Web-Wide Interactive 3D:

Web3D.org

SIGGRAPH 2021 BOF

web3D CONSORTIUM

BOF Session Outline

1. The Web3D Consortium
    a. Community
    b. Web3D Conference
    c. Technology
    d. Working Group Updates
    e. Open source initiatives - Blender etc

2. Member Showcase & Discussions
    a. John Ouellette, Versar : Geo facilities management
    a. Chris Lane, 3DMD : Medical 3D
    b. Darrell Hurt, NIH : 3D Printing
    c. Mike McCann, MBARI : Sci Vis
    d. Nicholas Polys, Virginia Tech : Immersive X3D

3. Roadmap and Call to Action

About Web3D Consortium

- International, non-profit, member funded, standards development organization (SDO)
- Engaging a community of technologists, enterprise and artists
- Spanning member from academia, Industry, Government and Professionals

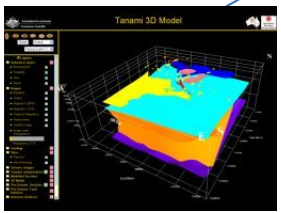
web|3D CONSORTIUM

www.web3d.org

X3D a Presentation Layer

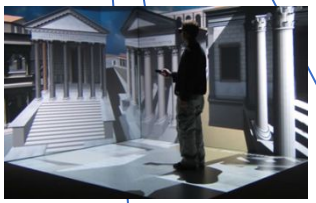
For multiple data sources in several domains

Geo Visualization



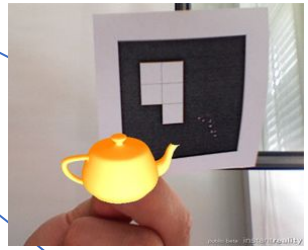
Education

Cultural Heritage



Gaming

Augmented Reality



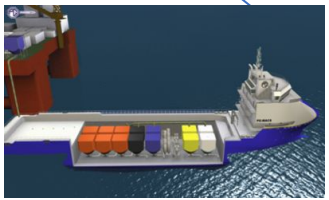
Virtual Worlds

Mirror Worlds

E-commerce

Medical

Enterprise



www.web3d.org/case-studies

The Web is our platform:

X3D Anywhere !

- 3D + VR + AR Capable
- Runs on multiple devices (Phones, tablets, desktops, caves)
- Used in multiple domains (Medical, Geospatial, 3D printing/scanning, CAD and more)
- Interaction
- Animation

www.web3d.org/x3d/why-use-x3d

New marketing Website and X3D Webinars !!

WebX3D

Easy access to get started with X3D
Blogs, Newsletter and more! @
www.webX3d.org

Web3D Webinars

Learn X3D, X3D Browsers, X3D Tools @
www.web3d.org/webinars

www.web3d.org/news-events

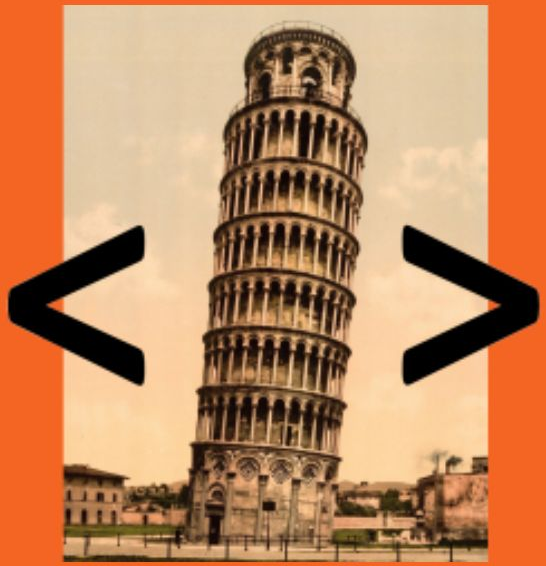
Web3D 2020 Conference

web3d.siggraph.org

Apps M4A to MP3 | CloudConvert Reading list

WEB 3D
2021 PISA + ONLINE

Conference Submissions About



WEB3D 2021 CONFERENCE

A Shared 3D Workspace

The 26th International Conference on 3D Web Technology

8 – 12 November 2021

Pisa / Italy / Worldwide

Type here to search 74°F Clear 9:31 PM 8/8/2021

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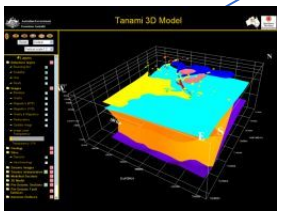

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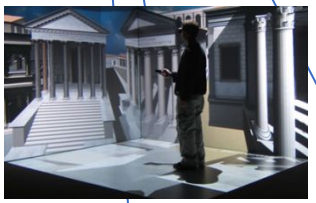

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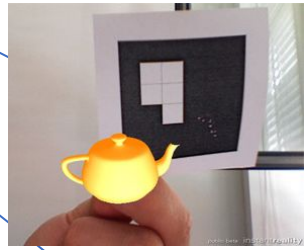

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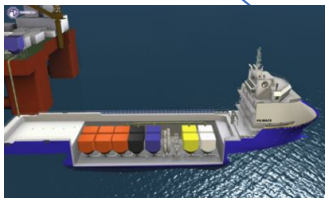


www.web3d.org/case-studies

Resources

Web3D YouTube Channel

X3D QuickStart

Improve your 3D solution: QuickStart X3D !

