VATSALYA YADAV

Software Engineer

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SKILLS

Languages	Rendering API	Automation Tools	Game Engines	Development Tools	Maths and Physics
C/C++	Vulkan	Jira	Unreal Engine 5	Git (GitHub/GitLab)	3D Math
C#	DirectX 11/12	GitHub CI/CD	Unity3D	RenderDoc, Nsight	Quaternions
Lua	OpenGL / ES	Premake	Cocos2dx	Visual Studio, Xcode	Spline Curves
Python	Metal 3	CMake		Rider	

PROFESSIONAL EXPERIENCE

Game Engineer | **Superman Experience(Burbank, CA)** December 2025 - Present

Working with Unreal UI and Tools along with Video Encoding Techniques and Scriptable Pipelines.

Schell Games LLC - Pittsburgh, PA

- Extending the NDisplay tools to support multiple policies for NDisplay Rendering.
- Using Jenkins to automate the render jobs to multiple machines overnight for High Resolution Renders.
- Working with Client Hardware to run the videos on state of the art projectors via Hive Beeboxes.
- Creating Unreal Tools to tackle challenges with multiple viewport rendering using Unreal's NDisplay Technology.
- Optimizing Super High Resolution video rendering pipeline supporting multiple codecs.

Graphics Programmer | **Unannounced XR/VR Tech Research** March 2025 - June 2025

RedPill XR - Los Angeles, CA

Working with XR/VR, Unreal and Networking Tech Stack to build a seamless Ready Player One experience.

- Worked with multiple Rendering API to achieve low latency for video transfer from a render farm.
- Optimized shaders for client side rendering to display content which is being rendered from a dedicated server.

Junior Programmer | **Krystopia, Shakes On a Plane, The Innsmouth Case** July 2019 - November 2020

GodSpeed Games - Pune, Maharashtra

Optimizing and porting games to Nintendo Switch platform using Unity3D in C#.

- Optimized shaders based on performance metrics received from Nintendo's SDK and Unity profiling tools.
- Fixed bugs and optimized memory issues using Nintendo's SDK crash dumps and profiler metrics.
- Created Input-Mapping to Switch Joy-Cons, Pro Controllers and Touch Screen over Mouse and Keyboard.

SOLO PROJECTS

Graphics Engineer | **Advanced Rasterization Algorithms (OpenGL)** January 2024 - April 2024

Custom 3D Rendering Engine(C/C++) with Deferred Shading, Moment Shadow Mapping(MSM), PBR and Alchemy AO.

- Created Deferred Pipeline which supports efficient rendering, increasing performance by 200%.
- Increased the quality and performance for soft shadows and removed aliasing using MSM algorithm.
- Added support for Physically Based Rendering; added Alchemy Ambient Occlusion for direct/indirect lighting.

Animation Engineer | **Animation Engine** August 2023 - December 2023

Custom 3D Rendering Engine made using C++ and OpenGL with a focus on Skeletal Animation.

- Integrated dynamic character movement and life-like animation with assets supporting multiple extensions.
- Implemented Hermite Spline for smooth movement of character animation along a path.
- Added Inverse Kinematic support for bones using industry standard FABRIK algorithm.

Graphics Engineer | **Real-Time Ray-Tracing (Vulkan API)** May 2023 - July 2023

Custom 3D Renderer with Real Time Ray-Tracing, History Tracking and Denoising.

- Implemented Hardware accelerated Ray-Tracer using the Monte-Carlo Path Tracing Algorithm.
- Integrated optimization techniques like Shader Binding Tables, Accelerations Structures for better frame rates.
- Computed History Tracing with Selective Weighted Bi-linear Interpolation and Denoising via À-Trous algorithm.

TEAM PROJECTS

Technical Lead and Engine Programmer | **Tiny Titan, DodgeBrawl (Proprietary)** January 2023 - April 2024

Custom 3D Engine created by extending 2D engine built for Dodge Brawl project.

- Developed and maintained custom Premake scripts to streamline the build process and reduce setup time.
- Responsible for troubleshooting and resolving build issues, optimizing the build pipeline for efficiency.
- Integrated Lua based Scripting Engine to implement gameplay functionality to save compilation time.
- Created Thread Pool to manage lifetime of multiple threads for data assets, input and logger systems.
- Created Debugging & Visualization Tools to monitor performance, FPS and memory usage effectively.
- Integrated Scope Based Profiling Tool which helped monitor engine performance at runtime.

EDUCATION

Master of Science in Computer Science | Graphics Concentration August 2022 - April 2024

DigiPen Institute of Technology - Redmond, WA

Bachelor of Science in Computer Science and Engineering August 2015 - July 2019

Visvesvaraya Technological University - Belagavi, Karnataka