

webVR 1.0

- Don't Get Lost in Space -

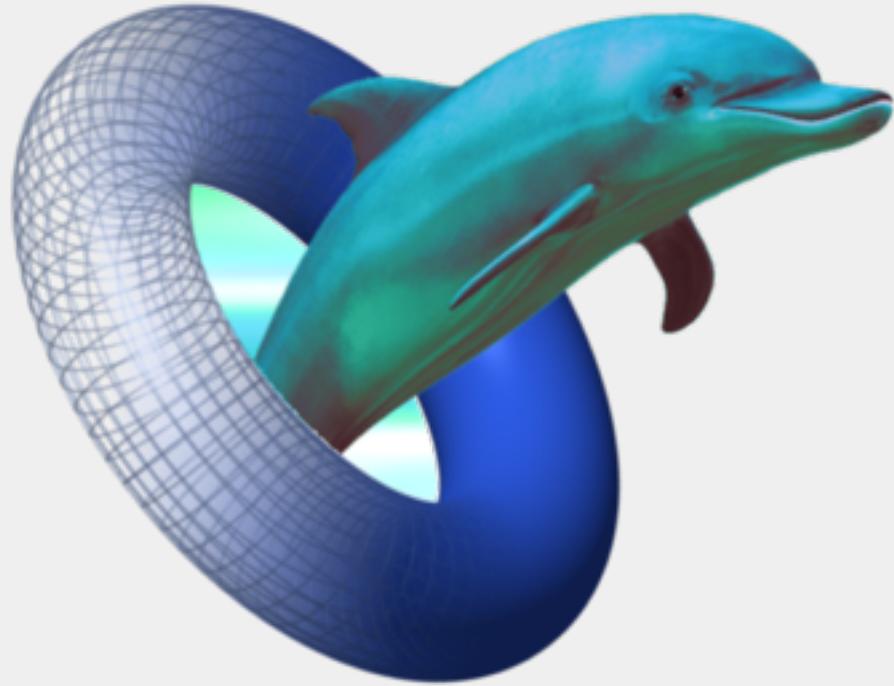
WEB VR 1.0

Virtual Reality in the browser

Cross platform application, can now be accessed by the HTC Vive

Uncharted territory, everything is an experiment

