

# *X3D Browsers*

Web3D Webinar 8/5/2020

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# Acknowledgements

*Evolving material since 2018 with :*

Johannes Behr

Timo Sturm

Uwe Woessner

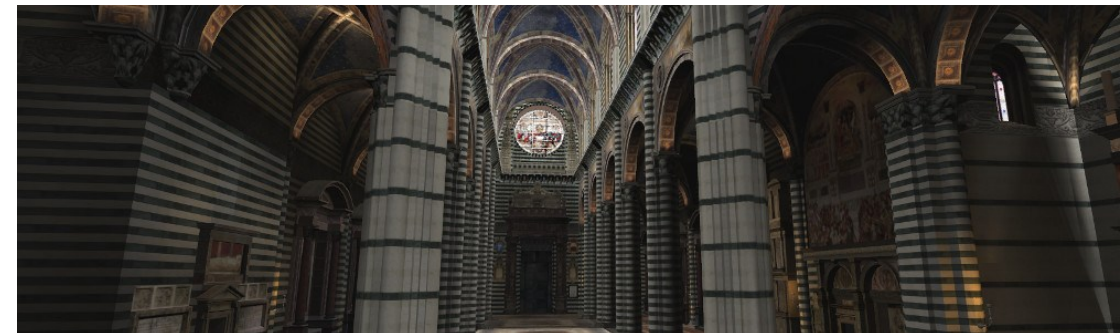
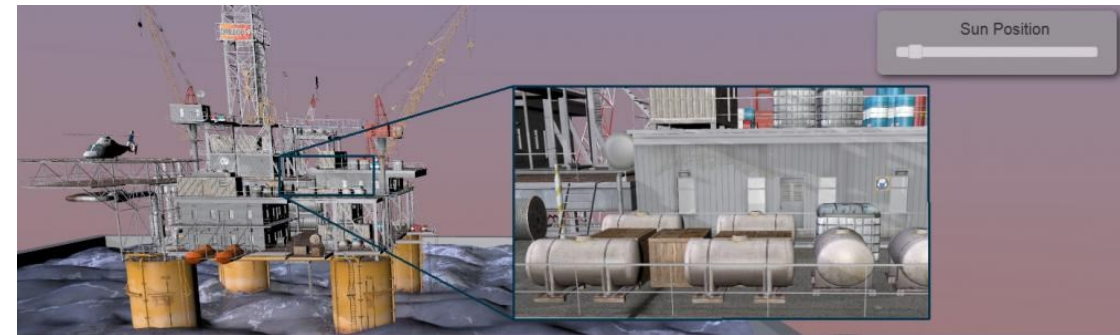


# Standards make the Web go round:

## *Ecosystem of Engines*

### *Runtime approaches:*

- 1) Installed engines import, export, and render X3D and VRML with different node Profiles
- 2) Javascript Polyfills ('native' in browser):
  - X3DOM: <https://www.x3dom.org/>
  - X\_ite: [http://create3000.de/x\\_ite/](http://create3000.de/x_ite/)



# X3D Engines (installed)

(July 2020)

- Instant Reality
- Covise/OpenCover
- V-slam.org (Unity, Hololense)
- Castle Game Engine
- FreeWRL
- H3D (Haptics, py)
- Octaga
- Xj3D
- BS Contact
- Coin3D
- ...

