



## Web3D Consortium 2016 Annual Report

[Web3D Consortium](#) had another successful year with new collaborators and proven allies to venture the crossroads of 3D on the Web. From new members 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 graphic on the World Wide Web.

**New Members:** Web3D members include industry, government, academia, research organizations and professionals. In 2016 we had several new members, [3DMD](#), [Synergy](#), [CSIRO](#), [Smithsonian](#), [Ajou University](#), and [Chungbuk University](#) join to continue evolving Web3D Consortium ISO standards. The consortium continued its [liaison relationships](#) with 3D related standards organizations for improve interoperability and convergence. The Consortium would like to thank its [members](#) and [board of directors](#) who influence the development and adoption of Web3D standards, while providing valuable industry expertise to support the forward-thinking market strategy of the Consortium.

**Conferences:** [Web3D Conference 2016](#) and [SIGGRAPH 2016](#) in Anaheim, California had over 300 people attend the research paper, workshops tutorials and birds of the feather (BoF) sessions with many more visiting the Web3D Consortium exhibition booth on the show floor. These events are not only educational but also give the 3D community an opportunity to network and build relationships with experts and industry leaders. [Web3D Conferences](#) have been sponsored by [ACM SIGGRAPH](#) in co-operation with the Web3D Consortium since 1995.

**Hackathons:** In addition to conferences, showcases, and exhibitions, the Web3D Consortium organized several [VR Hackathons](#) around the world in 2016. These are community-driven events bringing together the brightest minds in virtual reality and related technologies. It's a weekend of innovation to build out the future of immersive technologies where creative ideas are pitched and prototyped to win prizes while networking.

**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 [Twitter](#) and [Facebook](#). In addition, the [Web3D Consortium YouTube Channel](#) has recently been repopulated and organized, showing the many applications of X3D. In 2016, there has also been significant outreach in varied fields as our members represent X3D in communities ranging from WebVR to 3D printing and scanning. Several particular applications in medicine, to

astrophysics emerged this year with X3D projects and references continuing to grow in academic journals.

**Website:** There was continued development of the [consortium website](#) design and content. The website was migrated from the current shared hosting server to a private server. The member management module is being redesigned for a better member experience. The website continues to showcase new case studies from members demonstrating interoperability of Web3D standards. Send us yours.

**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. There are some great opportunities here.

**Working Groups:** 2016 has also seen the [Web3D Consortium Working groups](#) continue the advancement of [X3D standard](#) in two major ways: extending and improving the current V3.3 standard, and working towards the new [X3D V4 integrated into HTML](#) specification and ISO standard. All Working Group Charters were renewed this year.

**Web3D Membership Awards:** Two major contributors from the X3D community were awarded with [Web3D Consortium Professional Memberships in 2016](#). Dr. Andreas Plesch has made essential X3D contributions in two premier open-source JavaScript implementations: Cobweb and X3DOM and John Carlson is well known as "[Coder Extreme](#)" who has spearheaded efforts to create a JavaScript Object Notation (JSON) Encoding for X3D. Each of them reflect on the benefits of direct participation in Web3D.

The most important work for 2016 has been the research into the integration of X3D into HTML web pages. A significant advance has been the introduction of the [Cobweb browser](#), which forms a second implementation, alongside [X3DOM](#). The research has shown that there are a number of concept challenges that need to be considered from the perspective of drafting new standards, and also that there are differences in the support that the two implementations provide.

**X3D V3.3:** One very exciting extension of the V3.3 standard is the drafting of a new JSON encoding for X3D proposed as ISO/IEC 19776-5. This work has included the creation of a JSON schema as a validation tool, which proved to be more capable than the XML schema for the XML encoding, leading to further refinement of the X3D Quality Assurance (QA) tools. Furthermore, the JSON draft standard was supported by the independent development of two implementations. During the JSON development, a further enhancement was the development

of the X3D Object Model encoded in XML. This model was auto generated from the XML schema. In turn, it was used to auto generate other items, such as text for the definitions of node encodings in the JSON draft standard.

**H-Anim:** In addition, significant support has been provided to the Humanoid Animation (H-Anim) working group, where two new draft standards for ISO/IEC 19774 Parts 1 and 2 were submitted for CD ballots. These were subjected to intense scrutiny during editing meetings, with the outcome that a second CD stage will be undertaken.

**X3D V4:** Work has also started on the editing of new drafts for the V4.0 X3D standards. We now have a fairly clear idea on the technical issues. A brand new outline text has been created to cover the integration of X3D into HTML web pages. One noteworthy outcome at the end of 2016 was the decision to make these drafts easily available to members on the Web3D web site, to encourage contribution and participation as we move forward.

**ISO Ratification:** The drafting of standards, both in terms of the processing, the HTML styling, and the technical content have also received attention during 2016. The GitHub private repository introduced last year has been successfully deployed for all standards development text. The repository supports the entire workflow process from specification writing to ISO ratification.

**2017:** Going forward, our main focus of attention will be the resolution of the many issues for specification improvement, as well as reaching consensus on the integration of X3D into HTML. The latter will also require consideration of VR (a hot topic) and mobile usage. The aim is to have the new draft standards available for review in time for the Web3D 2017 conference in Brisbane in early June. 2017 is indeed going to be a busy and exciting year! We invite the 3D community to engage as we continue work towards X3D V4, share research work at the [22th Web3D Conference 5-7 June 2017](#) in Brisbane, Australia and exhibit technology at [SIGGRAPH 2017](#) 1-3 August 2017 in Los Angeles, California.

Thank you to all our Web3D Consortium members 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 2017 as we bring new dimensions for 3D graphics on the World Wide Web.

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**Web3D** 2017

**VR Hackathon**