

Fortgeschritten Spieleentwicklung (Spiele 2)

Prof. Dr. Daniel Scherzer

Goal of the lecture

- For you to understand concepts
 - Programmable hardware pipeline
- Project showcasing real-time effects
 - Demo
 - Game

Todo

- Work on examples given in lecture
- Form teams of 1-5 person(s)
- Create a project
- <1 minute video (YouTube)



Grading

- Project outcome
- Active participation in lecture
- Team gets one grade
 - Team members distribute grade within team



What do you know?

- Linear algebra
- CG basics and OpenGL (cg lecture)
 - Pipeline
 - Transforms
 - Rasterization
 - Texturing

Lecture Content

- Topics
 - Programmable hardware Pipeline
 - Advanced Lighting
 - Texturing (Sampling Theory)
 - Levels of Detail
 - Global Illumination
 - Real-Time Shadows
 - Coherence Methods
 - OpenGL optimization

LVA structure

	Month 1								Month 2								Month 3								Month 4							
Lecture	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C				
Project																	Implementation															
Talks																	Presentation (graded)															

T... theory, programming examples

C... coaching/meetings (tutors/myself)

Moodle

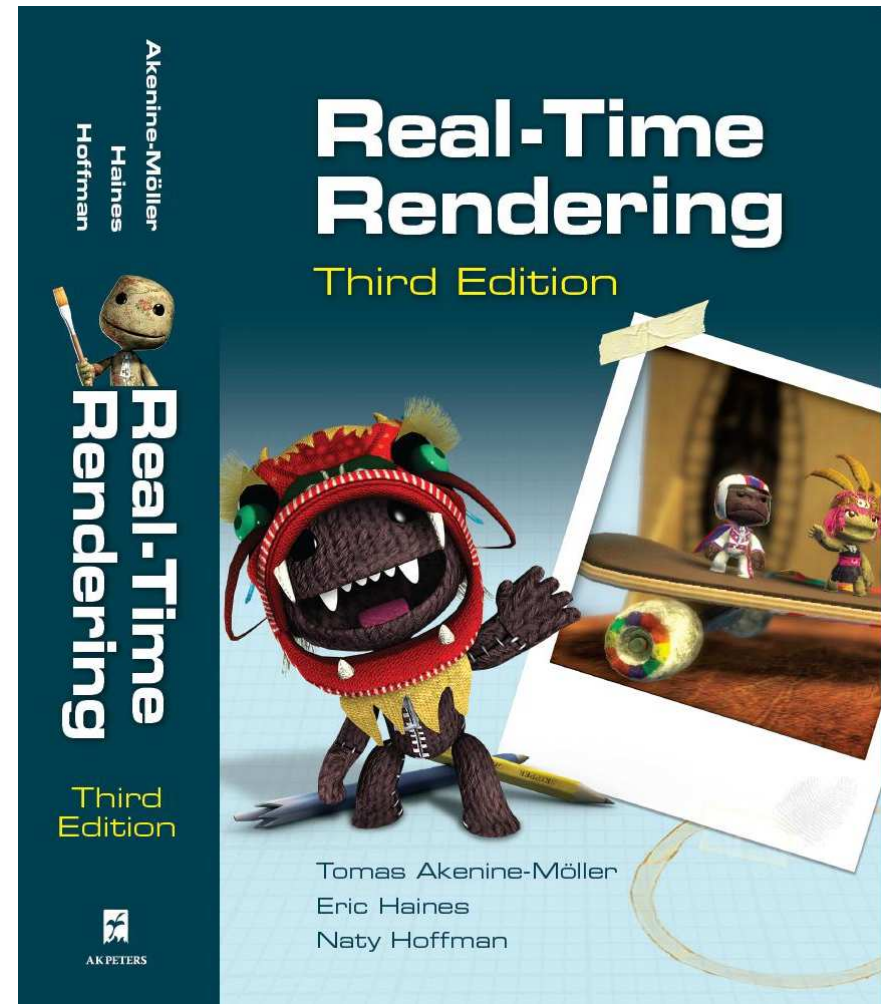
- Deliverable/project upload
- Forums for questions
- Slides
- Examples
- Framework
- ...

