

# my first **vr** app

a look at **A-Frame** for **WebXR** development

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AURA STUDIOS

# Virtual Reality (VR)

**technically**

computer generated simulation of an artificial environment that is **immersive** (and **interactive**)

# VR

eli5

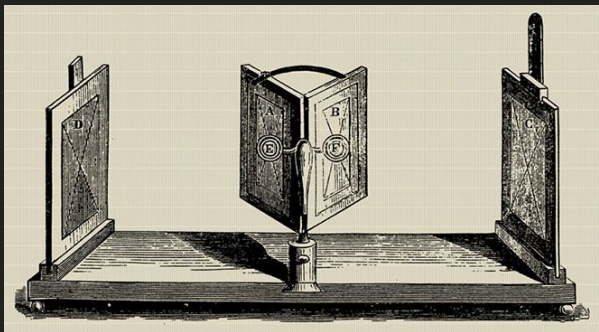
**convince you that you are  
somewhere else**



VR

4 main pillars

# 1. Stereoscopic Displays



The Wheatstone mirror  
stereoscope (1838)

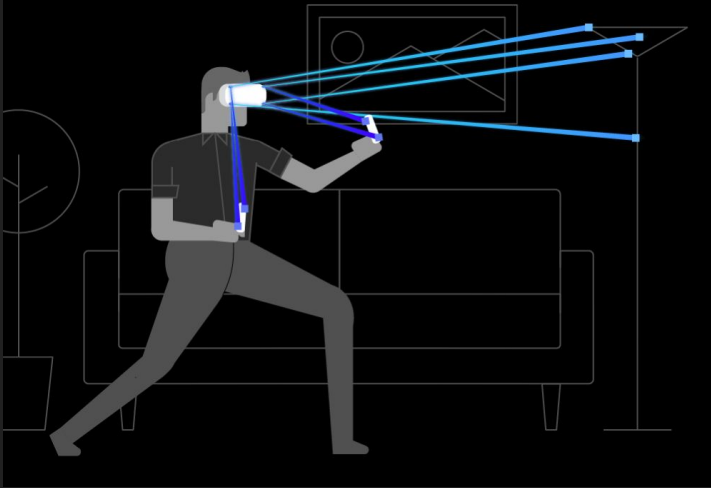
Ivan Sutherland @ MIT  
First VR HMD (1968)



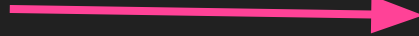
Oculus Quest (2019)



## 2. Motion Tracking Hardware

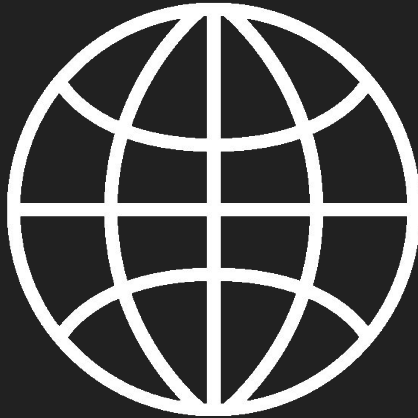
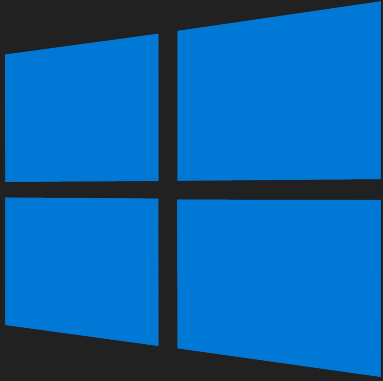