We've been here before

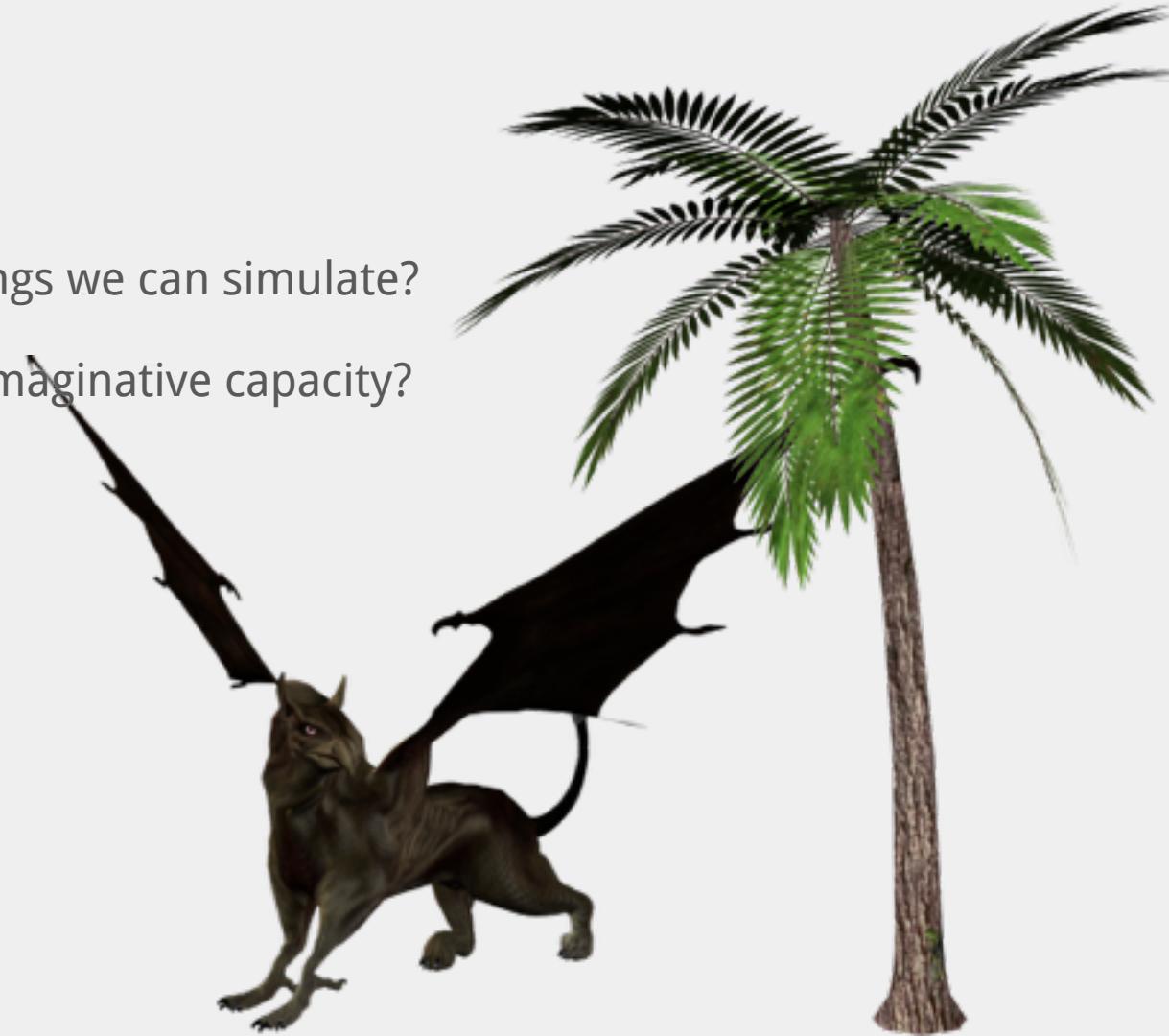


WebVR Jungle

What is the limit of the things we can simulate?

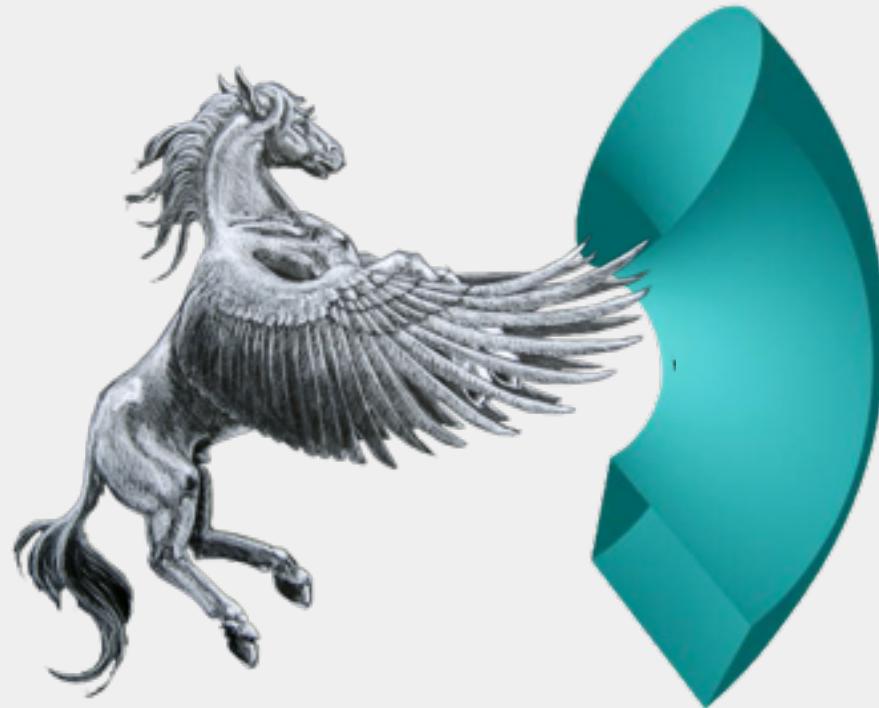
How can this expand our imaginative capacity?