Programing framework

- C#
 - Mix of Java and C++
- MS Visual Studio
 - Linux/MacOS guys can use mono, but have to convert final version (a.k.a. upload version)
- Graphics: OpenGL graphics API (many details later)
 - OpenTK
 - C# wrapper for OpenGL
- Sound: Irrklang
- Additional libs check with me first

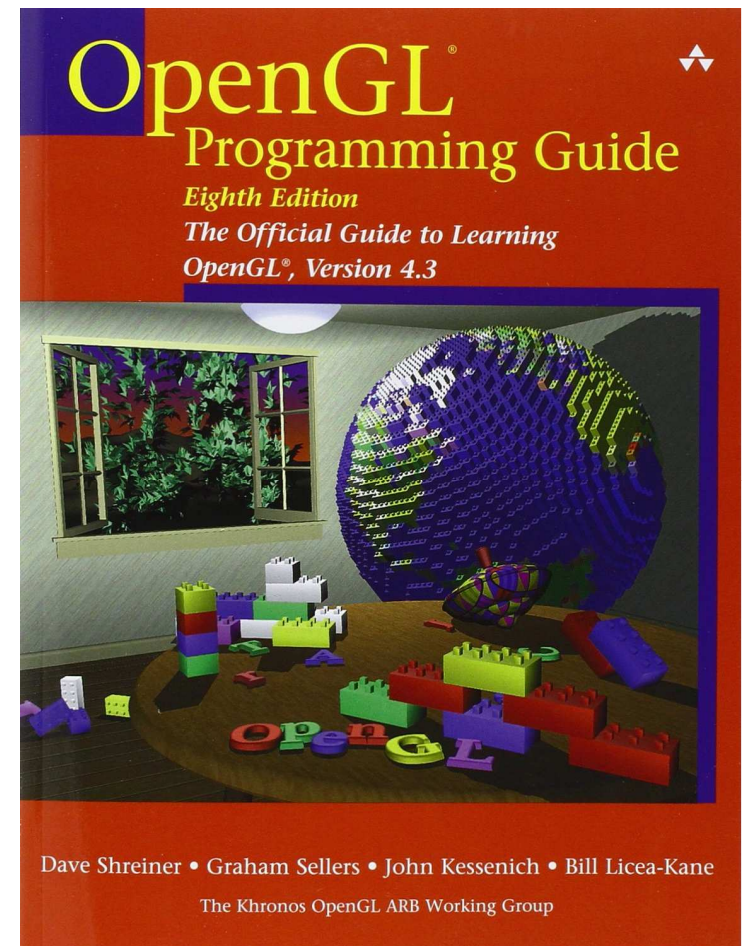
Books

- Real-Time Rendering, Third Edition
 - Tomas Akenine Möller, Eric Haines
 - AK Peters, 2008 (3rd edition)
 - Covers all standard methods
 - www.realtimerendering.com
 - Real-Time Rendering Resources
 - Huge collection of on/off-line resources
 - Online books (#books)
 - Software
 - API information



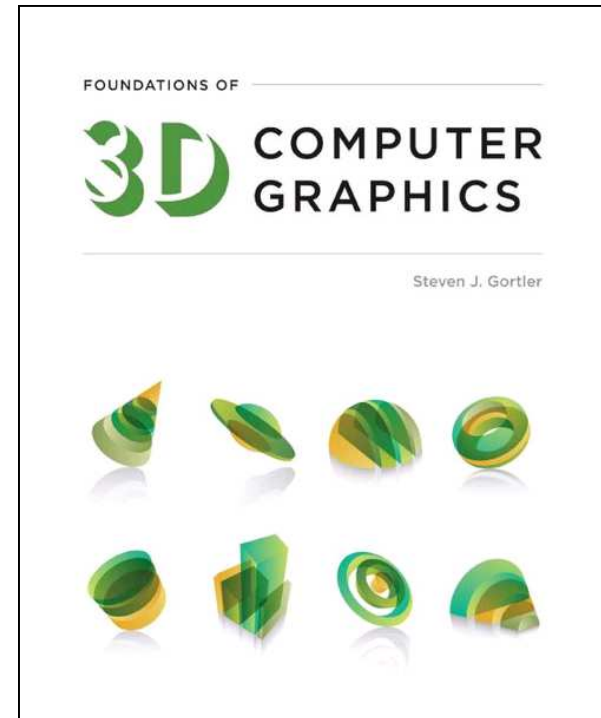
Books on OpenGL

- Basic knowledge about OpenGL
 - “Red Book”
 - Free: Google: “redbook pdf”
 - Newer version also contain **shader programming**
 - Latest: 8th Edition
 - Tutorials
 - nehe.gamedev.net



Books

- Foundations of 3D Computer Graphics
 - ST 320 G675 D771
- Mathematics for 3D game programming and computer graphics
 - ST 320 L566 M426(3)
- Interactive computer graphics
 - 346594154



Resources

- portal.hs-weingarten.de/web/scherzer/links
 - Some links on games and computer graphics