

# Jinwoo Choi

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## EXPERIENCE

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### DigiPen Academy in Busan

Busan, KR | 02/2025 –

*Lecturer*

- Delivered lectures and hands-on labs on C programming, 2D/3D graphics, and game development to ~20 students, focusing on practical implementation and debugging skills
- Developed and maintained a **C++ game engine** (rendering, input, sound, text, collision, state management) to replace closed-source framework, enabling students to debug, profile, and extend projects with full source access

### 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
- Reduced GPU memory usage by 10–50%** through **backbuffer optimization** and achieved **~10% higher GPU utilization** across Unity-built VR applications.
- Investigated performance issues specific to Pico products related to the Unity engine and submitted solutions to Unity
- Benchmarked and analyzed Unity UI and Particles for the internal project
- Built multiple demo and test apps 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**
- Designed 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
- Integrated 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

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### Graphics Engine

03/2021 - 04/2023

*Implemented various graphics techniques using a custom-built engine*

### Dodge-BLUERACOON

12/2018 - 04/2019

*Developed an Android casual game in collaboration with an artist*

## SKILLS

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

**Tools:** Visual Studio, git, Unity, Unreal, RenderDoc

## EDUCATION

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### DigiPen Institute of Technology

Redmond, WA | 03/2017 - 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