What will follow us back
out of the digital world?



Meinong's Jungle

Meinong's jungle is the name given to the repository of non-existent entities in the [ontology](#) of [Alexius Meinong](#), believing that since non-existent things could apparently be [referred to](#), they must have some sort of [being](#)



Making and Using WebVR

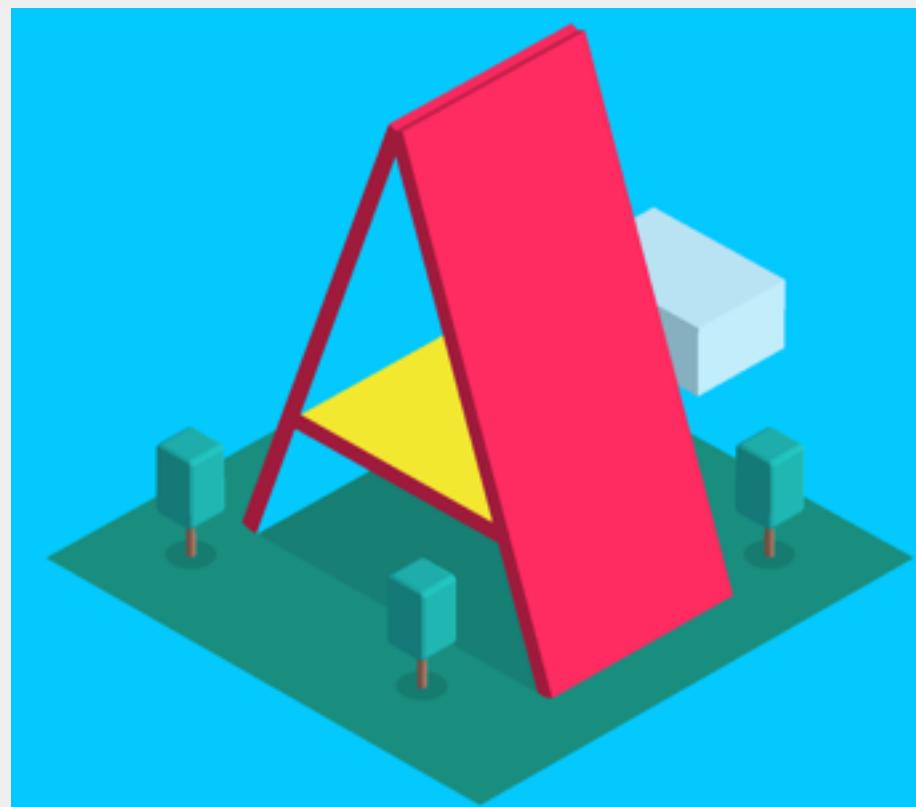
A-Frame (WebGL, Three.js, VRML)

HTC Vive

High Fidelity, Janus

Unity Web Player

Youtube 360



A-Frame

A-Frame is an open-source framework for creating 3D and virtual reality experiences on the web. It was built by the [MozVR](#) team to more quickly prototype WebVR experiences.

A-Frame is an abstraction on top of [three.js](#), and with [A-Frame components](#) (not to be confused with Web Components), we can do just about anything three.js can.



A large, light-colored shark is swimming towards the right side of the frame. It is set against a dark background that is densely populated with numerous small, glowing stars in various colors like red, blue, green, and yellow. In the upper right quadrant, there are several larger, more prominent nebulae or star clusters emitting bright, multi-colored light rays. The overall effect is a surreal, cosmic scene.

