#rtcamp9

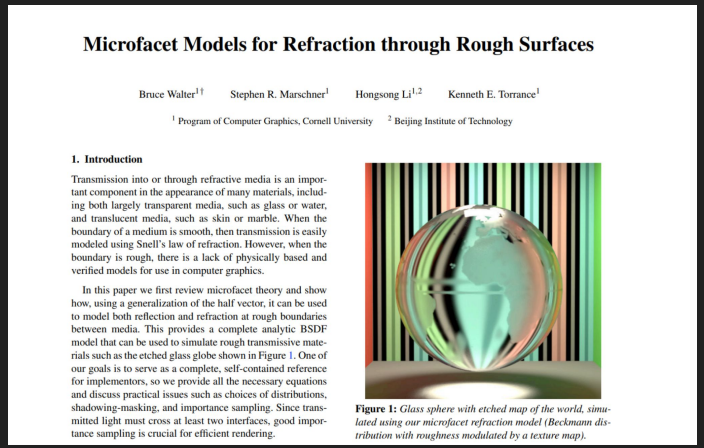
Coalumine

Nishiki @yknishidate

目標

技術面

GGXを真面目に実装してみる



Microfacet Models for Refraction through Rough Surfaces

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1. Introduction

Transmission into or through refractive media is an important component in the appearance of many materials, including both largely transparent media, such as glass or water, and translucent media, such as skin or marble. When the boundary of a medium is smooth, then transmission is easily modeled using Snell's law of refraction. However, when the boundary is rough, there is a lack of physically based and verified models for use in computer graphics.

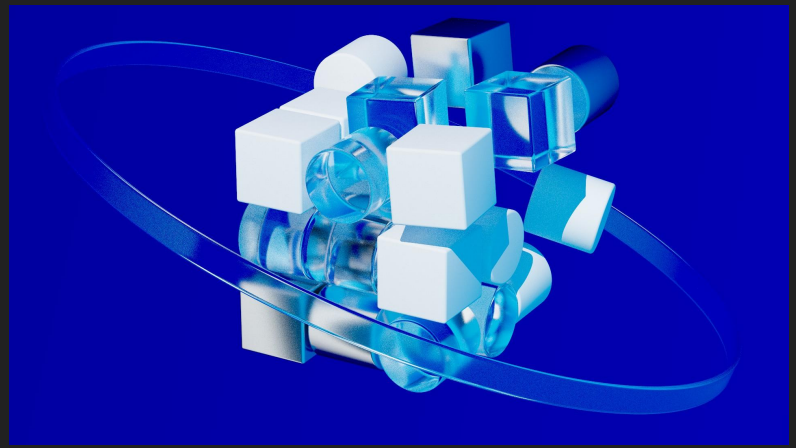
In this paper we first review microfacet theory and show how, using a generalization of the half vector, it can be used to model both reflection and refraction at rough boundaries between media. This provides a complete analytic BSDF model that can be used to simulate rough transmissive materials such as the etched glass globe shown in Figure 1. One of our goals is to serve as a complete, self-contained reference for implementors, so we provide all the necessary equations and discuss practical issues such as choices of distributions, shadowing-masking, and importance sampling. Since transmitted light must cross at least two interfaces, good importance sampling is crucial for efficient rendering.

Figure 1: *Glass sphere with etched map of the world, simulated using our microfacet refraction model (Beckmann distribution with roughness modulated by a texture map).*

Walter et al. 2007

映像面

映像として見れる程度の綺麗さ



制作

レンダラー

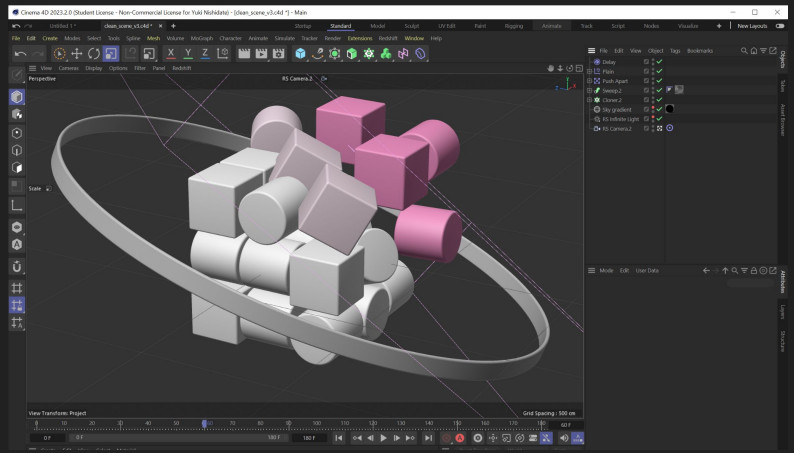
Vulkan Ray Tracing

・毎フレTLAS更新

・巨大分岐あり単一シェーダ
SBT使ってみたら低速
→ SERに期待？

シーン

Cinema 4D：モーション制作が楽



仕様

- 1920 x 1080
- 30 fps x 6 sec = 180 fr
- 128 spp

今後？

Heitz et al. 2014も読みたいな