



A browser-based Metaverse with babylon.js

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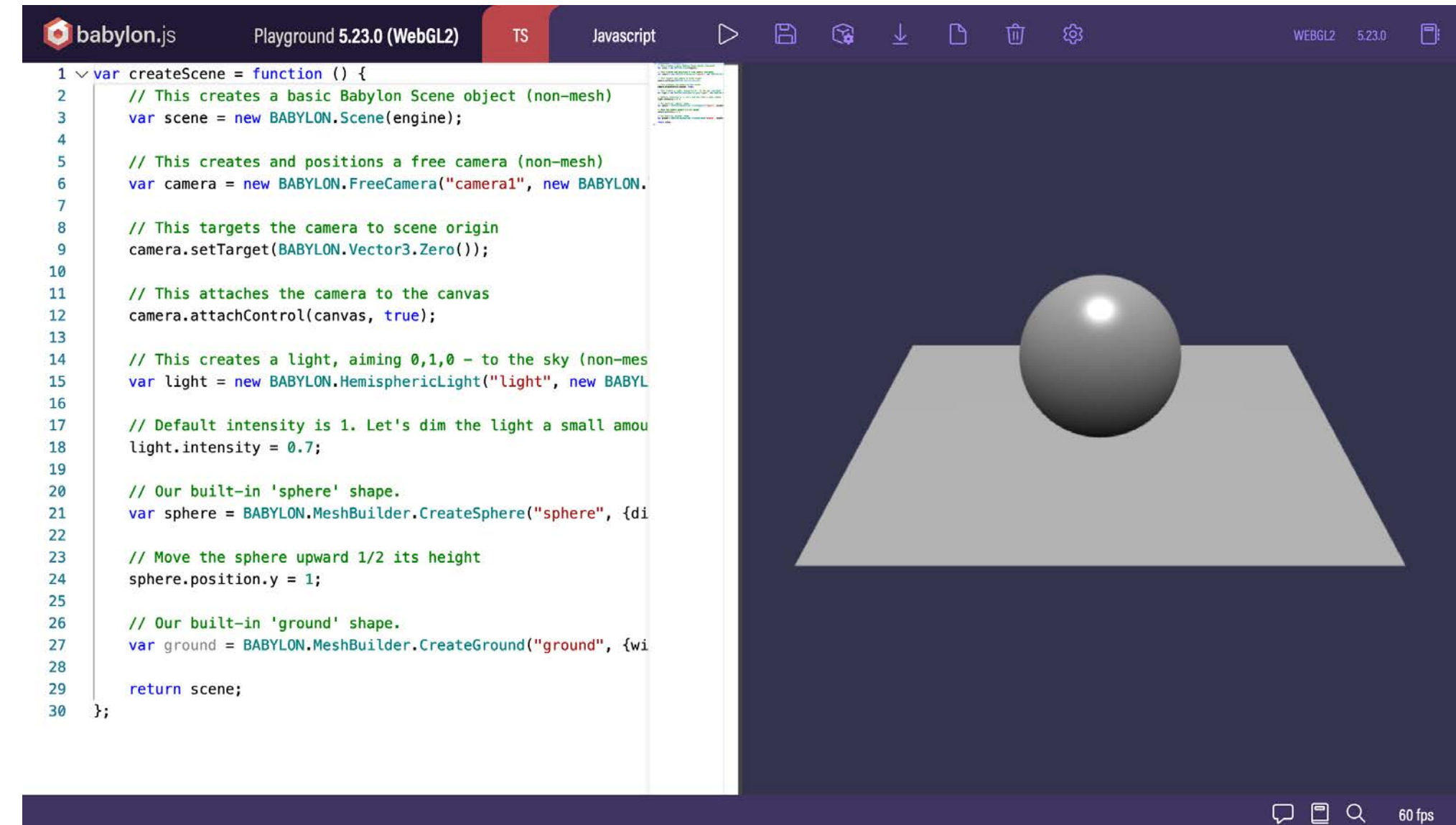
DOLBY.IO