LEARN MORE

Examples & Open Source Resources

Download and create your own 3D Worlds !

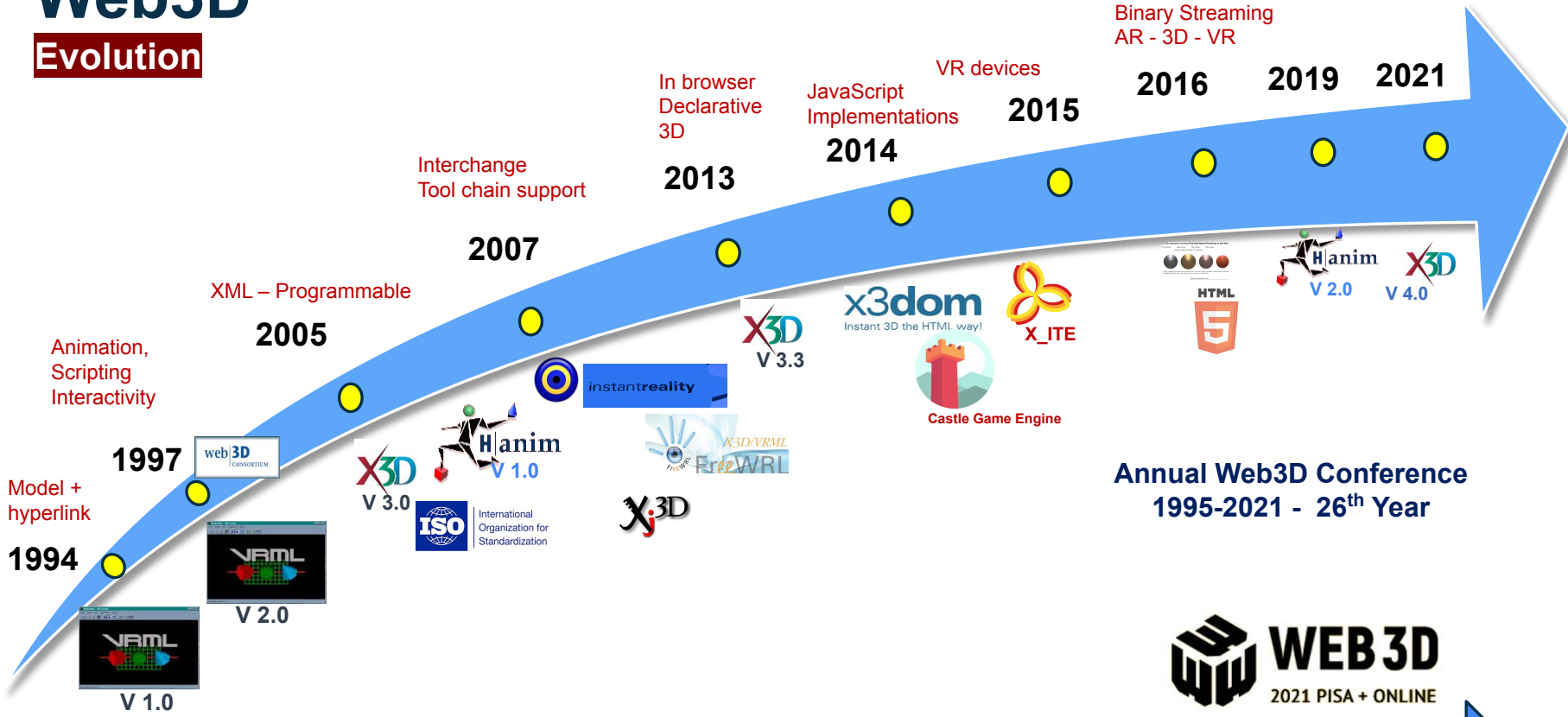
LEARN MORE

X3D Use Cases

Explore our Member Case Studies !

LEARN MORE

Web3D
Evolution



Annual Web3D Conference
1995-2021 - 26th Year

WEB 3D
2021 PISA + ONLINE

Evolution Collaboration **Standardization** Democratization **3D Printing** HTML5 **VR/AR**

Web3D Standardization Process

Volunteers and Members work together on Standards

Web3D Working Groups:

X3D
Medical
Geospatial
Mixed Reality
Heritage
Semantics
Design Printing & Scanning
Web3D UX

www.web3d.org/working-groups

SDO Partnerships:

W3C World Wide Web consortium

ISO

OGC Open Geospatial Consortium, Inc.