## ***HTML5 + WebGL Javascript Polyfills:***

- X3DOM
- X\_ITE
- NIH 3D Viewer



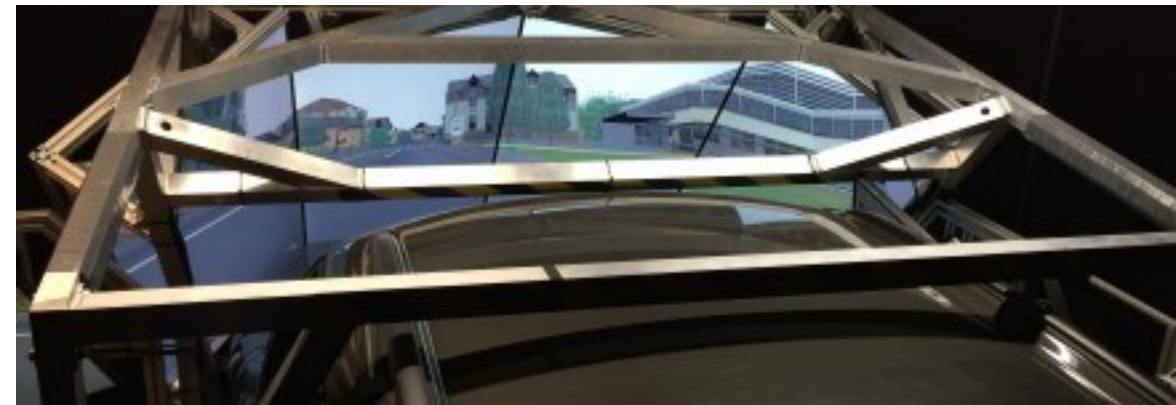
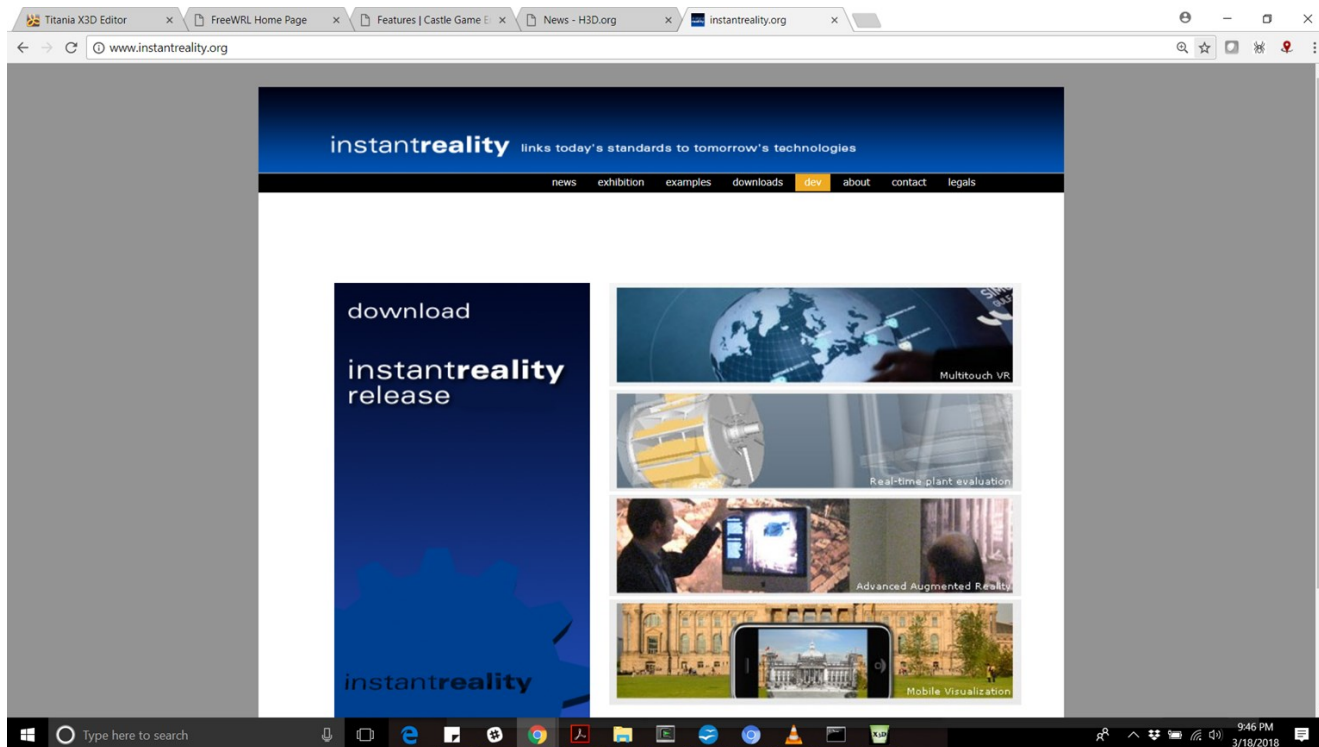
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# Instant Reality

<http://www.instantreality.org/>

Free (w/ Logo) ; includes **aopt**



# Going Immersive @ VT

## Instant Player Engine files:

- Stereo Windows and Screens
- 3DUI as Javascript

## InstantIO components:

- ART head, wand data
- DTK/TrackD (Intersense)
- Navigator

...