Agenda

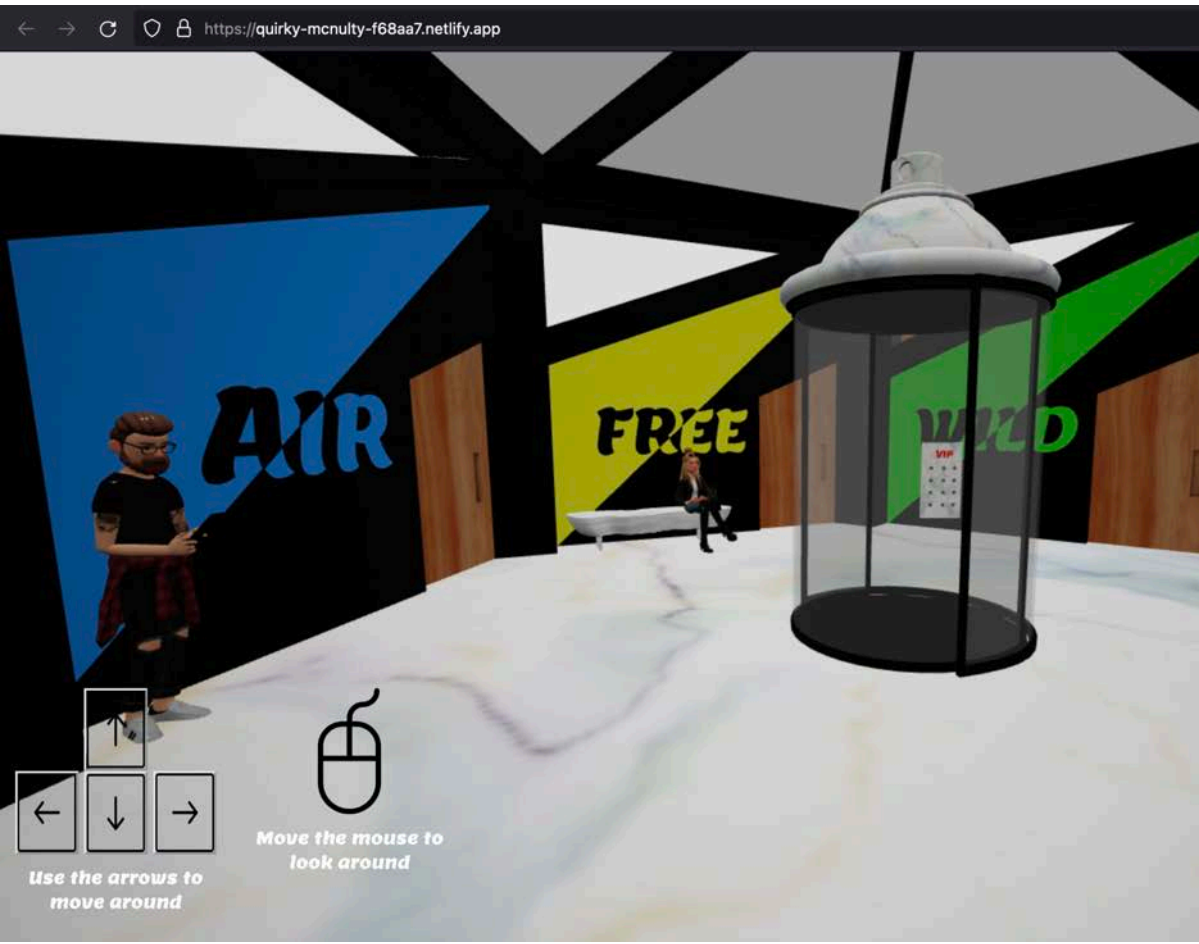
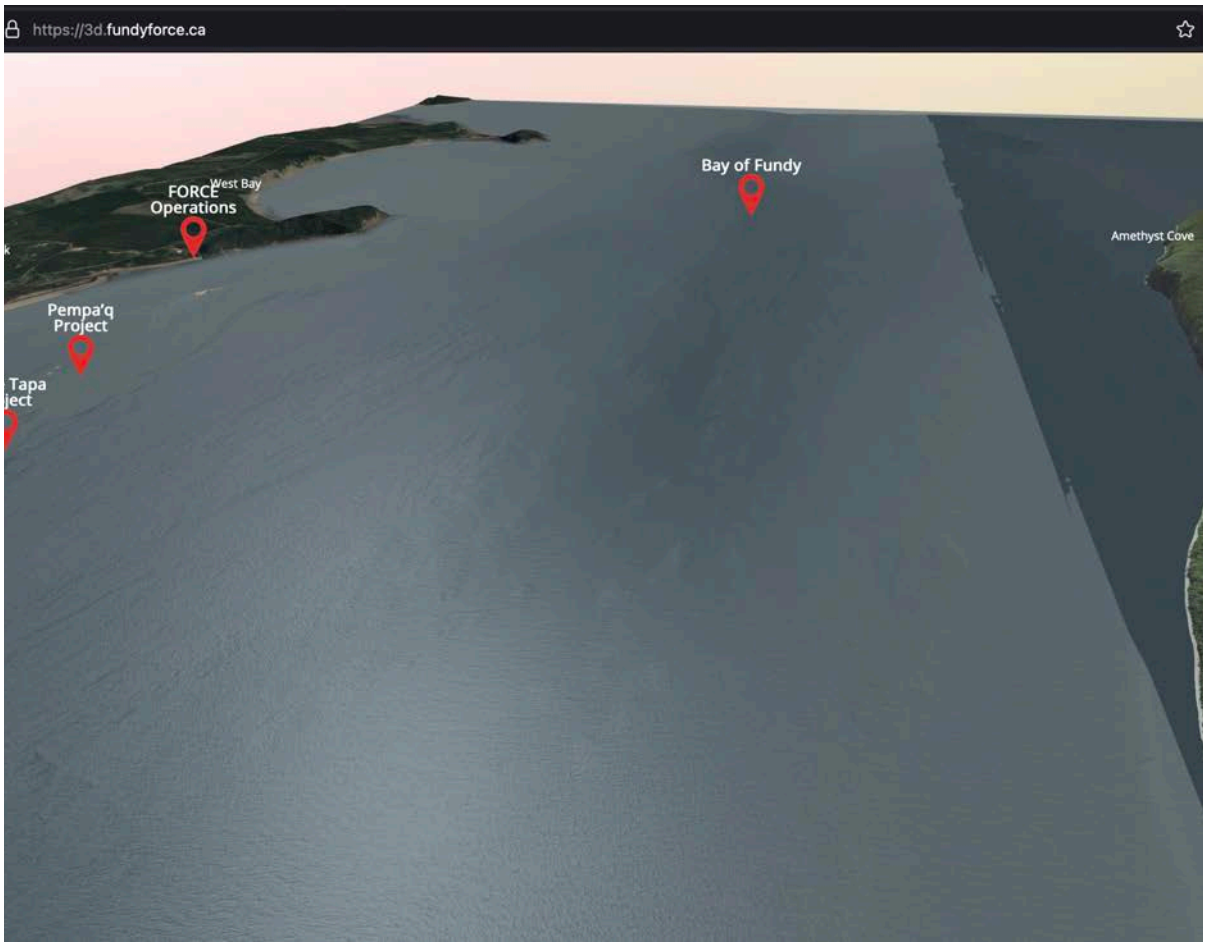
