

PARTHCHATURVEDI

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Games & graphics engineer: shipped a UE5 solo title, a from-scratch C++/OpenGL engine, and multiple jam and studio games. C++, Unreal Engine 5, Unity, GLSL, performance optimization.

SKILLS

Engines	Unreal Engine 5 (C++ & Blueprints), Unity (C#), custom C++/OpenGL engine, SceneKit, SpriteKit
Gameplay	ECS architecture, AI/stealth systems, physics, gameplay systems, level & UI, multiplayer basics
Graphics	OpenGL, Vulkan, Deferred PBR, Cook-Torrance BRDF, IBL, GLSL, shader optimization, RenderDoc
Languages	C++, C#, Python, GLSL, JavaScript, Swift
Tools	Git, Perforce, Jenkins, Blender, Linux, CMake
Perf	CPU/GPU profiling, memory optimization, frame-time analysis, batch automation

WORK EXPERIENCE

Graphics Programmer | Huawei Technologies Canada

Sep 2024 - Mar 2026

- Optimized GLSL shaders for top mobile titles (Genshin Impact, Honkai: Star Rail), delivering **5.5% GPU performance gain** and **12% instruction reduction at 0.999 SSIM**, shipped live in Honkai: Star Rail.
- Built C++/Python tooling for OpenGL and Vulkan pipeline analysis, profiling, and bottleneck identification, plus a custom GLSL parser (tree-sitter) for automated shader transformation.
- Engineered a CLI automation tool that cut per-capture performance testing from **30 minutes to 9 minutes**, with overnight batch runs and visual diff analysis.
- Researched real-time rendering techniques for mobile GPUs, including Gaussian Splatting, NeRFs, ReSTIR, and MegaLights (UE5); onboarded and mentored 2 new hires while leading a 3-person team.

Software Developer Intern | Precisely

Jun - Aug 2022

- Built a Python/PyQt + VTK 3D rendering tool converting GML/JSON city data into textured, multi-LOD models integrated into MapInfo Pro, handling thousands of buildings per scene.

GAMES & PROJECTS

Going Down | UE5 Solo Project | First-Person Horror Puzzle

Sep 2025 - Present

- Designing and building a first-person psychological horror puzzle game in UE5 solo over 8+ months, where shadows kill the player and light is safety.
- Built a dynamic shadow/light detection system driving enemy AI awareness, stealth gameplay, and a scripted chase sequence; implemented 6 interconnected puzzle systems (keypad, generator, electric switch, lock/door, picture rotation, contextual hints).
- Integrated the full pipeline: cutscenes, environmental storytelling, audio, and level construction toward a production milestone.

Duck Hunt 3DF | Custom 3D Engine | C++ / OpenGL | Team of 6

Sep - Dec 2025

- Built a 3D game engine from scratch in C++ with a full ECS architecture supporting scalable rendering and physics; led all graphics programming.
- Implemented a deferred PBR pipeline with Cook-Torrance BRDF, image-based lighting (IBL), and HDR skybox, plus sprite UI and texture/material caching; shipped Duck Hunt as the flagship game.

Shadow Dancers | Unity (C#) | 2D Stealth Horror

Sep - Dec 2023

- Built enemy AI with dynamic waypoint/path behaviour and stat customization via a C# component system; engineered sound and light detection driving stealth gameplay.
- Published in the BCIT annual games showcase.

Solarium | iOS | Swift / SceneKit | Isometric Puzzle

Jan - Apr 2024

- Developed a Solarpunk-themed isometric puzzle game; led architecture, puzzle systems, and mobile performance optimization, with custom Blender assets for a 5-puzzle demo build.

Color Theory | Unity 2D | Game Jam | Team of 3

2026

- Shipped a web-playable color-swapping puzzle game within a game-jam timeline; implemented enemy detection, audio systems, and level transitions.

EDUCATION

BSc Applied Computer Science, Games Development (Co-op), BCIT | GPA 88%

Sep 2023 - Apr 2026

Computer System Technology Diploma (Predictive Analytics), BCIT | GPA 86%

Jan 2021 - Dec 2022