Building a VR web page

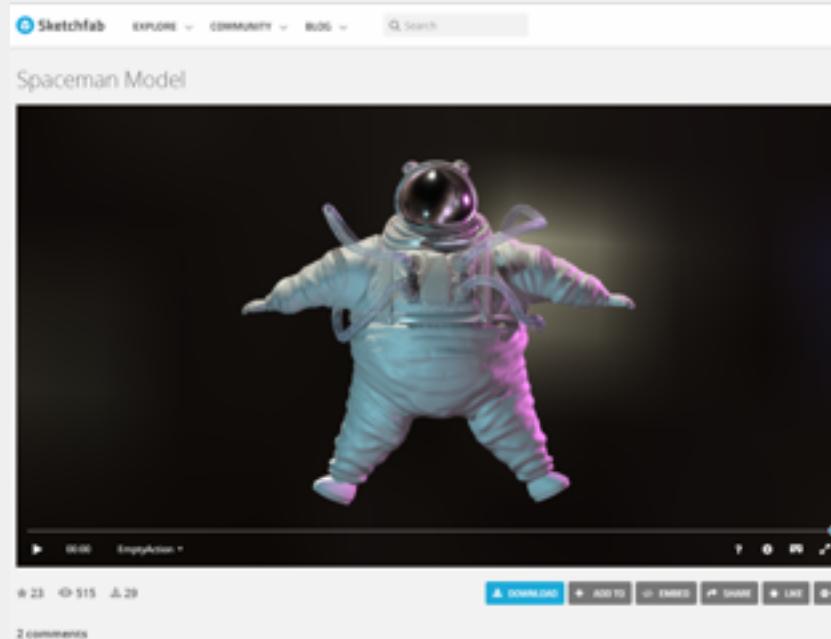
Props

Gather 2D and 3D materials for your scene. You can also use sound and video!

Script

Github: Download Boilerplate -or- add:

```
<script src="https://aframe.io/releases/0.3.2/aframe.min.js"></script>
```



Scenes !

To begin a scene in A-Frame you first have to open up an **a-scene** tag

```
<body>
```

```
  <a-scene>
```

Build your world here...

```
  </a-scene>
```

```
</body>
```

Basic Scene:

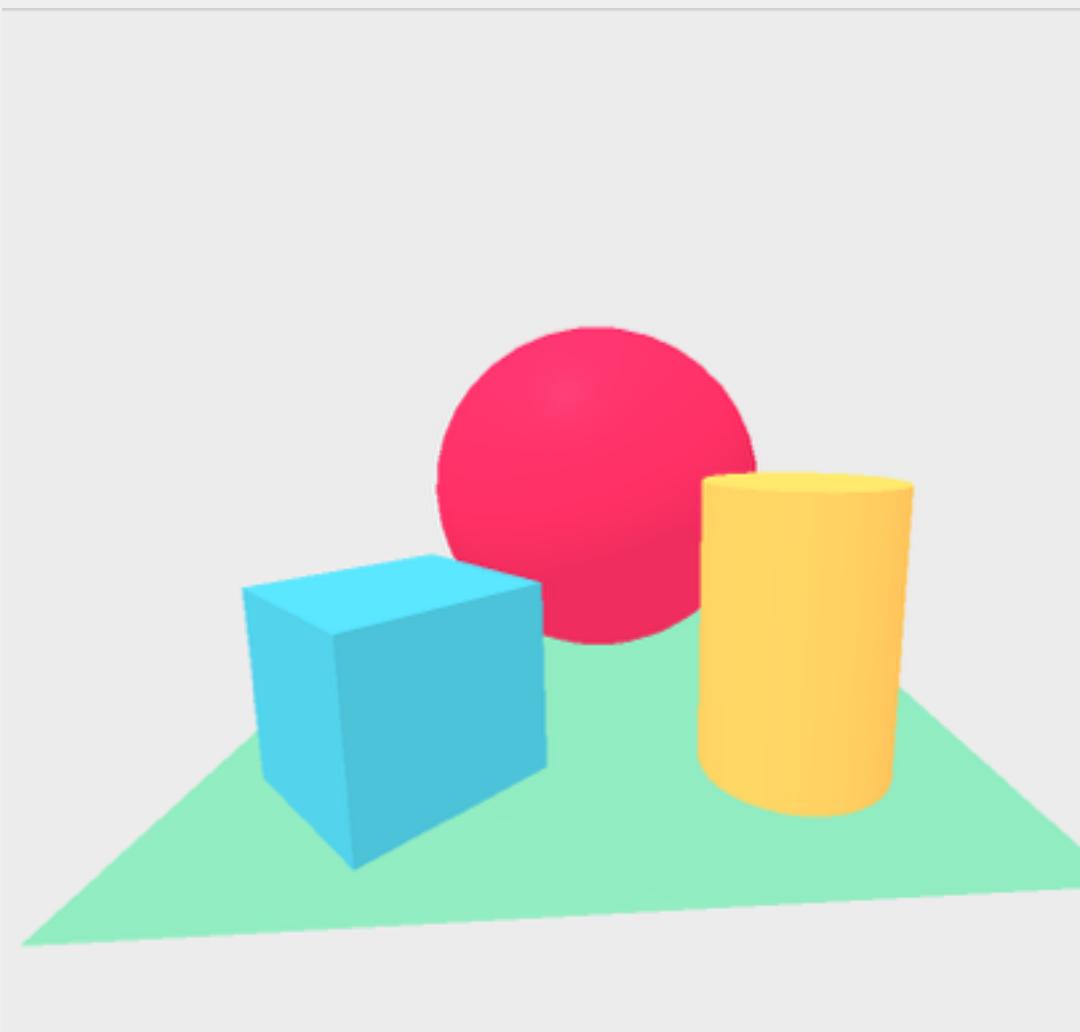
```
<body>
  <a-scene>
    <a-sphere position="0 1.25 -1" radius="1.25"
color="#EF2D5E"></a-sphere>

    <a-box position="-1 0.5 1" rotation="0 45 0" width="1"
height="1" depth="1" color="#4CC3D9"></a-box>

    <a-cylinder position="1 0.75 1" radius="0.5" height="1.5"
color="#FFC65D"></a-cylinder>

    <a-plane rotation="-90 0 0" width="4" height="4"
color="#7BC8A4"></a-plane>

    <a-sky color="#ECECEC"></a-sky>
  </a-scene>
</body>
```