HL7 International

Khronos Group

DICOM Digital Imaging and Communications in Medicine

IEEE

About The Web3D Consortium

Web3D Consortium promotes deployment of X3D and HANIM standards

Allowing 3D scenes to be used by a wide variety of applications

Offering robust 3D functionality and long-term stability for enterprise solutions while supporting interoperability with other industry standards

International, non-profit, member funded, standards development organization

Community of technologists, enterprise and artists

Members: Academia, Industry, Government and Professionals

www.web3d.org/about

X3D is Evolving - X3D version 4.0

Highlights

- HTML5 Integration
- Inlining glTF assets
- Physical Based Rendering (PBR)
- Web Audio API support
- X3D Unified Object Model (X3DUOM)
- 3D printing of X3D models
- Flexible point cloud rendering
- Model structure with complete metadata & Semantic Web compatibility
- Volume visualization
- Archival publishing of cultural and natural heritage

www.web3d.org/x3dv4-highlight

Open-source implementations
X3DOM and X_ITE

x3dom
Instant 3D the HTML way!

X_ITE

Castle Game Engine

X3Dv4

- Drafts released @ last 2 SIGGRAPHS
- Now into ISO Process
- GLTF & PBR
- Web Audio
- DOM API

Member Highlights

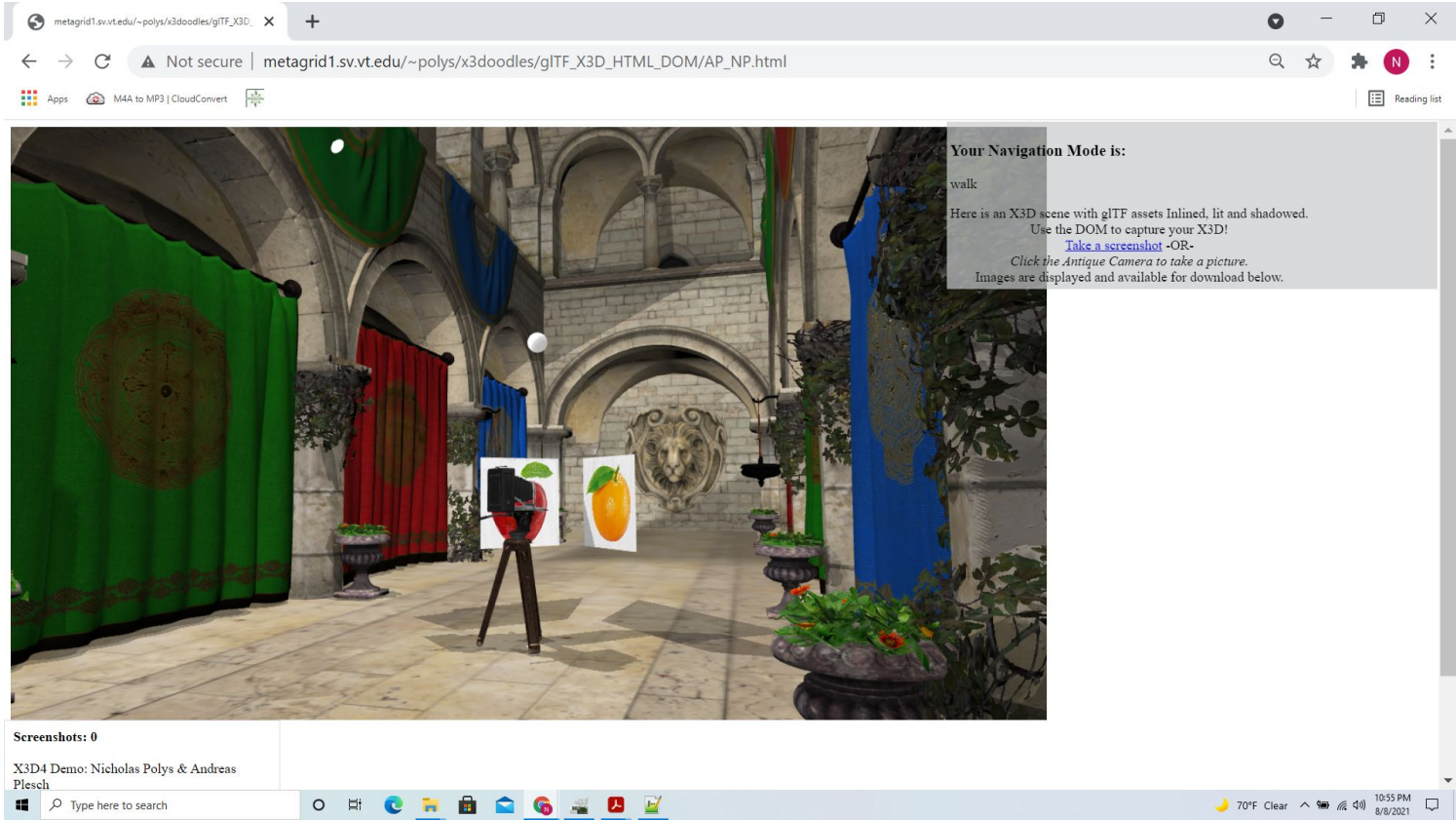
X3D Mashup of Mars Perseverance landing worlds with real NASA data!

