

# WEB3D CONSORTIUM

web|3D  
CONSORTIUM

# NEWSLETTER

## SPRING 2020

WEB3D NEWS  
X3D VERSION 4.0  
WEBINAR SERIES  
CONFERENCES  
YEAR IN REVIEW  
HIGHLIGHTS

## X3D4

HTML5 Integration  
New Features,  
Encodings ,  
Language Bindings ...  
PBR and glTF  
Support!

## ENGAGE!

WEB3D 2020  
SIGGRAPH 2020  
WORKING GROUPS  
WEBINARS

## OPEN 3D GRAPHICS FOR THE WEB - WWW.WEB3D.ORG

The Web3D Consortium had another successful year with new collaborators and allies to extend 3D on the Web. From new members, partnerships to successful outreach and development and delivery of X3D V4. Engage with the Web3D Consortium to build out new domains for 3D graphics on the World Wide Web!

COVID-19 crisis has demonstrated the creativity and innovation of our community in using OPEN technologies for distributed design, local manufacture, and real time connection. Web3D Consortium member, Our members NIH and NPS are providing helpful X3D resources in this crisis. We have also moved most of our outreach activities and events to a virtual environment all archived for future use.

Web3D members and working groups continue to evolve X3D. Work on collaboration, user experience, networking, and semantic search are all building on iterating with HTML5 and extending capabilities for X3D version 4.

The Web3D Consortium liaisons with other Standards Development Organizations (SDOs) ensure that the X3D Graphics Standards are co-evolving. Web3D would not be a leader in open interactive 3D graphics standards without these contributions as we bring new dimensions for Web 3D graphics.

Thank you to all our members for contributing towards the innovation and excellence of open Interactive 3D Graphics!

W3C<sup>®</sup>

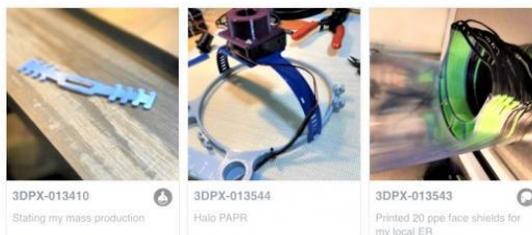
ISO

DICOM<sup>®</sup>  
Digital Imaging and Communications in Medicine

HL7<sup>®</sup>  
International

OGC<sup>®</sup>  
Making location count.

IEEE



web|3D  
Consortium

## X3D - The Next Generation VRML



Web3D is a nonprofit organization that develops and maintains the X3D, VRML, and HAnim international standards. These are 3D graphics file formats and run-time specifications for the delivery and integration of interactive 3D data over networks. Web3D Consortium members work together to produce open, royalty-free and ISO-ratified capabilities for the Web.

# FROM TECHNOLOGY INNOVATION TO STANDARDIZATION

## HUMANOID ANIMATION 2.0

Congratulations to the HANIM Working Group for bringing the new specification to an ISO-IEC ballot! HANIM 2.0 includes a new Part 2 for Motion Animation, which provides compatibility to BVH and other character animation and motion-capture pipelines! Part 1 is also updated and cross-referenced with medical names.

## X3D4 - DRAFT RELEASE

Development continues with the X3D4 Specifications in the Member-accessible GitHub and Working Group listerves.

ISO-IEC X3D version 4.0 is our primary activity, supporting HTML5 encodings and DOM bindings. Our emphasis is on producing specification prose and multiple implementations; for example: X3DOM, X\_ITE, Castle Game Engine, and FreeWRL. Consortium Members will ratify the ISO-IEC submission in December 2020.

New X3D4 Features:

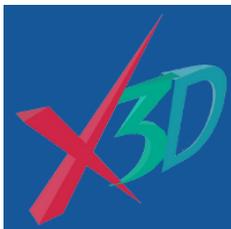
- glTF Inlines, including Physically-Based Rendering (PBR)
- Projective Texture Mapping (PTM)
- Volume Rendering extensions,
- PointProperties for point cloud rendering

## X3D ENCODINGS

Web3D Consortium Members and the X3D Working Group have a working JSON encoding and tools!

## X3D LANGUAGE BINDINGS

New ISO-IEC Work Items in X3D WG include C#, C++, C, and Python!



