Advanced Computer Graphics (CG2)
Organization

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Prerequisites

• Theoretical Knowledge:
  • Computer Graphics I (Bachelor)
    • Should you have missed it – you can find the slides at
      http://cgvr.cs.uni-bremen.de/ → "Teaching" → "Computer Graphics"
  • Appreciation of *algorithmic thinking* in general

• Programming skills:
  • A little bit of C/C++ (actually, just "C with classes")

• Mathematical knowledge: just the very basics
The Web Page for This Class

- All important information for this course will be put on the homepage of this course:
  
  $$\text{http://cgvr.cs.uni-bremen.de/}$$
  
  → "Teaching" → "Advanced Computer Graphics"

- Slides
- Assignments & frameworks accompanying the programming assignments
- Literature, online documentation
- Etc.
Grades & Examinations

• You have two options:
  
  1. Regular oral exam, ca. ½ hour per student
  2. Mini oral exam (so-called "Fachgespräch"), ca. 10 minutes per student

• The formula for calculation of your grade with option 2:
  
  • Assignments → grade A
    
    • 95% of all points → A = 1.0
    • 40% of all points → A = 4.0
  
  • Mini oral exam → grade B

  • Overall grade = min\left\{\frac{1}{2} \cdot (A + B), B\right\}  \text{ ("min" means "better of the two")}
    
    • Under the condition: A ≥ 4.0 & B ≥ 4.0

• Note: in both cases, all of the material could be topics for the exam!
Assignments & Exercises

• First lab meeting: TBA, probably next Thursday
• Then every two weeks on average
• About 5-6 assignments per semester
• Mostly programming within given skeleton programs (just a few LoC)
• Try to do the exercises in groups of size 2...3 (exceptions on demand)
• Please register in StudIP!
Textbooks For Some Topics of Advanced Computer Graphics

Matt Pharr, Greg Humphrey: Physically Based Rendering. Morgan Kaufmann.

Peter Shirley: Realistic Ray Tracing. AK Peters

Tomas Akenine-Möller, Eric Haines: Real-Time Rendering. AK Peters

Peter Shirley: Fundamentals of Computer Graphics. AK Peters


See also the documents on the homepage of this course!
What Lies Ahead (Tentative)

Ray Tracing

Modeling

Acceleration
Data Structures

Advanced Shader Techniques
Tone Mapping

Real-Time Rendering

Advanced Texturing

Boundary Representations
Mesh Processing

Generalized Barycentric Coordinates

[ More ... ]