



Ishansh Lal

Graphics engineer - NPR Nerd - HPC enthusiast
Github: github.com/ishanshLal-tRED

Email: lalishansh@gmail.com
Mobile No.: +91 7805 890 067

EDUCATION

- Jaypee Institute of Information Technology, Sector-62** NOIDA, India
Bachelor of Technology - C.S.E July 2019 - present
Courses: Operating Systems, Data Structures, Analysis Of Algorithms, Artificial Intelligence, Machine Learning, Networking, Databases

SKILLS SUMMARY

- Languages** C++ (11-20 all core features), GoLang, Python, PowerShell, Bash, C# scripting
- Technologies** Vulkan, OpenGL, x86_64-Assembly(AVX,AVX-2), Sockets (WinSock, Berkeley), oneAPI
- Tools** Visual Studio, CLion, Visual-Assist, ReSharper, Unity, Unreal Engine, Blender, Git, Github, Gitlab, CMake, Premake
- Soft Technical 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
- 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 to it using curvature of surrounding vertices. *Multi-threaded and cached to memory, to make it 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 multiple projects, for single step, automatic, cross platform build process including custom file-patching to libraries, Qt deployment, fetching dependencies from servers continuous integration ready.
 - Laying foundations for major project of company:** MVP like project structuring 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.

PROJECTS

- 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)
- RayTracing-Tests (GPU-Accel):** Based on Peter Shirley's "Ray-tracing in one weekend" for ideas, modified for GPGPU Programming via OpenGL's Compute Shaders for real-time performance on an iGPU with OpenGL-TestSite. (Jun-Aug '21)
- Autocorrect Implimentation GUI (funny name):** Started as simple implementation of notepad like text editor with spell-checker, however later turned into full text editor (branched) using earlier versions of OpenGL-TestSite. (May-Aug '21)
- NotPing OnlyPong:** First step to world of rasterized graphics, a simple pong game, with GUI, tutorials, VFX, SFX, music, ester eggs etc. Tech: C++, Win32 API. (May '20)
- Bank Mangment System:** a BMS with interactive UI rendering from scratch. (May '20)
- Particle Swarm Optimization algorithm Visulization:** with interactive GUI rendering from scratch in vulkan (May '22)
- NutCracker (work in progress):** ReImagined multi platform (test) framework to support Vulkan, OpenGL and DirectX with inter API communication using C++(20, modules) (May-present '22)

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

C# Unity Developer 2D, 3D Game Engines (Hazel, Kohi)	RPG Core Combat Creator Games with go	Procedural terrain Generation Go Bootcamp, and many more
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