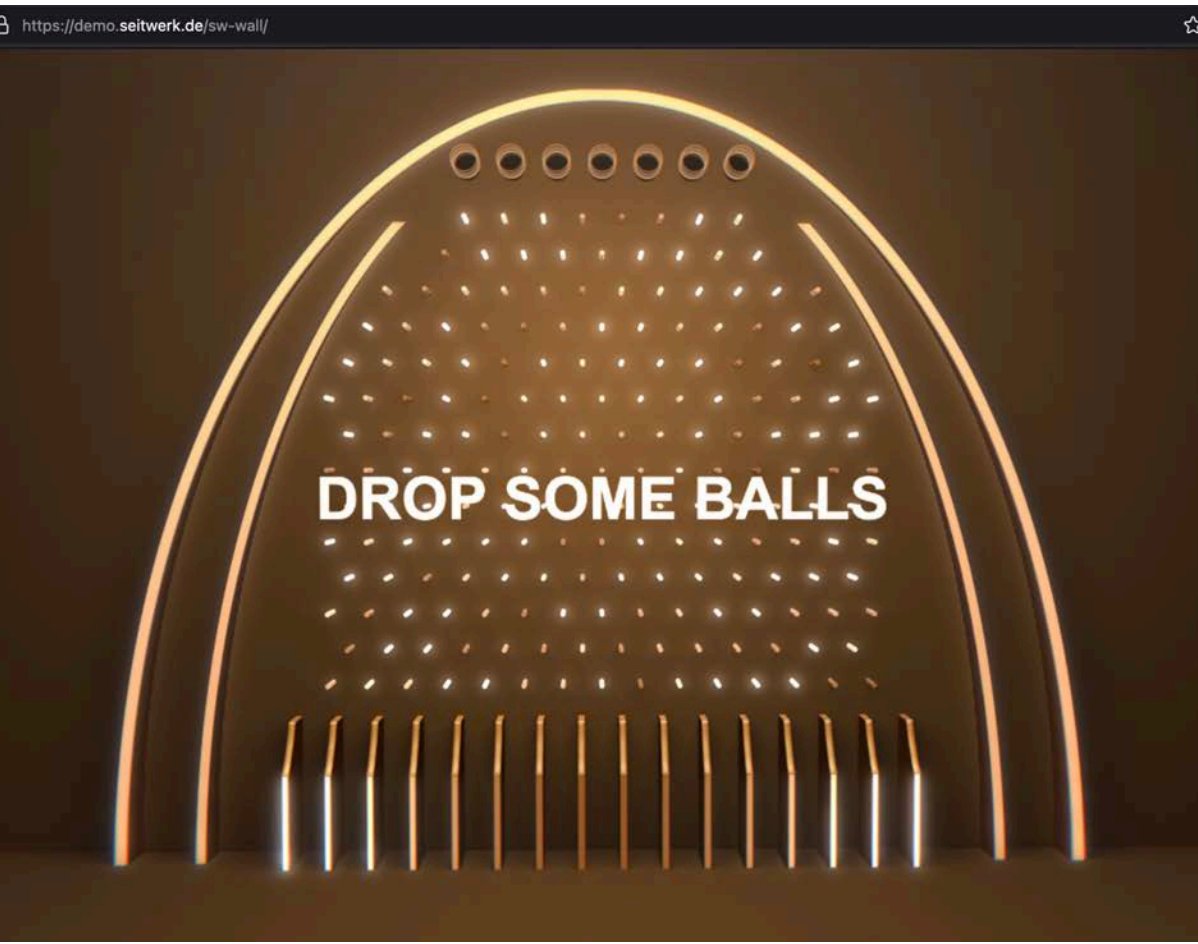
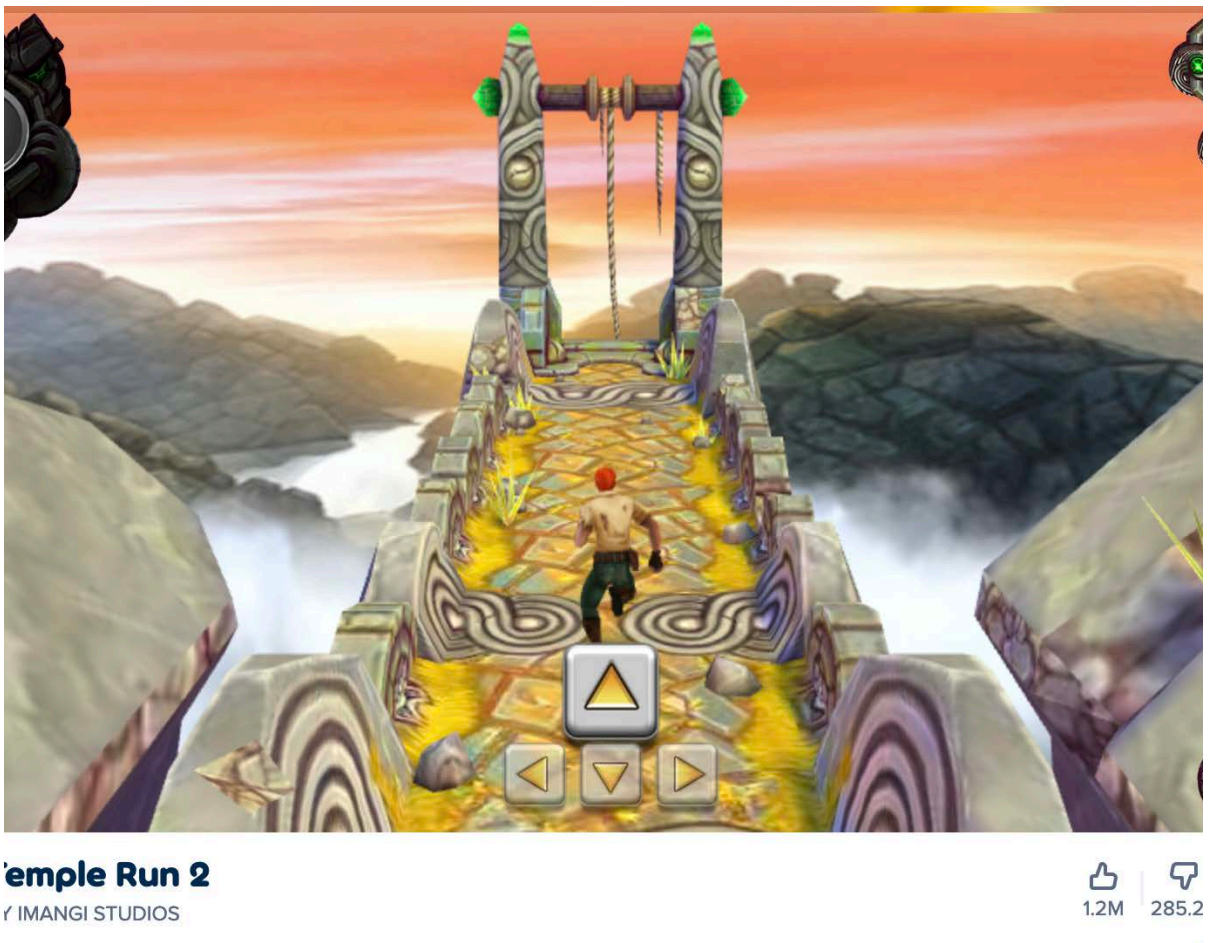