### 3. Input Devices





# 4. Computing Platform



# Applications



Games



Social

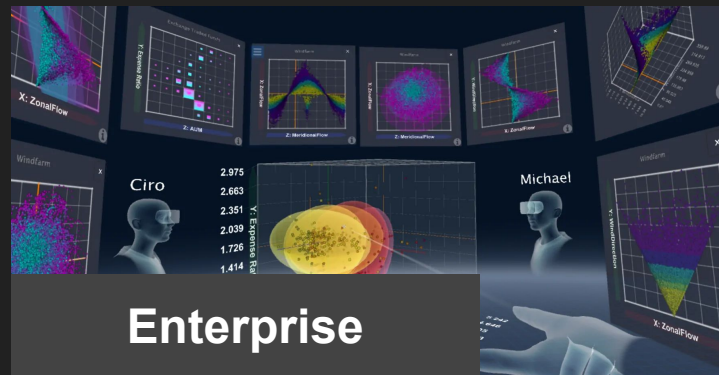
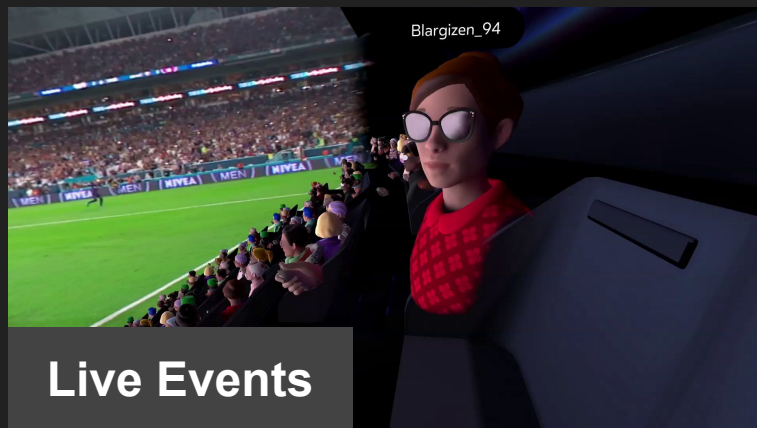


