Environment Mapping

NVidia
Spherical Environment Maps

Sphere Mapping Demos
Spherical Environment Maps

• Pros:
  – Single texture (no “if’s”)
  – Triangles don’t span texture boundaries
    • Per-vertex computation!

• Cons:
  – Bad sampling
  – Only works for single viewpoint / view direction

Gene Miller
In practice

• Shiny spheres
  Gene Miller

• Interface
  (L. Williams 1985)

• Terminator 2 (1991)

Gerri’s Game
Story of Reflection Mapping

Parabolic Environment Maps
Parabolic Environment Maps

Nayar ‘97
Cube Environment Maps

- Per-fragment
- Suported in HW
- No warp (perspective maps)
Nvidia Cube Mapping
Paul Debevec

- St. Cross
- Panorama stiching
- Cube projection