YingXuan (Jennifer) Liao **Graphics Programmer**

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Available to work after **May 15th, 2023**.

SKILLS

Programming: **C++, Lua, C#,** python, Tensorflow, Java web development, Xml/Html/CSS/JavaScript
Game Engine: Unity, Unreal **Graphics:** DX12; DX11; OpenGL (GLSL); RenderDoc; Sketch/Figma

EDUCATION

Carnegie Mellon University (CMU)- Master of Entertainment Technology ***2021.08 – Expected 2023.05***
Entertainment Technology Center, Major in Entertainment Technology (Computer Graphics)
Wuhan University (WHU) - Bachelor of Engineering ***2015.09 - 2019.06***
School of Computer Science, Major in Software Engineering

EXPERIENCE

Lilith Games Company | Software Engineer | Lua, In-house game engine, Metaverse ***2020.03 - 2021.05***

- Worked on **io games, RPG, and chatroom** in a Metaverse game platform project using **Lua**.
- **Gameplay programming** like cameras, FSM, NPC behaviors, Object Pool in the **In-house game engine**.

Neusoft Ruidao Company | Software Engineer (Intern) | Java web dev, MySQL ***2018.07 - 2018.08***

PROJECTS

Real-time Path tracer | DirectX12(HLSL), C++ 17, DirectX Raytracing ***2022.11 – Expected 2023.04***

- A **Real-time GPU Path tracer** using DirectX12 and DXR, as an implementation of a Siggraph 2022 Paper: Generalized Resampled Importance Sampling for ReSTIR, including **multi-threading**.
- Develop abstractions over DirectX12 using modern C++ features.

Cloth and Fluid Simulation | Graphics Engineer | Compute shader (HLSL), Unity ***2022.09 – 2022.11***

- Using **PBD (Position based dynamics)** to implement 2D cloth and its interactions.
- **Fluid simulation** using **SPH** (based on PBD) to create **150k particles** at **30 FPS** on an RTX 3070.
- Using **GPGPU/compute shader** in Unity and **RenderDoc** to optimize the performance.

Ray tracer & Soft Rasterizer | Graphics Engineer | C++ 14, GLSL ***2022.02 - 2022.05***

- **See in https://www.yingxuanliao.com/computergraphics**
- Writing 3D **CG software toolsets** including path trace, IK, mesh edit, based on CMU 15-662 / Nori.
- Using **PCF, PCSS** to improve the **shadow map** and implement the **soft shadows** in **GLSL**.
- Using **PRT** (including **Spherical Harmonics**) to implement **real-time environment lighting**.

Telepathway, Google | General Engineer (Graphics) | CG, C#, Unity, XR ***2022.02 - 2022.05***

- An Academic Team Project with Google to make students interested in Machine Learning.
- Visualizing K-means clustering and Reinforcement machine learning.
- Write **procedural generating map** in Unity using Delaunay triangles and mesh editing.

Build Virtual World, CMU | General Engineer | Shader graph, C#, Unity, VR/AR ***2021.09 - 2021.12***

- Built each game with the other programmer, 2 artists, and a sound designer every 2 weeks. Including **Unity, XR technology (AR, VR)** and so on.
- Created **particle systems** like fire, fog effects and **shader graph** to make water and thunder.
- Implemented game logics like **Singleton Pattern, NPC behaviors, Object pools**.