https://github.com/VolutionLabs/TheContainer/blob/master/main.html

# some related links as a dirty list

https://www.w3.org/TR/uievents/#dom-event-architecture

**metaobject**
In computer science, a metaobject is an object that manipulates, creates, describes, or implements other objects (including itself). The object that the metaobject is about is called the base object. Some information that a metaobject might store is the base object's type, interface, class, methods, attributes, parse tree, etc. Metaobjects are examples of the computer science concept of reflection, where a system has access (usually at run time) to its internal structure. Reflection enables a system to essentially rewrite itself on the fly, to change the actual structure of the system as it executes.[1]
https://en.wikipedia.org/wiki/Metaobject

Meta Object Protocol

Unified Modeling Language (UML)
Meta-Modellers Anonymous

Mapviz

Interactive 3D Content, the Next Frontier of the Web? | WebVisions
Platform for interactive 3D presentations - CL3VER

Basic Three.js VR boilerplate
https://mozvr.github.io/vr-web-examples/threejs-vr-boilerplate/

# X3D TOOLS

- x3dom.org

XML3D.ORG
X3DOM vom Fraunhofer-Institut für Graphische Datenverarbeitung (IGD) integriert den X3D-Standard komplett in den Browser.
XML3D des Computergrafik-Labors der Universität des Saarlandes hingegen erweitert HTML und CSS um die Möglichkeit, 3D darzustellen

The Basics of XML3D · xml3d/xml3d.js Wiki

- 3D geometry
- Viewports
- Transform Hierarchy
- Surface appearance
- Light sources

javascript - XML3D: Camera controls & XML3D tools - Stack Overflow#
https://github.com/xml3d/xml3d.js/wiki/Getting-started
**XML3DRepo: A REST API for Version Controlled 3D Assets on the Web**

Publishing your Unity content to the Web with WebGL - Unite Europe 2015 - YouTube

difference between OpenGL and WebGL

WebGL is "OpenGL ES 2", not plain OpenGL (the ES stands for 'for Embedded Systems'). So there's the first difference. OpenGL ES is essentially a subset of OpenGL. In addition, WebGL isalmost the same as OpenGL ES 2, but has some subtle differences, explained in the link you provide.
rogramming semantics, api's inheritence, api's extensio
OpenGL is a desktop computer centric API (like Direct3D). WebGL is derived from OpenGL ES 2.0 (intended for mobile devices) which has less capabilities and is simpler to use.

WebGL is also designed to run in a browser, and has therefore a few limitations more then OpenGL ES 2.0.

**3D graphics APIs"**

The following 18 pages are in this category, out of 18 total. This list may not reflect recent changes (learn more).

**D**

- Direct3D

**G**

- Glide API
- GNM (API)
- GNMX
- Google Cardboard

**L**

- List of WebGL frameworks

**M**

- Mantle (API)
- Matrox Simple Interface
- Metal (API)

**O**

- Oak3D
- OpenGL
- OpenGL ES

**P**

- PLIB
- PSGL

**R**

- Redline (API)

**S**

- Stage3D

**V**

- Vulkan (API)

**W**

- WebGL

famo.us

- core
- Context
- ElementAllocator
- ElementOutput
- Engine
- Entity
- EventEmitter
- EventHandler
- Group
- Modifier
- OptionsManager
- RenderNode
- Scene
- SpecParser
- Transform
- View
- ViewSequence
- events
- EventArbiter
- EventFilter
- EventMapper
- inputs
- Accumulator
- GenericSync
- MouseSync
- PinchSync
- RotateSync
- ScaleSync
- ScrollSync
- TouchSync
- TouchTracker
- TwoFingerSync
- math
- Matrix
- Quaternion
- Random
- Utilities
- Vector
- modifiers
- Draggable
- Fader
- ModifierChain
- StateModifier
- physics
- PhysicsEngine
- physics/bodies
- Body
- Circle
- Particle
- Rectangle
- physics/constraints
- Surface
- Collision
- Constraint
- Curve

