Landon Townsend

Rendering Engineer

landon.townsend@gmail.com | 971-218-5533 | http://www.landontownsend.com

Skills

- C++ Programming
- C# Programming
- Python
- GLSL / HLSL / DirectX
- Raytracing, ReSTIR, Global Illumination
- Linear Algebra and Calculus
- 3D Rendering / Rendering Pipelines

Professional Experience

Keen Software House   June 2022 - September 2025

Rendering Engineer - Space Engineers 2

- PBR Refactor - conversion from Blinn-Phong shading model to GGX shading model
- Raytraced GI - Implementation of diffuse and specular (reflections) using raytracing, ReSTIR, and spatiotemporal filtering
- Atmosphere Simulation - Single scattering simulation with raymarched numerical integration, special implementation to account for planet size and transitioning between surface and space view
- Volumetric Cloud Simulation - Animated raymarched clouds with realistic shapes and lighting that can be flown through. Temporally accumulated and composited to full resolution from 1/4th resolution
- Direct and Local Lights: implementation of various shadow sampling features, deferred light clustering
- Lots of various other tasks involving polish, features, assisting artists, shader authoring, bugfixing, and performance improvements

Unity Technologies   June 2019 - July 2021

Graphics Test Engineer

- Tester for Shadergraph and Terrain – Writing shaders and testing features and UI
- Reviewing PRs, teaching developers how to test, writing test documentation
- Complex knowledge of linear algebra, HLSL, transformation spaces, etc. to find potential problems with existing nodes and tests, and maintain parity of quality with new features
- Some collaborative development work with shaders, small game prototypes, and other programming projects; custom shadow shader was used by AR Foundation

Quantum Squid Interactive   April - October 2017

Programmer

- Various software engineering and tech art work

Related Experience

Super Impostor Shader   January - February 2022

- Faithfully recreates a 3D object using only 2D reference images and depth textures
- Shader runs in real time, multiple systems of optimization created from scratch
- Uses a heavily modified raymarching algorithm
- Extremely high-quality reproduction that can recreate millions of polygons worth of detail onto a 12-poly cuboid, great for low poly budgets and GPU instancing
- Details for creation process, results, and how it works available on website

Education

The Art Institute of Portland, Portland OR   Graduation: Winter 2017

Bachelor of Science in Visual Game Programming