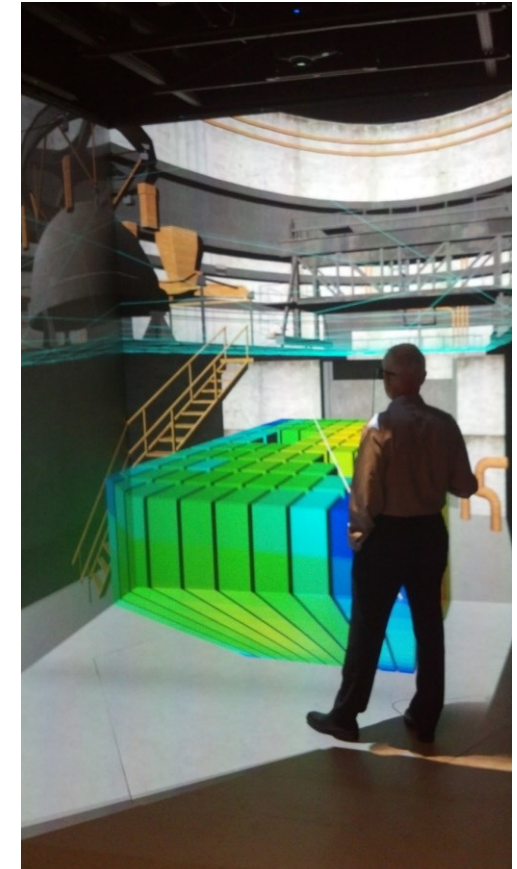
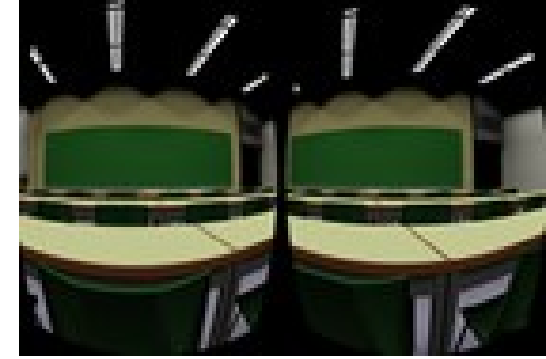




# Immersive X3D Examples

A variety of implementation efforts:

- Hololense, Vive with V-Slam
- WebVR \_ X3DOM: Oculus, Cardboard
- Multi-projector CAVES (same X3D file)
- Samsung GearVR, Google Pixel
- [VR Hackathons](#)
- ***WebXR next!***