HTML5 / JavaScript game enginesWebgl HTML5 Game Engines - Find Which is Right For You

philoGL

http://www.senchalabs.org/philogl/doc/index.html

- Core
- Math
- WebGL
- Program
- Shaders
- O3D
- Camera
- Scene
- Event
- Fx
- IO
- Media
- Workers

d3 webgl
Converting a D3 Visualization to WebGL: How and Why
Interactive WebGL Globes with THREE.js and D3 — delimited

D3 Globe with Canvas, WebGL, and Three.js | TechSlides
D3 vs. WebGL - number of data points
» Converting a D3 Visualization to WebGL: How and Why Ayasdi
pathGL - webgl data visualisation library
Pathgl is a webGL library for data visualization and simulation. It reimplements SVG in webgl and packages a few functions to polyfill compute shaders so you can run expensive simulation, layout, and queries on the gpu.

D3 vs. WebGL - number of data points. Are there performance problems with D3 and large data sets? : d3js

**VRML (Virtual Reality Modeling Language) and X3D**
X3D and VRML

Web3D - X3D Geometries • Basic primitives (Box, Cone Cylinder, Sphere) –http://x3dom.org/x3dom/example/x3dom_geoPrimitives.xhtml
• IndexedFaceSet (3D shape formed by constructing faces - polygons)
• Binary Geometry employs several files to store the index and geometry data directly in the requested precision,
• Image Geometry uses two component files for the position information, one for each byte.
• BitLOD Geometry uses several chunks to accumulate the full precision, where each chunk provides a refinement for the position and normal information.

MeshLab
MeshLab is an open source, portable, and extensible system for the processing and editing of unstructured 3D triangular meshes.
The system is aimed to help the processing of the typical not-so-small unstructured models arising in 3D scanning, providing a set of tools for editing, cleaning, healing, inspecting, rendering and converting this kind of meshes.

X3D Scene access interface Edition V3.3 | Web3D Consortium

DOM.on click

webVR apiwebVR api - Google Search

Web3D.org

**Mixed Augmented Reality Mixed Augmented Reality (MAR) | Web3D Consortium**

Cover Pages: VRML (Virtual Reality Modeling Language) and X3D

X3DArchive
X3dForWebAuthors Examples Archive - Table of Contents

x3dgraphics.com/slidesets/X3dForWebAuthors/Chapter12-EnvironmentSensorSound.pdf

Environment Sensor and Sound Nodes Common fields
- center, size, enabled, isActive, enterTime, exitTime Nodes
- LoadSensor detects availability of other content
- ProximitySensor detects user location, orientation
- VisibilitySensor detects visibility of region to user
- Sound controls spatialization of audio outputs
- AudioClip controls retrieval and playback of audio files and streams

Wikineering sunglass.io
Extend your desktop 3D CAD tools with a powerful suite of collaboration and management apps.

EnvironmentalEffects x3dom
TORIALS X3XML Web3D 2013 Conference

https://media.readthedocs.org/pdf/x3dom/1.4.0/x3dom.pdf

t WebGL is actually a rasterization API, not a 3D API.

Processing
Processing (programming language) - Wikipedia, the free encyclopedia

Loading resources from external servers — X3DOM v1.4.0 documentation

Web Browser as Universal Publishing Medium
WebGL for Universal 3D Content

Declarative Graphics

Virtual Reality Comes to the Web—Maybe for Real This Time - Scientific American

e FreeX3D: VRML, X3D, STL Viewer

CONNECTION VISUALIZATION BIG DATA

**Gallery · mbostock/d3 Wiki · GitHub**
https://github.com/mbostock/d3/wiki/Gallery

Three.js

PROCESSING
p5.js

p5js.org/
p5.js a JS client-side library for creating graphic and interactive experiences, based on the core principles of Processing.

