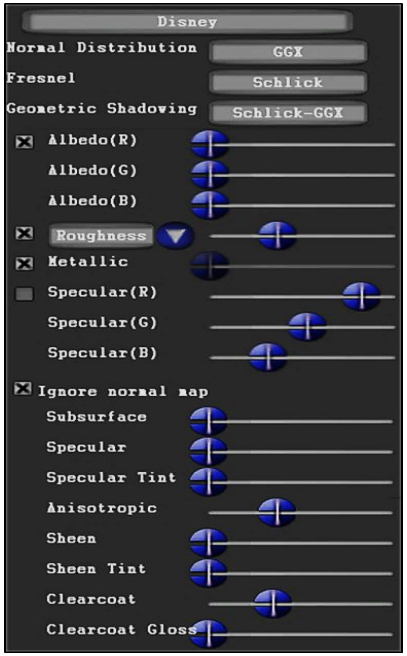
Capture and Editing of Material Appearance

Alejandro Sztrajman
University College London

DISTRO Annual Meeting
Zurich, February 5th 2016

Funded by
the European Union

Material Authoring



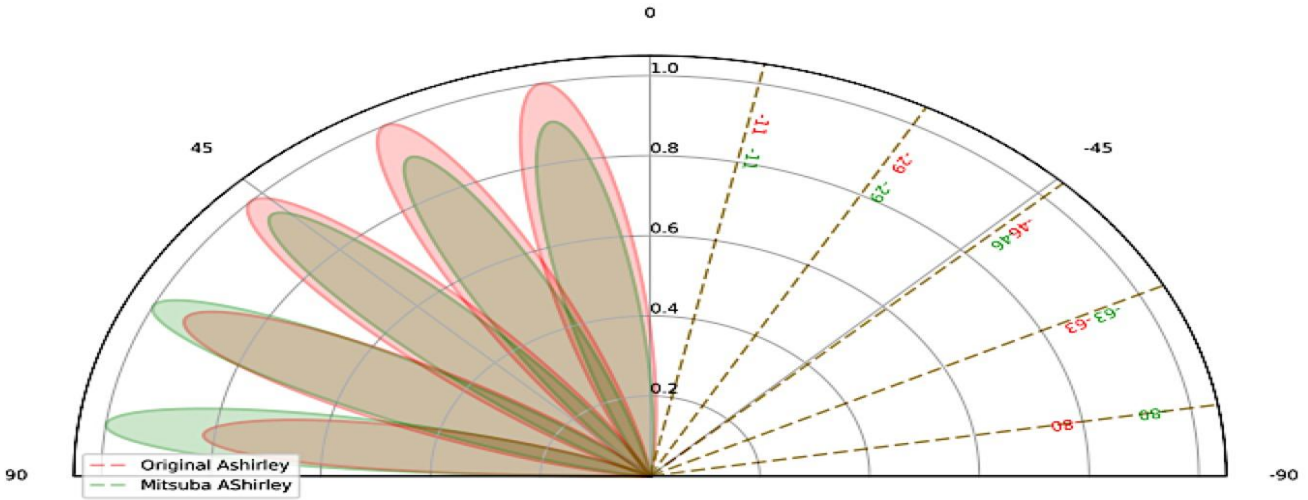
[Retrieved from Unity forum]

SUBSTANCE DESIGNER

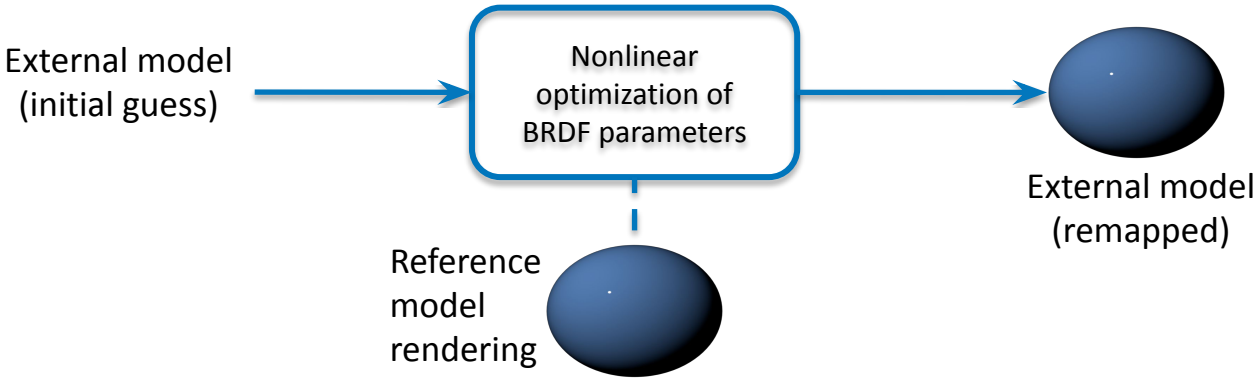
Unity

Model Incompatibility

1. BRDF models
2. Interfaces / parameters
3. Postprocessing (tonemapping)
4. BRDF Implementations



BRDF Remapping



- Spherical geometry with point light illumination
- L_2 metric for appearance comparison