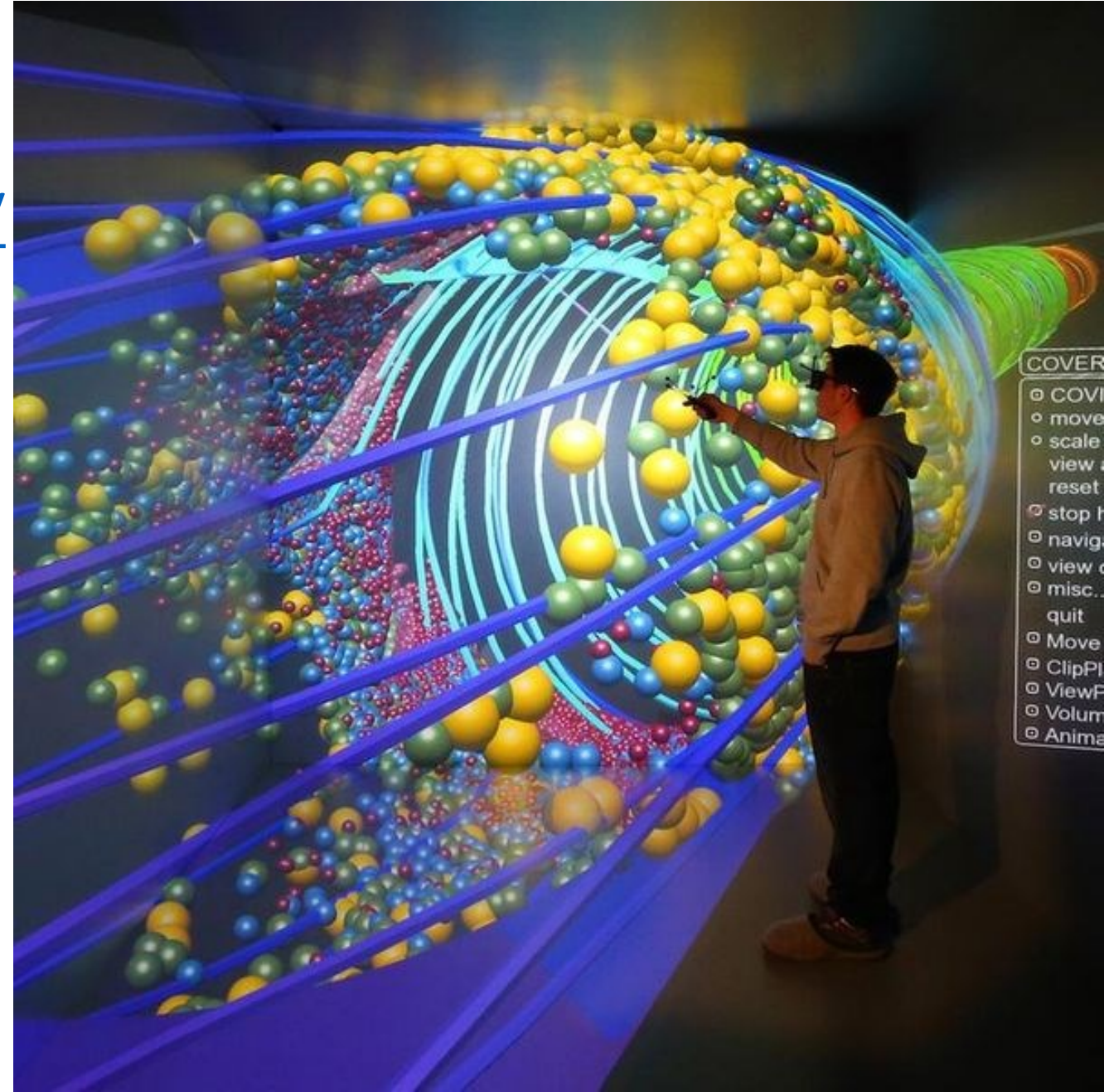


# Covise/OpenCover

<https://www.hlrs.de/covise/support/>

<https://github.com/hlrs-vis/covise>

***Open Source!***





# v-Slam

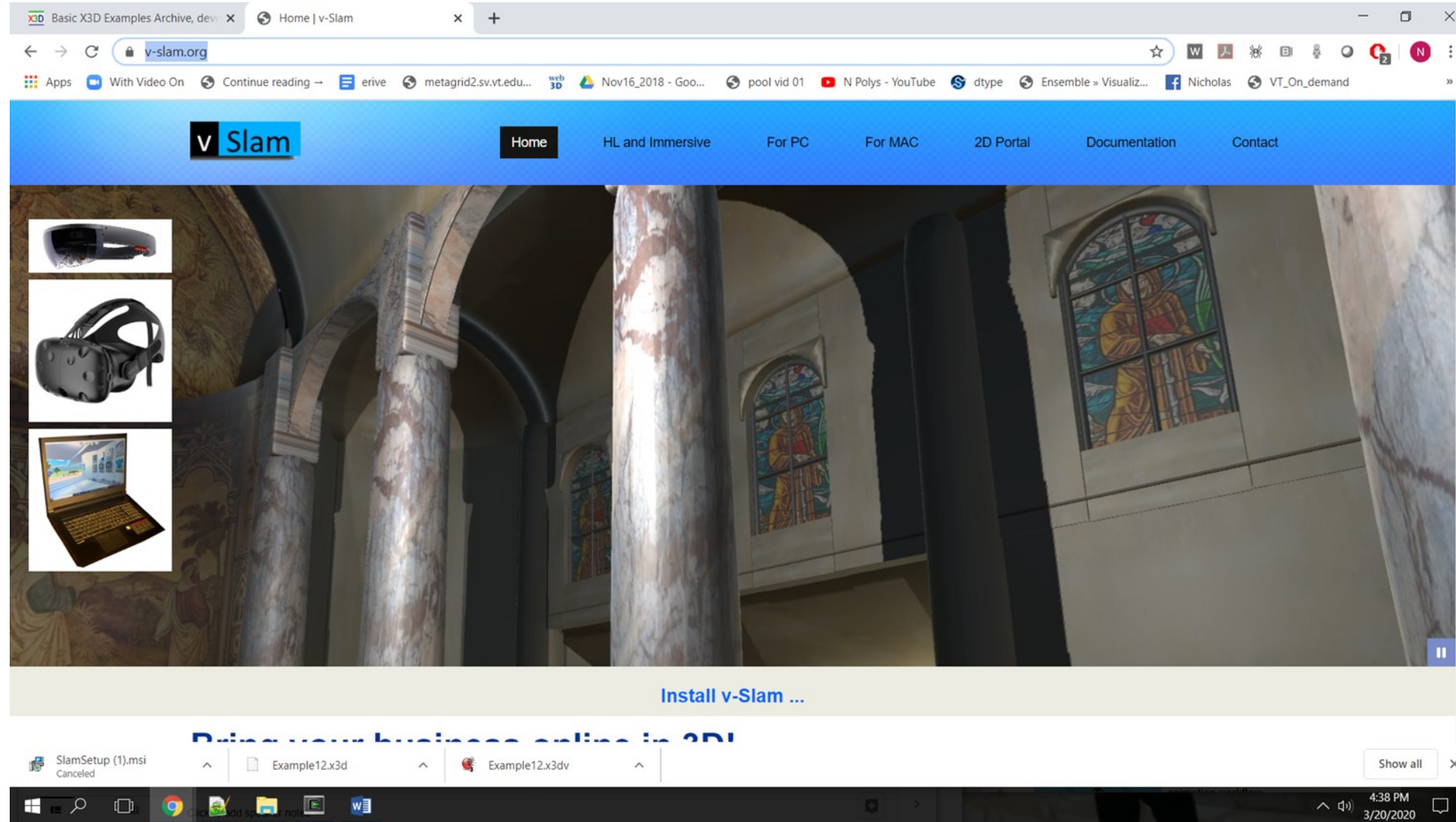
<https://www.v-slam.org/>

*Open Source!*

Built w Unity

Server-side

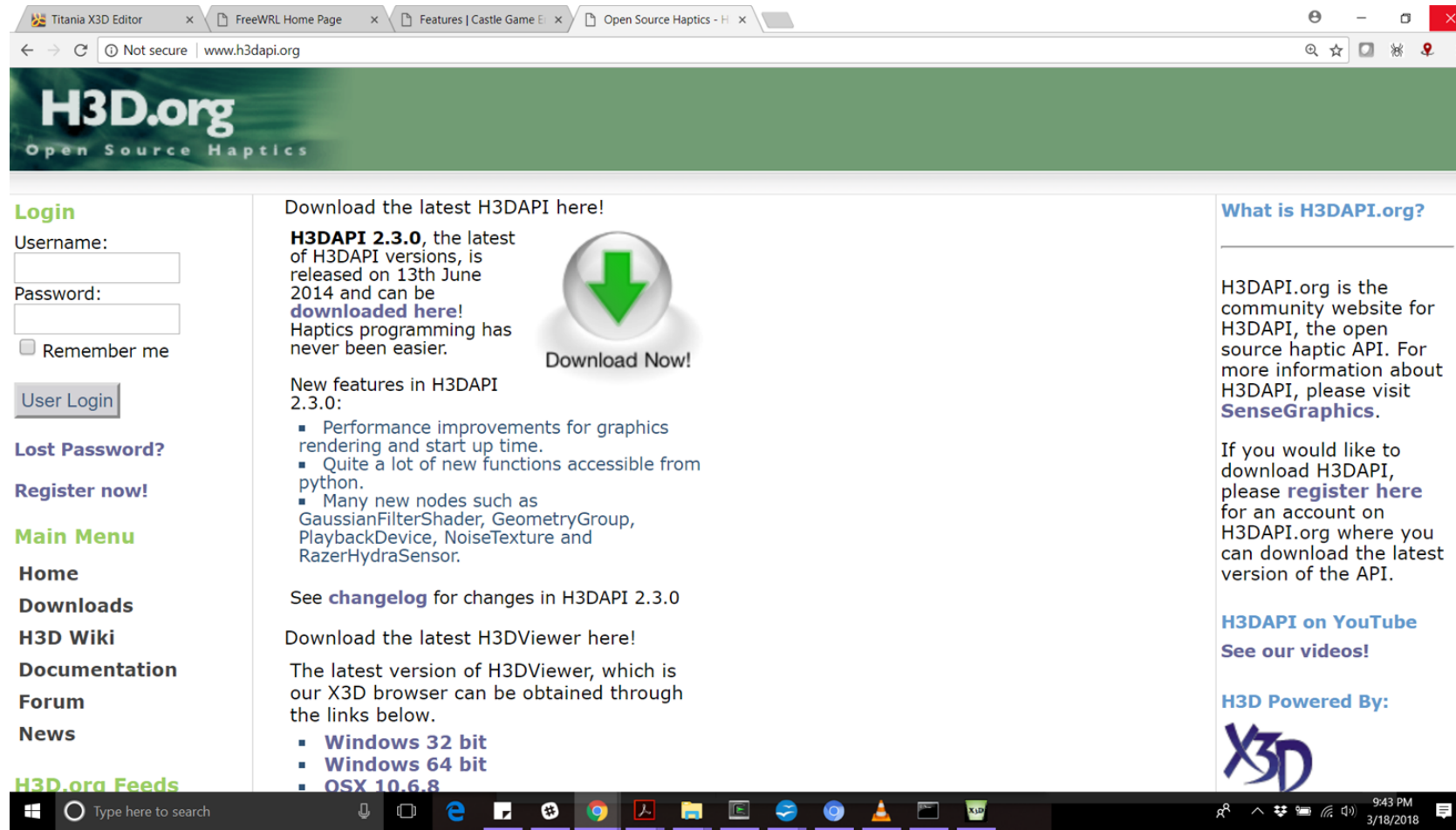
Collab



# H3D.org - Haptics

X3D + Volume Component (MEDX3D)

*Open Source!*



The screenshot shows the H3D.org website in a web browser. The browser's address bar shows 'www.h3dapi.org'. The website has a green header with the 'H3D.org' logo and the tagline 'Open Source Haptics'. On the left, there is a sidebar with navigation links: 'Login', 'Lost Password?', 'Register now!', 'Main Menu' (with sub-links: Home, Downloads, H3D Wiki, Documentation, Forum, News), and 'H3D.org Feeds'. The main content area features a 'Download the latest H3D API here!' section with a large green download arrow icon and a 'Download