Education



Productivity

# Applications



# Headsets



**Oculus Go**  
3dof standalone device

dof = degrees of freedom

**Oculus Quest**  
6dof standalone device



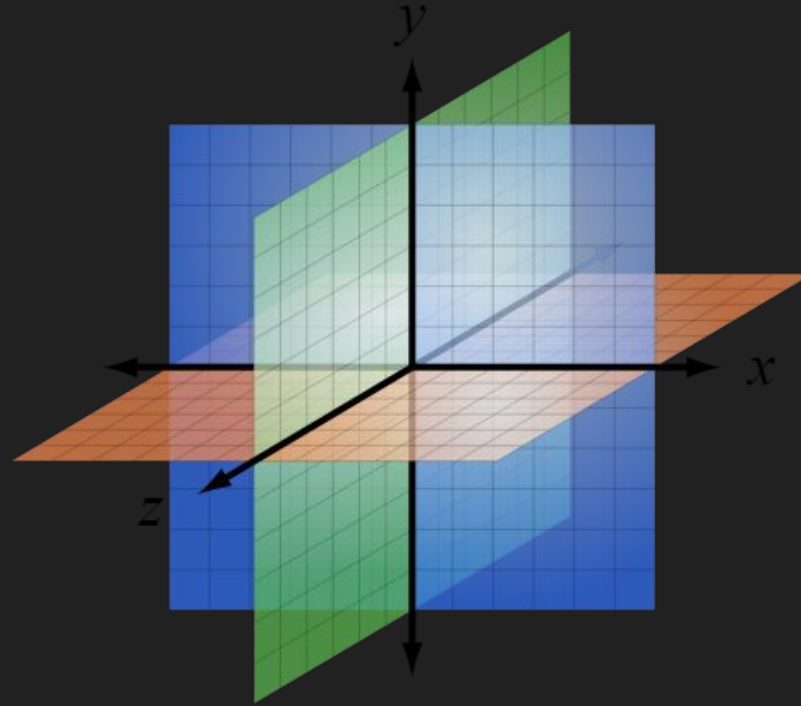
**Oculus Rift S**  
6dof PCVR device



# 3D Graphics Basics

for VR

# Coordinate System

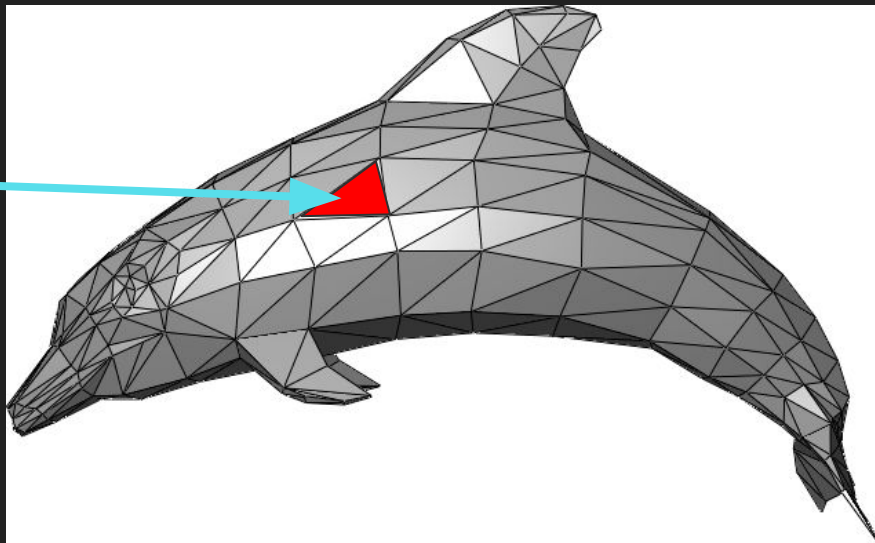




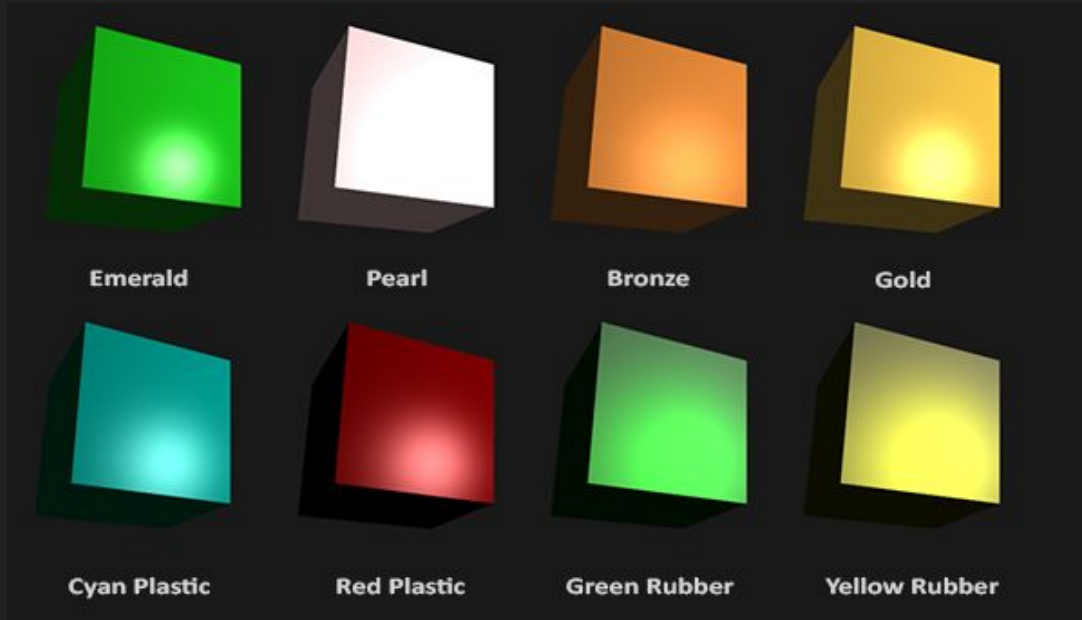
# Meshes, Polygons and Vertices

Dolphin Mesh (model)