BRDF Remapping

Renderers

Mitsuba

Blender

Blender-Cycles

BRDF models

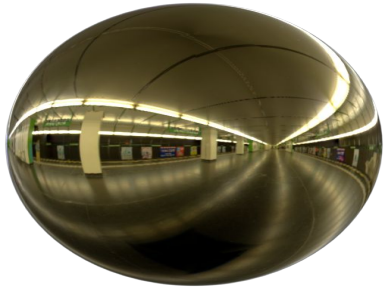
GGX

Ashikhmin-Shirley

Beckmann

Ward

Phong



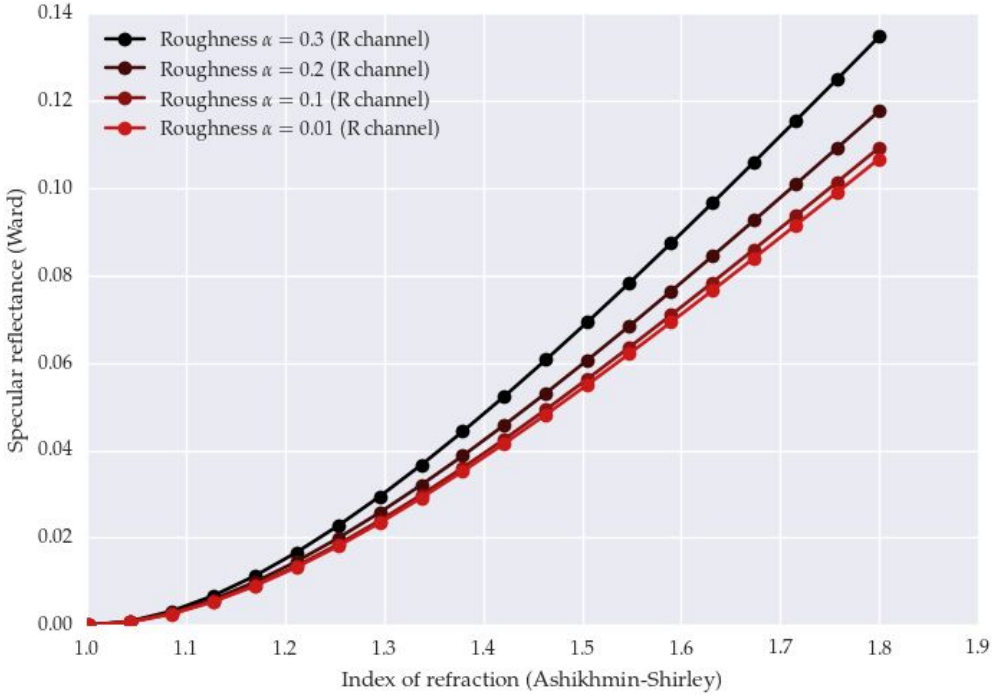
Conductors

Dielectrics

BRDF Remapping

Ashikhmin-Shirley
- IOR
- Roughness

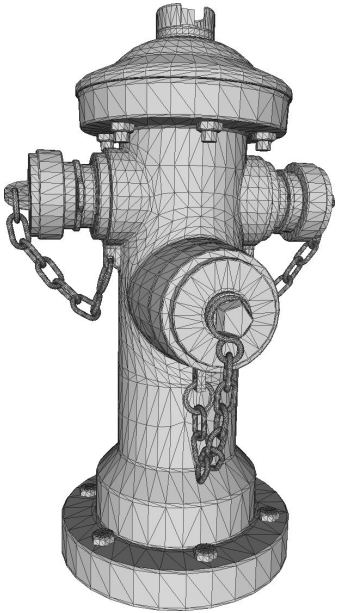
Ward
- RGB Specular reflectance
- Roughness



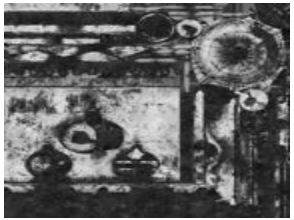
Independent remapping of diffuse and specular terms

