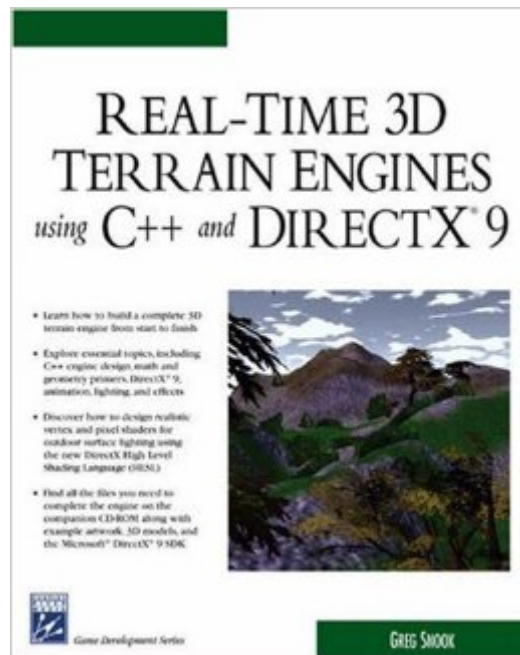


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# Real-Time 3D Terrain Engines Using C++ And DirectX 9 (Game Development Series)



## Synopsis

With recent advancements in programmable 3D rendering hardware, game developers can create engines capable of making complete outdoor landscapes. Many of today's popular games include entire outdoor environments, but making these environments realistic and fast is a challenge for even the best programmers. Real-Time 3D Terrain Engines Using C++ and DirectX 9 is written to help make the process more efficient, and to bring new programmers into the field of 3D computer game programming. The book is dedicated to teaching the fundamentals of programming a popular 3D engine type - the "Real-Time 3D Terrain Engine." Throughout the book, the focus is on the essential topics of outdoor terrain rendering. So whether you are new to 3D engine programming or a seasoned veteran, Real-Time 3D Terrain Engines Using C++ and DirectX 9 will teach you how to use the latest advancements in hardware-accelerated rendering, and provide all of the tips, tricks, and ideas you need to build your own, complete 3D terrain engine. Skills Needed: It is assumed that you are familiar with C++, Direct X, math, and geometry and that you're ready to move into 3D engine design and real-time terrain visualization.

## Book Information

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## Customer Reviews

This is a tough book to recommend. If you need your hand held through detailed examples, this is not a good source at all, especially since the sample programs are (1) overly complex and platform-dependent and (2) slow and ugly. On the other hand, this DOES discuss texturing,

quadrees, a few CLOD algorithms, sky and water rendering, Perlin noise, and a few other things as they relate to terrain, and can be a useful source of ideas for the not-quite-novice. Yes, most of the information here can be found on the web, but that's true of practically any programming book. By the way, a MAJOR annoyance here is the really rather astounding number of typos and basic usage errors ("discreet" vs. "discrete," etc) that somehow were not caught in editing. There seems to be a trend to this effect in game programming books lately, but this one is really exceptionally error-ridden.

While I do not doubt that Gregory Snook is a very talented programmer, the code shown in this book and on the accompanying CD are proof enough, I believe that this book is of no use to anyone except for the most experienced professionals who have weeks of time to burn learning about Terrain Engines. I am not the most experienced programmer, having only worked with C++ and DX for 4 years now, but the problem with this book is not in complex concepts, but in content. All of the fundamentals of creating and rendering terrain are covered, but the example code and the engine (Gaia) on the CD are overly complex for any sort of educational book. Possibly every single library that Snook referenced has special wrapper functions and classes around them, making an examination of any code snippet next to useless unless the reader has spent days going through dozens of wrapper classes learning all of Snook's syntax. While I do enjoy owning this book as a conceptual reference, I am afraid that it is next to useless as an aid in practical programming scenarios.

Not an easy book to learn from, all the code from the first demo program on up use the (complicated) final engine to do their rendering, and you'll have to go spelunking through it to try and figure out what's going on. The emphasis of this book is on the whole game engine itself and you're locked into his way of doing it, you're never given smaller programs that teach you how to do specific topics, it's all or nothing. The first third of the book barely touches on terrain, you'll get overviews of things like memory management, resource pools, High Level Shader Language, render queue's, and a dozen other topics. And if you already have your own systems for these things or don't like his systems, too bad, because they are interwoven in the code throughout the rest of the book and it's difficult to separate it out. Like the review above, I have to agree that the terrain looks a bit aged for such a new book, and it runs slow on my P4 2.4ghz with GeForceFX card. I've seen plenty of recent games that look much better and run smooth as silk on my setup. You'll need a very high end system for his techniques to run smoothly on. It's hard to recommend

this book when you'll find much better tutorial code on the internet that's more to the point and has better looking results than you will get in this book. It does bring many techniques all together, but not in an easily learnable format when it comes to actually programming it.

I picked up this book along with Trent Pollack's 'focus on 3D terrain programming'. Side-by-side, I'd advise anyone to pick up Snook's book. It has more information on terrain rendering and is well written. I'm still finding useful ideas in the sample code to use in my own shareware game. Of all the terrain books I've seen, this one is the best.

At first I was put off by the amount of code included with this book. But the more I look through it, the happier I am to have it. The book itself is a great introduction to terrain rendering and game engine construction. The code has a wealth of additional info on things like memory and resource management, random number generation, etc. You do have to enjoy reading code, but the rewards are worth it. Highly recommended.

This book has a lot of great info in it which is really helping me to get a good grasp of terrain ideas for one of my projects. The only downside is that you need a pretty high end graphics card to run any of the demo code. Once I updated my video card things worked fine, so be warned. Other than that this is right on the money...

Though the final results are dated, this book contains quite a bit of information covering a range of useful techniques. Overall, I enjoy the book as a reference and jumping-off point for further investigation elsewhere. I had already implemented his interlocking terrain tiles method prior to reading the text, but that was back in 2007, so this was a good refresher for that material. Unfortunately, he even admits that there is no way to smooth out the serious LOD popping that occurs using his method (something I was hoping to resolve). He suggests the chunked method as the best path toward a solution instead, so I can toss out my previous implementation :(One problem with the book's age is that the text seeks to support older hardware, including "...those using pixel shader version 1.x". It is unlikely you need to do that (be honest, you aren't going to support anything prior to sm3), so some sections can be ignored entirely and many of the self-imposed limits in the methods he employs are no longer useful or informative. I have never written a review before, but felt compelled to point out a danger lurking on the book's accompanying CD. I have a Dell XPS m1710 laptop with an nVidia GeForce Go 7950GTX. I use WinXP Pro with

DirectX 9.0c. I ran the chapter 11 demo, which shows atmospheric effects and sunlight. I advanced the time of day until the sun set on the horizon and - bam - Windows locked up and the BSOD followed. My video card was permanently trashed. Bricked. Destroyed. I *\*strongly\** urge readers not to run the samples! Look at the color screen-shots on the front and back covers of the book, because there isn't anything else to see in the demos anyway and you might destroy your computer trying. YOU HAVE BEEN WARNED!

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