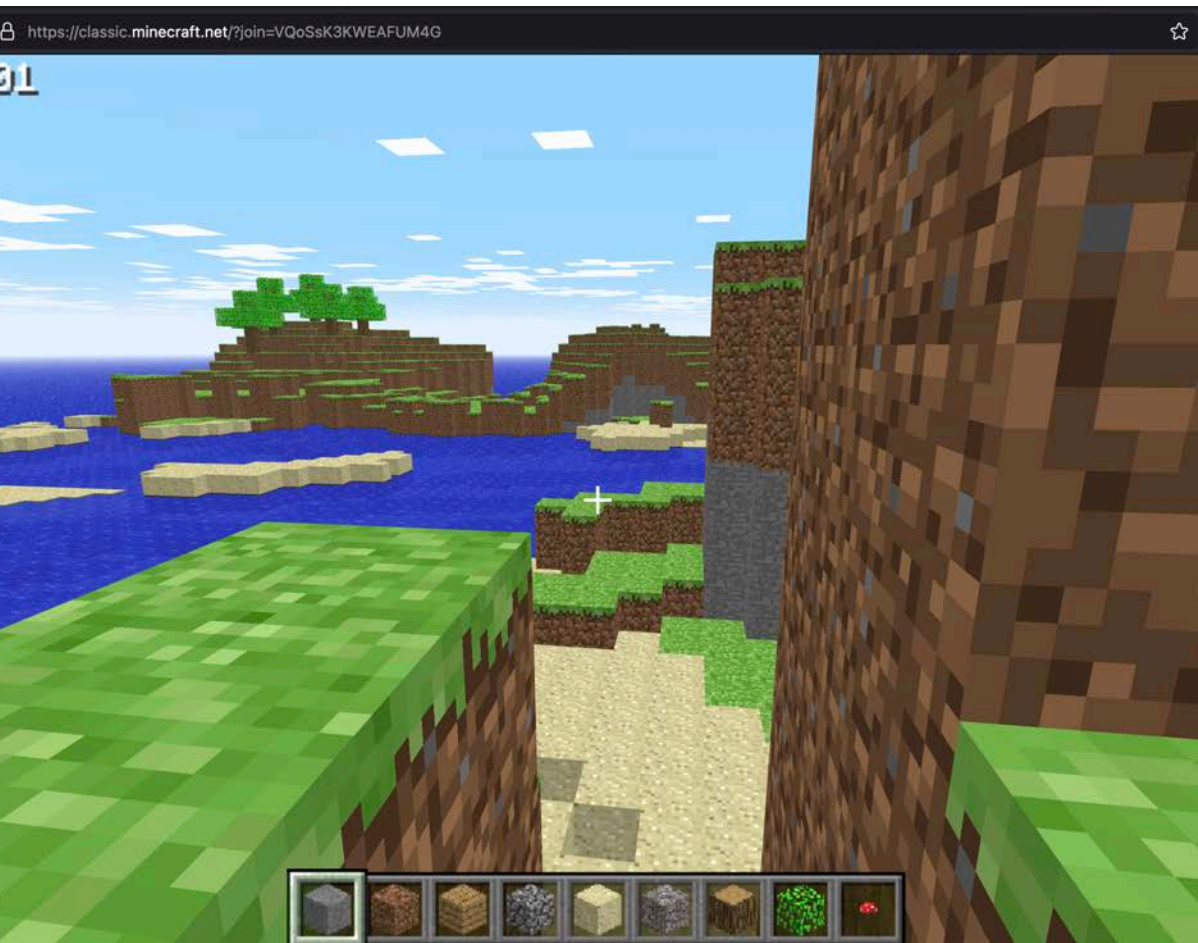
1. **What is Babylon.js?**
2. **Examples**
3. **Hello World**
4. **3D Assets and Concepts**
5. **Animating Characters**
6. **Video as a Texture**
7. **Live Streaming with Dolby.io**
8. **Spatial Audio and Perception**
9. **Wrapping Up**