+D Development

https://www.youtube.com/watch?v=7UuGBm4OxzM

opencv c tutorial arduino

c# Unity3D Tutorial Series #01 - Player Movement - YouTube

Learn C - Free Interactive C Tutorial

---

---

**Code and Data-Driven Animation**

Processing, data sets, motion capture, procedural animation, and other forms of digital processing.

Character Controller Cardboard navigation Google-Cardboard-VR-Navigation

first person control

controller assets

Tutorial Sukzessiv

Unity 3d Tutorial 1.8 - Box Colliders and Build Settings - YouTube

Unity Reversing
Unity3D attack by reverse engineering. - HackThis!!

acaudwell/Gource

OpenGL-based 3D visualisation tool for source control repositories

Logstalgia is a website traffic visualization that replays or streams web-server access logs as a pong-like battle between the web server and an never ending torrent of requests.

Nice Java Frameworks concerning space and interaction and viz - **spatial transformer**

**javascript zoom infinite - Google Search**
https://www.google.de/search?q=javascript+zoom+infinite&oq=javascript+zoom+infinite&aqs=chrome..69i57j0.10767j0j7&sourceid=chrome&es_sm=91&ie=UTF-8

**josephernest/bigpicture.js: bigpicture.js is a library that allows infinite panning and infinite zooming in HTML pages.**
https://github.com/josephernest/bigpicture.js/

NEXT SPACE COMPOSITION

leveldesign

3D render standard Web WebGL
Cardboard: WebGL + cardboard viewer
WebVR http://mozvr.github.io/webvr-spec/
https://www.w3.org/community/webvr/

3D representation

http://library.fridoverweij.com/code/3DShapes/3DGeometry.php

https://mozvr.github.io/webvr-spec/#interface-vrlayer

http://www.slideshare.net/tecnotic/augmented-reality-and-education-learning-connected-to-life/162-FOTOSNTESIS_DEREALITAT3

social
http://altvr.com/ Be there together

VR

**Introducing VR and the Processing programming language | Digital Centers Internship Program**
https://blogs.cul.columbia.edu/dcip/2015/10/23/introducing-vr-and-the-processing-programming-language/

**Buttons in virtual reality - a UI/UX design approach — RealityShift**
http://realityshift.io/blog/buttons-in-virtual-reality-a-ui-ux-design-approach

**vr creation software comparison - Google Search**
https://www.google.de/search?q=vr%20creation%20software%20comparison&rct=j

**CiteSeerX — Software Tools for Virtual Reality Application Development**
http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.25.8123

**3D Printing Software Review: Simplify3D vs MakerBot Desktop – Nick Lievendag**
http://nicklievendag.com/simplify3d-vs-makerbot-desktop/

**Finding the Right 3D Modeling Software For You**
https://www.matterhackers.com/articles/finding-the-right-3d-modeling-software-for-you

**WebVR: search results - best**
https://www.reddit.com/r/WebVR/search?q=best&restrict_sr=on

**What is the best object file format for use with WebVR? : WebVR**
https://www.reddit.com/r/WebVR/comments/3x3iyw/what_is_the_best_object_file_format_for_use_with/

**WebGL - OpenGL ES 2.0 for the Web**
https://www.khronos.org/webgl/

**WebGL Fundamentals**
http://webglfundamentals.org/

http://steamed.kotaku.com/of-course-somebody-made-the-holodeck-in-steam-vr-1766941907?utm_campaign=Socialflow_Kotaku_Facebook&utm_source=Kotaku_Facebook&utm_medium=Socialflow

http://uploadvr.com/redirect-your-own-walking-with-this-movement-system/

JPEG 2 WAV | WAV 2 SPECTROGRAM

3D Frameworks

WebGL Based

p5.js(from Processing) - It has quite impressive features like connecting it to NLP, peripherals, data ..
https://github.com/firmread/NatureOfCode
http://natureofcode.com/book/introduction/