Back to Scene



Search...

<a-scene>

cage

<a-collada-model>

<a-entity>

<a-image>

<a-entity>

<a-entity>

shark

<a-image>

<a-collada-model>

shark

<a-image>

<a-collada-model>

shark

<a-image>

<a-collada-model>

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<a-image>

<a-collada-model>

sulf

sulf

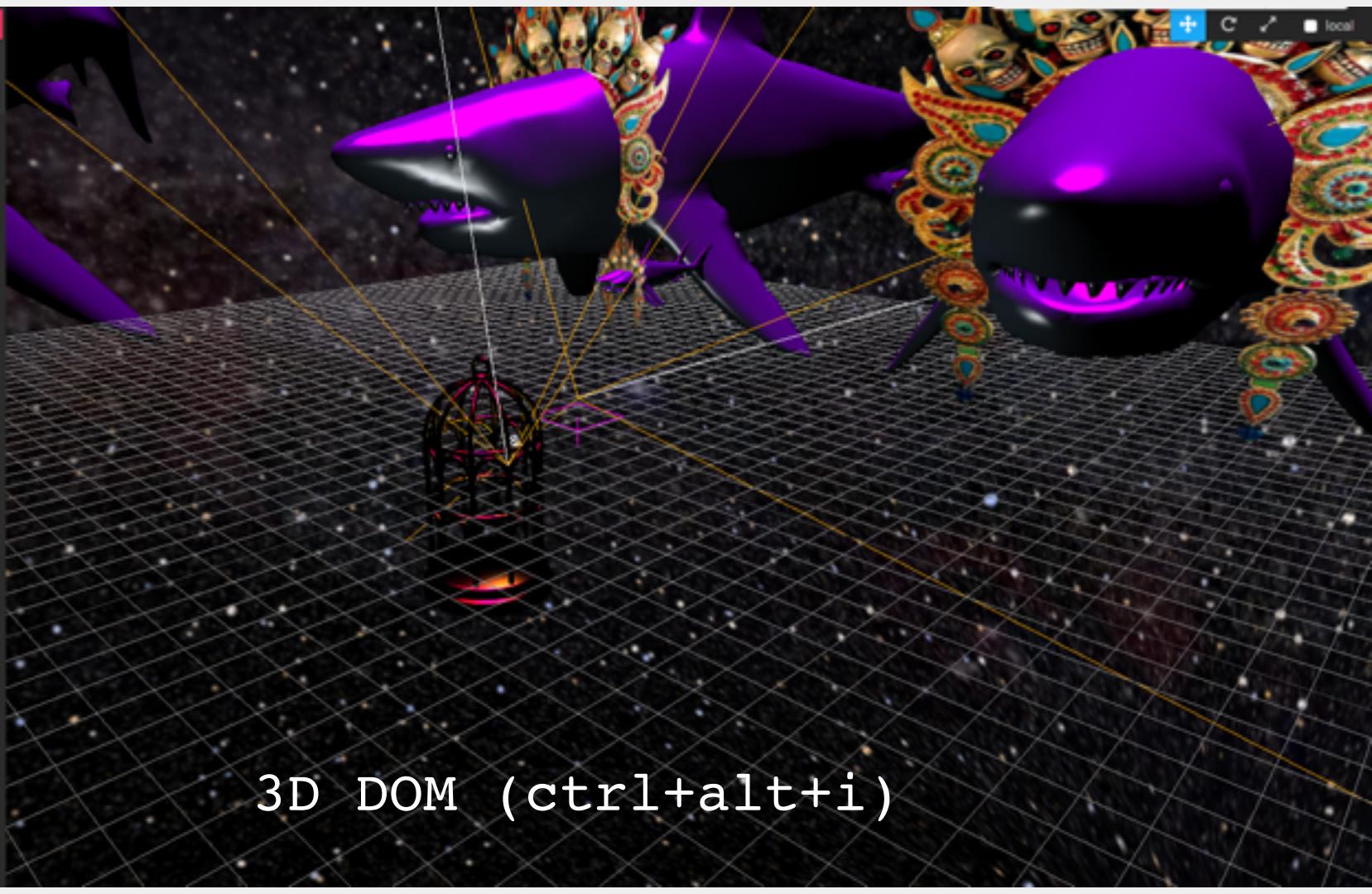
sulf

<a-entity> ?

<a-sky>

<a-sky>

<a-entity>

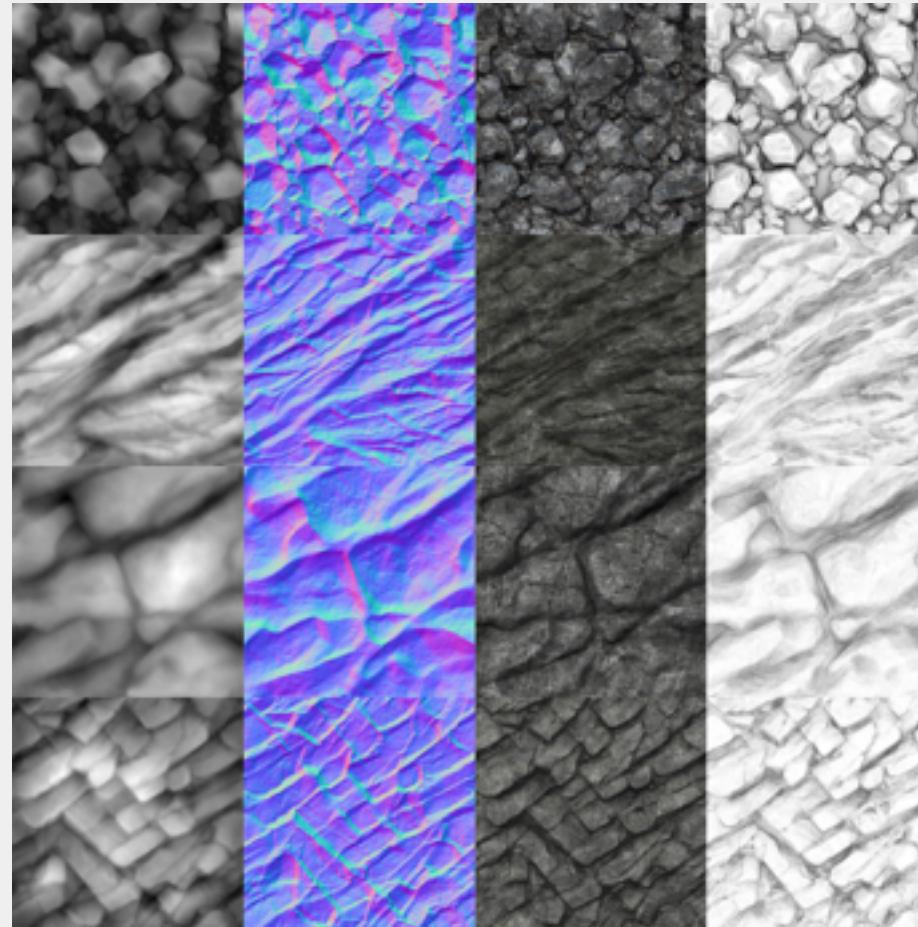


3D DOM (ctrl+alt+i)