Polygon



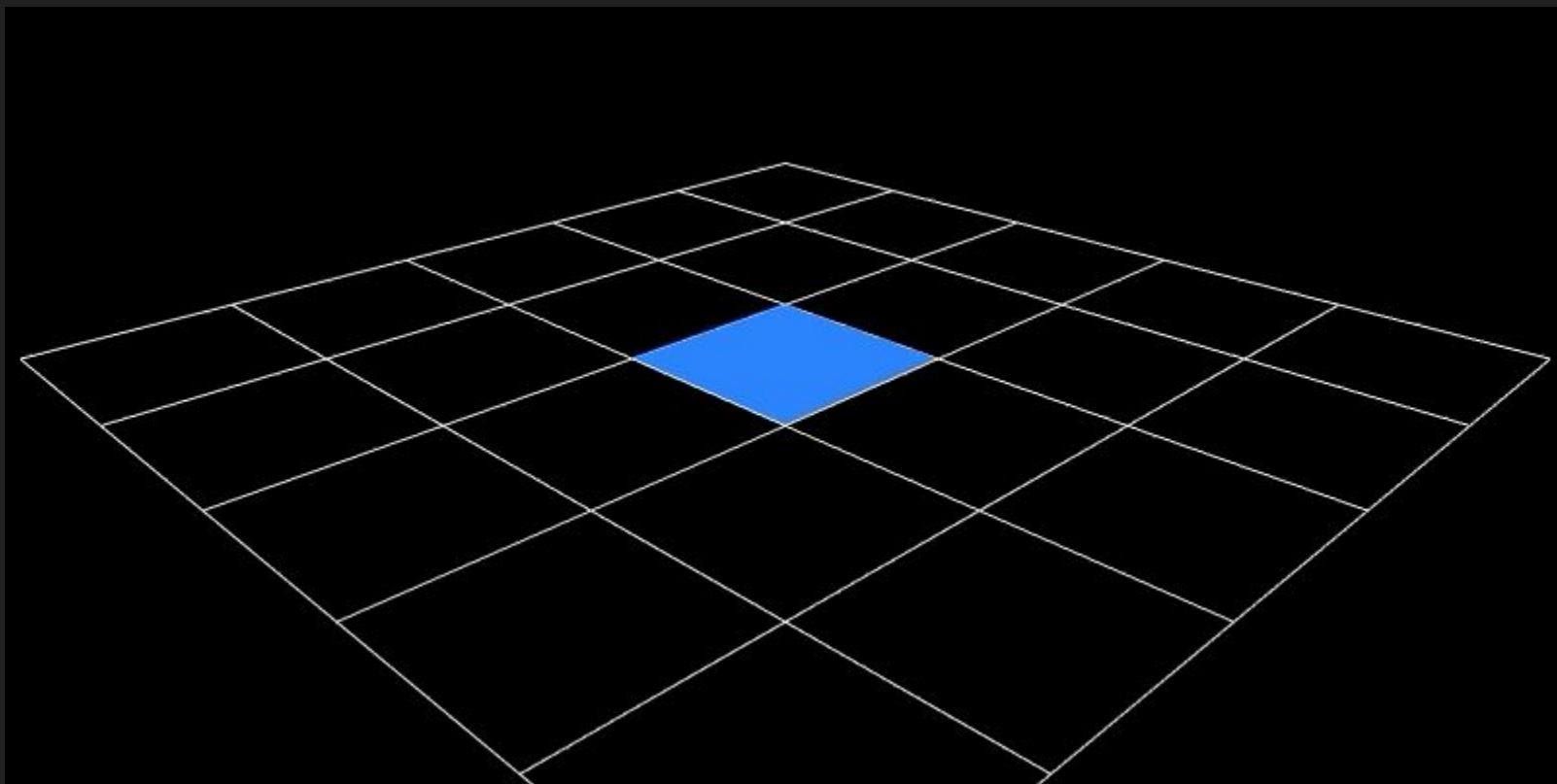
# Materials, Textures and Lights



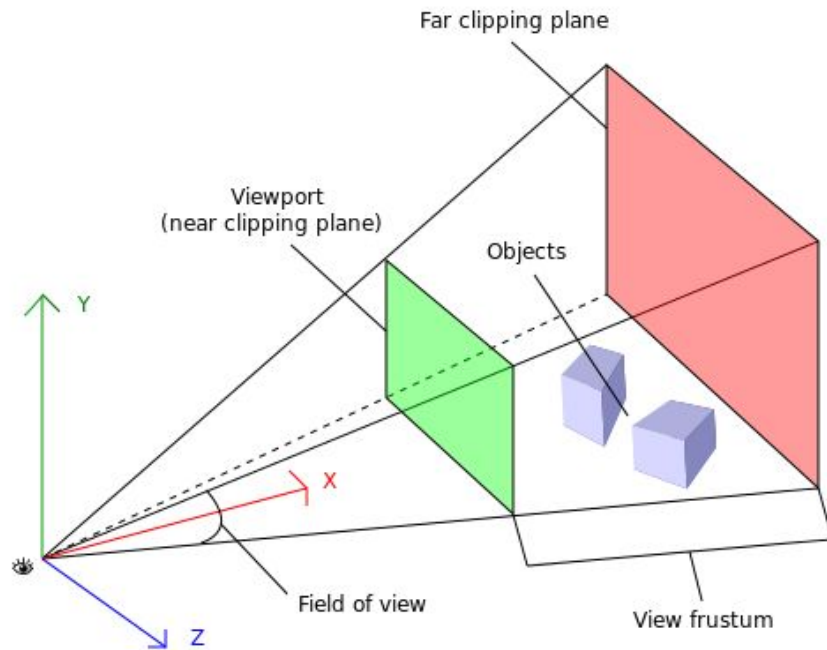
# Materials, Textures and Lights



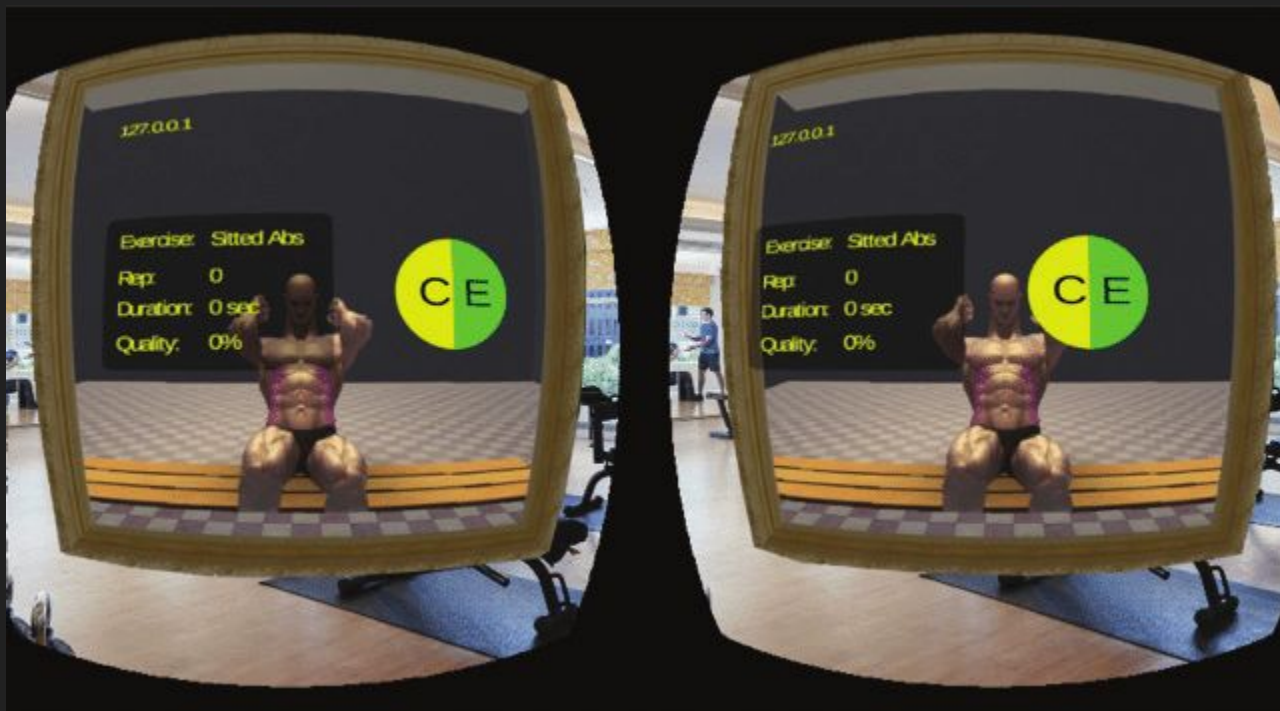
