Machine Learning and Rendering

Summary

Machine Learning for Rendering

Main Topics

- Denoising
  - Deep Denoising / Pixar / Deep Learning Super Sampling (DLSS)
- Screen-Space Effects
  - Ambient Occlusion / Depth of Field
- Differentiable Renderers
  - OpenDR / AutoEncoder Rendering
- Ray Tracing: Geometric Computation
  - Learned Space Indexing / Acceleration Structures (SAH)
- Light Transport
  - Deep Scattering / Gaussian Mixture Models

Differentiable Rendering

Main Topics

- Rendering Variants
  - Scene-Based (Mesh, Points) / Image-Based / Physics-Based
- Mesh-Based Differentiable Rendering (Rasterization)
  - Soft Rasterizer / Pytorch3D / Kaolyn
- Sphere-Based Differentiable Rendering (Pulsar)
  - Point-Clouds, Volumetric Optimization, Splatting
- Physics-Based Differentiable Rendering
  - Differentiating Rendering Equation / Adjoint (Radiance, Importance)