



COMP 600.[34]56: Rendering Techniques

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Course 600.456: Rendering Techniques, Professor: Jonathan Cohen



Preliminaries

1. Fill out roster
2. Go over syllabus
3. Answer questions

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Discussion

- In what contexts have you seen computer graphics?**
- What characteristics do these applications of computer graphics share?**
- How do they differ?**

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3D Computer Graphics

- Modeling**
- Animation/Simulation**
- Rendering**

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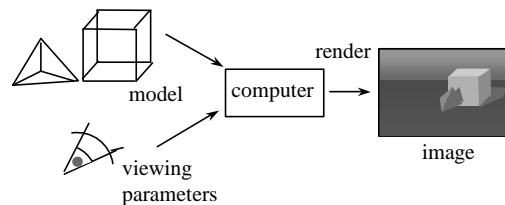
Overview of Topics

- 3D Rendering in general**
- Surface rendering**
- Volume rendering**
- Image-based rendering**

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3D Rendering



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Types of 3D models

Surface (boundary representation)

- Polygonal
- Curved surface (implicit or parametric)



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Types of 3D models

Volume (solid representation)

- Voxels
- Constructive solid geometry (CSG)

Type of model influences type of rendering



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Surfaces - order of traversal

First by object, then by pixel (picture element)

- Scan conversion

First by pixel, then by object

- Ray casting/tracing

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Volumes - order of traversal

First by volume element, then by pixel

- Splatting

First by pixel, then by voxel

- Ray tracing

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Image-based

First by image sample, then by pixel

- 3D image warping

First by pixel, then by image sample

- Light field rendering

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