Outline

• Problem statement
• Intro of 2D cases
• 2D Observations
  • Shadowing direction
  • Downsampling
  • Frequency Analysis
  • Albedo clustering vs Frequency clustering
• Todo
Problem statement

After downsampling,

If keep Albedo the same, the appearance will become brighter; (Right)
If keep appearance the same, Albedo should be reduced. (Left)

Problem statement

(a) Original
Strong self-shadowing

(b) Downsampled
No self-shadowing

Incoming light

Low density voxel
High density voxel
Shadow volume
Intro of 2D cases

Real data (Wool)

Synthesized data

Observing

Lighting
Shadowing direction
Frequency Analysis
Albedo clustering vs Frequency clustering

Albedo = 0.95

Albedo = 0.65
Albedo clustering vs Frequency clustering

Albedo = 0.95

Albedo = 0.65
Albedo clustering vs Frequency clustering

Albedo = 0.95 and 0.65

Albedo = 0.95 and 0.65
Todo

• Observe in 3D cases

• Build a neural network
  • Input: Synthesized data (binary array), Albedo, density scale, downsample scale, ...
  • Output: Albedo scale factor

• Find relations between input (maybe in frequency domain) and output