

ECE/CS 433 Introduction to Computer Graphics

Class 9
September 18, 2007

Pradeep Sen
Advanced Graphics Lab



Last time

- 2-D Hardware
- 3-D graphics pipeline



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Today

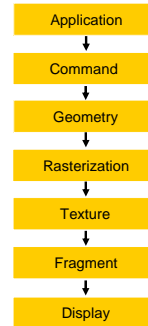
- 3-D Graphics pipeline
- Geometry



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The real-time rendering pipeline

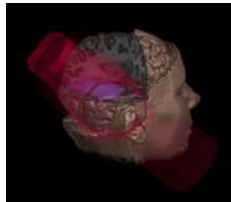


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Modeling

- How do you describe the 3-D shapes to be rendered?



source: Stanford Graphics Lab

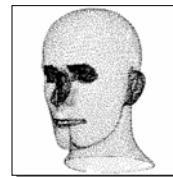


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Point cloud

- Unstructured set of 3D point samples



source: H. Hoppe

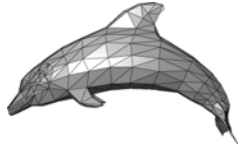


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Polygonal mesh

- A mesh of connected polygons (triangles)



source: wikipedia

Polygonal meshes

- Why do we care?
 - Simple representation
 - Hardware acceleration

Polygon mesh representations

- Important properties:
 - Fast traversal of topology
 - Memory efficient
 - Updates quickly

Subdivision surfaces

- Computed from coarser polygonal meshes by subdividing the polygons
- Smooth surface is defined by the limit of the subdivisions



source: wikipedia

Reading

- Angel, Ch 1 & 2