Ishansh Lal

Graphics engineer - NPR Nerd - HPC enthusiast

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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*

SKILLS SUMMARY

- **Languages** C/C++, Golang, Python, powerShell, Bash, C# scripting
- **Technologies** Vulkan, OpenGL, x86_64-Assembly(AVX,AVX-2)
- **Tools** CLion, Visual Studio, ReSharper, Visual-Assist, Unity, Unreal Engine, Blender, Git, Github, Gitlab, CMake, Premake
- **SoftTechnical Skills** • Rendering/Graphics Pipeline • CPU Architecture • GPU Architecture • Engine Architecture • Familiarity with acceleration DS (Ex. LBVH) • 3D & Vector Mathematics • GPGPU Programming • Windows Development (& Win32 API) • Procedural Generation • Ray-Tracing Concepts • Image processing • Network Programming • Android C++ Native
- **Platforms** Windows, Linux, Arduino, Raspberry
- **Soft Skills** • Patience • Self-Motivation • Problem-Solving • Debugging skills • Positive Attitude • Self-Control • Adaptability

EXPERIENCE

Viga Entertainment Technologies   Remote

Graphics engineer Intern (Full-time)   *Oct 2021 - Apr 2022, 7 mos*

- **Mesh refinement**: Optimizing No. of vertices in captured in mesh then adding lost details using curvature of vertices. *Multi-threaded and cached, real-time editable & custom model format for faster subsequent loading times.*
- **Camera calibration**: Intrinsic-Extrinsic params estimation of cameras for face reconstruction with AprilTags.*(Python)*
- **Deploying scalable build systems**: Added CMake and VcPkg support to projects, for single step, cross platform build process including custom file-patcher for libraries, Qt deployment, resolving dependencies from servers, CICD ready.
- **Project architecturing**: Planned architecture, foundations for a major project and was praised for the same
- **Wand calibration for Motion Capturing**: with unreal engine generated synthetic dataset.

Viga Entertainment Technologies   Remote

Graphics engineer (Full-time)   *June 2022 - Aug 2022, 2+ mos*

- **General**: Creating Documentation for products, maintainence, improving sections of various programs i've previously worked upon (as part of the Core Team).

PROJECTS

- **SETU Game-Engine**: Cross-platform (Windows, Linux, Android), Modular engine with C++20, OpenGL   (2nd half '22)
- **OpenGL-TestSite**: (inherited-by: NutCracker) Research oriented, open source, OpenGL test framework for rapid prototyping of OpenGL. Tech: C++, Premake, Glad, GLFW, glm, DearImGui, spdlog, stb-image etc.   (May-Oct '21)
- **NutCracker (WIP)**: ReImagined multiplatform, to support Vulkan, OpenGL, DirectX using C++ modules   (May-'Till '22)
- **Particle Swarm Optimization algoritm Visulization**: with interactive GUI rendering from scratch in vulkan   (May '22)
- **RayTracing-Tests (GPU-Accl)**: Based on Peter Sherley's "Ray-tracing in one weekend" for ideas, modified for GPGPU Programming via OpenGL's Compute Shaders, for real-time performance on iGPU.   (Jun-Aug '21)
- **Scene perception for visually impaired (minor)**: object recognition, depth estimation and text-to-speech   (Apr '22)
- **Depression detecion on Tweets: Live (minor)**: sentimental analysis, twitter APIv2, GUI, PyTorch   (Nov '21)
- **Autocorrect Implimetation GUI (funny name)**: Text editor with spell-checker, tabs, resource handling.   (May-Aug '21)
- **Bank Mangment System**: a BMS with interactive UI rendering from scratch.   (May '20)
- **NotPing OnlyPong**: Pong game with rasterized graphics, GUI, in game tutorials, VFX, SFX, music, ester eggs and more. Tech: C++, Win32.   (Nov '20)

HONORS AND AWARDS

- Won Club µCR Microcontroller Based Systems and Robotics Hub event Eximietas, 2019

VOLUNTEER EXPERIENCE

NSS volunteer Oct 2019-20, jiit   NOIDA, India

Helped out at NGOs, campaigns in interest of environment, blood donation, food distribution etc.

COURSES UNDERTAKEN

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