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Making It Realtime: Optimized Realtime Frameworks for Education and the Web

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Keywords

Simulated Environments, Virtual Reality, Realtime, 3D Games, Quake, POV-Ray

Abstract

The utility of 3D game engines for delivery of educational content is explored and developed. Emphasis is placed on the difference between polygonal surface representation and actual 3D simulation, taking into account object properties and physical characteristics using function representation (F-rep) and the HyperFun modeling language. Through a combination of the open source Quake engine and POV-Ray raytracing engine, a Japanese temple is simulated in two levels of detail and made available both through an interactive realtime simulation and a more detailed but slower raytraced environment. Tools are presented for Web based access to a simulation database, which can be used to design and modify 3D environments.

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