Non-Photorealism

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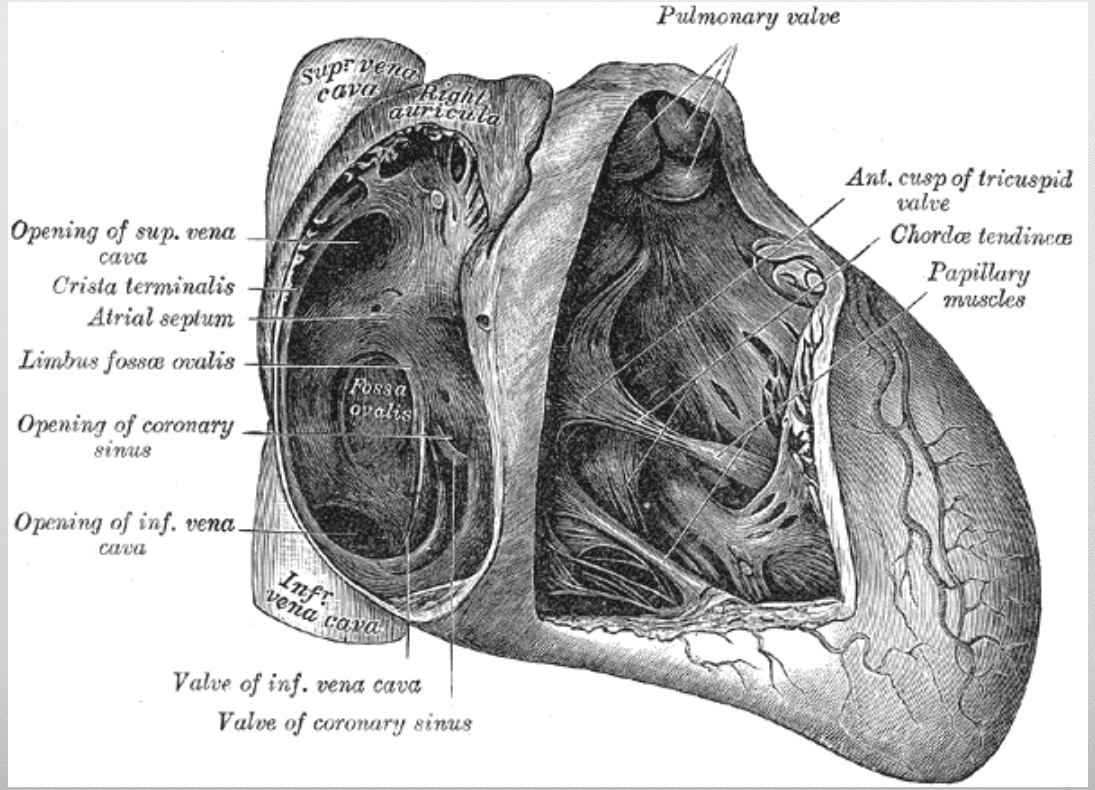
What Will We Learn?

- Why do we still need illustrations when we can photograph or render everything?
- How can I render a cartoon or an illustration?

What's Wrong with Photorealism?

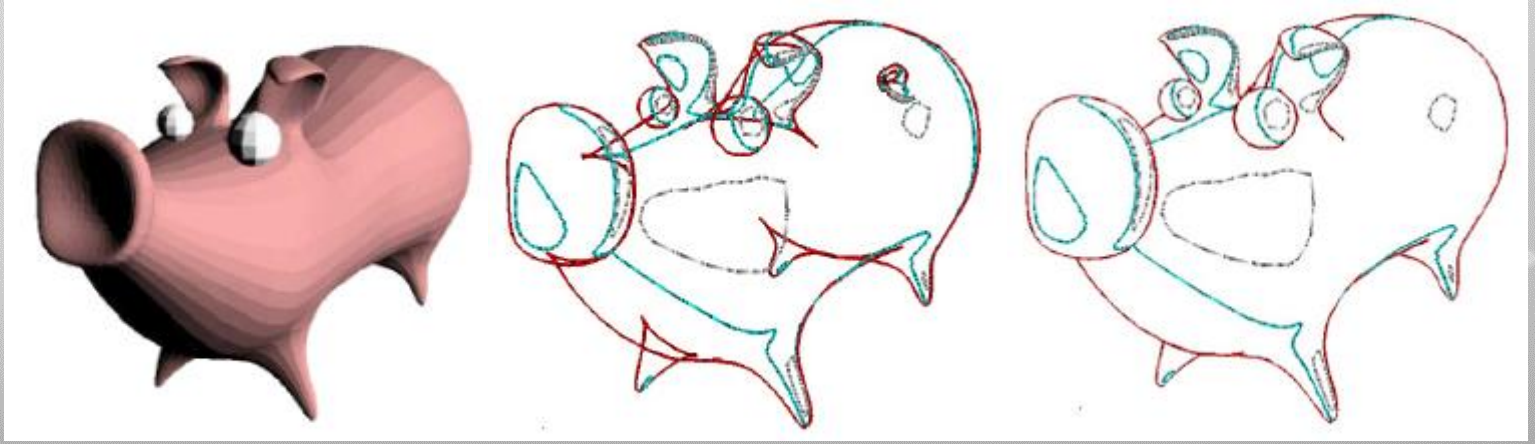


Non-Photorealistic Rendering

- Departs from the limits of photorealism to better communicate visual information
- Uses concepts from art instead of physics