*The Portable  
Inter-Operable  
Durable  
ISO Standard  
Scene Graph*

## X3D UNIFIED OBJECT MODEL

The X3D Unified Object Model (X3D-UOM) is language-agnostic specification that describes the formal content model of X3D. Thus, Specifications and Standards for new language bindings and encodings can be kept consistent and coordinated as a set of evolving ISO-IEC Standards.

Using formal generation methods, specifications have been generated for X3D language bindings to Python, C++, and C#. The Web3D Standards Strategy is being executed royalty-free for any use.

## LEARN X3D



Webinar Series: [www.web3d.org/webinars](http://www.web3d.org/webinars)

Building and Deploying X3D content:

3D Modeling: Generate 3D models and assets, compose scenes.

Processing: Optimize content for Web publication.

Publication: Marshal scene content and Add features for device-specific display and interaction.

X3D Browsers and Authoring tools.



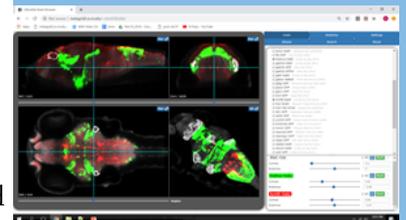
## FEATURED SITES



NIH 3D PRINT EXCHANGE: NEW PPE AND COVID COLLECTION !



AUSSIE INSECTS BY CSIRO



ZEBRAFISH BRAIN BROWSER

## WEB3D 2020 AND SIGGRAPH 2020 VIRTUAL CONFERENCES

It's our 25th Anniversary! **Registration is FREE!**

We are proud of our strong, steady growth of capabilities for 3D graphics on the World Wide Web. Having such a strong research and application community helps us drive new capabilities and Standards! Registration at: [2020.web3dconference.org](http://2020.web3dconference.org)

The Web3D Consortium is exhibiting at SIGGRAPH 2020 Virtual Conference, August 24-26, 2020.

## WORKING GROUP AND MEMBER HIGHLIGHTS

Working Group Chairs provided brief updates of activities in our WGs:

### X3D:

The X3D Working Group is shipping the second public working draft (WD2) of the X3D Version 4 specification (X3D4). Major upgrades include support for glTF and Web Audio API. New features include HTML5 integration, Projective Texture Mapping (PTM), improved linking, security review, and many others. Our attention now turns to thorough implementation and evaluation of example models for multiply implementations. Web3D Consortium members will have the opportunity to approve these capabilities and send the specification to ISO for review in Fall 2020.

### Design, Printing and Scanning (DPS):

The Design Printing and Scanning Working Group continued to promote X3D as an open standard enabling visualization and metadata exchange for Computer Aided Design, 3D Printing, Scanning, and Digital Twin applications. Liaison relations with ISO joint working groups are developing standards and practices for robust and secure visualization of STEP Product Data, with valuable collaboration with other visualization formats such as JT and 3D-PDF.

### Geospatial:

The Geospatial Working Group exists to promote spatial data use within X3D via open architectures. It is currently reviewing the geospatial component with respect to X3D4. Additional work is underway to modernize workflows and systems to support glTF and a CesiumTiles-type approach for dealing with large and complex scenes.

### Web User Experience:

The Web3D User Experience (Web3DUX) Working Group's mission is to establish best practices and standardized capabilities that support rich user experiences (UX), intuitive navigation, and effective interaction techniques for a variety of 3D Web technologies. The Web3DUX working group develops and demonstrates best practices for X3D support of rich user experiences using a variety of Web3D technologies and content-delivery platforms.

### Heritage:

The team at Virginia Tech has secured a large digitization grant to create a Web3D library from their world-class insect collection. X3D examples and Metadata schemes continue to be developed in the museum and library communities. Interested Members should join us!

### The Medical Working Group:

New member-driven extensions to the Volume rendering Component are in the X3D4 pipeline. In addition, through our HL7 Liaison relationships, the Medical WG has developed several examples using X3D to visualize healthcare data. From the demographics and distribution of illness in a hospitable system to the test results of CPET exercises tests, X3D enables interactive 3D charting.

### Semantic Web:

Our new Semantic Working Group's mission is to publish models to the Web using X3D in order to best gain Web interoperability and enable intelligent 3D applications, feature-based 3D model querying, and reasoning over 3D scenes. Align the X3Dv4 specification with other standards to further enable Digital Publishing with more effective indexing, search, comparison, and analysis of X3D models through the advanced use of metadata, shape geometry, etc and maximize interoperability with Semantic Web standards for greatest possible reuse and Web integration.