Declarative 3D

X3D

**Chapter 04 - Viewing and Navigation**
http://x3dgraphics.com/slidesets/X3dForWebAuthors/Chapter04-ViewingNavigation.pdf

**X3D Tooltips version 3.3**
http://www.web3d.org/x3d/content/X3dTooltips.html#accessType

**Extensible 3D (X3D), ISO/IEC 19775-1:2013, Annex L Version content**
http://www.web3d.org/documents/specifications/19775-1/V3.3/Part01/versionContent.html#WorldInfo

**X3D: Examples**
http://x3dgraphics.com/examples/index.php

**X3D for Web Authors Examples Archive, Chapter 02 - Geometry Primitives, Text**
http://x3dgraphics.com/examples/X3dForWebAuthors/Chapter02-GeometryPrimitives/_pages/page07.html

**X3DOM Documentation: Tutorials**
http://doc.x3dom.org/tutorials/animationInteraction/viewpoint/index.html

**» Getting Started - x3dom.org**
http://www.x3dom.org/documentation/tutorials/getting-started/

**X3DOM Developer API Documentation: Classes**
http://doc.x3dom.org/developer/classes.html

**- x3dom.org**
http://www.x3dom.org/

**Examples | Web3D Consortium**
http://www.web3d.org/example

**3D Weather Globe | Web3D Consortium**
http://www.web3d.org/example/3d-weather-globe

**3D Globe Weather**
http://www.2014.web3d.org/x3d-models/Globe/globe-weather.html

**X3D Resources**
http://www.web3d.org/x3d/content/examples/X3dResources.html#Applications

Enlargements:
Access to multiple sources of open data
Access to semantic information
Progressive textures / forms/ functions

Semantic and geometric information standards

Spatial Data on the Web Best Practices
https://www.w3.org/TR/sdw-bp/

http://geojson.org/geojson-spec.html#feature-objects

Project Open Data Metadata Schema v1.1 - Project Open Data
https://project-open-data.cio.gov/v1.1/schema/

spatio-temporal

https://www.w3.org/TR/geofencing/
https://www.w3.org/TR/orientation-event/

https://www.w3.org/2010/POI/track/issues/raised
https://www.w3.org/TR/poi-core/

https://www.w3.org/TR/#tr_URI

geo

https://cartodb.com/

# AUDIO

**p5.gibber | Gibber: Creative Coding for JavaScript**
http://charlie-roberts.com/gibber/p5-gibber/

**Art 102 UCSB Fall 2014 | Digital Media Toolbox: Sound Synthesis and Computer Music**
http://art102.com/

**gibber.p5.js projects coming in… | Gibber: Creative Coding for JavaScript**
http://charlie-roberts.com/gibber/gibber-p5-js-projects-coming-in/

**Art 102 UCSB Fall 2014 | Digital Media Toolbox: Sound Synthesis and Computer Music**
http://art102.com/

**gibber.mat.ucsb.edu**
http://gibber.mat.ucsb.edu/

**wave stream javascript - Google Search**
https://www.google.de/search?q=wave+stream+html&oq=wave+stream+html&aqs=chrome..69i57.6615j0j7&sourceid=chrome&es_sm=91&ie=UTF-8#q=wave+stream+javascript

**Waveform.js**
http://waveformjs.org/

**wavesurfer.js – audio waveform player for the Web**
http://wavesurfer-js.org/

**JavaScript audio synthesis with HTML 5 — Acko.net**
https://acko.net/blog/javascript-audio-synthesis-with-html-5/

**online radio station html code - Google Search**
https://www.google.de/search?q=Internet+Radio+Station&oq=Internet+Radio+Station&aqs=chrome..69i57j0l5.544j0j7&sourceid=chrome&es_sm=91&ie=UTF-8#q=online+radio+station+html+code

**Add/Embed online internet radio player on your blog/website | Tech Collections**
http://tech.techcollections.info/2011/04/addembed-online-internet-radio-player.html