- Avoid local minima
- Expected behaviour
- Good for SVBRDFs

SVBRDF Remapping



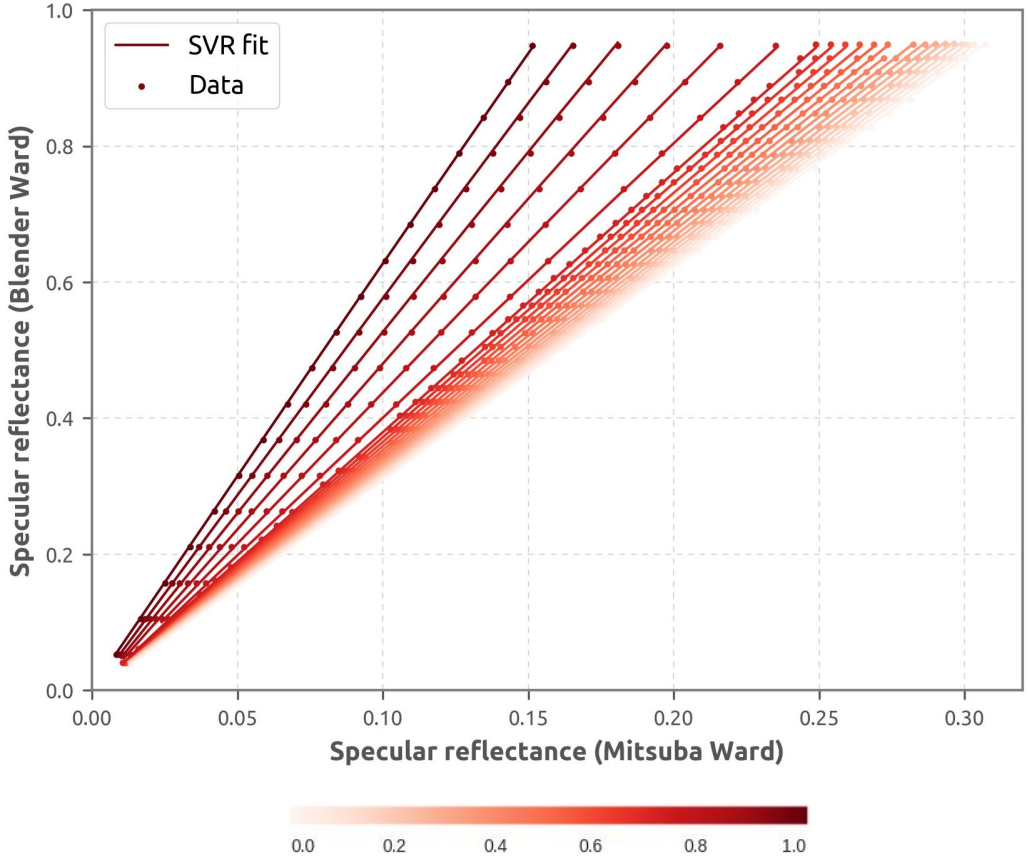
Diffuse map



Glossiness map