*Web3D*

*Project  
Wishlist*

**WEB3D 2020  
CONFERENCE**

**25TH ANNIVERSARY**

**VIRTUAL AND FREE**

**9-13 NOVEMBER 2020**

THIS YEAR'S THEME,  
"3D FOR A  
HYPERCONNECTED  
WORLD"

EMPHASIZES THE  
INCREASING SCOPE  
AND IMPACT OF HIGH  
QUALITY 3D CONTENT  
OVER HIGH SPEED  
NETWORKS

LEARN AND SHARE WORK  
RELATED TO :

- WEB, MOBILE, IMMERSIVE
- 3D CONTENT CREATION
- 3D PRINTING
- 3D TOOLS
- CASE STUDIES AND APPLICATION ACROSS DOMAINS

**WEB3D 2020:  
OUR 25TH ANNUAL  
ACM SIGGRAPH  
CONFERENCE !**

## IMPACT-FULL MEMBER COMMUNITY

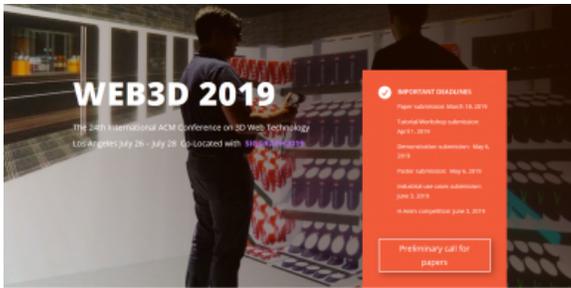
An international, non-profit, member-funded, industry standards development organization. Developing royalty-free ISO standards for web-based 3D graphics. Our standard, X3D (Extensible 3D), originated from VRML and is available in XML, Compressed Binary, and 'classic VRML' encoding formats. X3D is open, royalty-free, extensible, inter-operable, and runs on all platforms including desktops, tablets, and phones. Our members are from business, academia, government and the military.

### CONTACT US

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# 2019 WEB3D INTERNATIONAL MEETINGS REVIEW



## Web3D 2019 Conference

Los Angeles, CA

### WEB3D 2019

The [Web3D 2019 Conference](#) brought its signature top-quality Papers, Tutorials, Workshops, and a live showcase all into an action-packed three day conference. Best Papers were published in the Graphical Models Journal. We had inspiring Keynote Speakers: Dr. W. Ed Hammond from Duke University and HL7, Arno Hartholt from ICT, and Neil Trevett from Khronos. This is an annual ACM-sponsored event organized in cooperation with the Web3D Consortium. Papers are in the ACM Digital Library.

### VR HACKATHONS

Web3D Sponsored [VR Hackathons](#) are a great way to energize a local computer community and to bring people together who are interested in developing innovative VR/AR solutions, having fun, and helping to build the future of immersive technologies.

Bring one to your scene! Contact Us!



### SIGGRAPH 2019

[SIGGRAPH 2019](#) in Los Angeles, CA had over 200 people attend our Web3D birds of the feather (BoF) sessions. These events are not only educational, but also give the 3D community an opportunity to network and build relationships with experts and industry leaders. SIGGRAPH 2020 will be exciting with a Web3D Consortium Virtual Booth!!

### NOTABLE EVENTS

Web3D Consortium Members presented Extensible 3D innovations and our community at a number of other high-profile international events:

- IEEE VR Virtual Tutorial "Web3D Quickstart"
- HL7 Keynote Speech
- Collaborative 3D Visualization Workshop for DoD X3D applications
- Key Speakers at 3DBody.Tech Conference

### X3D IN THE WILD

This year was no exception as we find X3D being used in real applications and fields all around the world. Here are a few important highlights:

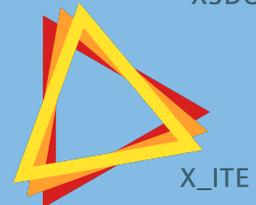
- V-Slam Unity-based X3D browser Open Sourced!  
Demos X3D Loader
- Natural History: VNHM.de
- Product Visualization in X3D: elphel
- 3D Scanning w/ X3D export: PointFuse



OPEN SOURCE  
ENGINES: X3D + GLTF

**x3dom**  
Instant 3D the HTML way!

X3DOM



X\_ITE



FREEWRL

