

Individual software project proposal

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August 28, 2022

Repository: <https://github.com/alu3n/HoudiniPathTracer>

1 Abstract

The project's goal is to create a path tracer, which will be distributed as a plugin for the software SideFX Houdini. The user will control the plugin from within the GUI of Houdini. It will be partially capable of using Houdini's internal principled shader.

2 Features

2.1 Interface

Building blocks of the scene will be created inside Houdini (Houdini support subsection). The renderer will exist as a node in ROP (rendering operators) context. Parameters of the node will control the settings of the renderer (i.e., sample count).

2.2 Shader support

The most common shader used inside Houdini is the principled shader which supports procedural generation of its parameters. BRDF in the project will support the following parameters:

- Diffuse
- Index of Refraction
- Reflectivity
- Roughness
- Reflect tint
- Transparency
- Normal map

2.3 Houdini support

Aim of the project is to (partially) support following Houdini elements

- Camera node
- Area light source node
- Polygonal geometry
- Rendering window
- Principled shader

3 Technologies

Programming language: C++

Framework: HDK