**p5js audio stream - Google Search**
https://www.google.de/search?q=p5js+internet+radio&oq=p5js++internet+radio&aqs=chrome..69i57.4850j0j7&sourceid=chrome&es_sm=91&ie=UTF-8#q=p5js+audio+stream

**Web Audio Conference Presentation Resources**
https://gist.github.com/hughrawlinson/45bd9396d1b6f63bd37d

**PHENICX | Performances as Highly Enriched aNd Interactive Concerts eXperiences**
http://phenicx.upf.edu/

**Web Audio Tools 2015**
https://jsantell.github.io/web-audio-tools-2015/#18

https://github.com/therewasaguy/p5-music-viz

**p5js Archives - JUCYDATA**
http://www.jucydata.com/category/p5js/

**Pens tagged 'p5js' on CodePen**
http://codepen.io/tag/p5js/

**p5.js | reference**
http://p5js.org/reference/#/p5.AudioIn

**mats31/SoundGraph: A WebGL experiment based on Three.js and Web Audio Api**
https://github.com/mats31/SoundGraph

**Fujimura seminar | web programming & information visualization**

http://web.fujimura.com/

**Photo Sphereとthree.js | Fujimura seminar**
http://web.fujimura.com/blog/archives/915

**tuckerbuchy/sound_scapes: A javascript implementation of my LED visualization code, with three.js used to visualize it.**
https://github.com/tuckerbuchy/sound_scapes

**jeromepl/3D-audio-sphere: Full sound spectrum visualization on a 3D sphere with three.js**
https://github.com/jeromepl/3D-audio-sphere

**polyclick/threejs-ego: A three.js demo scene with transparent materials that responds to sound**
https://github.com/polyclick/threejs-ego

**polyclick**
https://polyclick.io/

**Bart Claessens (@polyclickio) | Twitter**
https://twitter.com/polyclickio

**polyclick (Bart Claessens)**
https://github.com/polyclick?tab=repositories

**Fun With Live Video in WebGL - Learning Three.js**
http://learningthreejs.com/blog/2012/02/07/live-video-in-webgl/

**Three.js - examples**
https://stemkoski.github.io/Three.js/

**Testing live video streaming to WebGL and HTML5 Video tag | RIA Connection**
https://riaconnection.wordpress.com/2011/11/03/testing-live-video-streaming-to-webgl-and-html5-video-tag/

**3D development with WebGL, Part 2: Code less, do more with WebGL libraries**
https://www.ibm.com/developerworks/library/wa-webgl2/

**Programming 3D Applications with HTML5 and WebGL**
http://chimera.labs.oreilly.com/books/1234000000802/ch05.html#animating_by_programmatically_updating_p

DTA

**dariusk/corpora: A collection of small corpuses of interesting data for the creation of bots and similar stuff.**
https://github.com/dariusk/corpora

**open-notify.org APIs**
http://api.open-notify.org/

**code - definition and meaning**
https://www.wordnik.com/words/code

**open data sources best - Google Search**
https://www.google.de/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=open+data+sources+best

**Giphy/GiphyAPI: Public facing API docs, notes and more**
https://github.com/Giphy/GiphyAPI

**Graph API**
https://developers.facebook.com/docs/graph-api

**Google Trends - Websuche-Interesse - Weltweit, 2004 - heute**
https://www.google.com/trends/explore#cmpt=q&tz=Etc%2FGMT-1

audio streaming can be done using webrtc

DATA

**dariusk/corpora: A collection of small corpuses of interesting data for the creation of bots and similar stuff.**

https://github.com/dariusk/corpora

**open-notify.org APIs**
http://api.open-notify.org/

**code - definition and meaning**
https://www.wordnik.com/words/code

**open data sources best - Google Search**
https://www.google.de/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=open+data+sources+best

