Motivation

Interactive Graphical User Interfaces

- **Mouse, windows and widgets**
- **Virtual reality**
  - **Input: Gloves, 3D tracking**
  - **Ouput: HMD**

Motivation

Digital Media Technologies

- **Printing**
- **Film and video**
- **Multimedia workstation**

Motivation

Visualization

- **Science and Engineering: finite element simulation**
- **Medicine: CT Scans**
- **Mathematics: 4D geometry, minimal surfaces**
- **Physics: General relativity**
- **Chemistry: Macromolecules**

Motivation

Art and Entertainment

- **Movies: *Jurassic Park* and *Toy Story***
- **Games**
- **CDROM Titles**

CS248 Lecture 1
Copyright © Pat Hanrahan

Interdisciplinary: Theory and Practice

Science

- Mathematics of curves and surfaces
- Physics of light and color

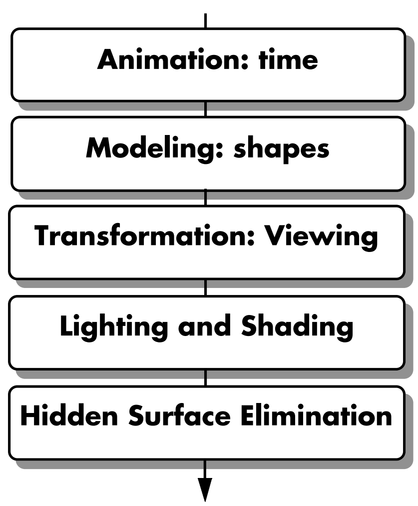
Engineering

- Hardware: Graphics and media processors, displays
- Software: Graphics libraries, window systems

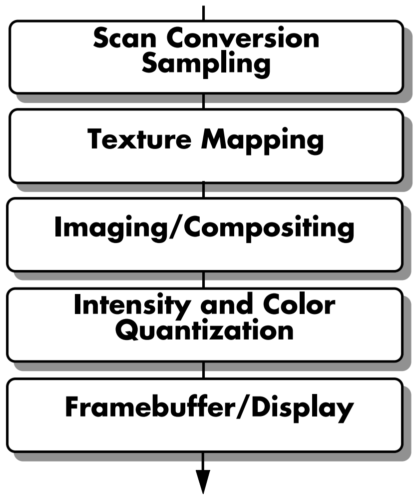
Art and Perception

- Color: harmony and perception
- Composition, lighting, ...

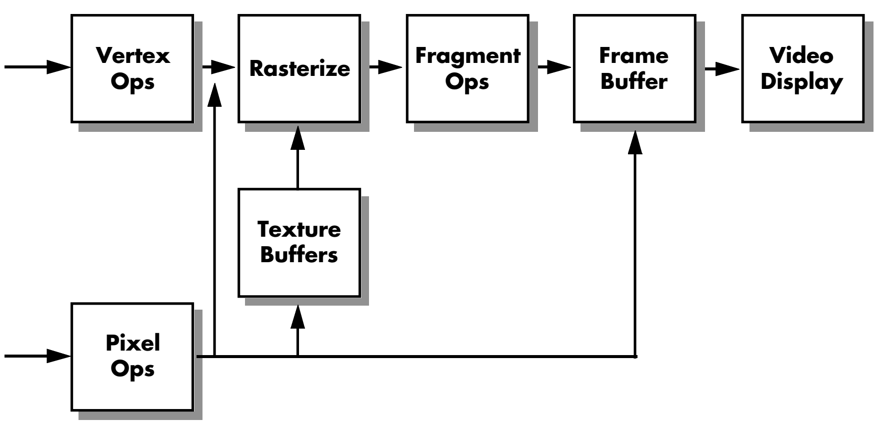
Graphics Pipeline: 3D Geometric Graphics



Graphics Pipeline: 2D Raster Graphics



OpenGL Architecture



OpenGL Libraries