Created by Dr. Andreas Plesch:

- https://andreasplesch.github.io/Mars2020/3dmap/index.html
- https://andreasplesch.github.io/Library/Examples/Mars2020/index.html

http://metagrid1.sv.vt.edu/~polys/x3doodles/glTF_X3D_HTML_DOM/AP_NP.html

GLTF + X3Dv4 + X3DOM

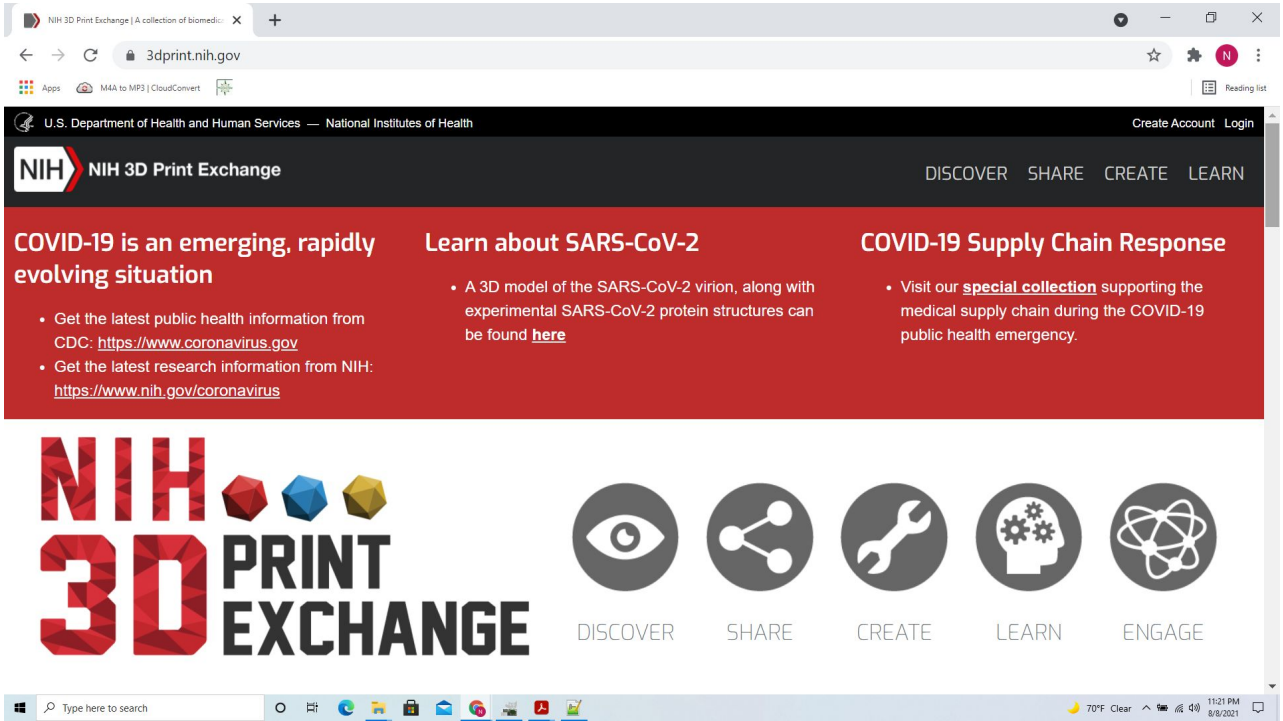


Versar

3DMD

NIH

The 3D Print Exchange: 3dprint.nih.gov



MBARI

Web3D @ work :

Immersive Graphics from Virginia Tech

Immersive Cartography

https://vimeo.com/273887922

Forestry

Class field trips w/

X3D worlds:

