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 **2+ years of hands-on experience** building and supporting 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, stable, and performance-aware engine design.

Role and Responsibilities

- Own and support real-time **rendering components** within a **custom game engine**.
- Work closely with **asset pipelines** to ensure correct integration of **3D models** and **textures**.
- Analyze and debug rendering issues across **GPU pipelines**, shaders, and engine systems.
- Collaborate with team members on **rendering architecture** and engine-level 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, **framebuffers**, and basic post-processing workflows
- 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 counters, 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

Professional Experience (2+ Years)

Software Developer (Graphics / Engine)
Hexrfactory Immersive Tech Pvt Ltd *2023 – Present*

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

Graphics and Engine Knowledge

- **Model-View-Projection (MVP)** rendering pipeline
- **Normal matrix** and inverse-transpose transformations
- Clear separation of **CPU and GPU responsibilities**
- Draw call cost and **rendering performance** considerations
- **GPU memory** usage and buffer layout fundamentals

Education

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