SURYA P M

Junior Graphics and Game Engine Developer
Rendering - WebGPU - WebGL - Asset Pipeline

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Portfolio: suryapm-port-folio.vercel.app

Professional Summary

Junior graphics and game engine developer with hands-on experience working on real-time rendering systems using WebGPU and WebGL. Strong understanding of engine architecture, asset pipelines, and GPU-driven rendering workflows. Experienced in debugging rendering issues related to geometry, buffers, and textures, with a focus on clean and performance-aware engine design.

Role and Responsibilities

- Own and support real-time rendering components within a custom engine environment.
- Work closely with asset pipelines to ensure correct integration of 3D models and textures.
- Analyze and debug rendering issues across GPU pipelines and engine systems.
- Collaborate with team members on rendering architecture and engine design decisions.
- Maintain clean, modular, and maintainable code aligned with engine best practices.

Technical Skills

Graphics and Rendering

- WebGPU (primary) and WebGL2 for real-time rendering
- GPU pipeline concepts, shaders, render passes, and draw submission
- Depth testing, framebuffer usage, and basic post-processing
- Lighting models including Phong and Blinn-Phong with gamma correction

Engine and Systems

- Scene graph systems and transform hierarchies
- Render loop implementation and frame lifecycle management
- Resource and asset management for real-time engines
- Runtime debugging using FPS, draw calls, and validation errors

3D Assets and Pipeline

- glTF 2.0 asset structure including buffers, accessors, and node hierarchies

- Blender UV workflows and texture baking
- PBR texture integration (Albedo, Normal, AO, Roughness)
- Blender CLI automation using Python for asset processing

Programming

- JavaScript, TypeScript
- TypedArrays and memory-oriented data handling
- Modular, engine-friendly code structure

Tools

- Git, Blender, VS Code, Chrome DevTools

Experience

Software Developer
Hexrfactory Immersive Tech Pvt Ltd *2023 - Present*

- Implemented rendering features using WebGPU and WebGL, including buffer setup, draw calls, and render pass configuration.
- Developed and refined asset loading workflows for glTF-based 3D scenes.
- Integrated Blender-exported assets and baked textures into real-time rendering pipelines.
- Debugged and resolved issues related to transforms, buffer layouts, textures, and shader inputs.
- Supported texture baking and asset preparation workflows for PBR-based rendering.
- Contributed to improvements in engine structure and rendering stability.

Graphics and Engine Knowledge

- Model-View-Projection (MVP) pipeline
- Normal matrix and inverse transpose concepts
- CPU and GPU responsibility separation
- Draw call cost and rendering performance considerations
- GPU memory and buffer layout fundamentals

Education

Bachelor of Science in Mathematics (B.Sc. Mathematics)
Kamaraj College, Manonmaniam Sundaranar University - 2020