

AR/VR Workshop

Introduction

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Learning plan

Introduction	Overview
A-frame basics	
Foundations	
A-frame components	
Three.JS and A-frame	
Entity component architecture (ECA)	
A-frame and planets	
A-frame and animations	
Conclusion	

Outline

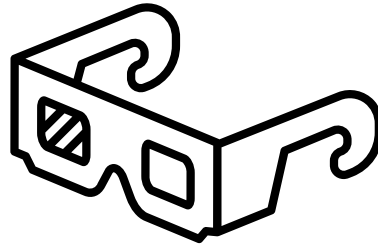
Overview

No installations needed

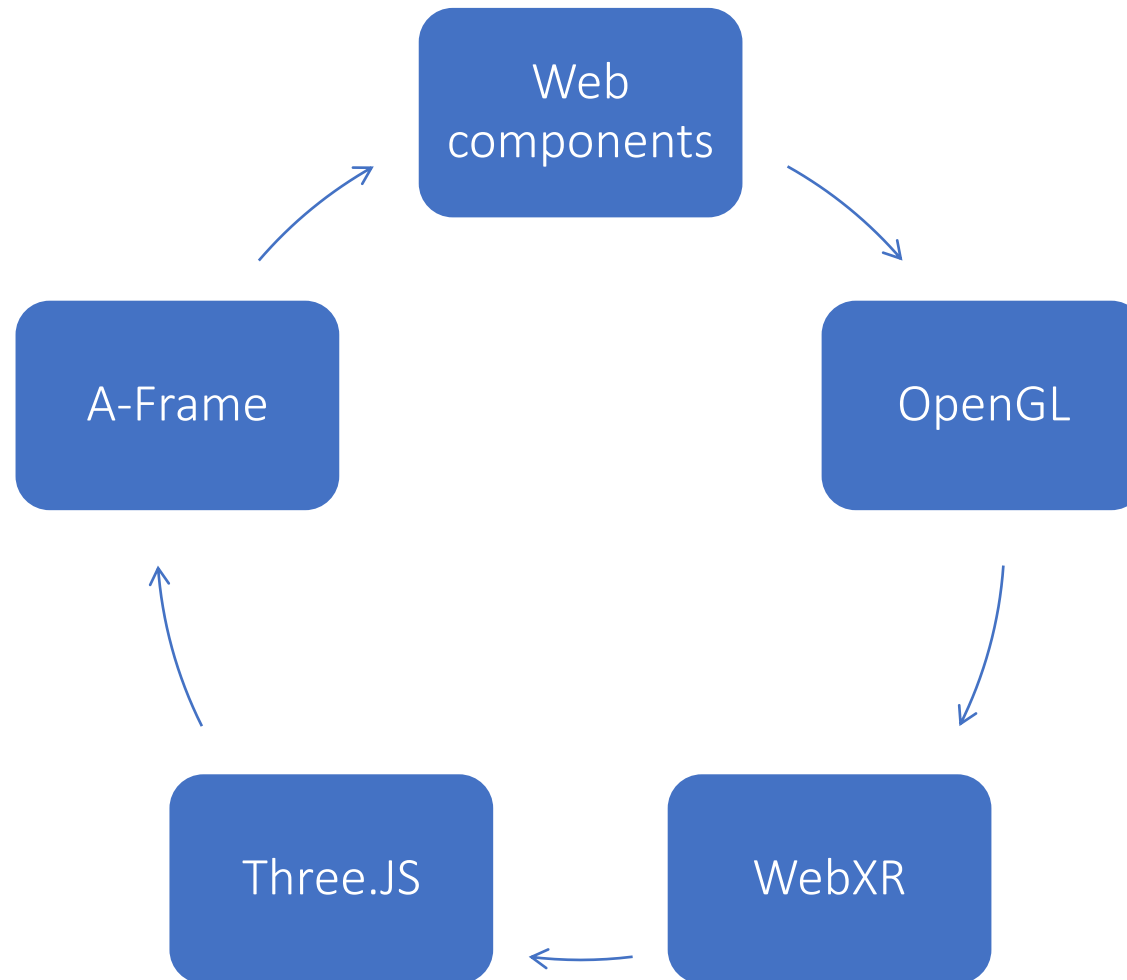
What is Glitch.com?

