

SUMMARY

I am passionate about computer graphics and computer science.
Through many team projects, I gained communication skills and building relationships with other groups.

EDUCATION

Sept. 2021 to Apr. 2023

Digipen Institute of Technology
Bachelor of Science in Computer Science in Real-Time Interactive Simulation

SKILLS

COMPUTER LANGUAGES
OTHERS(GRAPHICS API, TOOL..)

C++, C, JavaScript, Lua, Python, GLSL, C#
OpenGL, Vulkan, UnrealEngine, Unity, Git, ubuntu, VisualStudio, VisualStudioCode, SVN, Xcode, Maya, GameDevelopment, RenderDoc

PROJECTS

Image Processing Demo(Personal Project)

Sept. 2022 to Dec. 2022

OpenGL Imaging processing(C++,GLSL,GLFW,Imgui, compute shader) reused OpenGL Graphics Engine

- For fast computing image processing, Implemented compute shaders for processing method.
- Created Bi-linear interpolation and nearest neighbor method for imaging re-scaling.
- Implemented Imaging operation(addition, product, subtraction, negative, Log Transform, Gamma Transform)
- Implemented 2Pass 4,8 connected-CCL(Connected Component labeling) algorithm
- Added Histogram Equalization and histogram matching for adjust contrast adjustment.
- Created Gaussian Blur with N-kernel and the standard deviation, edge detection using the sobel operators.
- Added Unsharp-masking operation using gaussian blur.
- Implemented Discrete Fourier transform(DFT) and Inverse Fourier transform(IDFT)

Ourborous Graphics Engine, 3 members

May 2022 to Dec. 2022

Vulkan Graphics Engine(Vulkan api, C++, lua, Entity Component System)

- Implemented vulkan wrapper objects and class.
- Added Physics based Rendering(PBR) with texture mapping and multiple lights(Spot, Point, Dir light)
- Implemented shadow mapping with multiple lights using geometry shader
- Implemented deferred rendering and mipmapping generation in runtime
- Developed Shader include system(#include "shader.glsl" in glsl) for easier to make shader codes
- Created ImGui vulkan texture descriptor pool for drawing texture more friendly in ImGui.

OpenGL Graphics Engine(Personal Project)

Sept. 2021 to Apr. 2022

OpenGL Graphics Engine (C++,GLSL,GLFW,C,Imgui)

- Implemented wrapper OpenGL API classes (buffer,shader, vertexarray, texture)
- Implemented manager class for resource handling (Object Manager, Mesh Manager, Light Manager, and Texture Manager) by using STL unordered map
- Created "obj" loader for drawing vertex normal rendering and face normal rendering
- Implemented Multiple Lights, Reflection, Refraction with Dynamic Cube mapping, and Deferred Shading.
- GUI supported to handle the objects, meshes, lights and shader uniform variables.

PinataPanic(GameProject), 13 members

Aug. 2021 to Apr. 2022

Unreal Engine 4 (Gameplay programmer/Animation programmer)

- Implemented Pinata character movement, interactive objects, VFX and animation.
- Created Basic AI for chicken enemies, Delivered players more interesting.

Q(GameProject), 5 members

Sept. 2020 to June 2021

2D platform Game Custom Engine (ECS) C++ (Physics/Gameplay Programmer)

- Implemented 2D physics, collision components(AABB, Circle, Ray) and event. Debug Collision Visualization System, and Offset system (for easily handle texture position), Built ray-casting algorithm for AI.
- For increasing game frame-rates, Upgrade spatial partitioning for collision with Quadtree data structure for collision optimization. Improve the $O(n^2)$ to $O(k \log n)$
- Implemented Player-movement state-machine.
- Designed and Built game weapons with Lua script.

Slimy Doodly(Game Project), 3 members

Mar. 2020 to June 2020

2D platform Game Custom Engine(C++) (Lead Designer, Gameplay/UI Programmer)

- Implemented tile-map loader.
- Implemented tile interaction logic with player
- Created UI/UX Design with window size compatibly.
- Designed marketing product design(Poster, Trailer)

AWARDS

Aug. 2021

Digipen Institute of Technology · DIT Merit Scholarship
Academic scholarship (2021~2023)