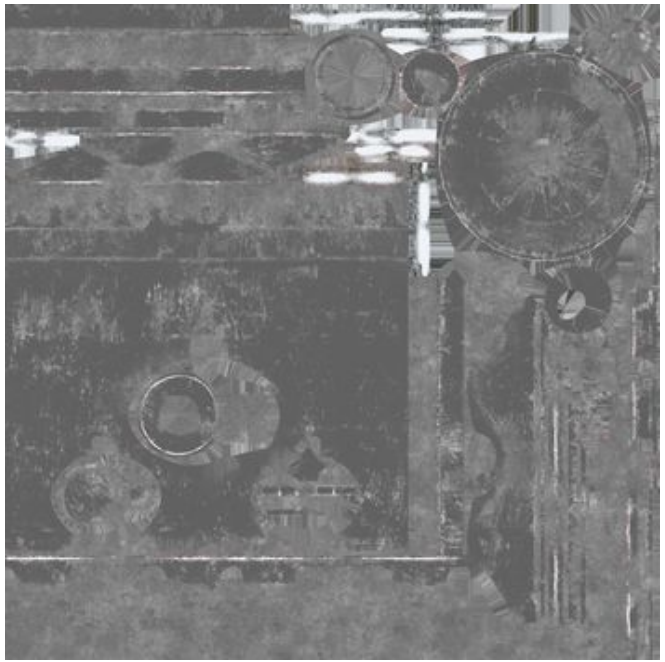
Specular map

SVBRDF Remapping



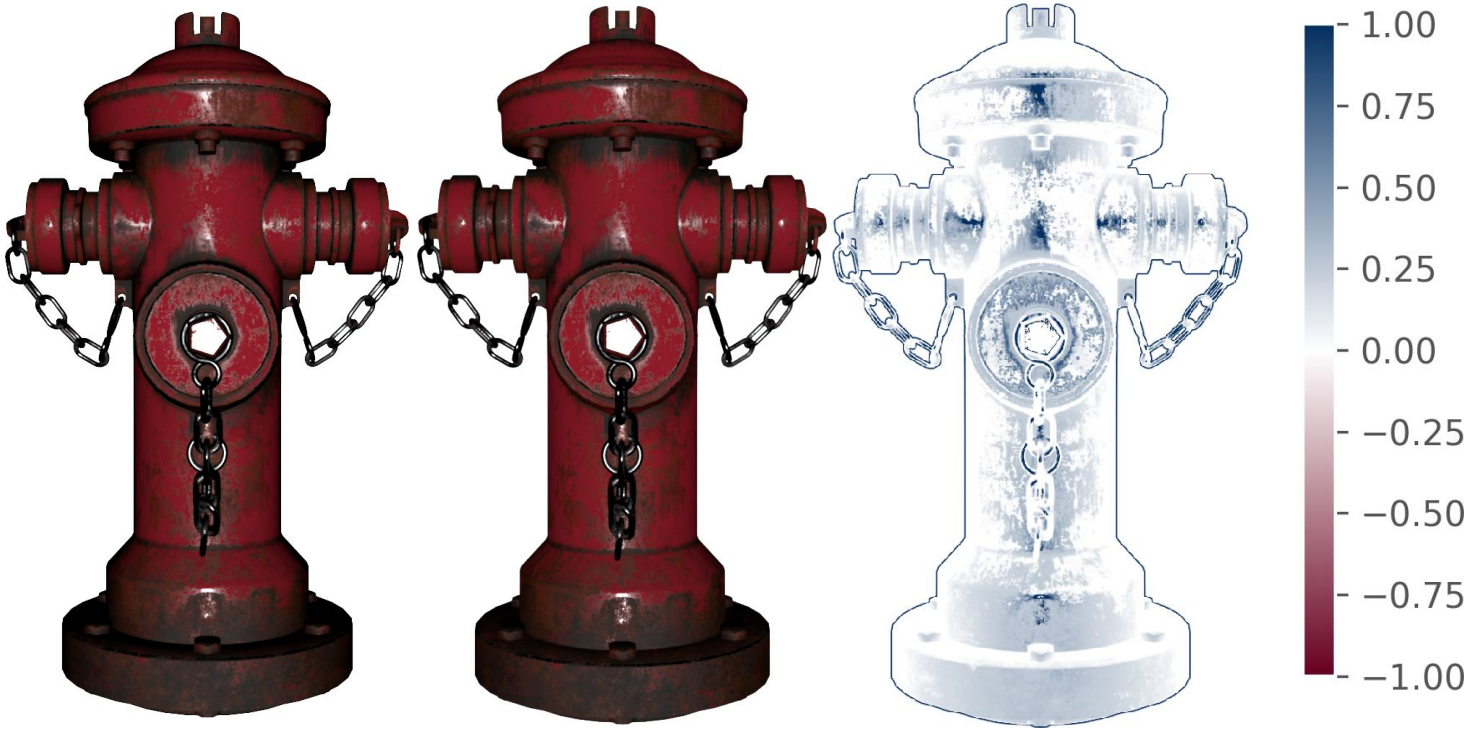
SVBRDF Remapping

Specular map
(Mitsuba Ward)



