**Synopsis**

2006 FrontLine Award Winner. The ShaderX series provides a complete toolbox of cutting-edge advanced graphics hardware and software techniques for all levels of graphics programmers, from novices to graphics gurus. With the increasing pixel shader power of current graphics cards, techniques that were once done on the CPU or simply avoided due to their expense are now possible, and this latest volume of the ShaderX series is filled with articles that provide methods for performing these techniques. The collection covers state-of-the-art, shader rendering techniques that will bring your graphics to a new level of realism. Throughout the book you'll find a plethora of all new, ready-to-use solutions and tools for the many graphics programming challenges you face everyday. These solutions will save valuable programming time, helping to make you more efficient and productive. Throughout the collection you'll find: How to simulate cloth on the GPU; How to use ambient occlusion efficiently in a game environment; Several global illumination approaches suitable for current hardware platforms; How to do real-time caustics on the GPU; Several ways for how to make your shadow penumbra software for shadow volumes and shadow maps; Tips for using the D3DXEffects framework efficiently and how to integrate post processing; Real-time damage system that uses a damage map to store damage data; Snow rendering; Procedural generation of textures; Tricks, tips, and techniques for super shader, a light map precomputation tool that stores radiosity light maps, and a system for debugging and optimizing applications, and much more. This is an indispensable series that should be on every graphics programmer's bookshelf!

**Book Information**

Series: ShaderX

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Whilst the content is quite good it probably isn’t on par with some other books by say Matt Pharr, books from ACM or Academic Press I think the biggest issue with the book is that the quality of the paper is a bit below par and all images are black and white. Normally black and white isn’t a problem, but when the book is about graphics and there is a statement in the book like (e.g.) "...notice the unique HLSL effect on the blue ball compared to the green..." it makes it a bit difficult. Even a color plate section would have been nice.

I was disappointed not to find any code - only demos of applications on a few of the chapters (e.g. radiosity tool, gpu terrain). IMHO it is better to have fewer topics/chapters and better coverage of each topic, with source code etc. As M. Severino’s review correctly states 'Each article is a source of ideas', so don’t expect to learn how to implement all the techniques in the book. Some authors have included lots of code, others have included none. I vote against the "*gems-style" books, more attention to the educational side of these books is needed. Flashy programmers who want to show off please go elsewhere.

This is the fourth edition in this series of books on advanced graphics. This book is a collection of forty-three articles around the common theme of shading images in real time. Many of these effects have been common in the movie world for many years, but in that application the shading can be done on very expensive machines and the time it takes to produce an image is not important because the resulting image is to be shown on screen rather than immediately on a display. Now, with the increasing power in the PC’s in widespread use, these techniques are being brought down to the standard desktop. In this book a wide selection of authors discuss the start of the art in shading. They are, for the most part, active professionally in the graphics display business. A number of them work for video card companies, a number work for gaming companies, or for companies producing software used in gaming. Many are involved with the computer science departments of universities around the world where the most advanced image programming is being researched. This approach provides for a fast time to print, rather than one author taking a year to write the book. In this industry a year is a lifetime, well, at least a generation in the software.

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