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ISHANSH LAL

Computer Graphics Engineer



Summary:

As a passionate and dedicated C++ Graphics Programmer, I excel in delivering high-quality, outcome-oriented solutions by focusing on the process and maintaining a positive attitude. My strong problem-solving and superb debugging skills, coupled with patience and adaptability, enable me to tackle complex challenges. Committed to writing clean and maintainable code, I take responsibility for my work and continuously strive for self-improvement.

Education:

- Bachelor of Technology in Computer Science and Engineering - Jaypee Institute of Information Technology, NOIDA, India

Languages:

- English (Fluent)
- Hindi (Native)

Technologies:

- C++23, CMake, x86_64 Assembly, Python, Bash, PowerShell, C#-Scripting, Golang
- Vulkan, OpenGL, DirectX 12

Tools and softwares:

- Unity, Unreal Engine, Blender
- git, perforce, vcpkg

Technical Skills:

- Rendering/Graphics Pipeline
- CPU, GPU Architecture
- Engine Architecture and Optimizations
- Acceleration Data Structures
- 3D & Vector Mathematics
- GPGPU Programming
- Procedural Generation
- Ray-Tracing Concepts
- Image processing
- Network Programming
- Android C++ Native
- Cross Platform Development
- Automation Pipelines
- Prompt Engineering

Experience:

1. **Viga Entertainment Studio (Internship + Remote)**

- **Graphics Engineer Intern** (Oct 2021 - Apr 2022, 7 mos)
Learned a lot as an Intern.
 1. Mesh renement Optimizing No. of vertices in captured mesh then adding lost details using mean curvature. Multi-threading, real-time editable and disk caching.
 2. Camera calibration Intrinsic-Extrinsic parameter estimation of cameras for face reconstruction with AprilTags.(Python)
 3. Deploying scalable build systems CI/CD Ready, single step, cross platform build process with CMake, VcPkg, QT-5,6 support including a custom file-patcher for libraries and automatic dependencies resolution from servers.
 4. Project architecting Planned architecture for “Scan Stage” and was praised for the same
 5. Wand calibration for Motion capturing on synthetic dataset.
- **Graphics Engineer - Remote** (June 2022 - Aug 2022, 2+ mos)
As part of the Core Team,
 1. Creating Documentation for products
 2. Speeding up Face Capture for Real-time Applications.
 3. Code maintenance for multiple projects
- **Graphics Engineer - Remote** (Feb 2023 - May 2023, 4 mos)
Conversion of video with depth data to 3D mesh/point-cloud for “volumetric streaming” between individuals using ZED cameras.

2. **Ubisoft India Studios**

- **3D Programmer (On-Site)** (Jun 2023+, 1.5 yrs+)
Handled backend multiple features of Map like
 - A thumbnail pipeline for point of interests to be rendered (in editor) onto texture atlas which gets serialized to be shown on map cutting a lot of render times.

Personal Projects:

- **SETU Game Engine** (major project): Cross platform (windows, Linux, Android), Cross API (OpenGL 4, GLES 3, DirectX 12), Modular. (C++, GLFW, Android Native, CMake)
- **RayTracing-Tests** (GPGPU-Accelerated) & **OpenGL-TestSite**: Framework for rapid prototyping of OpenGL, most notably used for GPU compute implementation of all 3 Peter Sherley's ray-tracing books.
- **Particle Swarm Optimization algorithm Visualizer**: GUI, MSDF font rendering from scratch using Vulkan and C++.
- **Scene perception for visually impaired and Live depression detection on Tweets** (minor projects): Both Python based Computer Vision + AI/ML projects.
- **Bank Management System**: Wrote the GUI (with 3D background) from scratch using OpenGL.
- **NotPing-OnlyPong**: Pong game with raw rasterization graphics, GUI, VFX, SFX, music from scratch using only Win32 and C++.
- **Courses**: Game Engines(Hazel, Kohi); Procedural terrain Generation in Unity; C# Unity Developer 2D, 3D; Games with go.