What is babylon.js?

- JS based library for 3D Graphics Rendering
- HTML5 + WebGL
- Cross Platform Game Development
- Microsoft backed
- Uses in:
 - Education
 - Blockchain
 - DataViz
 - etc.



EXAMPLES



Introductory Concepts

- Main Method: createScene
 - Generate objects: cameras, planes, lights, meshes, etc.
 - MeshBuilder, FreeCamera, HemisphericLight
- Vector3: Define XYZ coordinates of an object
 - All relative to scene
- Autocompletions given in npm package

3D Assets and Concepts

- Changing Colors by face:
 - All included in object definition
- Loading Files: ImportMesh
 - Community Demos: <https://www.babylonjs.com/community/>
- Mouse Camera Navigation
- Switching Scenes

VR and AR Experiences

- Built in Support for VR headsets
 - Try on your Google Cardboard Device
 - <https://playground.babylonjs.com/#SRV2A0>
- WebXR framework to replace WebVR
 - Compatibility for Oculus, Index, Vive
 - Read more: <https://doc.babylonjs.com/divingDeeper/webXR/introToWebXR>



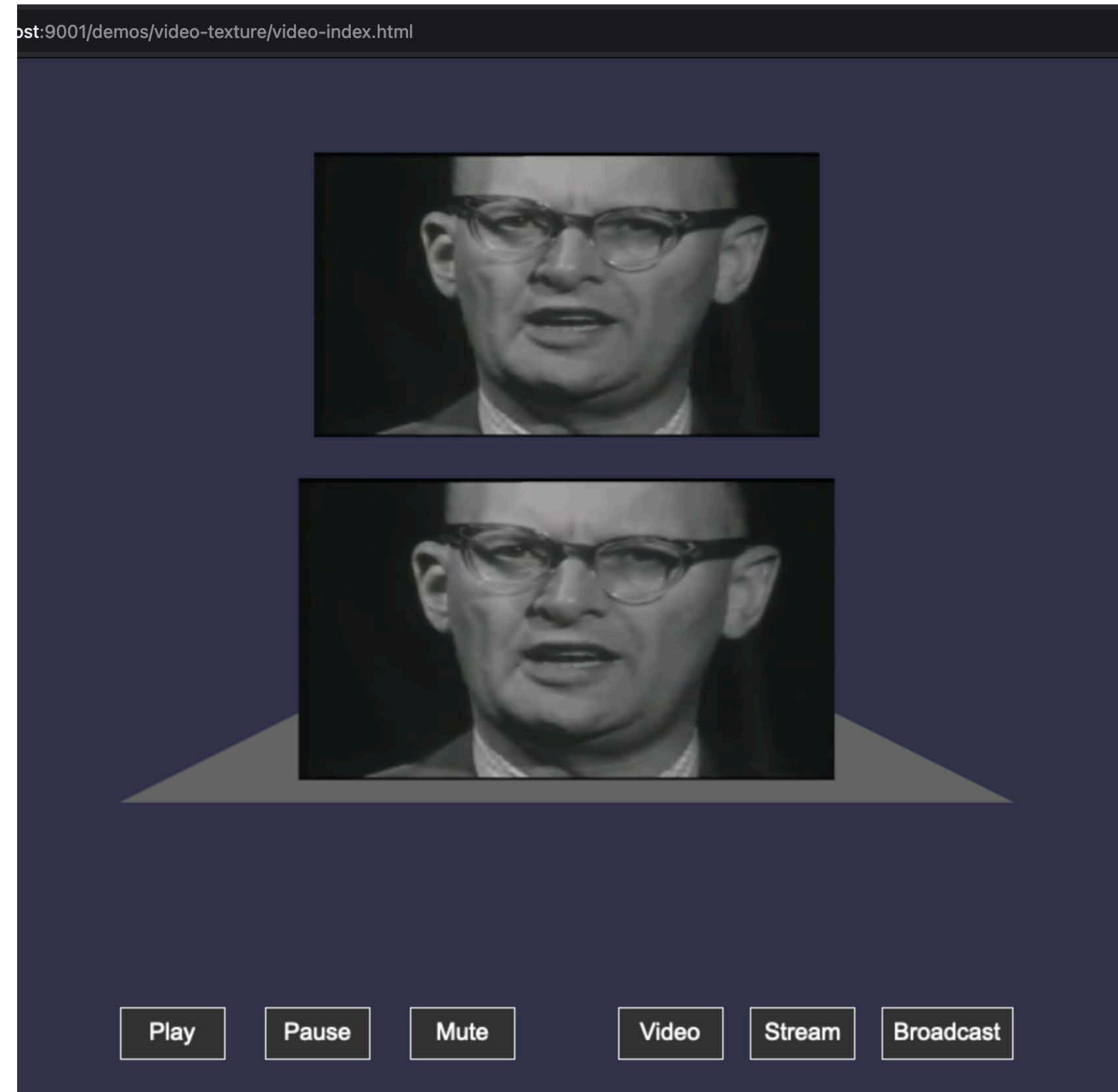
Animating Characters

- Use Render Loops to modify models
 - `scene.onBeforeRenderObservable`
- Move a character
 - Emotes
- Assign to key presses
 - Remember to add in stop command!