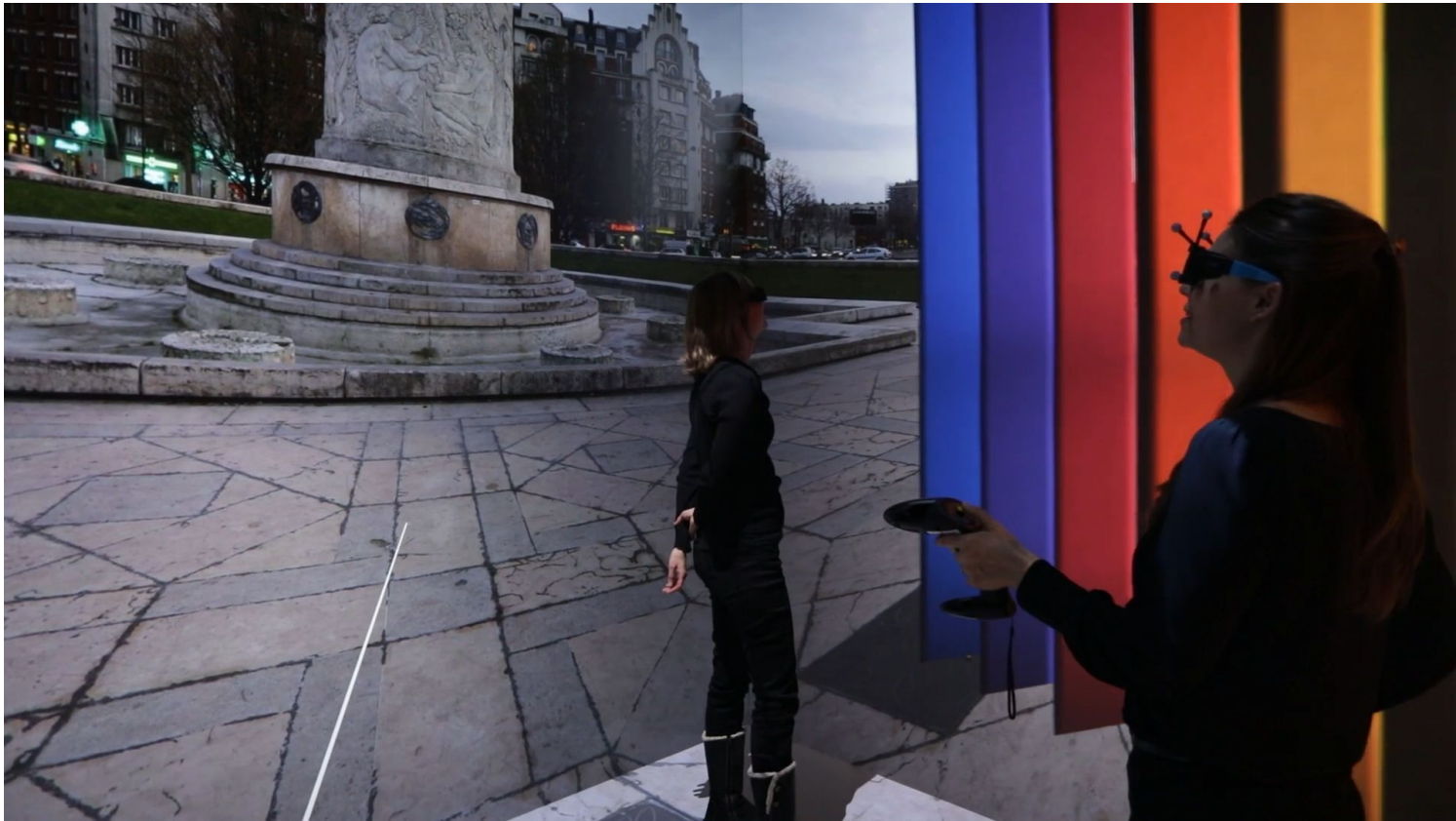
Headtracking

Active stereo

27.6 mill pix

Chromatic Gate

https://vimeo.com/448914181



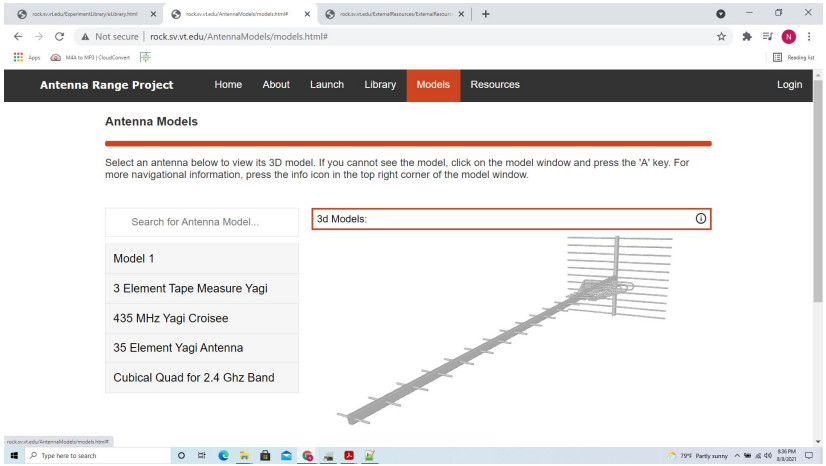
3D Blacksburg

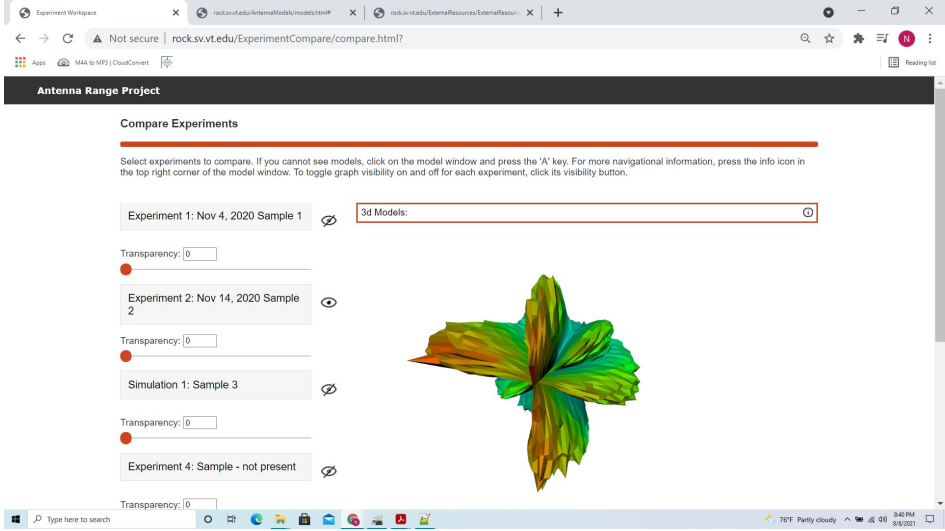
Town Planning: collaborative design review sessions

