Suhwan Kim

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EDUCATION

DigiPen Institute of Technology Apr. 2023

- Bachelor of Science in Computer Science in Real-Time Interactive Simulation

SKILLS

C++, C#, C, MySQL, GLSL, HLSL, HTML5/CSS
Unity, Notepad, Visual Studio, Git, SVN, Windows
WPF, ImGui, GLFW, SDL, OpenGL, DirectX12, Vulkan

ACADEMIC PROJECTS

RoyalStraightFlush (Unity) / C# Sep 2021 - Apr 2022

Speaking Potato(Team of 6)

- Designed and implemented basic melee enemy AI and stage 3 boss AI.
- Successfully improved the game's user interface (UI) through modification and setting up UI elements.
- Collaborated with team members to create engaging gameplay experiences and resolve technical issues

PERSONAL PROJECTS

Vulkan RayTracing / C++ May 2022 - current

- Organized Vulkan code to improve performance and maintainability.
- Implemented full path tracing and explicit light path for accurate and realistic rendering
- Implemented denoising to reduce noise and improve render quality.
- Utilized Vulkan graphics API to create a high-performance raytracing rendering engine.
- Implemented geometry OBJ file loader and PBR for displaying various material

Non-Real-Time Raytracer / C++ Jan 2021 - Apr 2021

- implemented path-tracer on a very under-featured BRDF lighting model.
- Implemented Reflection and Refraction based on brief scattering
- Applied BVH acceleration structure.

DirectX12 Rendering / C++ Sep 2020 - Dec 2020

- Implemented Spot, directional, and point lights.
- Implemented IBL and PBR based on Brdf for realistic materials, including refraction and reflection.
- Implemented Cube mapping and shadow mapping.

OpenGL Rendering / C++ Sep 2021 - Dec 2021

- Implemented Spot, directional, and point lights that can also be controlled by UI
- Implemented Phong shading, Phong lighting, and blin shading for different light rendering.
- Implemented Cube mapping for IBL.
- Controlling lights, obj model load changer, recompile shader by UI.

A* pathfinding / C++ Sep 2022 - Dec 2022

- A* algorithm Combining Dijkstra and Greedy Best-First method based on Given cost and Heuristic cost using Euclidean, Octile, Chebyshev, and Manhattan methods.
- Implemented Rubberband final path and Smooth using a Catmull-Rom spline.
- Implemented AI agent's openness, visibility, search, propagation + normalized occupancy map.

EXPERIENCE

Unit Supply Specialist July 2016 - Apr 2018

Supply Specialist in the Republic of Korea Army

- Supervising and maintaining class 1 & 2 supplies as a Sergeant