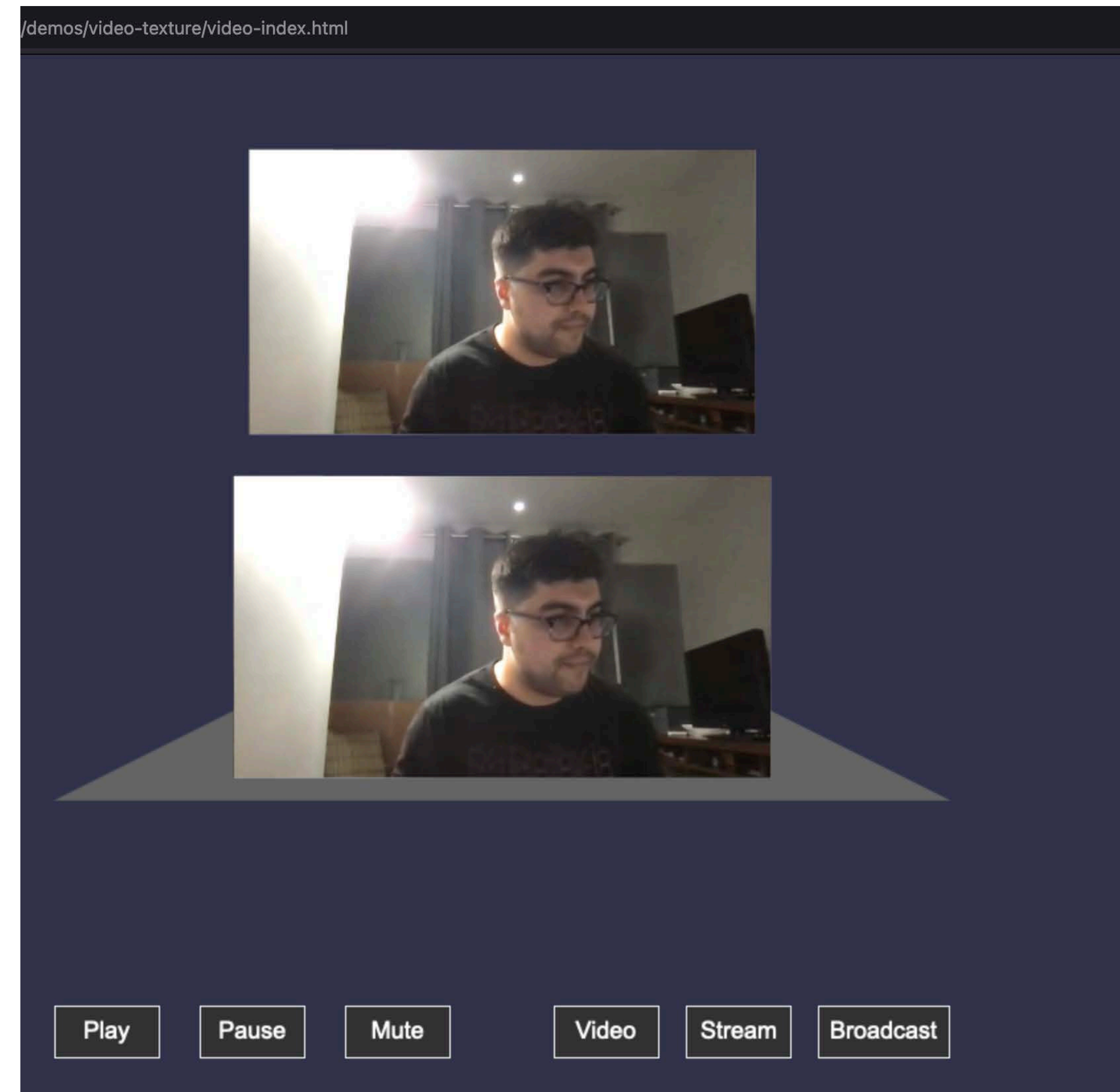
Video as a Texture

- All based on HTML5, like `<Video/>`
 - But use it as a texture for an object
 - `BABYLON.VideoTexture`
- Play and Pause with similar functions
 - `<videoTexture>.video.play()`
- Assign to GUI buttons!



Live Streaming

- Use Dolby.io Streaming for live content
 - Not limited to existing video files, real time!
 - Get API credentials at dolby.io/signup
- <videoTexture> accepts streams too
 - Assign srcObject to stream URL from Dolby
- Enables real time broadcasting in Metaverses
 - Great for events, concerts, lectures, etc.



Spatial Audio Comms

- Can additionally add in real time communications via an SDK
 - Add in Spatial Scenes to increase “reality”
- Take positions of objects within Babylon and feed them into SDK for relative positioning
- <https://www.odyssey.stream/> for example



Wrapping Up

- Tip of the iceberg when it comes to Babylon.js
- <https://bit.ly/metaverse-workshop> for self-paced workshop
- Use the community resources! <https://www.babylonjs.com/community/>
- <https://docs.dolby.io/>



Thank you!

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