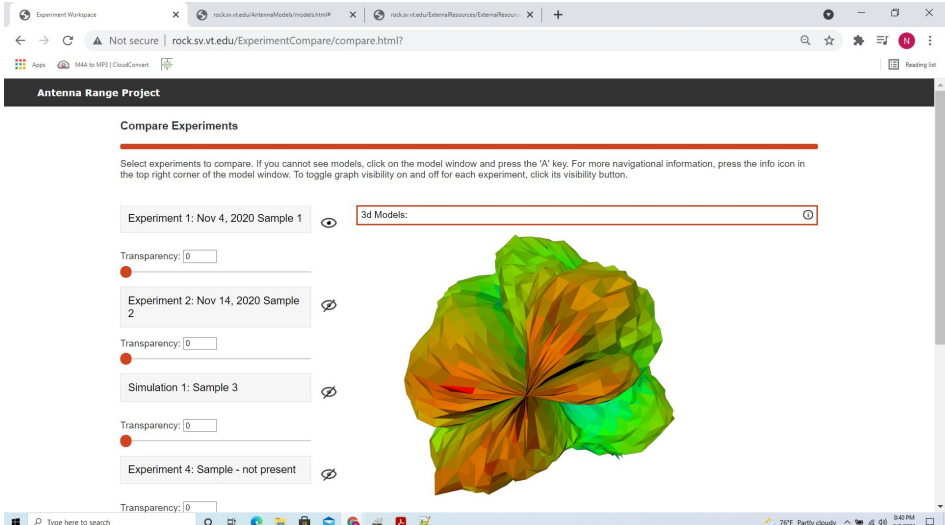
Antenna Range

3D Models and measurements;

… 3D Print-able ! :-)



