



GPU-based Volume Ray-Casting with Advanced Illumination

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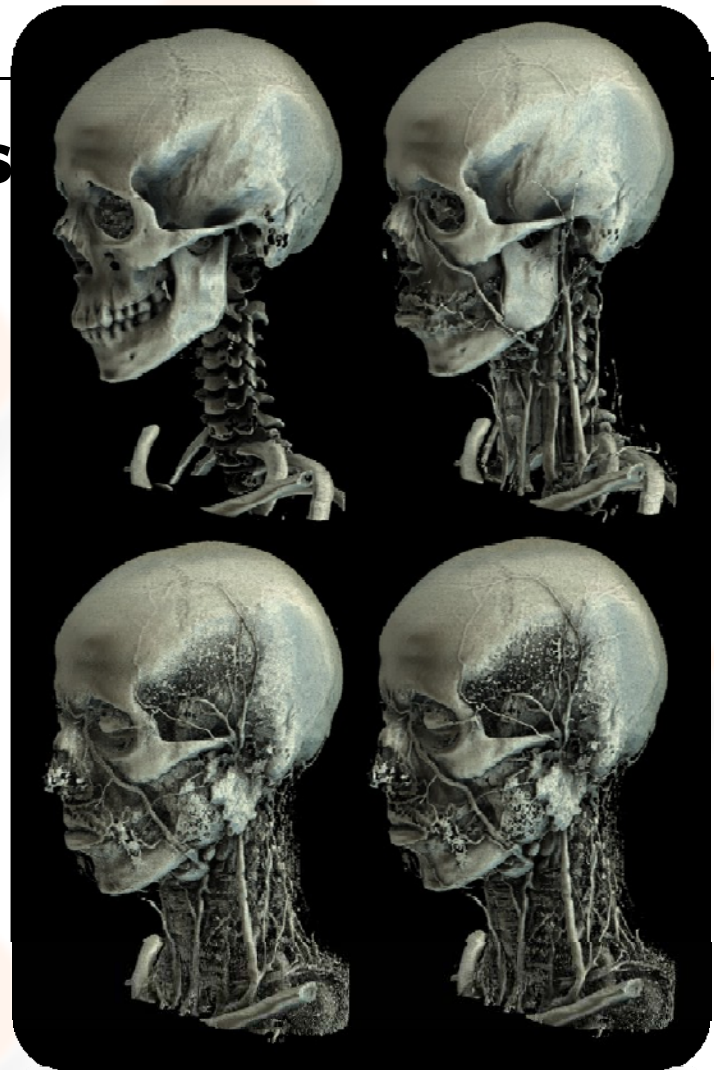


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Brief Overview

- **GPU acceleration allows fast rendering**
- **GPU-based ray casting results in a high quality**
- **In nowadays performance gain can be used to incorporate advanced illumination effects**



Speakers

- **Markus Hadwiger**
 - ***VRVis Research Center for Virtual Reality and Visualization***
- **Patric Ljung**
 - ***Department of Imaging and Visualization, Siemens Corporate Research***
- **Christof Rezk-Salama**
 - ***Computer Graphics Group, University of Siegen***
- **Timo Ropinski**
 - ***Visualization and Computer Graphics Research Group (VisCG), University of Münster***

Prerequisites

- **Working knowledge in computer graphics.**
- **Basic programming skills.**
- **Familiarity with graphics hardware and shading languages.**
- **A basic knowledge regarding volume data.**

Schedule

- **8:35 Markus Hadwiger: Introduction and Basics**
- **9:20 Timo Ropinski: Light Interaction**
- **10:10 Coffee Break**
- **10:30 Patric Ljung: Ambient Occlusion**
- **11:15 Christof Rezk-Salama: Scattering**
- **12:00 Q&A**

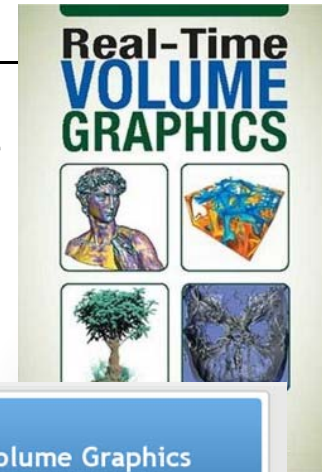
Updated Material



<http://www.voreen.org/vis08-tutorial>

Further Readings

- **Klaus Engel, Markus Hadwiger, Joe M. Kniss, Christof Rezk-Salama, Daniel Weisskopf: *Real-Time Volume Graphics*, AK Peters 2006.**



- **Other related tutorials**

- **Siggraph 2004**

<http://www.vrvis.at/via/resources/course-volgraphics2004/>

- **Eurographics 2006**

http://www.real-time-volume-graphics.org/?page_id=14

- **Siggraph Asia 2008**

<http://www.voreen.org/siggraphasia08-course>

Real-Time Volume Graphics
GPU-based volume rendering for scientific visualization and visual arts

Tutorials

- Eurographics 2006 Tutorial Notes

Topics

- About the book
- Annotated Bibliography
- Code Samples
- Courses
- Events
- Image Gallery
- Links
- Tutorials
- What is Volume Graphics?

Categories

- Code Samples
- News
- Uncategorized

People

- Markus Hadwiger
- Joe M. Kniss
- Daniel Rezk-Salama
- Klaus Engel
- Christof Rezk-Salama

Real-Time Volume Graphics - SIGGRAPH 2004 Course #28

Course Notes and Slides

Course notes "Real-Time Volume Graphics", Course #28, Siggraph 2004. These are the actual notes (282 pages) as they were also included on the SIGGRAPH 2004 DVD, without slides.

The slides from the individual course parts are available below:

Introduction to GPU-Based Volume Rendering [ppt] [pdf]	Christof Rezk-Salama
GPU-Based Ray Casting [ppt]	Daniel Weisskopf
Local Illumination for Volumes [ppt] [pdf]	Markus Hadwiger
Transfer Function Design: Classification	Joe M. Kniss
Transfer Function Design: Optical Properties	Joe M. Kniss
Pre-Integration and High-Quality Filtering [ppt]	Klaus Engel
Atmospheric Effects, Participating Media, and Scattering	Joe M. Kniss
High-Quality Volume Clipping [ppt]	Daniel Weisskopf
Non-Photorealistic Volume Rendering and Segmented Volumes [ppt] [pdf]	Markus Hadwiger