Now!' button. Below this, it lists 'New features in H3D API 2.3.0:' with a bulleted list of improvements. Further down, it says 'Download the latest H3DViewer here!' and provides links for Windows 32 bit, Windows 64 bit, and OSX 10.6.8. On the right, there is a 'What is H3D API.org?' section explaining the community website and a 'H3D API on YouTube' section with a 'See our videos!' link. At the bottom right, it says 'H3D Powered By:' followed by the 'X3D' logo. The browser's taskbar at the bottom shows various application icons and the system clock indicating 9:43 PM on 3/18/2018.


**Login**  
Username:   
Password:   
☐ Remember me  
[User Login](#)

[Lost Password?](#)  
[Register now!](#)

**Main Menu**  
[Home](#)  
[Downloads](#)  
[H3D Wiki](#)  
[Documentation](#)  
[Forum](#)  
[News](#)

**H3D.org Feeds**

Download the latest H3D API here!  
**H3D API 2.3.0**, the latest of H3D API versions, is released on 13th June 2014 and can be [downloaded here!](#) Haptics programming has never been easier.

  
**Download Now!**

New features in H3D API 2.3.0:

- Performance improvements for graphics rendering and start up time.
- Quite a lot of new functions accessible from python.
- Many new nodes such as GaussianFilterShader, GeometryGroup, PlaybackDevice, NoiseTexture and RazerHydraSensor.

See [changelog](#) for changes in H3D API 2.3.0


Download the latest H3DViewer here!  
The latest version of H3DViewer, which is our X3D browser can be obtained through the links below.

- [Windows 32 bit](#)
- [Windows 64 bit](#)
- [OSX 10.6.8](#)

**What is H3D API.org?**  
H3D API.org is the community website for H3D API, the open source haptic API. For more information about H3D API, please visit [SenseGraphics](#).

If you would like to download H3D API, please [register here](#) for an account on H3D API.org where you can download the latest version of the API.