Assets

Assets:

3D experiences traditionally preload many of their assets, such as models or textures, before rendering their scenes. This makes sure that assets aren't missing visually, and this is beneficial for performance to ensure scenes don't try to fetch assets while rendering. A-Frame has an asset management system that allows us to place all of our assets in one place and to preload and cache assets for better performance.



Example:

```
<a-scene>

  <a-assets>

    <a-asset-item id="shark" src="shark.dae"></a-asset-item>

    <audio id="humm" src="humm.wav">

    <video id="ocean" src="ocean.mp4">

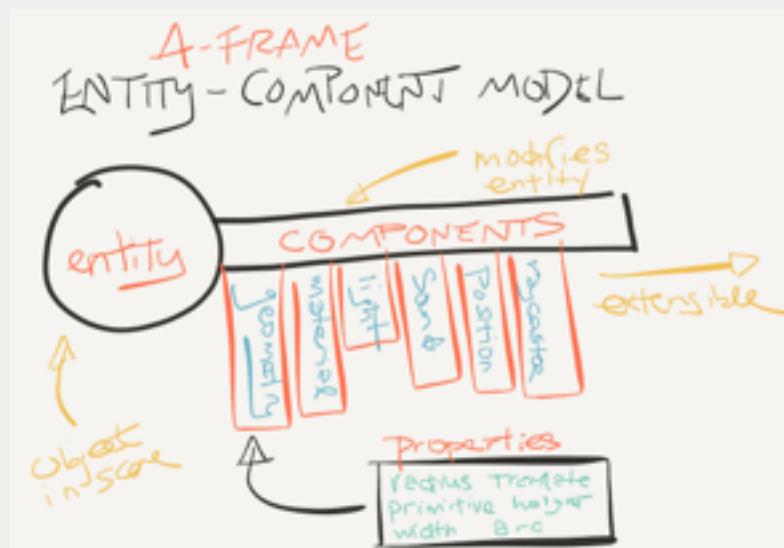
  </a-assets>

</a-scene>
```

Entities

Entities:

An entity is represented by the `<a-entity>` element. As defined in the **entity-component-system** pattern, entities are placeholder objects to which we plug in components to in order to provide them appearance, behavior, and functionality.



Example:

```
<a-box color="red" width="3"></a-box>
```

becomes..

```
<a-entity geometry="primitive: box; width: 3" material="color: red"></a-entity>
```

For models: .dae

```
<a-assets>  
  <a-asset-item id="shark" src="shark.dae"></a-asset-item>  
</a-assets>  
  
<a-entity collada-model="#shark" position="0 4.6 -3" rotation="0 10 0" scale="0.2 0.2 0.2"></a-entity>
```

-or-

(no assets preloaded. Not wise.)

```
<a-entity collada-model="url(/path/to/shark.dae)"></a-entity>
```

For models: .obj-.mtl

```
<a-assets>
```

```
  <a-asset-item id="shark-obj" src="shark.obj"></a-asset-item>
```

```
  <a-asset-item id="shark-mtl" src="shark.mtl"></a-asset-item>
```

```
</a-assets>
```

```
<a-entity obj-model="obj: #shark-obj; mtl: #shark-mtl" position="0 4.6 -3" rotation="0 10 0" scale="0.2  
0.2 0.2"></a-entity>
```

-or-

```
<a-entity obj-model="obj: url(/path/to/tree.obj); mtl: url(/path/to/tree.mtl)"></a-entity>
```

```
<head>

  <script src="https://aframe.io/releases/0.3.2/aframe.min.js"></script>

</head>

<body>

  <a-scene>

    <a-assets>

      <a-asset-item id="#shark" src="SPACE-SHARK.dae"></a-asset-item>

    </a-assets>

    <a-entity collada-model="#shark"></a-entity>

  </a-scene>

</body>
```