**Giphy/GiphyAPI: Public facing API docs, notes and more**
https://github.com/Giphy/GiphyAPI

**Graph API**
https://developers.facebook.com/docs/graph-api

**Google Trends - Websuche-Interesse - Weltweit, 2004 - heute**
https://www.google.com/trends/explore#cmpt=q&tz=Etc%2FGMT-1

**Quick Links | National Centers for Environmental Information (NCEI) formerly known as National Climatic Data Center (NCDC)**
https://www.ncdc.noaa.gov/data-access/quick-links#loc-clim

**Big Data: 33 Brilliant And Free Data Sources For 2016 - Forbes**
http://www.forbes.com/sites/bernardmarr/2016/02/12/big-data-35-brilliant-and-free-data-sources-for-2016/#15f6b3946796

**Datasets for Data Mining and Data Science**
http://www.kdnuggets.com/datasets/index.html

**open real time data - Google Search**
https://www.google.de/search?q=open+data+glacier&oq=open+data+glacier&aqs=chrome..69i57j69i64.3823j0j7&sourceid=chrome&es_sm=91&ie=UTF-8#q=open+real+time+data

**Best Realtime Apps Powered by Global Data Stream Network | PubNub**
https://www.pubnub.com/

**api request - Which real-time open data APIs do you know? - Open Data Stack Exchange**

https://opendata.stackexchange.com/questions/862/which-real-time-open-data-apis-do-you-know

**Connecting things with OpenSensors.io**
https://www.opensensors.io/orgs/EMSC

**Webhose.io - Web Data for Your Business**
https://webhose.io/

**Reasons 2015 – Code & Notes | Brondbjerg Design & Development Blog**
http://www.brondbjerg.co.uk/blog/2015/09/reasons-2015-code-notes/

DATA Live

http://deepstream.io/

**get sensor data javascript - Google-Suche**
https://www.google.de/search?q=get+sensor+data+javascript&oq=get+sensor+data+javascript&aqs=chrome..69i57.16511j0j7&sourceid=chrome&es_sm=91&ie=UTF-8

**Sense and sensor-bility: access mobile device sensors with JavaScript - mobiForge**
https://mobiforge.com/design-development/sense-and-sensor-bility-access-mobile-device-sensors-with-javascript

**Exploring the JavaScript Device APIs - Treehouse Blog**
http://blog.teamtreehouse.com/exploring-javascript-device-apis

# P5.js

advantage: connection to NLP, sensors, data, extension via robots

p5.js Programming Questions - Processing 2.x and 3.x Forum

**p5.js webgl - Google Search**
https://www.google.de/search?q=p5.js+webgl&oq=p5.js+webgl&aqs=chrome..69i57.5488j0j7&sourceid=chrome&es_sm=91&ie=UTF-8

**Getting started with WebGL in p5 · processing/p5.js Wiki**
https://github.com/processing/p5.js/wiki/Getting-started-with-WebGL-in-p5

**p5.js**
http://p5js.org/libraries/

**p5.js sound - YouTube**
https://www.youtube.com/results?search_query=p5.js+sound

**Giphy/GiphyAPI: Public facing API docs, notes and more**
https://github.com/Giphy/GiphyAPI

**index.html**
file:///Users/LE/Code/p5-zip/empty-example/index.html

**| Learning Processing 2nd Edition**
http://learningprocessing.com/videos/

**Video-Lesson-Materials/code_p5.js at master · shiffman/Video-Lesson-Materials**
https://github.com/shiffman/Video-Lesson-Materials/tree/master/code_p5.js

**p5.js Demos - a Collection by Mike Brondbjerg on CodePen**
http://codepen.io/collection/DRzkdM/

**p5.js live audio stream player - Google Search**
https://www.google.de/search?q=p5.js+live+audio+stream&oq=p5.js+live+audio+stream+&aqs=chrome..69i57.7959j0j7&sourceid=chrome&es_sm=91&ie=UTF-8#q=p5.js+live+audio+stream+player