Silhouette Curves

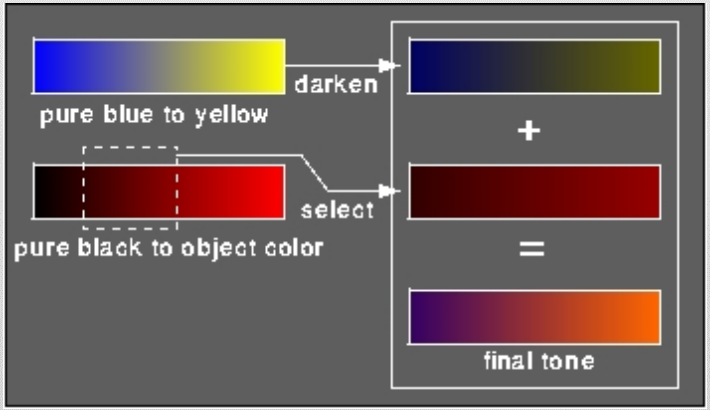
- Constructed from edges shared by both front-facing and back-facing mesh polygons
- Also include boundary edges
- Remove hidden lines



Non-Photorealistic Lighting

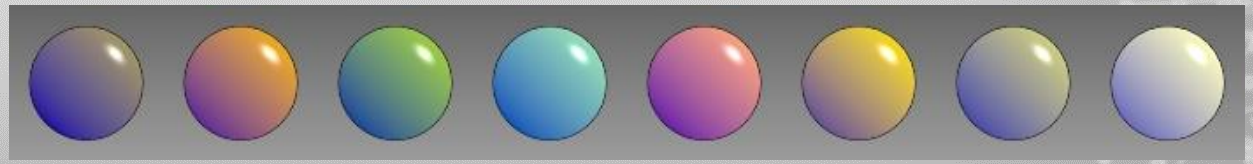
Photorealistic Lighting:

Create a cold-to-warm color lookup table:



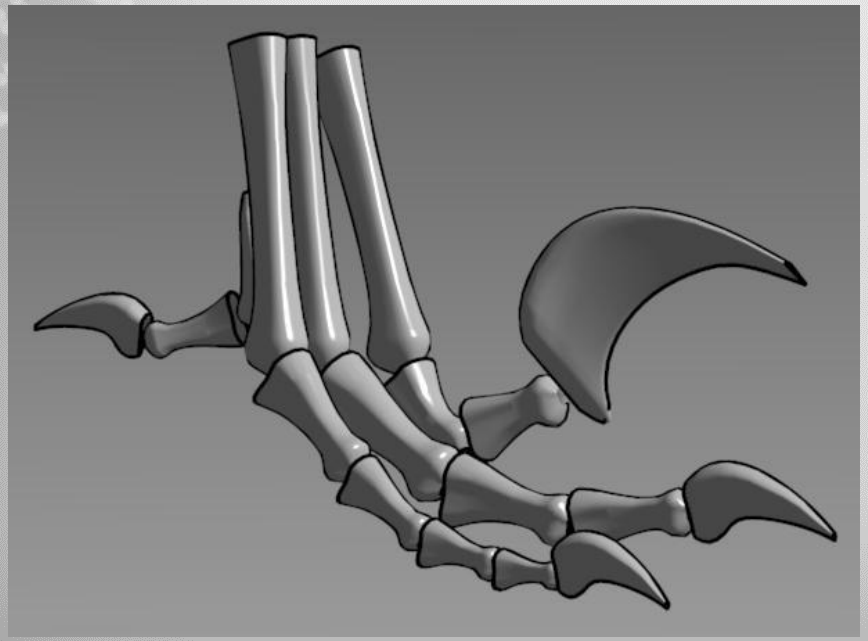
Amy Gooch, Bruce Gooch, Peter Shirley, Elaine Cohen. A Non-Photorealistic Lighting Model For Automatic Technical Illustration, Proc. SIGGRAPH 98.