# Transforms



# Cameras



# Stereoscopic Rendering





# Web-focused Virtual Reality



# Web-focused Virtual Reality

**Instant access**

**<https://myurl>**

# Web-focused Virtual Reality

**Easy integration of web data**

# Web-focused Virtual Reality

## Cross-platform



# Web-focused Virtual Reality

**Faster, cheaper  
development**

# Web-focused Virtual Reality

**Easier deployment**



**HEROKU**



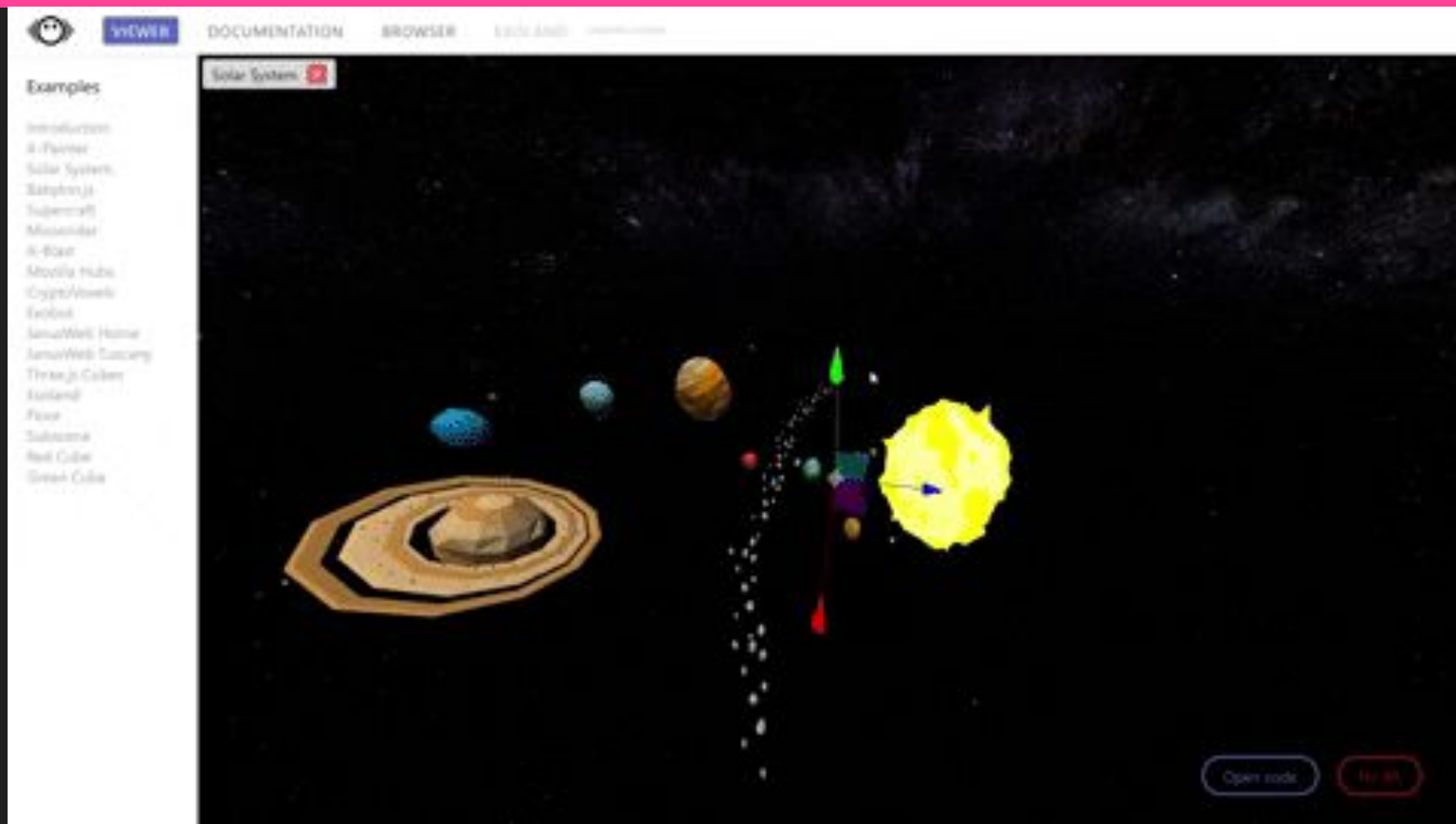