**Daniel Shiffman**
http://shiffman.net/blog/

**shiffman/The-Nature-of-Code-Examples-p5.js: Port to p5.js of Nature of Code examples**
https://github.com/shiffman/The-Nature-of-Code-Examples-p5.js

**shiffman/The-Nature-of-Code-Examples: Repository for example code from The Nature of Code book**
https://github.com/shiffman/The-Nature-of-Code-Examples

**firmread/natureOFcode: OpenFrameworks rendition of Daniel Shiffman's**

**Nature Of Code Examples**
https://github.com/firmread/NatureOfCode

**The Nature of Code**
http://natureofcode.com/book/introduction/

# P5.js and sound

**therewasaguy/p5-music-viz: Workshop on music visualization with p5.js from Eyeo '15, previously MozFest '14, NYU ITP**
https://github.com/therewasaguy/p5-music-viz

**Music Visualization w/ p5.js - Part II by Jason Sigal**
http://slides.com/jasonsigal/h#/29

**https://therewasaguy.github.io/p5-music-viz/demos/01_hello_amplitude/**
https://therewasaguy.github.io/p5-music-viz/demos/01_hello_amplitude/

**https://therewasaguy.github.io/p5-music-viz/demos/01d_beat_detect_amplitude/**
https://therewasaguy.github.io/p5-music-viz/demos/01d_beat_detect_amplitude/

**https://therewasaguy.github.io/p5-music-viz/demos/02_draw_peaks_and_playhead/**
https://therewasaguy.github.io/p5-music-viz/demos/02_draw_peaks_and_playhead/

**https://therewasaguy.github.io/p5-music-viz/demos/07_lyrics/**
https://therewasaguy.github.io/p5-music-viz/demos/07_lyrics/

**therewasaguy/p5-music-viz: Workshop on music visualization with p5.js from Eyeo '15, previously MozFest '14, NYU ITP**
https://github.com/therewasaguy/p5-music-viz

**What Does Sound Look Like? : NPR**
http://www.npr.org/2014/04/09/300563606/what-does-sound-look-like

**LRC Generator**
http://lrcgenerator.com/

# three.js

**polyclick/threejs-ego: A three.js demo scene with transparent materials that responds to sound**
https://github.com/polyclick/threejs-ego

3D representation

http://library.fridoverweij.com/code/3DShapes/3DGeometry.php

https://mozvr.github.io/webvr-spec/#interface-vrlayer

http://www.slideshare.net/tecnotic/augmented-reality-and-education-learning-connected-to-life/162-FOTOSNTESIS_DEREALITAT3

social
http://altvr.com/ Be there together

VR

**Introducing VR and the Processing programming language | Digital Centers Internship Program**
https://blogs.cul.columbia.edu/dcip/2015/10/23/introducing-vr-and-the-processing-programming-language/
-

p5.js(from Processing) - It has quite impressive features like connecting it to NLP, peripherals, data ..
https://github.com/firmread/NatureOfCode
http://natureofcode.com/book/introduction/

Declarative 3D

X3D

**xml3d grid - Google Search**
https://www.google.de/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=xml3d%20grid

**xml3d.js/material-overrides02.html at master · xml3d/xml3d.js**
https://github.com/xml3d/xml3d.js/blob/master/tests/scenes/material-

overrides02.html

# And it relies upon WebRTC, WebGL, sensor APIs and more

AJAX, WebSockets, or WebRTC can now be integrated with a WebGL application! This is great for us at PubNub because now we can use PubNub Data Streams to build interesting WebGL Visualizations.

## awe.js?

WebRTC, WebGL, sensor fusion and
Augmented Reality are really really complex!

awe.js already supports:

Marker based AR

3D audio

The Leap Motion controller

The Kinect

Face tracking

The Oculus Rift (including video-see-through)

And Google Glass

Out of the box you can try out:

Location based AR

Marker based AR

3D audio

The Leap Motion controller (released soon)

The Kinect (released soon)

Face tracking (released soon)

The Oculus Rift (including video-see-through -

released soon)

And Google Glass (released soon)

All awe.js apps are based on a scene

Key features are called Points of Interest (POIs)

Media are added to POIs as Projections

Media can be images, video, sound and 3D models

html5 - three.js properly blending css3d and webgl

css 3D transformation. Here are some tutorials about it. css3d is done for this exact purpose, to position and rotate a DOM element in 3d.

