Sangbeom Kim

Graphics / Gameplay Programmer

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Skills

Programming languages: C/C++, C#, JavaScript, Python

Technical Skills: Vulkan, OpenGL, GLSL, ImGui, Git/Perforce, Debugging, JSON

Engines: Unity, Unreal Engine 5 (Blueprint/C++), Godot

Work Experience

Graphics Teaching Assistant **January 2025 - Present**

- Graded graphics assignments and supported students on OpenGL/GLSL, texture mapping, and rendering fundamentals.
- Updated legacy assignment templates for consistency with course materials, currently migrating the framework to Vulkan.

Academic Projects

Gameplay Programmer / Tech Lead **September 2024 - Present**
SHUTTLEFALL - Unreal Engine 5 Team of 12

- Built the game's core control system and gameplay loop, supporting system design and iteration.
- Implemented in-game terminal interaction, UI/UX flows, custom shader features, and the shop/upgrade system.
- Drove debugging and polishing across the project, contributing to difficulty tuning and release prep.

Gameplay Programmer / Tech Lead **August 2021 - June 2022**
Spy the Man - C++ Team of 4

- Led a 4-programmer game project as a tech lead, assigning tasks and keeping the team on track.
- Implemented the graphics engine and physics simulation with 2D OpenGL rendering for sprites, fonts, and animations.
- Built gameplay features and a particle system, plus created character art assets and designed game stages.

Graphics / Engine Programmer **September 2025 - December 2025**
Motion Dynamics Project - C++ / OpenGL Solo

- Implemented a CCD IK solver with joint constraints and runtime ImGui tuning for debug visualization.
- Built a mass-spring physics system using RK4 with sub-stepping and damping/pinning for stable simulation.
- Integrated skeletal animation playback and arc-length reparameterization to support controllable character movement.

Graphics Developer **September 2025 - December 2025**
Vulkan Ray Tracing Project - C++ / Vulkan Solo

- Built a Vulkan path tracer using VK_KHR_ray_tracing_pipeline with progressive sampling.
- Implemented Monte Carlo path tracing with BRDF/PDF sampling and NEE-style direct lighting.
- Added per-pixel history tracking, image denoising algorithm, and ImGui controls for fast iteration.

Personal Projects

Physics / Gameplay Programmer **February 2023 - June 2023**
Epic Fantasy - Unity Team of 3

- Replaced Unity Rigidbody with a raycast-based physics controller, preventing slope sliding and high-speed tunneling.
- Built a pixel-perfect multi-target camera using weighted-center framing.
- Implemented breakable objects that shatter into randomized fragments with directional scattering forces.

Gameplay Programmer **September 2022**
The Balloon Adventure - Unity Team of 3

- Developed a 2D balloon-physics platformer and submitted it to a game contest in South Korea, winning an award.
- Implemented a customizable particle system and UI/UX visuals using Unity shader effects.
- Contributed to level design and pixel-art asset illustration, and helped deploy a WebGL build for playtesting/showcase.

Education

Bachelor of Science in Computer Science in Real-Time Interactive Simulation
DigiPen Institute of Technology, Redmond, WA Expected graduation: **April 2026**