Get an account in Glitch.com

Our first VR/AR examples



High level view and learning path



A-frame

3D virtual reality system

Mozilla

Entity component system on Three.js

Three.js build on WebGL which is on WebGL

Uses web-components – as HTML

Declarative

No installation VR

Nothing installed

We will use Python3

Get a free account: [Glitch.com](https://glitch.com)

What is glitch?

Cloud-based development environment

Fast development

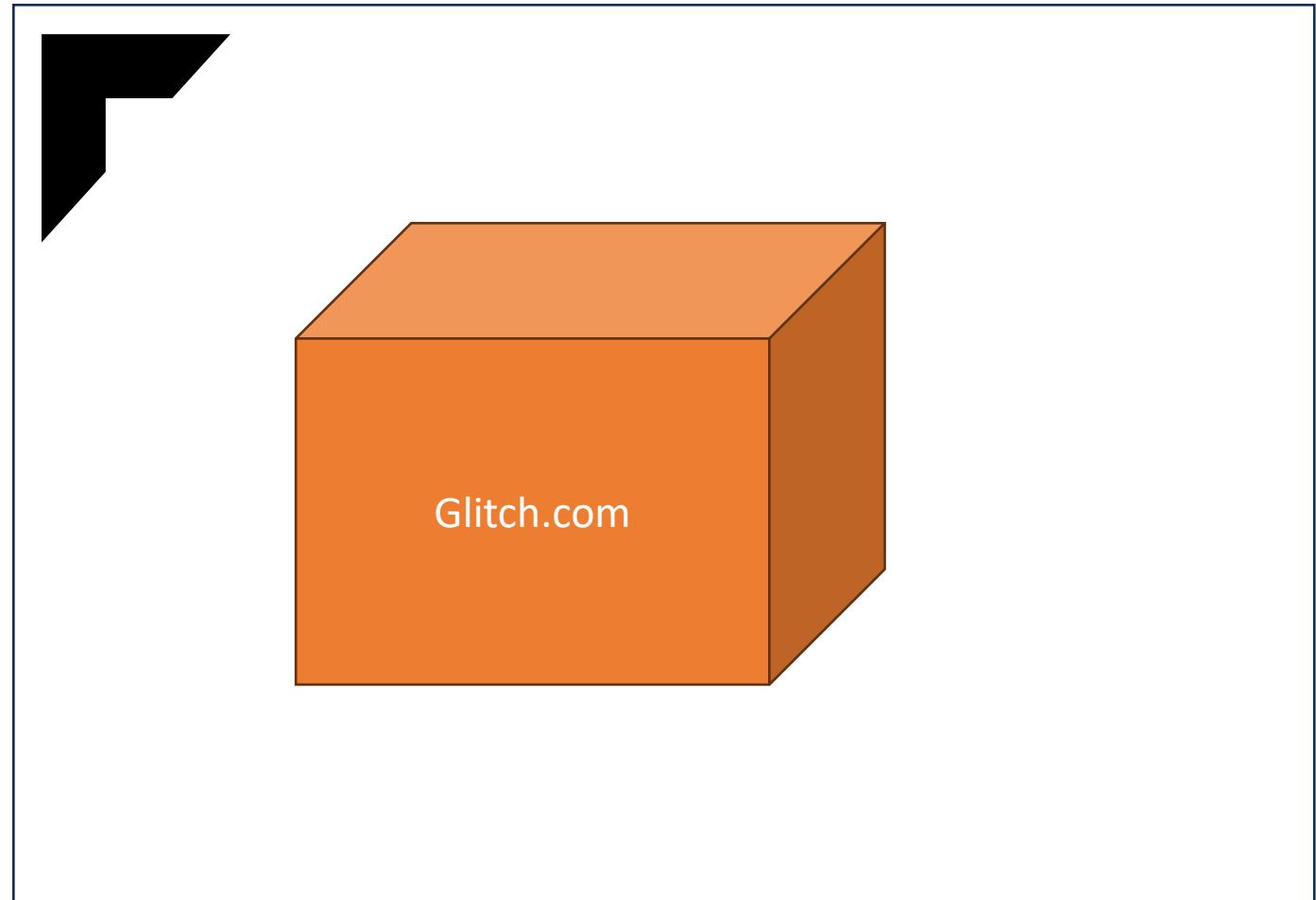
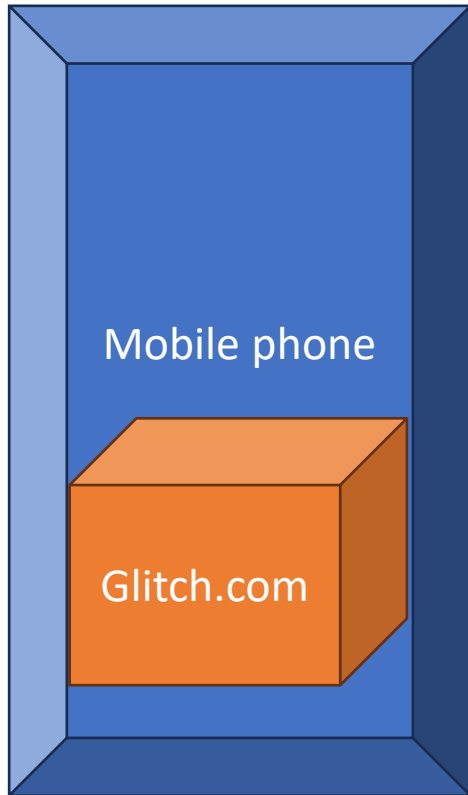
Gives you a URL for each project