Radio Frequencies & Bluetooth:

Extremely low frequency

HF and VHF Radio Emission from Meteor Trails - NRAO

# Mixing Positional Audio and WebGL

http://www.html5rocks.com/en/tutorials/webaudio/positional_audio/

WebAUDIO API

https://developer.mozilla.org/en-US/docs/Web/API/Web_Audio_API

```
return function

updateMatrixWorld( force ) {
```

# skydome,

SphereGeometry

## Mixing HTML pages inside your WebGL

## http://learningthreejs.com/blog/2013/04/30/closing-the-gap-between-html-and-webgl/

**Intro to CSS 3D transforms · Intro to CSS 3D transforms**
https://desandro.github.io/3dtransforms/

**Using CSS transforms - CSS | MDN**
https://developer.mozilla.org/en-US/docs/Web/CSS/CSS_Transforms/Using_CSS_transforms

**What the ? A WebGL scene WITHIN another WebGL scene ? What…**
https://despora.de/posts/1500715

youtube player ***inside*** a webgl scene!

https://jeromeetienne.github.io/videobrowser4learningthreejs/

**strandedcity/InstructablesGalaxy: WebGL Application Showing the content of Instructables as 150,000 interrelated stars**
https://github.com/strandedcity/InstructablesGalaxy

**Galaxy of Instructables**
http://phil-seaton.com/instructables/explorer/explore.php?TARGET=web

**Instructables Universe in Three.js - 11**
http://www.instructables.com/id/Instructables-Universe-in-Threejs/step11/Threejs-Camera-Positioning/

**three.js/examples/js/controls at master · mrdoob/three.js**
https://github.com/mrdoob/three.js/tree/master/examples/js/controls

# WebRTC

getUserMedia API

e.g. https://www.cubeslam.com/tech

real time deep sound (outer space+submerged. live)

other next spaces gis etc

**AltspaceVR Inc | Be there, together.**
http://altvr.com/

**brianpeiris/webvr-boilerplate: A starting point for web-based VR experiences that work in both Cardboard and Oculus.**
https://github.com/brianpeiris/webvr-boilerplate

**ViziCities - See your city in revolutionary ways**
http://vizicities.com/

**Cesium - WebGL Virtual Globe and Map Engine**
https://cesiumjs.org/

space rep
Space Time Cubes
https://anitagraser.com/2012/08/05/space-time-cubes-exploring-twitter-streams-3/

WebVR

**MozVR**
http://mozvr.com/#start

**primrose webVR - Google Search**
https://www.google.de/search?q=primrose&oq=primrose&aqs=chrome..69i57j0l5.1957j1j7&sourceid=chrome&ie=UTF-8#q=primrose+webVR

**Primrose VR: WebVR Application Framework**
http://www.primrosevr.com/

**Primrose VR: WebVR Application Framework Documentation**
http://www.primrosevr.com/doc/editorVRTutorial.html

**Primrose VR: WebVR Application Framework**
http://www.primrosevr.com/examples/editor3d/index.html

**Primrose VR: WebVR Application Framework**
http://www.primrosevr.com/examples/music/index.html

**Search · holodeck**
https://github.com/search?l=C%23&q=holodeck&type=Repositories&utf8=%E2%9C%93

**TheHolodeckProject/HolodeckNBody: NBody break-away from the holodeck project.**
https://github.com/TheHolodeckProject/HolodeckNBody

**TheHolodeckProject/UnityHolodeckProject: Folder for the Unity project files**

https://github.com/TheHolodeckProject/UnityHolodeckProject