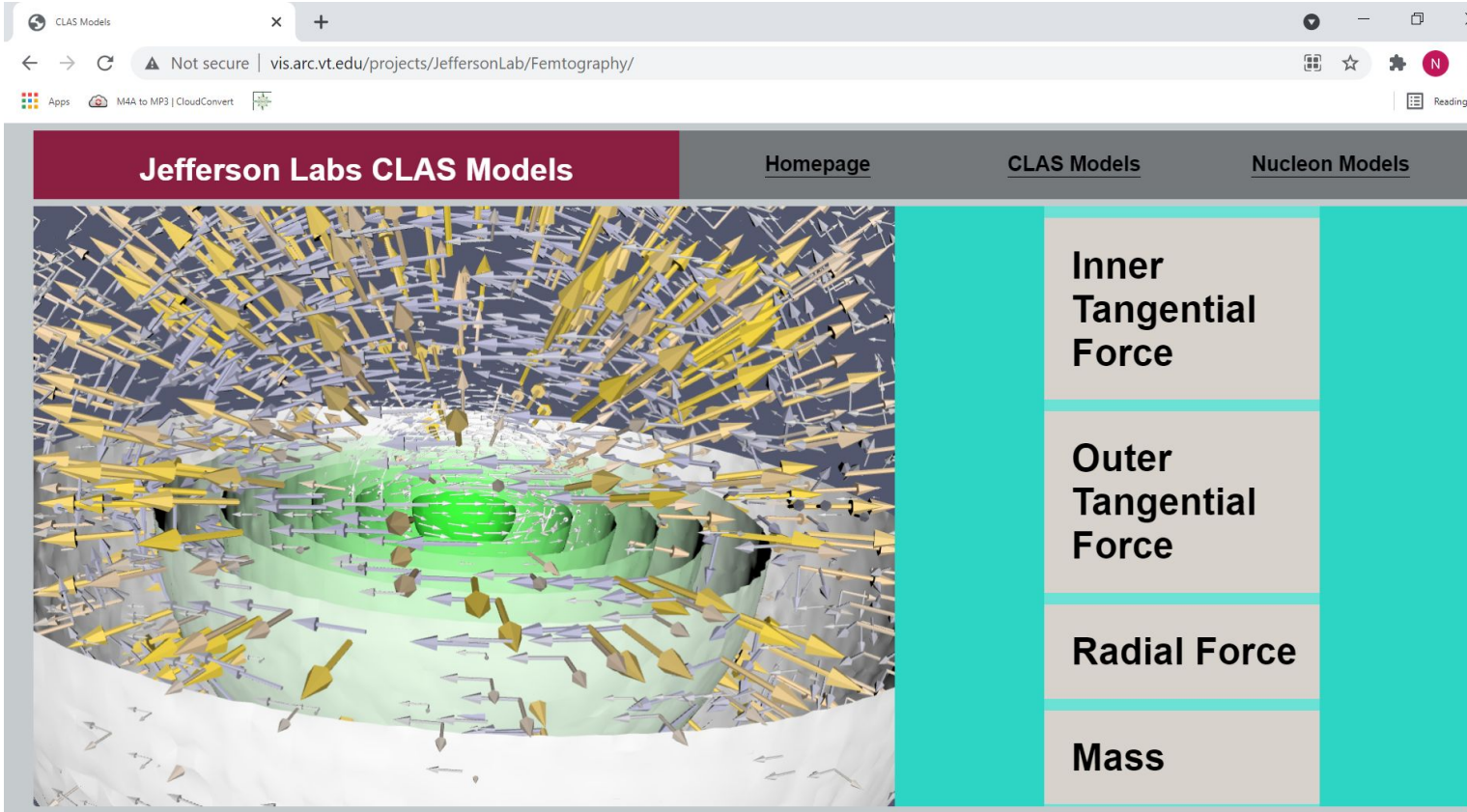




http://vis.arc.vt.edu/projects/JeffersonLab/Femtography/

https://www.femtocenter.org/

Center for Nuclear Femtography



Web3D: 2019-2021 Highlights

Events SIGGRAPH 2019 - Los Angeles

Web3D 2019 - Los Angeles

3D Body Tech Conference – Lugano Switzerland

Collaborative 3D Visualization Workshop with DOD - Washington DC

IEEE VR 2020 Web3D Tutorial

SIGGRAPH 2020 (Virtual)

Web3D 2020 (Virtual)

Web3D Webinars – Learn X3D

www.web3d.org/news-events

Web3D: New Working Groups

Semantic Web: Web interoperability and enable intelligent 3D applications, feature-based 3D model querying, and reasoning over 3D scenes.

Web 3D User Experience: Supporting rich user experiences (UX), intuitive navigation, and effective interaction techniques for a variety of 3D Web technologies.

Now is the time to join Web3D!

www.web3d.org/join

New SDO Collaborations

Extensions that are relevant to IEEE 3D Body Processing
open standard enabling metadata exchange and visualization for 3d body model

Developing examples using X3D to visualize healthcare data.
Demographics and distribution of illness in a hospitable system
Test results of CPET exercises tests, X3D enables interactive 3D charting.
Press Release

www.web3d.org/about/liaisons

Join the Web3D Community!

- Public lists
- Open source projects (e.g. Blender, MeshLab, Paraview)
- Member mailing lists & Technical Working Groups
- Joint Communication and Marketing
- SDO Advocacy

Web3D Consortium Member Benefits

www.web3d.org/member-benefits

Marketing Opportunities	Business Opportunities	Drive Web3D Standards	Networking Opportunities	Web3D Talent Bank
▪ Promote products ▪ Conference participation ▪ Speaking Opportunities ▪ Booth partnership	▪ Business partnership ▪ Joint grants	▪ Working Group participation ▪ Early access to spec ▪ Board Seat	▪ Industry Leaders ▪ Research experts ▪ 3D companies	▪ Access to Web3D experts

There are many benefits to joining Web3D Consortium as we build open interactive 3D standards !

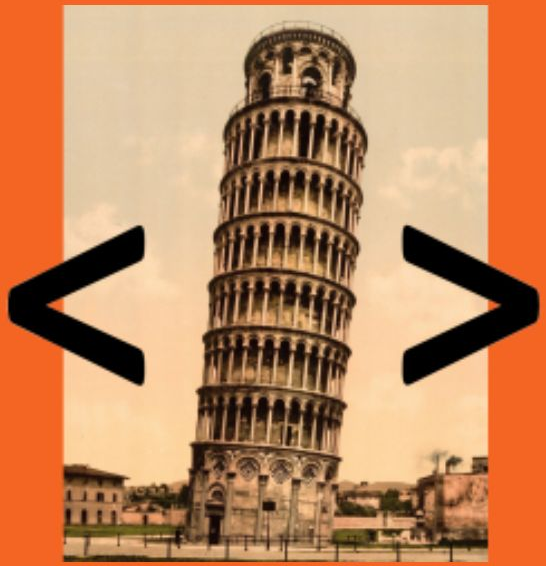
Web3D 2020 Conference

web3d.siggraph.org

Apps M4A to MP3 | CloudConvert Reading list

WEB 3D
2021 PISA + ONLINE

Conference Submissions About



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VR, AR, MR, xR

Identify Member projects
Track industry efforts

Define gaps, new goals in X3D standards

Extend X3D to support full range of Mixed and Augmented Reality (MAR)

X3D 4.0

HTML encoding and DOM binding: design, specification, implementation, X3D 4.0 + HTML examples

Maintain alignment: W3C HTML5, DOM updates

X3D Future 4.1

ISO MAR Reference Model efforts Compare/contrast, align with WebXR

ISO/IEC Mixed Augmented Reality (MAR) Reference Model implemented in X3D for VR/AR

Web3D products provide a coordinated set of steadily evolving ISO/IEC standards

In development | In Planning

X3D Standardization

Hands, feet, medical, motion animation
Web3D ratified (review, BoD approval)
Updates submitted for ISO ballot

Facial Animation
IEEE 3DBP collaboration

Medical records usage, accreditation

HAnim

File encodings, language bindings

JavaScript, Java, JSON, Efficient EXI and glTF compression
X3D Unified Object Model for Programming Language Bindings (JavaScript, Java, adding C, C++, C#, Python)

Map to non-ISO languages and tools (e.g. Blender, Matlab, others)

HTML encoding and DOM binding: design, specification, implementation, X3D v4 /HTML examples

