

# Jinwoo Choi

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## EDUCATION

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### 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*

## EXPERIENCE

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### Bytedance (Pico)

Mountain View, CA | 05/2023 -

*XR Engine and Runtime Software Engineer*

- **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)
- Worked 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

### 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*

## SKILLS

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

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

**Math:** Linear Algebra, Calculus, Curve, Quaternion

## PROJECTS

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### Graphics Engine

03/2021 - 04/2023

*Implement various Graphics techniques with using own Engine*

- Implemented **Phong Shading** with Point, Directional, and Spotlights
- Implemented **Hybrid Rendering**(Deferred Shading + Forward Shading)
- Implemented Environment Mapping and used this feature for **Reflect** and **Refract**
- Implemented **GJK algorithm** for detecting collision between convex objects
- Implemented own **Object Loader** which can read vertices information from obj file
- 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*

- Designed game concept and implemented game logic, player movement, leader board system with C#
- Published on the **Google Play**

### Tetris Game

12/2017 - 01/2018

*Tetris Game on console window with using C*

- Create Tetris Game with using Basic C skills: Function, Malloc and Free, Enum, Struct
- Used File I/O to manage number of games