Web3D Consortium 2023 Year-end Report

Web3D Consortium had another successful year with new collaborators and proven allies to venture the crossroads of 3D on the Web. From new alliances to successful outreach and continued development of our Standards, there has never been a better time to engage with the Web3D Consortium and to build out new dimensions for 3D graphics on the World Wide Web. With the official ISO/IEC release of X3D 4.0, there are fantastic opportunities for members to take leadership roles and build value for their stakeholders and customers.

New Alliances: Web3D members include industry, government, academia, research organizations and professionals. The consortium continued its liaison relationships with 3D related standards organizations to improve interoperability and convergence. Web3D joined the **Metaverse Standards Forum** (MSF) community to bring more value to the Metaverse. Web3D Consortium and its members are leading the MSF 3D Web Interoperability WG. This working group offers the opportunity to find the right mix of Standards and practices. The goal here is to make the Metaverse fully interoperable with the World Wide Web and the standards ecosystem as SDOs like us will hold increasing importance as Metaverse concepts become more deployable and scalable.

Web3D 2023 Conference: Our annual conference on Web3D technologies was held in beautiful San Sebastian, Spain from 9-11 October 2023. This event brought together the best in the 3D industry from around the world. Generated new knowledge and unlocked the value of 3D across several application domains. Program Highlights and Keynote Speakers. The conference also included a Metaverse Workshop: "Building 3D Web Interoperability for the Metaverse" where the goal of building a strong foundation for an open, interoperable Metaverse was discussed. This workshop provided a platform for Metaverse Standards Forum (MSF), Standards development Organizations (SDO) and Browser developers to present and discuss how best to make the Metaverse fully interoperable with the WWW to enable new Metaverse capabilities. Web3D Conferences have been sponsored by ACM SIGGRAPH in co-operation with the Web3D Consortium since 1995. Read More

SIGGRAPH 2023: Held in Los Angeles, California had over 300 people attend our 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. Read More

Awards: Lifetime Contributions Award from the Web3D Consortium was presented to Dr. Richard Puk for International Standardization. Dr. Richard Puk of Intelligraphics has been the crucial linchpin for everything that we have ever done with Virtual Reality Modeling Language (VRML), Extensible 3D (X3D) Graphics and Humanoid Animation (HAnim) standards. He had a central role for over 25 years in making sure that everything makes sense and is well specified, enabling others to implement tools and create models. He has ensured that Web3D Consortium standards meet the high levels of formal rigor and quality needed for successful international standards. Everyone owes him a huge debt of gratitude for his knowledge, skill, and long years of unparalleled perseverance. Dr. Puk also received the INCITS Award for Technical Excellence. Thank you, Dick!

Outreach: The Communications team meets weekly and has continued tweeting to our community all around the world. To stay current on Web3D activities follow us on X. In addition, the Web3D Consortium YouTube Channel has recently been repopulated and organized, showing the many applications of X3D. In 2023, there has also been significant outreach in varied fields as our members represent X3D in communities ranging from WebXR to Metaverse Standards Forum. Web3D member, Chris Lane CEO, 3dMD and Web3D Consortium Executive Director, Anita Havele participated in a panel session advocating the use of open interoperable Web3D Visualization standards to the 3D Body Tech industry in October 2023. Several applications in 3D body processing emerged this year with new X3D projects and references continuing to grow in academic journals.

Learn X3D: Our new marketing and learning focused website, WebX3D.org has been a success and a window to newcomers to the world of X3D. Web3d.org continues to be the primary site for the Consortium's ISO standards. The member management module is being redesigned for a better member experience. We continue to highlight new case studies from members demonstrating interoperability of Web3D standards. Web3D 's educational webinars on X3D technology are also promoting our technology.

Member Highlights:

- Virginia Tech: WebXR added to X3DOM 1.8.3
- VICOMTECH: weblabel
- X_ITE: added X3D Volume rendering component
- X3D Edit reaches 10K downloads since May
- X3D 4.0 in publication by ISO in 2023 Press Release

Project Wish List: There are many interesting projects on the Web3D project wish list with potentially broad impact. This list is periodically updated. Organizations or individuals with 3D experience are welcome to develop any of these candidate projects. As we begin discussions for X3D 4.1, there are some great opportunities here namely, Extend X3D support for Blender, WebXR support in X3D4.1, Volume Component in X3D4.1, continue improving annotation in X3D.

Working Groups: 2023 has seen the Web3D Consortium Working groups continue the advancement of X3D standard in two major ways: extending and improving X3D V4 integration into HTML specification and X3D 4.0 ISO standard document released in December 2023. The most important work for 2023 has been the ISO ratification on X3D 4.0 and significant testing of open-source implementations, X_ITE and X3DOM. All Working Group charters will be renewed in 2024.

X3D Standard: Significant work on X3D 4.0 specification, multiple implementations, and X3D 4.0 /HTML examples continued in 2023. This new version provides a fully interactive and scalable environment, providing interoperability with long-term archival stability, compatible and integrated with HTML5 and web methodologies. Backwards compatibility includes existing Virtual Reality Modeling Language (VRML) and X3D scenes built from as early as 1997. Public availability is expected December 2023, and the specification will later be submitted for international standardization.X3D 4.0 now includes HTML5 Integration with Javascript APIs, Multiple file formats and programming languages, glTF Support, Physically Based Rendering (PBR) and materials upgrade and Web Audio. The ISO document is easily available to members on the Web3D website, to encourage contribution and participation as we move forward.

ISO Ratification: The drafting of X3D 4.0 standards, both in terms of the processing, the HTML styling, and the technical content was a key effort during 2023. The GitHub private repository supports the entire workflow process from specification writing to ISO ratification.

H-Anim: Adding additional support to our set of named sites and feature points, to produce accurate body measurements for 3D Body processing. This work provides a needed interface for extended haptic and kinetic simulations. Importantly, a well-defined 'skin' surface serves a basic need in scanning, motion capture, motion analysis, and general humanoid interaction applications.

2024: Going forward, our focus of attention will be X3D 4.0 testing, implementations and maintaining alignment with W3C HTML, WebXR and DOM updates. We invite the 3D community to engage as we continue work and share our progress at the **29th Web3D Conference in Guimarães, Portugal from September 25-27, 2024**. Join us at SIGGRAPH 2024 as we map the future of interactive, real-time 3D Graphics. Web3D Consortium's roadmap charts our tasks and goals for 2024 through 2026.

Join us: From new alliances to successful outreach and continued development of our Standards, there has never been a better time to engage with the Web3D Consortium and to build out new dimensions for 3D graphics on the World Wide Web. With the official ISO/IEC release of X3D 4.0, there are fantastic opportunities for members to lead.

The Consortium would like to thank its members and board of directors who influenced the development and adoption of Web3D standards, while providing valuable industry expertise to support the forward-thinking market strategy of the Consortium. Thank you for contributing

towards the innovation and excellence of Interactive 3D Graphics. Web3D would not be a leader in open interactive 3D graphics standards without these contributions. We sincerely hope for continued partnership in 2024 as we bring new dimensions for 3D graphics on the World Wide Web.

You can stay further informed with our Calendar, the News and Events page, Twitter @Web3dConsortium, Facebook, and YouTube sites. As ever, feel free to Contact Us about your interests! Web3D Members and invited experts are welcome to participate.

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