

WEB3D CONSORTIUM



NEWSLETTER

WEB3D.ORG
WEBX3D.ORG

DEVELOPING ROYALTY FREE ISO CERTIFIED 3D GRAPHICS SPECIFICATIONS FOR THE WEB



SPRING 2024

YEAR IN REVIEW

THE METAVERSE

WEB3D 2024

NEW MEMBER

2024 OUTREACH

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Encodings

Language Bindings

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WEB3D 2024

WORKING GROUPS

WEB3D WEBINARS

X3D: WEB-READY 3D GRAPHICS

YEAR IN REVIEW

The [Web3D® Consortium](#) had another successful year extending interactive 3D on the Web and the Metaverse. From new members to continuing partnerships with our [Liaison partners](#) to [Metaverse Standards Forum](#) (MSF) we are enabling the broadest possible interoperability of 3D Worlds. Ensuring that the X3D Graphics Standards are co-evolving.

The year ended with [X3D®](#) version 4.0 specification ratified by ISO/IEC as an International Standard. This latest version continues the tradition of interoperability, long-term stability, and royalty-free use while providing powerful new graphics and multimedia capabilities. X3D4 spans a cross-platform ecosystem, including other standards such as glTF, HTML, MIDI, and Web Audio API for interactive, composable worlds on the Web. We thank our [X3D Working Group](#) chairs and the Web3D community in bringing this colossal effort to fruition.

We continue converging 3D technologies and are now exploring integrating two complementary geospatial open standards: X3D and OGC's 3D Tiles. Leveraging OGC toolchains for X3D, providing access to rich X3D interactivity for OGC 3D Tiles. Transmitting and visualization of large-scale 3D scenes including massive 3D geospatial datasets, such as buildings, terrain, and point clouds in real-time is significant to the X3D, glTF, OGC Ecosystems including 3D Content

creation tools.

Web3D members and working groups continue to evolve X3D. Work on Geospatial, Design Printing and Scanning, Web3D User Experience and Humanoid Animation, are all building on integrating and extending 3D capabilities.

We thank our members, who set the agenda and priorities and helps us develop and evolve the solid foundation of [Web3D Standards](#).

Join our community of innovators and drive the evolution of Web3D graphics!

The 'X' is for eXtensible!



X3D - The Next Generation VRML: Web3D Consortium is a nonprofit organization that develops and maintains the X3D, VRML, and HAnim standards. X3D (Extensible 3D) is open, royalty-free and ISO ratified. X3D originated from VRML and is available in XML, Compressed Binary, and classic VRML formats.

X3D provides a presentation layer (a scene graph) to display animated, interactive 3D models from multiple sources and domains into web applications. The presentation pipeline is supported by X3D4 to make native authoring and use of X3D models fully integrated with HTML5. X3D is Web ready and supports wide range of applications. X3D runs on all platforms including laptops, tablets, phones, immersive headsets, and large-scale CAVES.

SUPPORTING VARIOUS 3D DOMAINS AND THE METAVERSE

MEMBER HIGHLIGHT



New Member: The University of North Dakota - Laboratory for Digital Realism in Engineering and the Applied Metaverse (UND DREAM Lab), developing Digital Engineering, Digital Twin, and Metaverse applications for its partners has joined the Web3D Consortium to advance its interactive real-time 3D capabilities.



MEMBER PROJECTS



VIRGINIA TECH:
IMMERSIVE
CARTOGRAPHY
SCIENTIFIC
VISUALIZATION
CONSTRUCTION
SAFETY



NIH 3D PRINT
EXCHANGE: NEW
RELEASE

3D WEB INTEROPERABILITY

MSF's 3D Web Interoperability Domain Working Group lead by Web3D Consortium Members are laying the foundation of Compression/streaming technologies for Web Architecture, bringing more value to the Metaverse!

X3D4 IS WEB READY

X3D version 4.0 specification is ratified by ISO/IEC as an International Standard. The X3D4 Architecture is highly mature, functionally complete and provides close support for the HTML5 Recommendation, Khronos glTF Physically Based Rendering (PBR), and Web Audio API.