**netlify**



# Web-focused Virtual Reality

**Browsers are  
becoming powerful!**

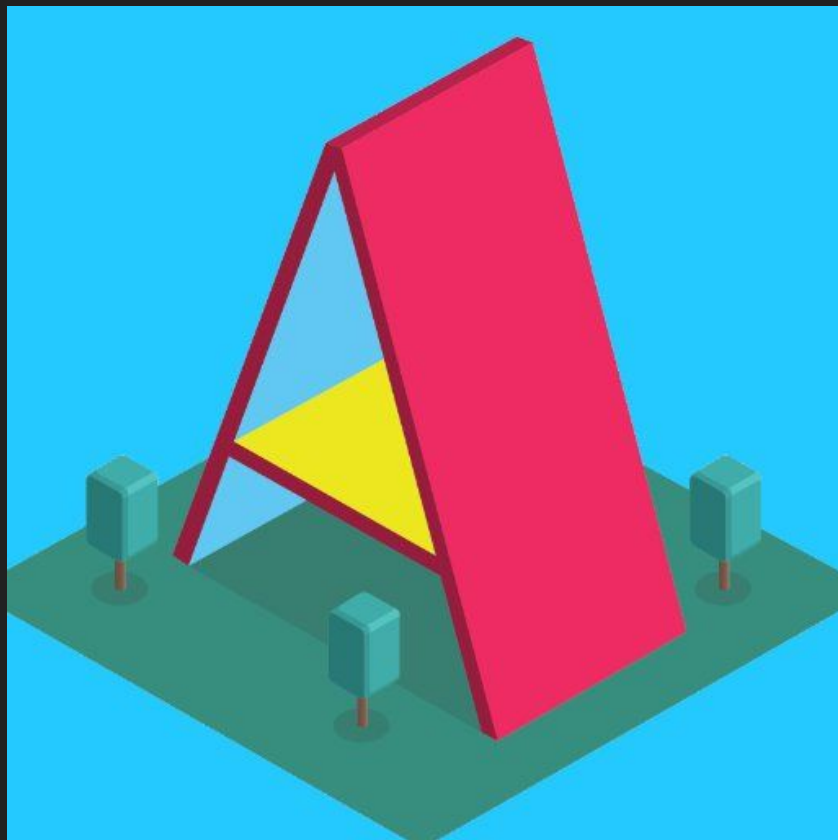
# Web-focused Virtual Reality



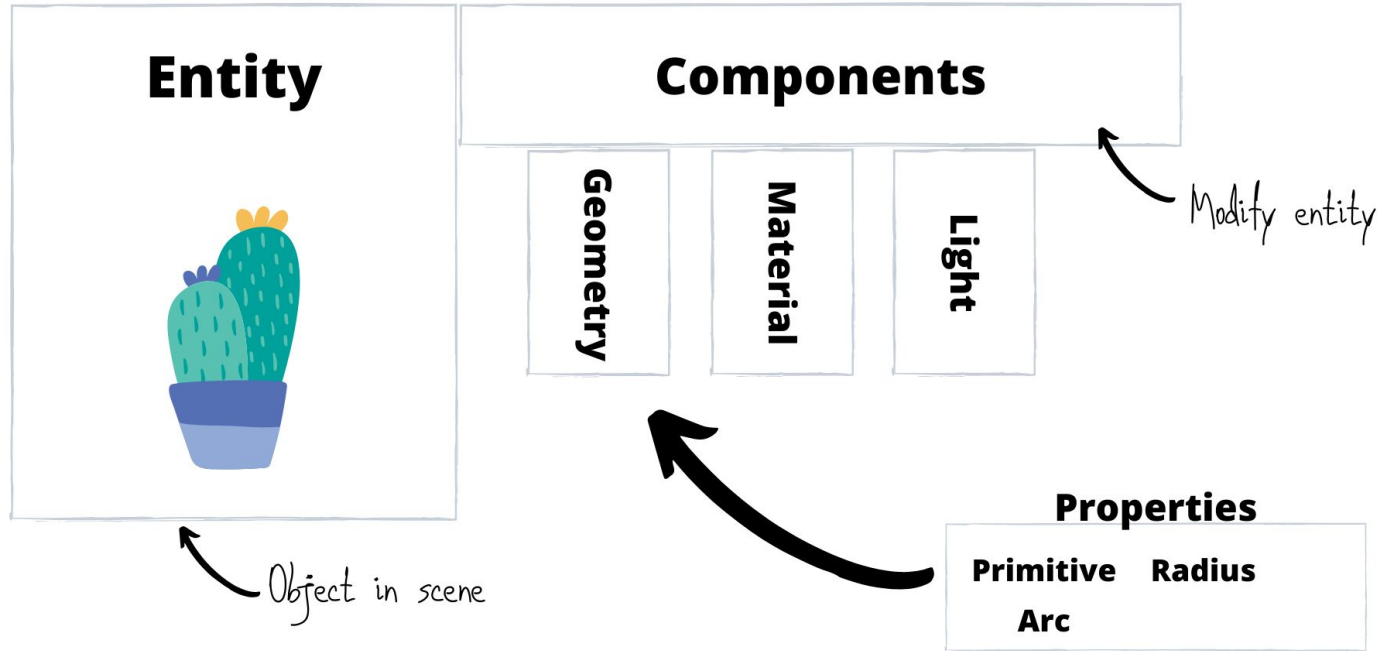