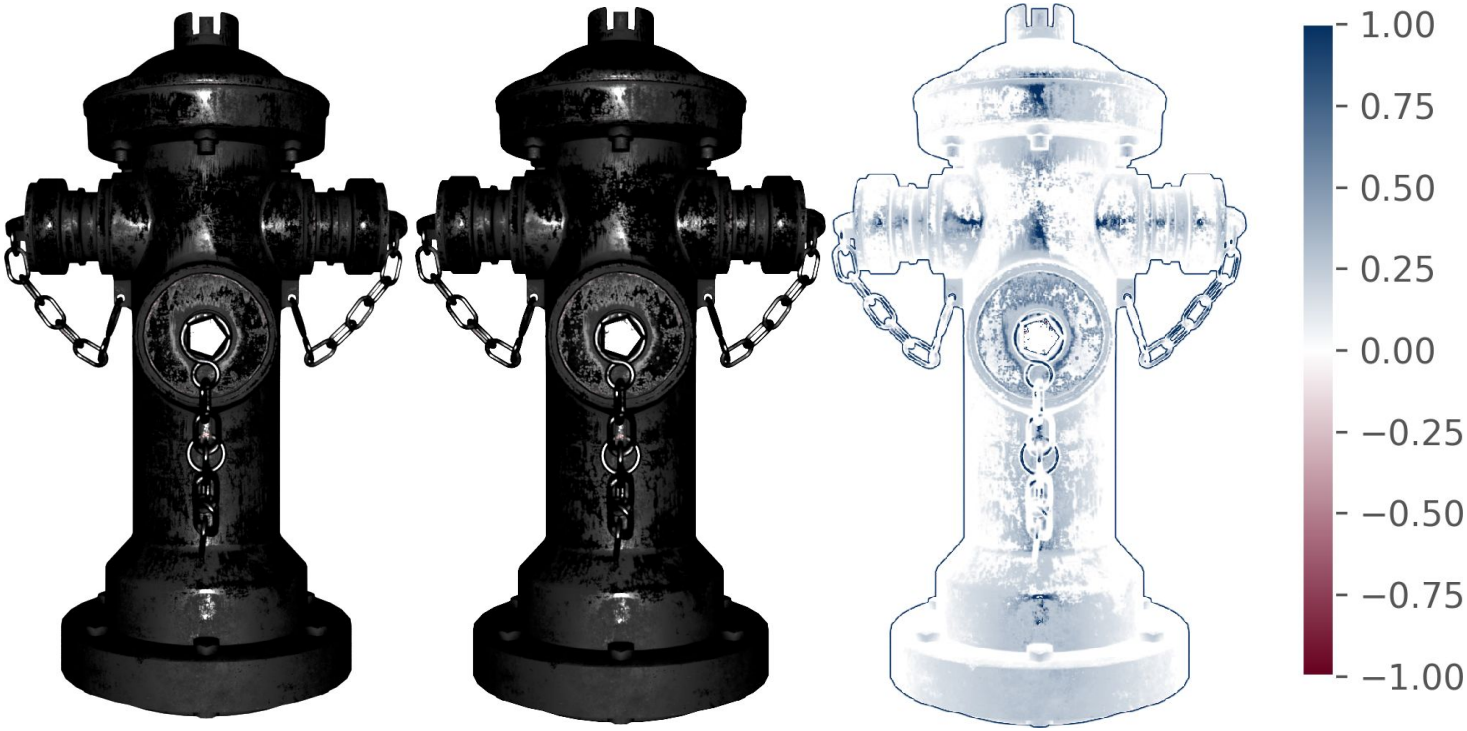
Specular map
(Blender-Cycles Ward)

SVBRDF Remapping



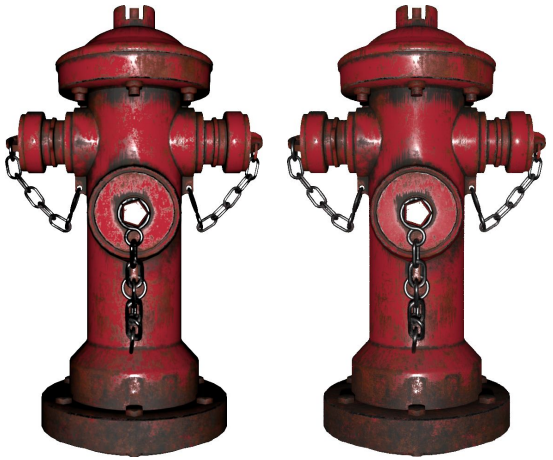
Mitsuba (Ward) Blender (Ward) Error (4X)

SVBRDF Remapping



Mitsuba (Ward) Blender (Ward) Error (4X)

SVBRDF Remapping

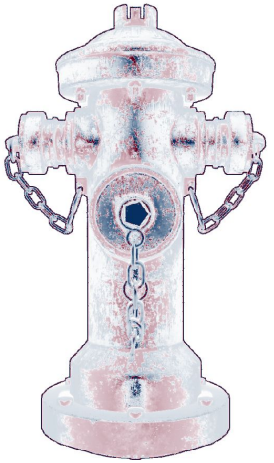


Blender (Ward)

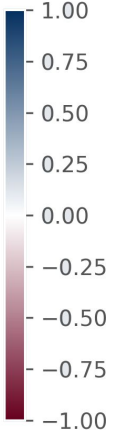
Mitsuba (Ward)

Mitsuba (GGX)

Blender-Cycles (GGX)



Error (4x)



Thank you for listening!

Capture and Editing of Material Appearance