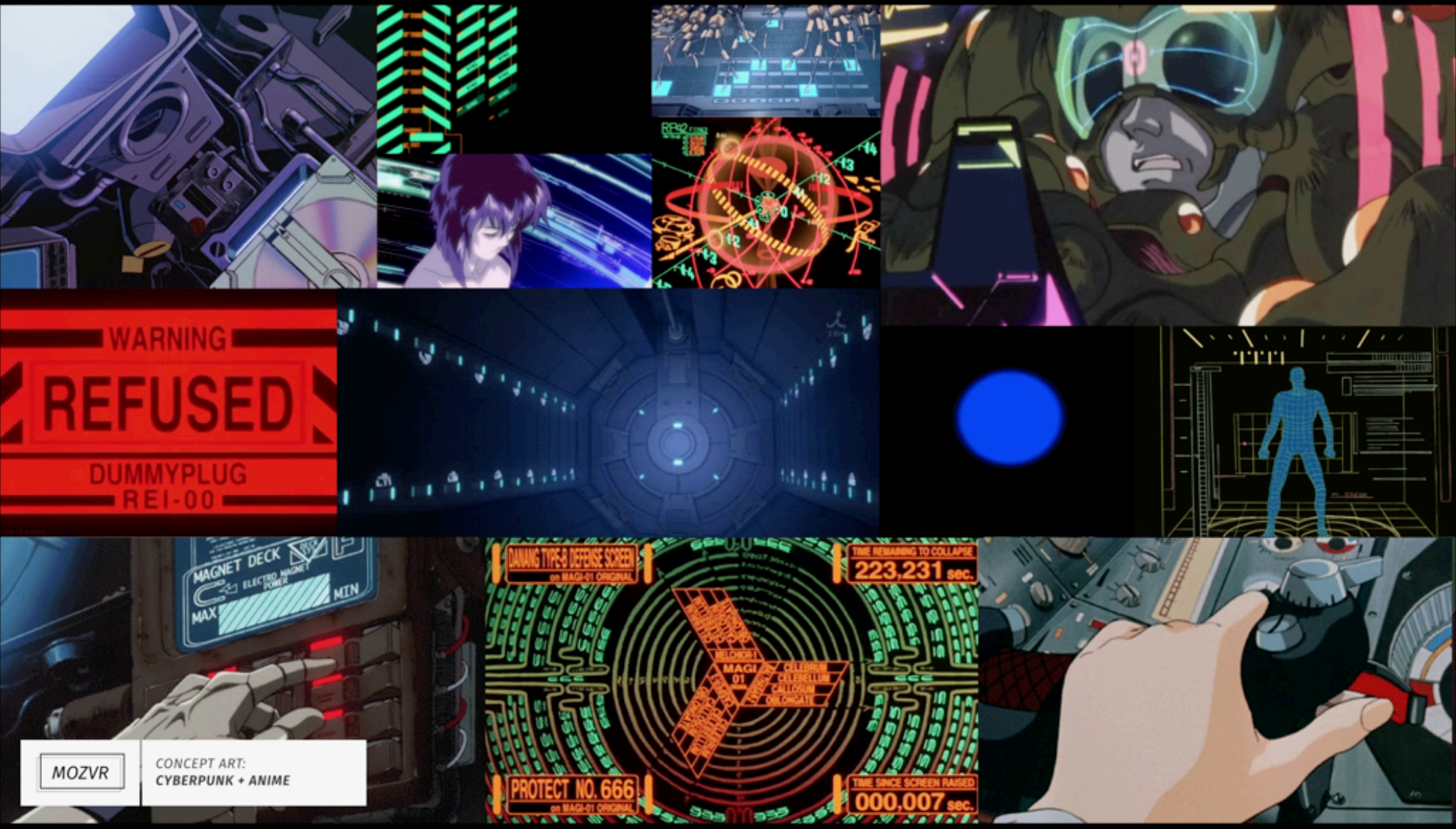
WARNING
REFUSED
DUMMYPLUG
REI-00
MAGNET DECK
ELECTRO MAGNET POWER
MAX
MIN
DAMAGE TYPE-B DEFENSE SCREEN
on MAGI-01 ORIGINAL
TIME REMAINING TO COLLAPSE
223,231 sec.
MAGI 01
PROTECT NO. 666
on MAGI-01 ORIGINAL
TIME SINCE SCREEN RAISED
000,007 sec.
MOZVR
CONCEPT ART:
CYBERPUNK + ANIME

FURTHER RESOURCES

- Official Site: https://aframe.io
- Community Slack: https://aframevr-slack.herokuapp.com
- Me: @andgokevin