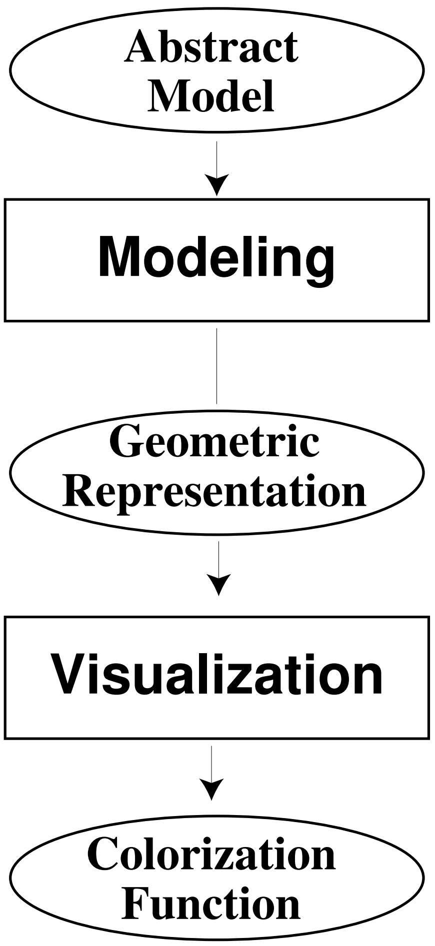
Systems

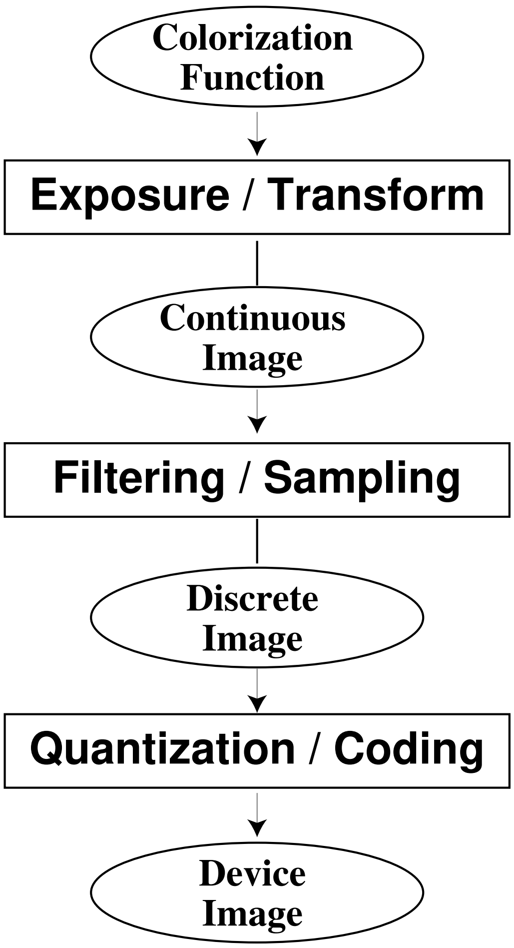
- Systems Architecture
- Imaging Pipeline
- Implementation
- Extensions

Systems Architecture

- Geometric Description
  - Homogeneous
    - Implicit
    - Parametric
  - Heterogeneous (convert to)
    - Polygons (object)
    - Fragments (image)
- Visualization
  - Object Centered (exact)
  - Image Centered (approx)
- Illumination
  - Local
  - Global
    - Ray Casting
    - Radiosity


Abstract Model
Modeling
Geometric Representation
Visualization
Colorization Function

Imaging Pipeline



Implementation

- Minimalist Approach
  - Essence
  - Dismystify
- Objectives
  - Simple
  - Clear
- “Not the real thing”
- Starting Point
  - More Functionality
    - Extensions
  - More Efficiency
    - Optimization

Examples

- Homogeneous Geometry
- Most Natural Approaches
- Two Systems
- Extensions of Each System
- Combine Systems

System A

- Modeling
  - Geometry
    - Parametric (Polygons)
  - Representation
    - B-Rep (Polygonal Mesh)
  - Modeling Technique
    - Generative (Surface of Rotation)
- Visualization
  - Rasterization
    - Incremental
  - Visibility
    - Z-Buffer
- Illumination
  - Model
    - Diffuse (Lambert)
  - Shading
    - Constant

System B

- Modeling
  - Geometry
    - Implicit (Spheres)
  - Representation
    - Constructive (CSG Tree)
  - Modeling Technique
    - Language (Boolean Ops)
- Visualization
  - Rasterization
    - Test
  - Visibility
    - Ray Tracing
- Illumination
  - Model
    - Specular (Phong)
  - Shading
    - Point Sampling