

Dazhou Hou

Pittsburgh, Pennsylvania

☎ 412-759-0988 | ✉ HowardHou1018@gmail.com | 📄 Portfolio | 🌐 DAZHOU HOU

EDUCATION

Carnegie Mellon University

Master of Entertainment Technology

Pittsburgh, PA

Sept. 2023 – June 2026(Expected)

Wenzhou-Kean University

Bachelor of Science in Computer Science, Minor in Mathematics

- Dean's List 2020-2023

Wenzhou, China

Sept. 2019 – June 2023

SKILLS

Programming Languages: C/C++, C#, Java, Python, HLSL

Technologies: Unity, Unreal, PyTorch, VS Code, Git, Perforce, TestRail, Jira

DCC: Houdini, Substance Designer, Blender, Photoshop, Premiere Pro

EXPERIENCES

Game Developers Conference

Exhibitor

- 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.

Mar. 2024

San Francisco, CA

Ubisoft, China Co., Ltd.

Intern, Quality Assurance

- 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.
- Obtained structured training on the production processes, tools, and procedures used for AAA video games.

June – Aug. 2022

Chengdu, China

Generative Adversarial Networks on Traditional Chinese Paintings 📄

Research Assistant

- 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.

Jan. – Dec. 2022

Wenzhou, China

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 Pipeline 📄

Mar. 2024

- Built 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.

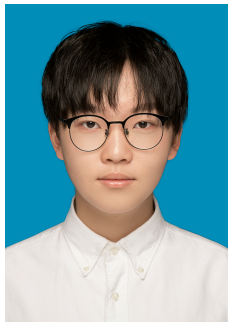
Building Virtual Worlds 📄

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.

侯大洲

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教育背景

卡内基梅隆大学

硕士：娱乐科技
2023 Sept. - June 2026(预计)

温州肯恩大学

本科：计算机科学与技术
GPA:3.8/4.0
2019 Sept. - June 2023

链接

作品集:// dazhou.info
GitHub:// [@houd1018](https://github.com/houd1018)
LinkedIn:// [Dazhou Hou](https://www.linkedin.com/in/dazhouhou)

专业技能

Programming

• C/C++ • C# • HLSL • Python • Java

Technologies

• Unity • Unreal • VS Code • Perforce •
Git • PyTorch • TestRail • Jira

DCC

• Houdini • Substance Designer • Blender
• Photoshop • Premiere Pro

荣誉

- 2023 届浙江省本科优秀毕业生
- 浙江省政府奖学金 (5%, 2022)
- 院长一等奖学金 (5%, 2022)
- 院长二等奖学金 (5%, 2021)
- 院长奖学金-科研创新 (1%, 2021)

语言

• 中文 (母语) • 英语 (流利)

工作经历

游戏开发者大会 | ALT.CTRL. 展出

March. 2024 | 旧金山

- 与 18 个团队被选为游戏开发者大会 (Alt.Ctrl.GDC) 的决赛入围者
- Weirdows '98: 使用 Arduino 和 Unity 的交互装置游戏

成都育碧电脑软件有限公司 | 测试实习生

June - Aug. 2022 | 成都

- 与开发部门合作, 对游戏功能测试用例进行编写, 更新, 改进和执行
- 在游戏缺陷的生命周期里, 使用 Ranorex, TestRail, Jira 进行跟踪和验证
- 获得 AAA 游戏的制作流程、工具的培训

生成式对抗网络在传统中国画上的应用 | 科研助理

Jan. - Dec. 2022 | 温州

- 构建 DCGAN, WGAN-GP 及 SAGAN 模型生成高分辨率中国画图像
- 基于风景画数据集, 通过 Cycle GAN 完成中国画的风格迁移

项目经历

可交互沙漠风格化渲染场景 - URP

April 2024

- 实现根据相机距离的动态曲面细分算法, 设置 Domain Shader 和 Hull Shader, 且将噪声贴图作为置换贴图制作顶点动画
- 使用 RenderTexture, 粒子系统和正交相机记录角色行动轨迹, 在相应位置根据法线位置降低顶点高度
- 支持多光源, 接收和投射阴影。通过噪声贴图采样, 实现沙地表面闪烁效果

URP 和 BUILT-IN 管线下的赛璐璐风格人物卡通渲染

March 2024

- 通过法线外扩和平滑法线算法实现模型外描边, 可控制描边等比缩放
- 通过模版缓冲和 Render Object, 控制渲染顺序, 实现整体轮廓描边
- 基于兰伯特光照模型实现多色阶阴影, 支持使用 ramp map 和 shadow map, 编写 Ramp map 在 Unity 内贴图生成工具
- 实现基于菲涅尔效应边缘光, Blinn-Phong 模型高光以及辉光

软光栅渲染器 & 路径追踪 & 几何编辑 & 动画系统

Jan. - May 2024

- 卡内基梅隆大学计算机图形学课题项目
- 实现了软光栅化器, 包括场景函数、线条、三角形光栅化和三角形插值、深度测试、色彩混合、Mip-Mapping、纹理采样和超采样抗锯齿。
- 实现了路径追踪, 包括光线和交叉测试、BVH、兰伯特光照模型、镜面和玻璃 BSDF, 环境纹理映射。
- 实现了几何编辑操作, 包括局部和全局操作。
- 实现了动画系统, 包括 Catmull-Rom Spline, IK 和 FK 骨骼绑定, 线性蒙皮, 粒子模拟

建设虚拟世界 - 游戏原型合作制作课程

Aug. - Dec. 2023

- 一门要求在 Unity 中实现 4 种沉浸式用户体验的合作快速原型设计课程。
- 迭代设计适用于 Oculus Quest 2、DDR 舞蹈垫和 Arduino 等平台的游戏。
- 在 Unity 中使用 ShaderLab、VFX Graph 和粒子系统实现 VFX, 包括顶点操作、后期处理、玻璃和全息效果以及材料交互