Non-Photorealistic Lighting:

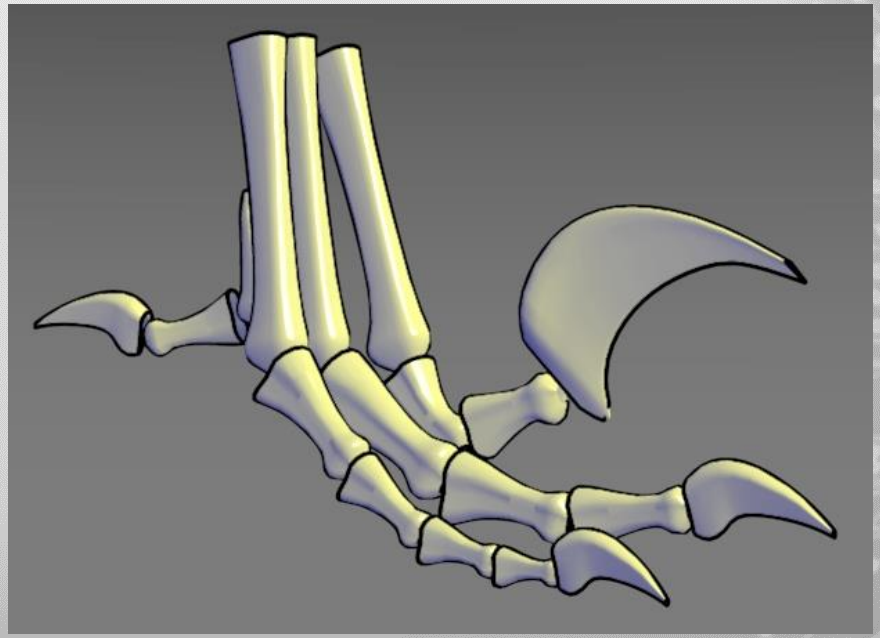


Non-Photorealistic Shading

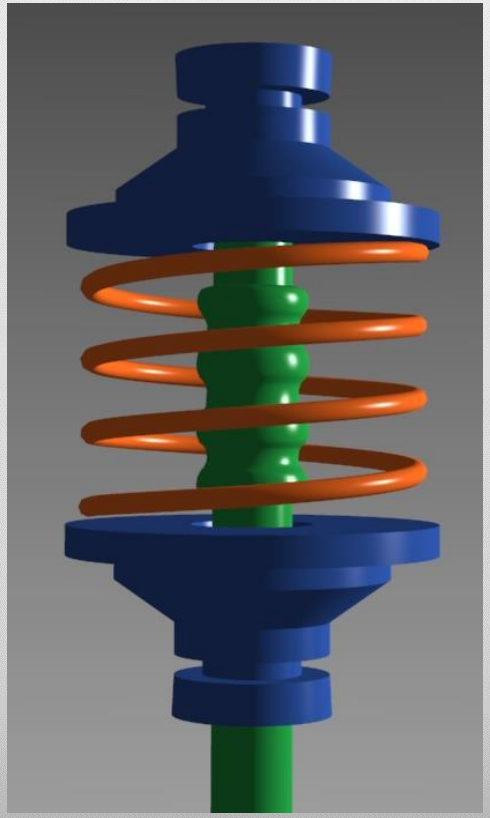
photorealistic

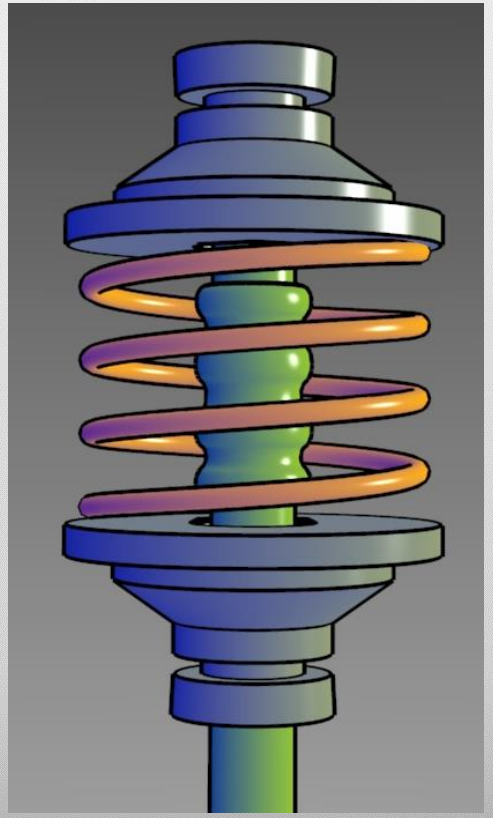


non-photorealistic



Non-Photorealistic Renderings





What Did We Learn?

- Photorealistic rendering is based on the physics of light whereas non-photorealistic (or artistic) rendering is based on psychology of perception
- Non-photorealistic rendering is based on contours instead of surfaces
- Non-photorealistic shading makes it easier to communicate shape without complex lighting