X3D ECOSYSTEM

X3D working group efforts have shifted focus exclusively to standardization of X3D technology. Web3D Consortium has renamed it to [X3D Standards Working Group](#) to better reflect this new direction and to increase adoption and growth of the X3D ecosystem, the Web3D Consortium is also launching a new [X3D Ecosystem Special Interest Group \(SIG\)](#) to work on integration of X3D content across diverse domains, platforms, tools, and end-users. The group is responsible for coordinating solutions to real-world problems and works closely with the X3D Standards Working Group. We welcome all ideas and comments.

HUMANOID ANIMATION

Extensive work is underway in mapping 3D Body Processing FIT defined landmark points to Web3D HAnim feature points, including addition of new Feature points. This will assist in building a humanoid from a body scan and identifying feature points based on positions on the humanoid (skin vertices).



The Portable
Inter-Operable
Durable ISO Standard
Scene Graph

ADVOCATING 3D WEB STANDARDS

The Web3D Consortium and its members are actively engaging in a number of initiatives to increase the awareness and adoption of the mature X3D4 and HAnim Standards. Activity has accelerated with regular member meetings across:

- IEEE 3D Body Processing
- Metaverse-Standards Forum
- International Image Interoperability Framework (IIIF)
- Open Geospatial Consortium (OGC)

Web3D Consortium's [roadmap](#) charts our tasks and goals for 2024 through 2026.

NEW TO X3D : WEBX3D.ORG



LEARN X3D!

Web3D Webinar Series:

- Build and Deploy X3D content
- Generate 3D models and assets
- Compose 3D scenes
- Optimize content for Web publication.
- X3D browsers and authoring tools

GLTF MATERIALS SUPPORT

X_ITE v10.0.1 release supports all glTF material extensions. Now when a glTF file is parsed, these extensions are automatically converted to X3D.



UPCOMING EVENTS

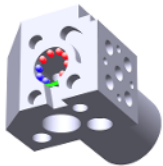
The Web3D Consortium is presenting at [SIGGRAPH 2024](#) Conference, Jul 28-Aug 1, 2024 in Denver, USA.

Join us at [Web3D 2024](#), Sept 25-27, 2024 in Guimaraes, Portugal and online. It's our 29th Anniversary! with steady growth of capabilities for 3D graphics on the World Wide Web. Having such a strong research and application community along with industry support helps us drive new 3D capabilities and Standards!

WEB3D WORKING GROUP HIGHLIGHTS

X3D STANDARD: X3D Version 4 specification (X3D4) is ISO ratified. Major upgrades include support for glTF Physically Based Rendering, Humanoid Animation HAnim2, Web Audio API and MIDI2. New features include HTML5 integration, Projective Texture Mapping (PTM), improved linking, security review, and many others.

DESIGN, PRINTING & SCANNING: The Design Printing and Scanning Working Group is developing workflows to combine STEP geometry of product design with inspection results of machined parts transmitted in QIF (Quality Information Framework) files. The 3D scene rendered below is a visualization of touch-probe measurements of the location and diameter of a machined hole in the part. The colored sphere represent probe position measurements, with color of the spheres representing whether deviation of the measured hole profile from the design profile. 3D Visualization of touch -probe.



GEOSPATIAL: The Geospatial Working Group exists to promote spatial data use within X3D via open architectures. It is currently reviewing Cesium Tiles-type approach for dealing with large and complex scenes. building on existing, well tested support for X3DOM, glTF rendering and geospatial registration, the X3DOM OGC 3D Tiles implementation will serve as reference for support of 3D Tiles in other X3D viewers, standalone or browser-based. In particular, the effort will clarify the need, design and precise abstract specification of new X3D Geospatial nodes in support of OGC 3D Tiles.

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. Digitize your history with X3D - it stands the test of time!!