We will use this URL

A-Frame in glitch

Glitch.com Overview

Computer

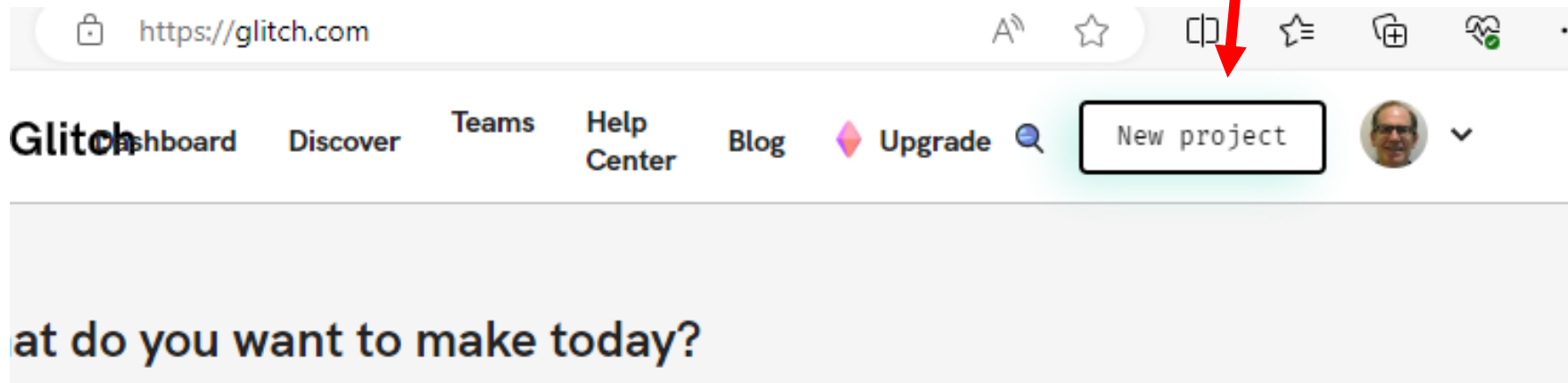


A-Frame in glitch

Create a glitch.com account

I hooked my google account to glitch

New Project

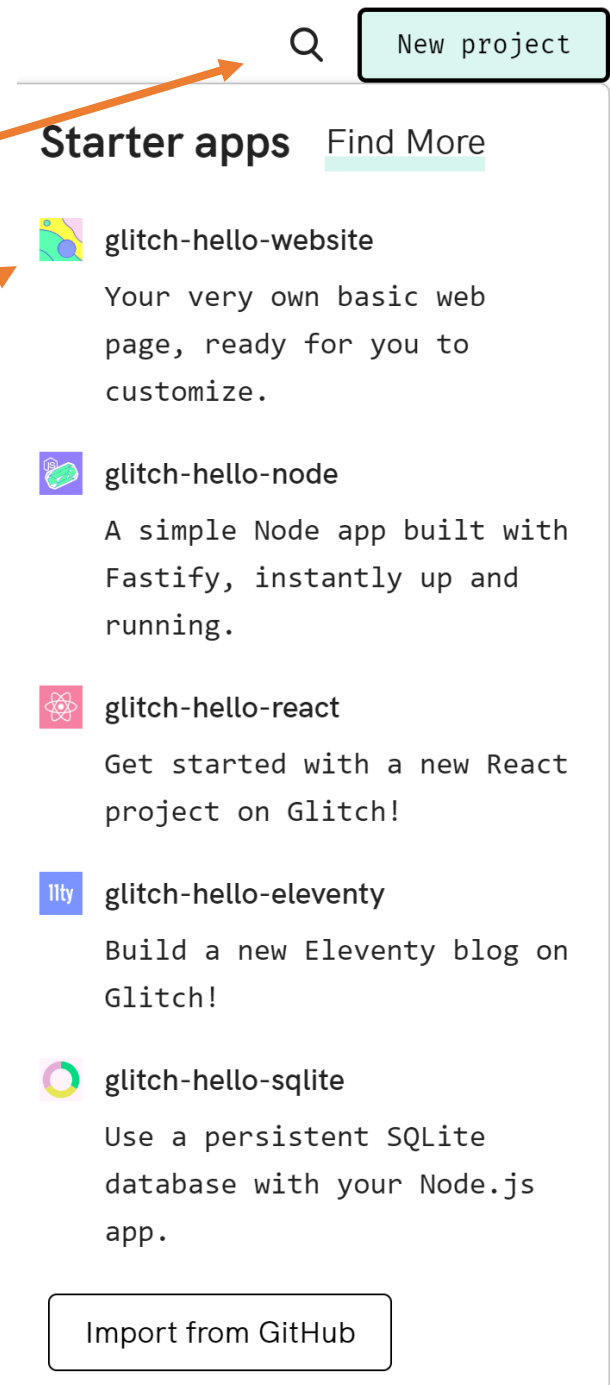


Glitch Hello Website

Select

New project

Select glitch-hello-website








The screenshot shows the 'New project' modal on the Glitch website. At the top, there is a search icon and a 'New project' button. Below this, the 'Starter apps' section is displayed, with a 'Find More' link. A list of starter apps is shown, each with an icon, a title, and a description. The first app, 'glitch-hello-website', is highlighted with an orange arrow pointing from the 'Select glitch-hello-website' text on the left. At the bottom of the modal, there is an 'Import from GitHub' button.

Search icon

New project

Starter apps Find More

-  glitch-hello-website
Your very own basic web page, ready for you to customize.
-  glitch-hello-node
A simple Node app built with Fastify, instantly up and running.
-  glitch-hello-react
Get started with a new React project on Glitch!
-  glitch-hello-eleventy
Build a new Eleventy blog on Glitch!
-  glitch-hello-sqlite
Use a persistent SQLite database with your Node.js app.

Import from GitHub

Working with Glitch

