Dazhou Hou

Pittsburgh, Pennsylvania

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EDUCATION

Carnegie Mellon University   Pittsburgh, PA
Master of Entertainment Technology   *Sept. 2023 – June 2025(Expected)*

Wenzhou-Kean University   Wenzhou, China
Bachelor of Science in Computer Science, Minor in Mathematics   *Sept. 2019 – June 2023*
- Dean's List 2020-2023

SKILLS

Programming Languages: C/C++, C#, Java, Python, HLSL
Technologies: Unity, Unreal, Frostbite, PyTorch, VS Code, Git, Perforce, Jira
DCC: Houdini, Maya, Substance Designer, Blender, Photoshop, Premiere Pro

EXPERIENCES

Electronic Arts   June – Sept. 2024
Intern, Technical Artist   *Shanghai, China*
- Worked at the Battlefield team.
- Implemented character shader with emissive effects and facial wrinkles in Frostbite Engine.
- Scripted a Maya auto grouping tool based on Frostbite debris system.
- Built procedural assets using Houdini and integrated in a procedural city scene

Game Developers Conference   Mar. 2024
Exhibitor   *San Francisco, CA*
- Chosen as a finalist for the Game Developers Conference (Alt.Ctrl.GDC) along with 18 other finalist teams
- Weirdows '98: video games using alternative controllers by Arduino and Unity.

Ubisoft   June – Aug. 2022
Intern, Quality Assurance   *Chengdu, China*
- Collaborated closely with developers to maintain and refactor functional test cases.
- Ensured the tracking, documentation, testing, and regression of bugs using Ranorex, TestRail, and Jira.

Generative Adversarial Networks on Traditional Chinese Paintings ☐   Jan. – Dec. 2022
Research Assistant   *Wenzhou, China*
- Implemented SAPGAN: Sketch-And-Paint GAN (Xue et, al. 2020) using Python and PyTorch.
- Adapted CycleGAN to transferred to the style of Chinese painting using landscape photo dataset.

SELECTED PROJECTS

Interactive and stylized desert scene on URP ☐   April. 2024
- Performed Tessellation algorithm based on camera distance by setting the Hull shader and Domain shader, and set noise map as displacement to make vertex offset.
- Use RenderTexture, particle system, and orthographic camera to track character movement, and move vertices with the guide of normal.
- Support multiple lights, casting and receiving shadows. Realized the sparkle effect on the sand by sampling the noise map.

Character ToonShader on URP and Built-in Rendering Pipline ☐   Mar. 2024
- Bulit the outline feature which uses the normal expansion algorithm,and uses a Normal Smoothing algorithm to smooth the outline.
- Use stencil buffer and render object to control rendering order, and implement the external outline.
- Implement multi-level shadows based on the Lambert lighting model, supporting ramp map and shadow map, built ramp map texture generation tool in Unity.
- Implemented Cel-shading, using smoothstep to control the softness and hardness of the shadow. Implemented RimLight by Fresnel, Specular by Blinn-Phong, and bloom.

Software Rasterizer & Pathtracer & MeshEdit & Animations ☐   Jan. - May 2024
- This project is finished when I am taking Computer Graphics at Carnegie Mellon University.
- Implemented a Software Rasterizer, including Scene Functions, Lines, Triangles Rasterization, and Triangles Interpolations, Depth Test and Blending, Mip-Mapping, Texture sampling, and Supersampling.
- Realized a Pathtracer, including Rays and Intersection test, BVH, Lambertian, Mirror and Glass BSDF, environment map.
- Implemented MeshEdit operations, including Local and Global operations.

- Implemented Animations, including Catmull-Rom Spline, Forward and Inverse Kinematics, Linear Blend Skinning and Particle simulations.

Building Virtual Worlds ↗   Aug. – Dec. 2023
- Rapid prototyping course requiring implementation of 4 immersive user experiences in Unity using C#
- Collaborated with artists and sound designers to iteratively design games for platforms such as Oculus Quest 2, DDR Dance Mat, and Arduino.
- Implemented VFX in Unity using ShaderLab, VFX Graph, and particle system, including vertex manipulation, post-processing, glass & hologram effect, and material interactions.