# Web-focused Virtual Reality



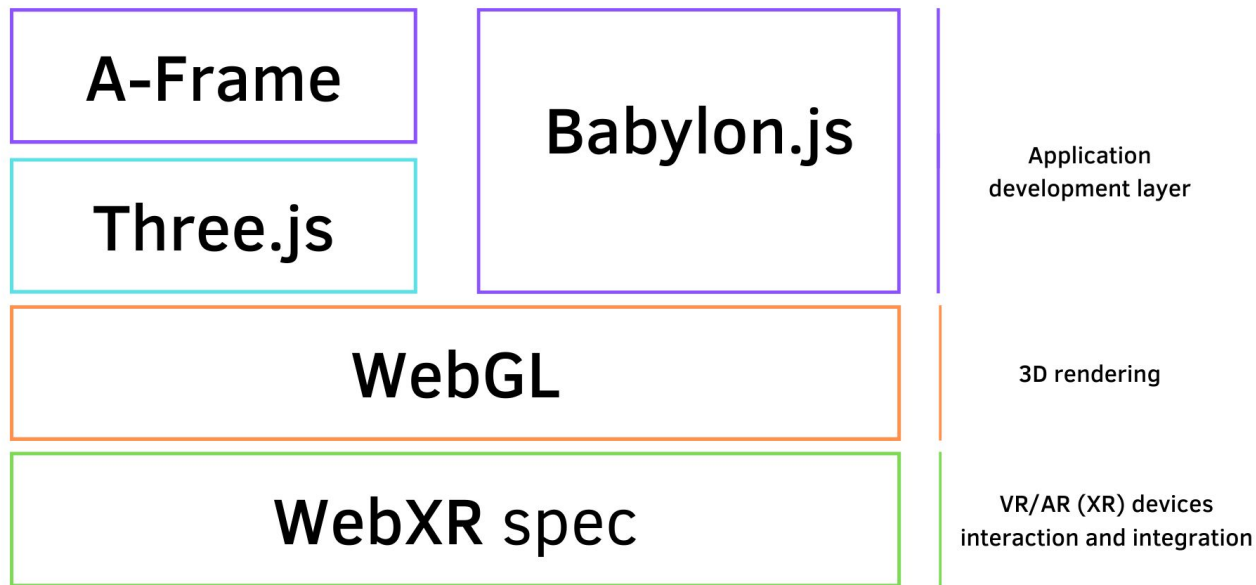
# A-Frame



# Entity-Component Framework



# The stack







Let's build an  
**interactive**  
**photo album**

live coding