[H3D API on YouTube](#)  
[See our videos!](#)

**H3D Powered By:**  


# *Other Notables*

**Xj3D** - Open Source X3D & VRML Browser (Java) <https://sourceforge.net/projects/xj3d/>

**Coin3D** - Open Source C++ for Inventor, Supports VRML and X3D  
<https://github.com/coin3d>

**OctagaVS** - <https://www.octagavs.com/> X3D & VRML free (w / Logo)

**GearVR** - X3D content; X3D store opened China for Samsung



# Castle Game Engine (More Later!)

<https://castle-engine.io/>

***Open Source!***

***View3DScene*** supports

***Model conversion including***

***FBX, OBJ, X3D, VRML***



# FreeWRL (More Later!)

<http://freewrl.sourceforge.net/>  
***Open Source!***



# JavaScript 'Shims'

## *HTML5 + WebGL*

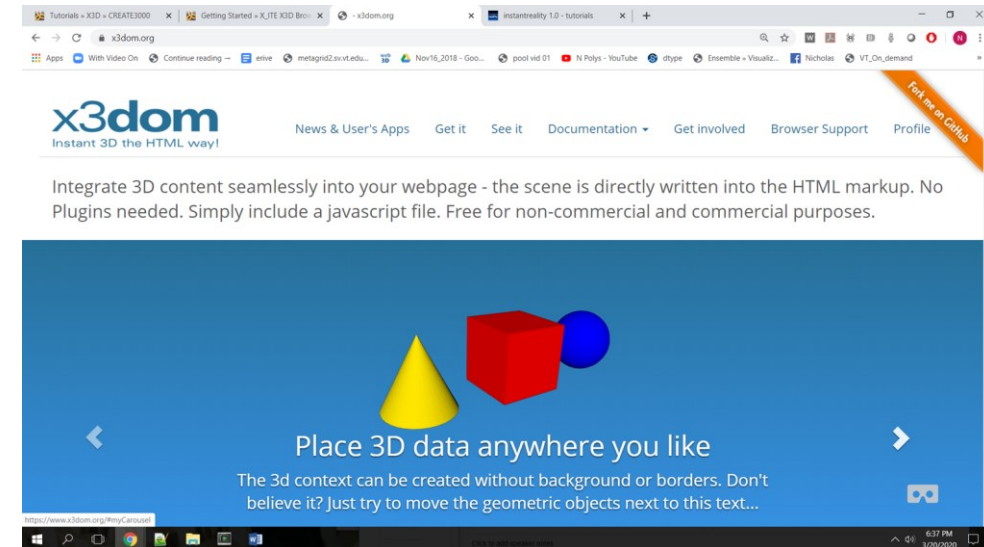
### *Javascript Polyfills who know X3D:*

- X3DOM
- X\_ITE
- NIH 3D Viewer
- NB: there are basic loaders for three.js:  
built-in VRML and [X3D](#) by JSON



# X3DOM.org (More Later !)

- **Integrates 3D content seamlessly into your webpage**
- **Access & manipulate Nodes per DOM-API**
- **No Plugins needed**
- **Simply include a javascript file**
- **Open-Source**
- **Free for non-commercial and commercial purposes**



*See Examples*

<https://www.x3dom.org/examples/>

<https://examples.x3dom.org/gltf2/>

# X\_ITE

## TITANIA LINUX X3D Editor

<http://create3000.de/>



The screenshot shows the homepage of the Titania X3D Editor. The header features the site's logo, a navigation menu with links for 'WHAT'S NEW', 'DOWNLOAD', 'USER'S GUIDE', 'TUTORIALS', and 'X\_ITE', and a search bar. The main content area is divided into two sections. The left section has a large, colorful, abstract graphic of interlocking rings and the text 'TITANIA X3D EDITOR' and 'BRING COLOURS TO YOUR LIFE'. The right section features a 3D wireframe model of a mechanical part and the text 'Integrated X3D Browser' and 'Directly view and test your scenes'. Below this, a paragraph describes the editor's capabilities: 'Titania X3D Editor provides an integrated, powerful toolset for animation, environments, motion graphics, and virtual reality. The integrated X3D Browser makes it easy to create scenes that look equal in X\_ITE. Titania allows you to view and interactively edit scenes and offers powerful tools and the creation of the scenes. Titania is completely...'. The footer includes a Windows taskbar with the date '3/18/2018' and time '9:38 PM'.