Replace index.html in Glitch with

the contents of index.html

the contents of simple-sky.html

Basic HTML

```
<html>
```

```
  <head>
```

```
    </head>
```

```
    <body>
```

```
      </body>
```

```
    </html>
```

Getting a-frame from aframe.io

```
<head>
```

```
  <script src="https://aframe.io/releases/1.4.1/aframe.min.js">
```

```
  </script>
```

```
</head>
```

Update index.html in glitch.com

```
<body>
  <body>
  <a-scene>

    <a-sky color="#0000EE"></a-sky>

    <a-text
      font="kelsonsans"
      color = "#FFFFFF"
      value="HELLO A-Frame!!!"
      width="6"
      position="0 -1 -5"
    ></a-text>

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

not-index.html

CTRL-O in browser to load a file

CTRL-ALT-I in browser for a-frame debugging

SHIFT-CTRL-J in browser for Chrome/FireFox debugging

VR glasses steps

Login to **glitch** on your phone – also

On your phone go to your Dashboard

Go to Projects

Select the same project you are working on in your laptop

Use VR glasses to view the project on your phone

Simple-sky.html

```
<body>
  <a-scene>
    <a-sky color="#0105EF">
    </a-sky>

    <a-text
      font="kelsonsans"
      color = "#FFFFFF"
      value="HELLO A-Frame!!!"
      width="6"
      position="0  -1  -5"
    ></a-text>