Components

Components :

A component is a reusable and modular chunks of data that plugged into an entity to add appearance, behavior, and/or functionality

EX.

```
<a-entity light="type: point; color: crimson; intensity: 2.5"></a-entity>
```

```
<a-entity obj-model="material: metallic; color: crimson; intensity: 2.5"></a-entity>
```

```
<head>

    <script src="https://aframe.io/releases/0.2.0/aframe.min.js"></script>

</head>

<body>

    <a-scene>

        <a-assets>

            <a-asset-item id="#shark" src="SPACE-SHARK.dae"></a-asset-item>

        </a-assets>

        <a-entity collada-model="#shark" COMPONENTS GO HERE></a-entity>

    </a-scene>

</body>
```



VIVE

HTC VIVE



Setup

Download Chromium

Enable WebVR and controller Flags

By default if you are using the latest version of A-Frame your site can be accessed by an HTC Vive.

```
<a-entity vive-controls="hand: left"></a-entity>  
<a-entity vive-controls="hand: right"></a-entity>
```

Teleport

```
<head>
  <script src="https://unpkg.com/aframe-teleport-controls/dist/aframe-teleport-controls.min.js"></script>
</head>
<body>

  <a-entity id="left-hand" teleport-controls="curveLineWidth:0.03"
hand-controls="left" if-no-vr-headset="visible: false"></a-entity>

  <a-entity id="right-hand" teleport-controls="curveLineWidth:0.03"
hand-controls="left" if-no-vr-headset="visible: false"></a-entity>

</body>
```

Collision/Grab

```
<head>
  <script src="components/aabb-collider.js"></script>
  <script src="components/grab.js"></script>
</head>
<body>

  <a-entity id="left-hand" hand-controls="left" if-no-vr-headset="visible: false"
    aabb-collider="objects:.collided-obj" grab material="color:#ff00ff"></a-entity>

  <a-entity id="right-hand" hand-controls="left" if-no-vr-headset="visible: false"
    aabb-collider="objects:.collided-obj" grab material="color:#ff00ff"></a-entity>

</body>
```

Hyperlinks

WARNING: Hyperlinks are still very much a WIP, this is a workaround provided by mozilla and does not represent the final process. You cannot link from full screen scene to full screen scene due to security issues, in the future this will be resolved.

```
<head>
  <script src="sw-load.js" data-service-worker="sw.js" data-service-worker-scope="./"></script>
  <script src="js/aframe-hyperlink.js"></script>
<!--PRELOAD AND PREFETCH-->
<link rel="preload" href="http://liooil.neocities.org/VR_webStuff/room+07/room07.html">
  <link rel="prefetch" href="http://liooil.neocities.org/VR_webStuff/room+07/room07.html">
</head>
```

Hyperlinks Cont.

```
<body>
  <a-entity>
    <a-camera id="camera" look-controls wasd-controls>
      <a-cursor color="#4CC3D9"></a-cursor>
      <a-ring radius-outer="0.03" radius-inner="0.02"
        position="0 0 -1"
        material="color: cyan; shader: flat"
        cursor="maxDistance: 30; fuse: true;">
        <a-animation begin="click" easing="ease-in" attribute="scale"
          fill="backwards" from="0.1 0.1 0.1" to="1 1 1" dur="150"></a-animation>
        <a-animation begin="fusing" easing="ease-in" attribute="scale"
          fill="forwards" from="1 1 1" to="0.1 0.1 0.1" dur="1500"></a-animation>
      </a-ring>
    </a-camera>
  </a-entity>
</body>
```

Hyperlinks Cont..

```
<body>
    <!--After Camera-->
    <a-sphere radius="0.3" material="" geometry="primitive:sphere;radius:0.3" position="0 0.72 -2.26" href="http://
liooil.neocities.org/VR_webStuff/room+07/room07.html"></a-sphere>
</body>
```

DONE!

Resources:

a-frame.io

<https://webvr.info/>

Github: awesome-aframe

A Week of A-Frame

Twitter: @aframevr

Blender - Free 3D software

Reddit: r/webvr

Threejs.org

Slack: a-frame

NormalMap-Online

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