WHAT'S NEW DOWNLOAD USER'S GUIDE TUTORIALS X\_ITE

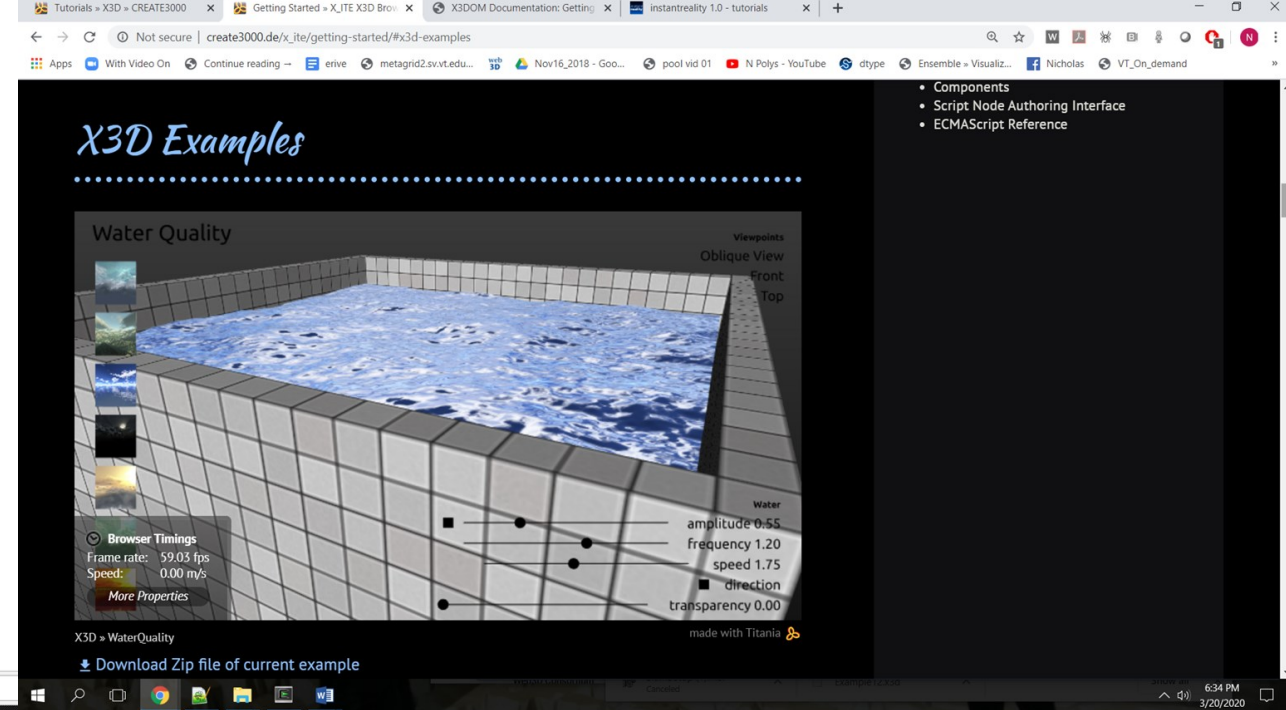
TITANIA X3D EDITOR

BRING COLOURS TO YOUR LIFE

Integrated X3D Browser

*Directly view and test your scenes*

Titania X3D Editor provides an integrated, powerful toolset for animation, environments, motion graphics, and virtual reality. The integrated X3D Browser makes it easy to create scenes that look equal in X\_ITE. Titania allows you to view and interactively edit scenes and offers powerful tools and the creation of the scenes. Titania is completely...



The screenshot shows a web browser displaying the 'X3D Examples' page. The page title is 'X3D Examples'. The main content area features a 3D scene titled 'Water Quality' showing a rectangular pool of water with a grid floor and walls. A 'Viewports' panel on the right shows 'Oblique View', 'Front', and 'Top' views. A 'Water' panel on the right lists properties: 'amplitude 0.55', 'frequency 1.20', 'speed 1.75', 'direction', and 'transparency 0.00'. A 'Browser Timings' panel on the left shows 'Frame rate: 59.03 fps' and 'Speed: 0.00 m/s'. A 'Download Zip file of current example' button is at the bottom. The browser's address bar shows 'create3000.de/x\_ite/getting-started/#x3d-examples'. The browser's taskbar at the bottom shows the date '3/20/2020' and time '6:34 PM'.

X3D Examples

Water Quality

Viewports  
Oblique View  
Front  
Top

Water  
amplitude 0.55  
frequency 1.20  
speed 1.75  
direction  
transparency 0.00

Browser Timings  
Frame rate: 59.03 fps  
Speed: 0.00 m/s  
More Properties

X3D » WaterQuality

Download Zip file of current example

***See Examples!***



# *$X_{ITE}$ Examples*

# Engage!

- Standards make it work!
- Members drive features and Standards
- Expert Community
- Early Access to specifications
- Outreach opportunities

[www.Web3D.org](http://www.Web3D.org)