Fortgeschritten Spieleentwicklung (Spiele 2)

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Technik | Wirtschaft | Sozialwesen

Goal of the lecture

- For you to understand concepts
  - Programable 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	T	C	T	C
Project																	Implementation															
Talks																	Presentation (graded)															

T… theory, programming examples

C… coaching/meetings (tutors/myself)

Moodle

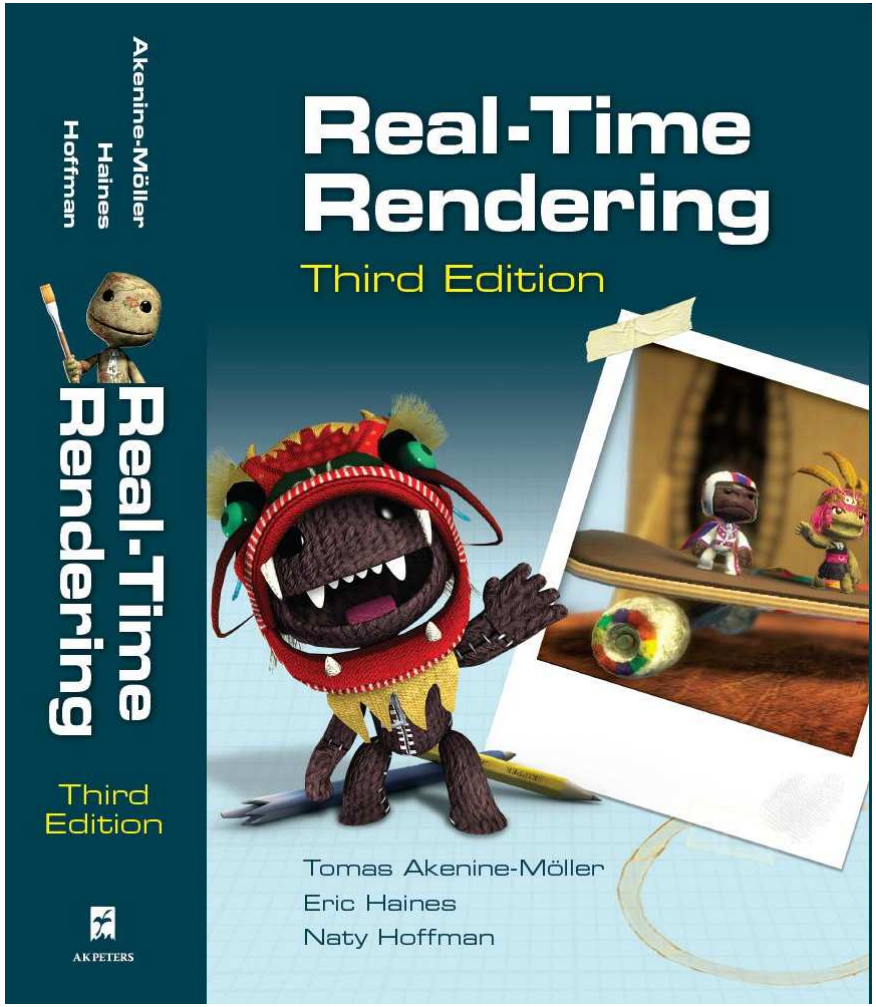
- Deliverable/project upload
- Forums for questions
- Slides
- Examples
- Framework
- …

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

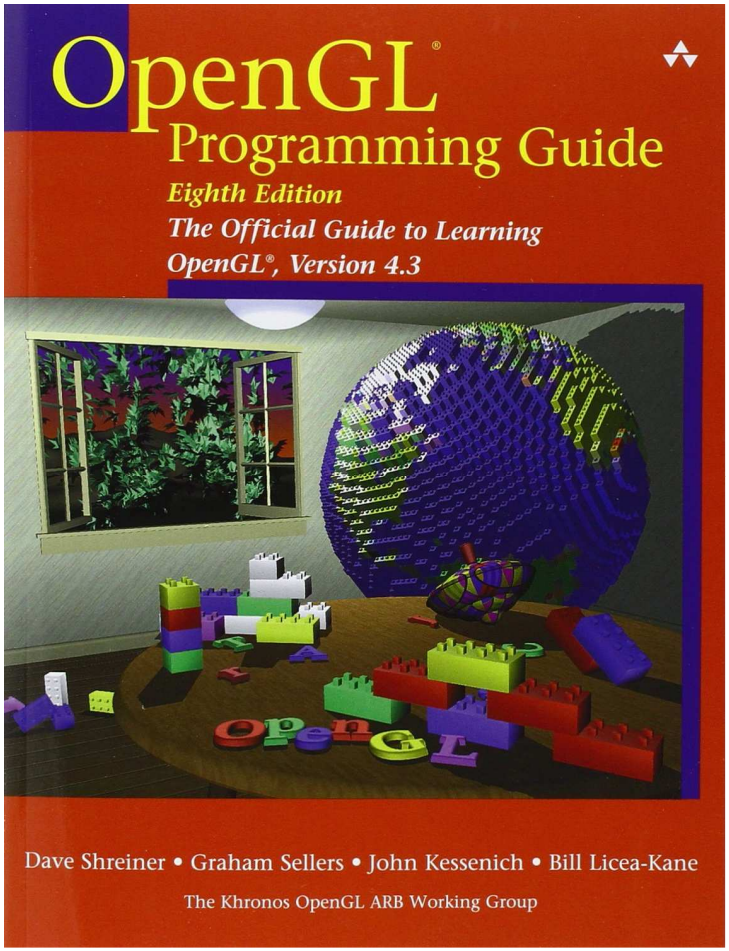
Books

- 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



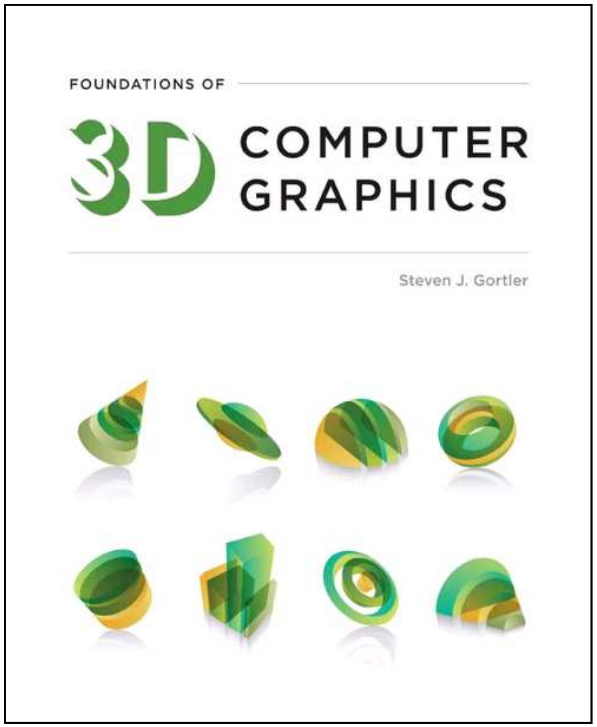
Books on OpenGL

- 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