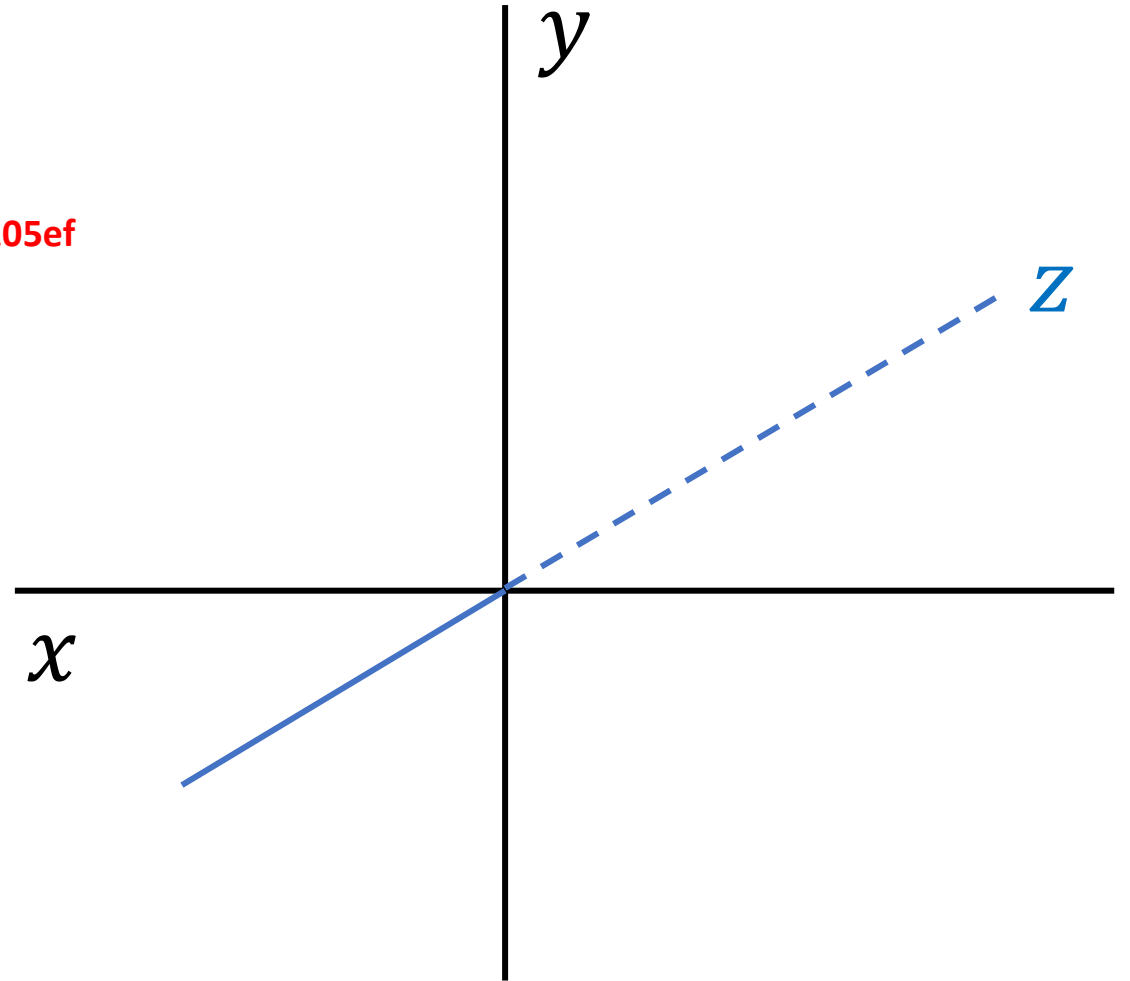
  </a-scene>
</body>
```


Simple-sky.html

```
<body>
  <a-scene>
    <a-sky color="#0105EF"> https://www.color-hex.com/color/0105ef
  </a-sky>

  <a-text
    font="kelsonsans"
    color = "#FFFFFF"
    value="HELLO A-Frame!!!"
    width="6"
    position="0 -1 -5" x-horizontal, y-vertical, and z-depth
  ></a-text>

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



Update simple-sky.html

```
<html>
<head>
  <script src="https://aframe.io/releases/1.4.1/aframe.min.js"></script>
</head>
<body>
  <a-scene>
    <a-sky
      src="https://cdn.glitch.global/4cb2dafa-67a2-4c7f-b424-b5ef32487f34/Moving_Forest_1050_700.webp?v=1696984169228"
    >
  </a-sky>
  <a-text
    font="kelsonsans"
    value="HELLO A-Frame from Earth!!!"
    width="6"
    position="-2.5 0.25 -1.5"
  ></a-text>
</a-scene>
</body>
</html>
```

Working with Glitch

Replace not-index.html/simple-sky.html in Glitch with the contents of **forest.html**

IMAGES/Moving_Forest_1050_700.jpg

Download an image from image.google.com

Upload it into Glitch.com

Get its glitch URL

Place it in the src prop of **a-sky**

VR Images

