

Article Proposal for *OpenGL Insights*

Title

SceneJS - A WebGL-Based Scene Graph Engine

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[SceneJS](#)

Abstract

The WebGL graphics API specification extends the capabilities of the JavaScript language to allow compatible browsers to generate 3D graphics on the GPU without the need for plugins. With JavaScript execution speed a potential bottleneck, high performance in a WebGL application therefore relies on executing minimal JavaScript while offloading as much work as possible onto the GPU.

This paper introduces SceneJS, an open-source 3D engine on WebGL that is geared towards rendering large numbers of individually pickable and articulated objects as required for applications such as the BioDigital Human.

SceneJS works by maintaining a state-optimised draw list which is updated through a convenient JSON-based scene graph API. As updates are made to the graph, SceneJS dynamically rebuilds only the affected portions of the draw list, while taking care of such things as shader generation and depth ordering for transparency.

This article will describe the architecture of SceneJS, focusing on tactics used for a fast render loop.

Approximate Length

Around 20 pages

Rights

We have the right to publish the article and accompanying source code.

Source Code

This article will include links to the full source code, examples and documentation on GitHub.

References

1. WebGL, Khronos Group
<http://www.khronos.org/webgl/>

2. OpenSG
<http://www.opensg.org>

3. Crockford D. JSON (JavaScript Object Notation) .
<http://www.json.org/>