

Jinwoo Choi

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EXPERIENCE

Bytedance (Pico)

Mountain View, CA | 05/2023 – 10/2024

XR Engine and Runtime Software Engineer

- <https://developer.picoxr.com/news/urp-fork/>
 - **Optimized 15-30%** of GPU usage on Unity's Universal Render Pipeline (URP) **bloom** for the VR device
 - **Corrected depth perception distortion** in Unity's built-in pipeline **Multiview** feature
 - **Optimized 8-10%** of GPU usage on the VR device by implementing **Poisson Percentage Closer Filtering(PCF)**
- Collaborated with Runtime team to integrate Adaptive Resolution, Super Resolution, and Sharpening features into Unity XR SDK
- **Improved GPU usage by 10%** and **reduced GPU memory consumption from ½ to ¼** across general Unity-built VR applications
- Investigated performance issues specific to Pico products related to the Unity engine and submitted solutions to Unity
- Benchmark and analyze Unity UI and Particles for the internal project
- Built multiple demo and test app with Unity Polyspatial for visionOS
- Designed and Implemented a **Unity particle parser** to extract and replicate particle system data across different platforms
- Debugged and Resolved compatibility issues between URP and Adaptive Resolution, **extending the maximum achievable resolution**
- Developed and implemented a comprehensive Unity project for analyzing user input across multiple devices using the **XR Interaction Toolkit**

TikTok

Mountain View, CA | 05/2022 - 08/2022

AR Effect Software Engineer Intern, Team of Intelligent Creation

- Implemented **Deferred Shading** for the Uber Shader(6000+ lines) to improve the performance limitations of TikTok stickers
- Integrating Physics Based Rendering, Environment Mapping, UV, Normal Texture, Fresnel to the Deferred Shading
- Implemented Transparent, **Temporal Anti-Aliasing** to the shader, and integrated Deferred shading with Forward Shading

Undergraduate Teaching Assistant

Redmond, WA | 09/2021 - 12/2021

Course: High-Level Programming, Advanced C/C++, Computer Graphics, Game Project

- **Delivered a lecture on graphics technology**, creating and presenting a detailed PowerPoint presentation to support learning and understanding of key concepts [View Presentation file](#)

PERSONAL PROJECTS

Graphics Engine

03/2021 - 04/2023

Implemented various Graphics techniques with using own Engine

- Made an equation that removes the duplicate normal value while generating vertex normal with using hash

Dodge-BLUERACOON

12/2018 - 04/2019

An Android Casual Game collaborated with Artist

SKILLS

Programming Language & API: C++, C, C#, OpenGL

Tools: Visual Studio, VS Code, git, Unity, RenderDoc

EDUCATION

DigiPen Institute of Technology

Redmond, WA | 08/2021 - 04/2023

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

Courses: Advanced C/C++, Data Structures, Computer Graphics, Algorithm Analysis, Linear Algebra, Calculus, Curve

Keimyung University

Daegu, Republic of Korea | 03/2017 - 08/2019

Bachelor of Science in Computer Science