MEDICAL: New member-driven Standard extensions to the Volume rendering Component are in the X3D4 pipeline and now ImageTextureAtlas is implemented in both X3DOM and X_ITE. 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 and dashboards registered to 3D data and clinical vocabularies..

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 X3D4 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 interoperability for Web integration for the Metaverse.

X3D

Community Challenge

29TH WEB3D 2024 CONFERENCE

GUIMARAES, PORTUGAL
AND ONLINE
25-27 SEPTEMBER 2024

THIS YEAR'S THEME,
"TOWARDS THE
METAVERSE
WORKPLACE"

AN INTEGRATION OF
VIRTUAL REALITY,
AUGMENTED REALITY,
AND OTHER IMMERSIVE
TECHNOLOGIES

LEARN AND SHARE WORK
RELATED TO :

- WEB, MOBILE, IMMERSIVE
- METAVERSE
- 3D CONTENT CREATION
- 3D STREAMING AND RENDERING
- 3D AUTHORING TOOLS
- INDUSTRIAL USE CASES
- APPLICATIONS ACROSS DOMAINS

PROGRAM:

TUTORIALS, WORKSHOPS,
INDUSTRIAL USE CASES,
PANEL SESSION, AND
COMPETITION.

SPONSORED BY
ACM SIGGRAPH

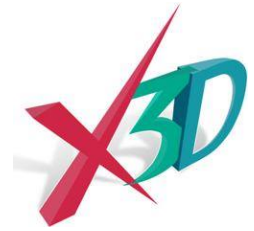
IMPACT-FULL MEMBER COMMUNITY

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. X3D is Web ready and supports many applications. Our members are from business, academia, government and the military.

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2023 WEB3D INTERNATIONAL MEETINGS REVIEW



International Impact



WEB3D 2023

The [Web3D 2023 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](#): Mel Slater, Univ. BNC, Marius Preda, IMT Telecom, Francois Daoust, W3C. 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 2023

[SIGGRAPH 2023](#) was in Los Angeles, CA + online. Web3D's birds of the feather (BoF) session had discussion on how Web3D Ecosystem contributes to the Metaverse. From interactive Real-Time 3D, to Mixed Reality and Humanoid Animation, everything we do in 3D is significant to an open Metaverse. We showcased X3D Geospatial applications at the CARTO BOF. SIGGRAPH is only educational, but also provides direct opportunity to connect with experts and industry leaders.

NOTABLE EVENTS

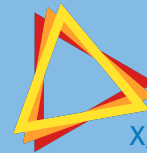
Web3D Consortium Members presented Extensible 3D innovations at a number of other high-profile international events:

- IEEE VR 2023 Workshop on Immersive Visualization Labs where Virginia Tech presented "25 Years so Far" entirely in X3D
- Key Speakers at 3DBody.Tech Conference 2023

OPEN SOURCE ENGINES:
X3D + GLTF



X3DOM



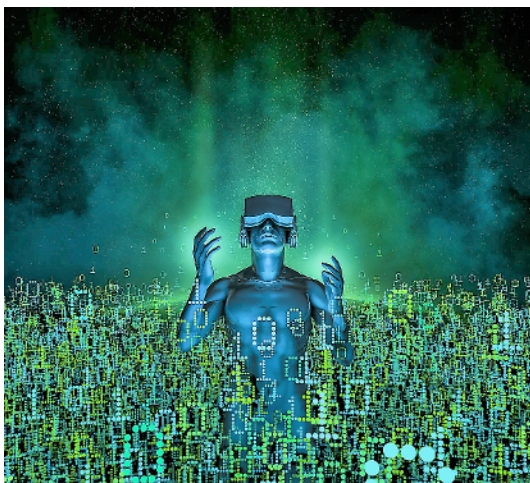
X_ITE



CASTLE GAME ENGINE



FREEWRL



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:

- US Navy
- V-Slam Unity-based X3D browser Open Sourced!
- Expanded Natural History library and UI: VNHM.de
- New examples from gemc/GEANT4 particle physics
- X3DOM supports DRACO compression