Maintain alignment: W3C HTML5, DOM updates

X3D 4.0

ISO MAR Reference Model efforts
Compare/contrast, align with WebXR

ISO/IEC Mixed Augmented Reality (MAR) Reference Model implemented in X3D for VR/AR

X3D 4.1

glTF for compressed geometry (available throughout X3D encodings)
Efficient XML Interchange (EXI) for data compression, XML Security

Geometric compression and progressive-mesh streaming

glTF Support

X3D Standard for 3D Printing + Scanning

X3D, HAnim, OGC for Smart Cities

ISO/IEC JTC 1 Study Groups

Web3D products provide a coordinated set of steadily evolving ISO/IEC standards

In development

In Planning

Web3D Resources

About:	www.webx3d.org/about
Membership:	www.web3d.org/join
Learn X3D:	www.webx3d.org/learn-x3d
Web3D Standards:	www.web3d.org/standards
Work Groups:	www.web3d.org/working-groups
Case Studies:	www.web3d.org/case-studies
Workshop:	www.web3d.org/Web3d-quickstart
Examples:	www.web3d.org/x3d/content/examples/Basic
News & Events:	www.web3d.org/news-events

Join Web3D and Participate

Join us in building X3D

Contact
Anita Havele
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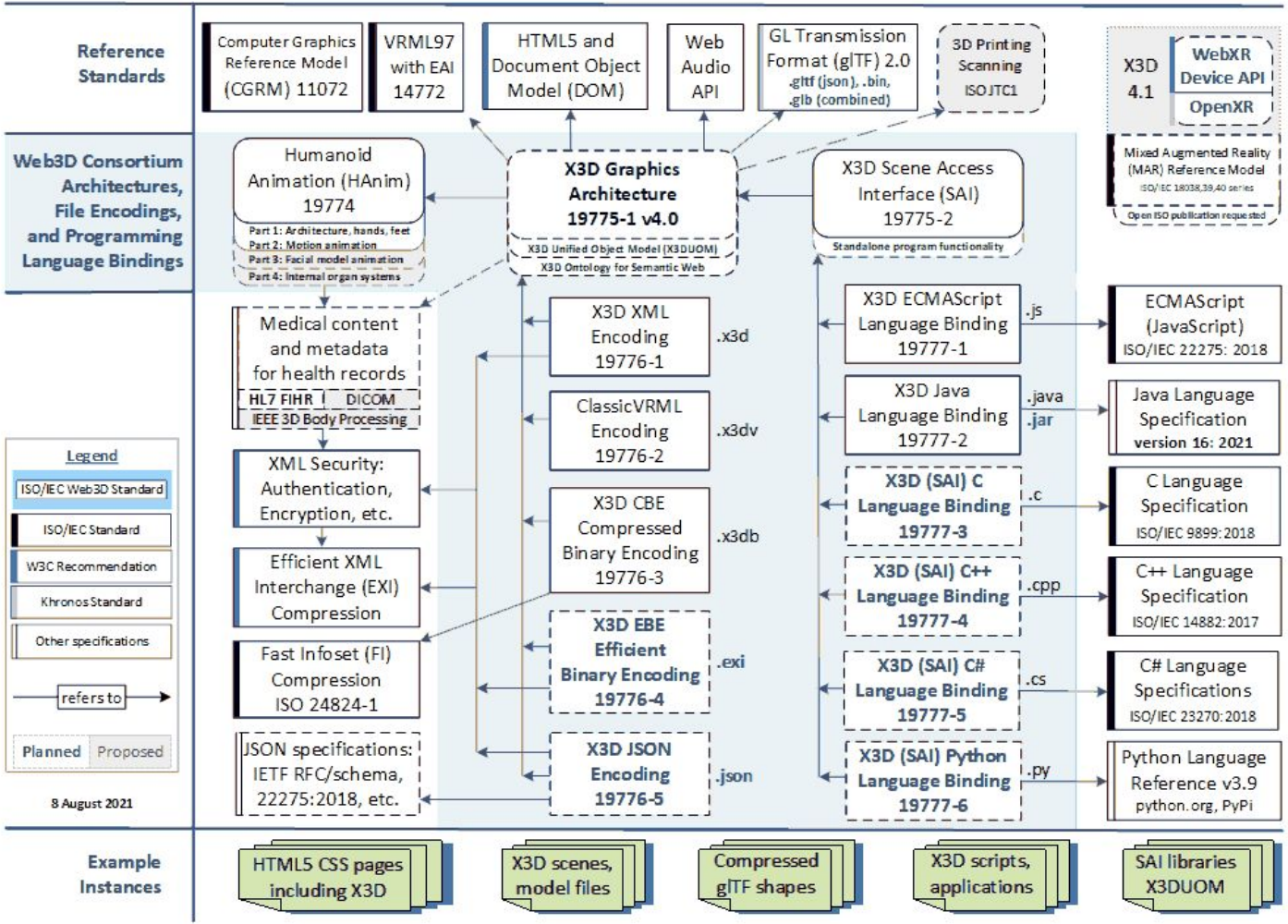
Web3D Consortium
Anita.Havele@Web3D.org
contact@web3d.org
X3d-public@web3d.org

www.web3d.org/join

X3D Graphics Standards Relationships