

Siddharth Gupta

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Rendering Software Engineer

Rendering Software Engineer with 6+ years of experience for Global Fortune 500 tech and gaming companies. Proven track record of shipping 4 AAA titles, with expertise in real-time graphics development, application performance optimization, tools development for artists, and rendering in game engines. Understands computer graphics at both the hardware and software level and leverages analytical and problem-solving skills to enhance visuals and unblock production issues.

Areas of Expertise

C | C++ | C# WPF (.NET) | Java | Python | Maxscript | HLSL | GLSL | Vulkan | SDL | PyGame | OpenCV | OpenGL | DX11 | DX12 | 3D Graphics | Multi-Threading | 3Ds Max | MySQL | Visual Basic | Visual Studio | Visual Studio Code | Android Studio | Eclipse | AQT | Pycharm | Machine Learning | AI | Agile | Code Reviews | Windows | Android | iOS | Linux | PS4 | Xbox | PS5 | Renderdoc | PIX | Razor | Powershell | Unity | Unreal Engine 5 | Qt | Image Processing | ImGui | Git | Perforce

Professional Experience

Ubisoft, San Francisco CA, USA

3/2022 – 8/2024

Core Rendering Engineer I

Contributed to the core rendering team of the tactical FPS shooter XDefiant, providing essential support to the VFX team in meeting visual requirements and enhancing the game's artistic vision.

- Improved game visual quality and accuracy by resolving multiple rendering bugs through in-depth analysis using RenderDoc and PIX, ensuring a smoother and more polished player experience.
- Implemented first-person light support for particles in an engine initially designed for third-person lighting, enabling VFX artists to create significantly more photorealistic and accurate visual effects, enhancing the overall immersive experience for players.
- Implemented first-person (1P) lighting support in an engine previously limited to third person (3P) lighting, enabling artists to accurately create visual effects for features like hip-fire lasers in firearms.
- Diagnosed and resolved shader rendering issues on consoles, successfully enabling the display of previously unrendered objects and enhancing the overall visual integrity of the game.
- Collaborated with UI/UX and Game Design teams to expose depth of field (DOF) constants, enabling accurate modeling of desired visual effects and significantly enhancing the overall aesthetic appeal of the game.
- Developed and optimized shaders using HLSL and C++, while debugging and profiling GPU captures in RenderDoc to enhance rendering efficiency.

Microsoft, Redmond WA, USA

3/2020 – 2/2022

Technical Artist

Ensured an understanding of requirements from content teams, design, development, testing, and deployment for a smooth development of tools that are needed.

- Developed an Octahedral Imposter shader from scratch in a custom engine using C++ and HLSL, enhancing workflow efficiency and optimizing texture space utilization with an octahedral layout, resulting in a 75% reduction in texture usage.
- Analyzed and implemented new technologies to ensure seamless compatibility with updated Photoshop versions, eliminating the need for project recompilation and reducing compilation time by approximately 3 minutes per instance, significantly streamlining development processes.
- Integrated Bent Normal support into a custom AO tool, automating the generation of Bent Normal Maps for artists and saving approximately 30 minutes of manual work per task.
- Provided crucial daily support to art teams, swiftly resolving production issues and boosting overall artist productivity.

Run Games LLC, Seattle WA, USA

9/2019 – 3/2020

Graphics Programmer

Game Development Engineer Specializing in Save/Load Systems, Performance Optimization, and Shader Conversion in Unity and Unreal Engine.

- Enhanced rendering performance for Scavengers on PS4 and Xbox One through comprehensive performance optimization testing in PIX.
- Developed the Save/Load and Trophy achievement features for *Beyond Blue* on PS4 and Xbox One using Unity, enabling players to save their progress in the story mode.
- Transformed material shaders (Blueprints) into human-readable equations for Scavengers in Unreal Engine 4 using C++, enhancing iteration efficiency by 50% and facilitating optimization discovery.

Huawei Technologies, Bellevue WA, USA

8/2018 -6/2019

Software Engineer (Graphics)

Software Engineer Specializing in PBR Material Validation application, Shader Compilation, and Rendering Optimization

- Architected an in-house android application to validate PBR materials so developers and artists could test and perceive different materials rapidly.
- Implemented a Shader Compiler tool from scratch reducing build time for developers by more than 80%.
- Optimized existing Physically Based Rendering pipeline to be 15% more power efficient on Huawei phones.

Autonomous Underwater Vehicle (AUV), Chennai, India

8/2013 – 2/2015

Software Engineer

Designed and implemented a vision suite, using OpenCV, to help navigate vehicle underwater.

- Oversaw recruitment of software developers including, reviewing resumes and conducting on-site interviews.
- Participated in International Event of Robosub, San Diego and achieved 13th place worldwide.

Education and Professional Development**Master of Science (M.S.), Computer Science. Emphasis: Computer Graphics**

8/2016 – 7/2018

DigiPen Institute of Technology, Redmond WA, USA

Bachelor of Technology (B.Tech.), Software Engineering

8/2012 – 8/2016

SRM University, Chennai, India