

CS 4451A: Computer Graphics

Spring 2003

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Textbook

3D Computer Graphics, by Alan Watt
Addison-Wesley, ISBN: 0201398559

Grading

- * 4 programming assignments (12.5 %)
- * 2 tests (15 % each) Tentative dates: February 7 and March 28
- * final (20 %)

Syllabus, tentative!

1. Basics: math of 3D vectors, representing 3D objects, simple ray tracing
2. More on representing 3D objects: polygonal, implicit, splines, subdivision, data structures
3. Transformations, perspective transformation, Z-buffer algorithm, graphics pipeline
4. Scene graphs
5. Rasterization
6. Mapping techniques and applications
7. Ray tracing (BRDFs, elements of antialiasing, sampling)
8. Radiosity
9. Volume data visualization (volume rendering, isosurfaces)
10. Light Fields
11. Point based rendering
12. Animation (physics-based simulation, deformations, collisions)