ISHANSH LAL
Graphics Engineer

+91 7805 8900 67
lalishansh@gmail.com
linkedin.com/in/ishansh-lal

Education

Jaypee Institute of Information Technology, Sector-62 — NOIDA, India
Bachelor of Technology - C.S.E — July 2019 - present

Courses: *Operating System, Data Structures, Analysis Of Algorithms, Artificial Intelligence, Machine Learning, Networking, Databases*

About Me

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.

Tools And Tech.

C++20 · x86 x64 Assembly AVX, AVX-2 · python · Golang · CSharp Scripting · PowerShell · BASH · Vulkan · OpenGL · git · CMake · CLion

Other Tools

Visual Studio, Re-Sharper, Visual-Assist, Blender, Unity, Unreal-Engine

Soft Technical Skills

- Rendering/Graphics Pipeline
- CPU, GPU Architecture
- Engine Architecture
- Acceleration Data Structures
- 3D & Vector Mathematics
- GPGPU Programming
- Procedural Generation
- Ray-Tracing Concepts
- Image processing
- Network Programming
- Android C++ Native
- Prompt Engineerin

Volenteering

NSS volunteer - Oct 2019-20
JIIT NOIDA, India
Helped out at NGOs, campaigns in interest of environment, blood donation, food distribution etc.

Experience

1. **Viga Entertainment Studios**
   (a) 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.
   (b) Graphics Engineer (Remote) (June 2022 - Aug 2022, 2+ mos)
   As part of the Core Team,
   i. Creating Documentation for products
   ii. Speeding up Face Capture for Real-time Applications.
   iii. Code maintainence.
   (c) Graphics Engineer Intern (Oct 2021 - Apr 2022, 7 mos)
   Learned a lot as an Intern.
   i. **Mesh refinement** Optimizing No. of vertices in captured mesh then adding lost details using mean curvature. *Multi-threading, real-time editable and disk caching.*
   ii. **Camera calibration** Intrinsic-Extrinsic parameter estimation of cameras for face reconstruction with AprilTags. *(Python)*
   iii. **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.
   iv. **Project architecting** Planned architecture for "Scan Stage" and was praised for the same
   v. **Wand calibration for Motion capturing** on synthetic dataset.

Projects

SETU Game-Engine (major) (July-Nov '22)
Cross-platform(Windows, Linux, Android) Modular engine in OpenGL & C++
OpenGL-TestSite (May-Oct '21)
(see also: NutCracker) Framework for rapid prototyping of OpenGL in C++
NutCracker (WIP) (May-Till '22)
Multiplatform Framework for Vulkan, OpenGL, DirectX using C++Modules
Particle Swarm Optimization algorithm Visualization (May '22)
with interactive GUI rendering from scratch in Vulkan
RayTracing-Tests (GPGPU-Accelerated) (Jun-Aug '21)
Based on Peter Sherley's "Ray-tracing in one weekend" Series.
Scene perception for visually impaired (minor) (Apr '22)
Python based with object recognition, depth estimation and text-to-speech
Live depression detection on Tweets (minor) (Nov '21)
Python based with sentimental analysis, twitter APIv2, tkinter, torch
Bank Management System (May '21)
A BMS with interactive UI rendering from scratch.
NotPing-OnlyPong (Nov '20)
Pong game with rasterized graphics, GUI, in game tutorials, VFX, SFX, music, ester eggs and more. Tech: C++, Win32.

Award(s)

Won µCR, Microcontroller based System & Robotics Hub event Eximietas, 2019

Courses

Sentimental Analysis
Procedural terrain Generation
Games with go
Game Engines(Hazel, Kohi)
C# Unity Developer 2D, 3D
Go Bootcamp, *and many more*