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Web3D:

Enabling 3D communications

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The **Web3D Consortium** is a member-funded industry consortium committed to the creation and deployment of open, royalty-free standards that enable the communication of real-time 3D across applications, networks, and XML web services. The Consortium works closely with the ISO, MPEG and W3C standardization bodies to maximize market opportunities for its membership. All Consortium members are empowered to participate in Consortium Working Groups to contribute to Consortium specifications before public deployment - and are able to network with some of the leading experts in Web3D technology to accelerate the delivery of their cutting-edge 3D platforms and applications.



Why implement X3D?

The sweet spot of X3D is bringing 3D graphics to a wider audience

I was recently asked this question: "I don't really see why I want to generate X3D

Sure, you can. But to write it efficiently requires lots of acquired knowledge. Even writing X3D requires a fair bit of 3D knowledge. But saying `Box { size 1 2 2 }` is worlds apart from the low-level details of geometry expression in OpenGL: what form of geometry is best for speed, whether to state sort the results, how culling interacts to render thousands of those boxes directly, etc.

X3D is a step above OpenGL/DirectX in abstraction. It was mostly designed for and targeted at non-3d graphics programmers. You certainly can go higher in abstraction but it represents a nice level above direct 3D graphics programming. Let's take a scientific visualization programmer. With X3D they can output meaningful representations of their data without needing to understand low-level graphics.

when I can just call OpenGL" and write my own code?"

Same thing for a operations person of say a shipping company. I believe X3D's sweet spot is in bringing 3D graphics expression to a wider audience, one not necessary trained in the art of 3D graphics programming, but fairly technical nonetheless. I've watched it happen at least a hundred times with the Naval Post Graduate Schools students that I work with. These are not 3D graphics experts, but they use X3D to visualize what-ifs for real world problems. They typically write the behavior part and leave the graphics to the X3D player.

The same is true with navigation. X3D players have a lot of code to enable easy navigation of worlds. If you code to OpenGL your have to write that yourself. It's a bunch of code to do it right. X3D also includes a behavior system. It is at a much lower level then in MMORPGs, but it is also not constrained to the specifics of a certain type of game (MMORPH behaviors are generally locked into the concept of enemy, targets, vehicles and weapons for instance). X3D's behavior system is more general but can express all the basic concepts in any MMORPG game. A good X3D author creates that type of lexicon while developing content. Using PROTO's or another XML language that styles to X3D -



Why implement X3D? – con't

you can create higher level languages. And all of this is many steps above coding behaviors directly in OpenGL or other low level library such as DirectX. I got into developing X3D applications because I wanted to make virtual reality and simulations... I could have cared less about OpenGL or DirectX. But then I got excited about making that capability available to lots of other non-graphics programmers. So here I am, contributing to the X3D specification and testing new features

and creating real-world (bill-paying) simulation applications using [Xi3D](#) that my company, Yumetech develops and manages.

-Web3D.org blog entry submitted by Alan Hudson, President, Web3D, President, Yumetech Corporation.

The Web3D family of specifications are ISO ratified standards that provides a system for the storage, retrieval and playback of real time graphics content embedded in applications, all within an open architecture to support a wide array of domains and user scenarios.

X3D has a rich set of componentized features that can tailored for use in engineering and scientific visualization, CAD and architecture, medical visualization, training and simulation, multimedia, entertainment, education, and more.

About Our Organization...

The Web3D Consortium defines and evolves the X3D royalty-free open standards file format and run-time architecture to represent and communicate 3D scenes and objects using XML over the Web, in documents and in networks.

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