Vishwah Sivagurunathan

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Summary

Professional developer with a Master's in Computer Game Engineering (Distinction) from Newcastle University. Proficient in C++ and C#, with expertise in graphics programming, performance optimization, and graphics engine development. Experienced in Unreal and Unity engines, with a strong background in developing computer graphics, Virtual Reality (VR), and Augmented Reality (AR) applications. Skilled in building scalable systems, debugging performance bottlenecks, and collaborating with cross-functional teams to deliver high-quality interactive experiences.

Experience

Indus Trust   **March 2025 – Present**
AR VR Developer & Engineer   *Bangalore*

- Developing Educational XR games using Unity, C# and HLSL for Meta Quest 3 and 3S
- Profile CPU and GPU performance and optimize the game.
- Building a procedural grass and vegetation rendering system using custom HLSL shaders.
- Attends stand-ups, does design and code reviews, and works in an Agile methodology.
- Participates in meetings and pitches innovative ideas to board members.

Microfacet.io (Volunteering, Non-profit)   **April 2025 – Present**
C++ Developer   *Bangalore*

- Architecting and developing a Cross-Platform high-performance Physically Based Rendering software using Vulkan, modern C++, Slang, GLSL, CMake and RenderDoc.
- Documented and exposed the graphics engine as an public API
- Attends stand-ups and conducts design and code reviews.

Norian Games   **April 2024 – August 2024**
Unreal Engine Developer   *Remote*

- Created a pipeline where the artist and designers can easily collaborate together.
- Developed a well-documented custom AI system for NPC's using C++ and integrated it with Unreal Engine 5.
- Debugging and optimizing the code to fix the performance issues in the code base.
- Building and deploying server builds on a Linux server.
- Conducted research and participated in design sprints using Agile methodologies.

Freelancing   **September 2023 – April 2024**
Game Developer   *Newcastle upon tyne, UK*

- Developed and optimized custom C++ game modules for clients using Unreal Engine.
- Created efficient AI behavior systems and integrated them into existing codebases.
- Developed a RESTful API in C++ to facilitate seamless communication with an HTTP server.
- Delivered a game for a private client [Demo Link](#)

StuBrew - Newcastle Univeristy   **May 2023 – August 2023**
Game Developer   *Newcastle upon tyne, UK*

- Designed and developed a Virtual Reality(VR) application using Unreal Engine 5, C++ and blueprint for HTC Vive Pro 2 and Oculus Rift S hardware. [Demo Link](#)
- Programmed the VR Interactions with the environment, shaders and an Objective system to tell the user what to do.
- Collaborated with local student brewery from university to design and develop the interactive learning experience they needed.

Education

Newcastle University   **Sep. 2022 – Sep 2023**
Master of Science in Computer Game Engineering (Distinction)   *Newcastle, UK*

Sri Manakula Vinayagar Engineering College   **Sep. 2017 – Oct 2021**
Bachelor of Technology in Computer Science and Engineering (Merit)   *Puducherry , India*

Projects

Agni Game Engine | *C++, Slang, Vulkan, ImGui, CMake, Git, Github, Visual Studio*   **January 2025**

- Developed a Data-driven game engine uses custom Vulkan 1.4 renderer and open source tools and libraries for physics and UI.
- Implemented Physically-Based Rendering (PBR) using a metallic-roughness workflow.
- Integrated Directional, Spot, and Point lights with shadow mapping, skybox support, and MSAA (Multi-Sample Anti-Aliasing).
- Utilized Dear ImGui for on-screen UI rendering and Jolt Physics for collision and simulation.
- Source code can be found here

Procedural Grass Rendering | *HLSL, C#, Unity, Git, Github, Visual Studio*   **October 2025**

- Developed a GPU-driven procedural grass rendering system capable of drawing over one million animated blades of grass in a single draw call using **Compute Shaders**.
- Implemented GPU-based culling and LOD techniques for high performance, achieving over 500 FPS at 1440p on desktop GPUs.
- Designed a noise-driven wind simulation for realistic grass movement with minimal CPU overhead.
- Optimized the rendering pipeline for VR platforms (Meta Quest 3/3S), maintaining 72+ FPS with half a million blades rendered.
- Source code can be found here

PaintGame | *OpenGL, C++, CMake, Visual Studio, GLSL, Custom game engine, Git, Github* **February 2023 - May 2023**

- Worked as part of a team of eight and made a custom game engine using OpenGL and C++.
- Implemented the renderer for PC and PS4, partical system using instance rendering and gameplay features.
- Designed and executed a multi-threading system to efficiently load resources, improving performance
- Achieved a grade of 77% for this project.
- By working in a team, I understood how important it is to communicate with people and how much you can achieve when you work together.
- Project Source code

War-Psychic | *Unreal Engine 5, C++, Blueprint, Perforce, Linux, Visual Studio*   **February 2024 - April 2024**

- Programmed the NPC AI and animations using C++, Unreal engine's blueprints and blackboard system.
- Developed the Gameplay Interactions, Game loop, User Interface with proper Main menu, Option menu and player HUD.
- Deployed a cloud server to use a repository to share and store the project on Perforce.
- Designed and planned the project, while making it I realized how important time is and learned how should one scope the project.
- Find the game at itch.io and Video Link

T-wrecks | *C#, Unity, Git, Github, Visual Studio*   **August 2021**

- T-wrecks is a 2D Action Platformer game, made using Unity and C#.
- It uses Object oriented programming and software design patterns
- Programmed the gameplay, physics, High Score system, Game feel and effects
- Find the game at itch.io

Hopin | *C#, Unity, Git, Github, Visual Studio*   **October 2021**

- Hopin is a 3D Top down Puzzle platformer game made with Unity and C#.
- It uses Event-driven architecture to interact with multiple systems
- The whole project was completed under a time constraint of 48 hours and published.
- Find the game in itch.io

Technical Skills

Programming & Scripting: C, C++, C#, CMake, GLSL, Slang, Java, Python, HTML, CSS, JavaScript
Developer Tools & Software: Visual Studio, RenderDoc, Visual Studio Code, Git, Github, Perforce, Trello
Engines & Frameworks & Libraries: Unity, Unreal, Godot, ARCore, ARKit, OpenGL, Vulkan, Dear ImGui, C++ STL

Soft Skills

- Content Writing
- Teamwork
- Communication
- Resourcefulness
- Creativity
- Decision making
- Adaptability
- Emotional intelligence

Training/Certifications

NIIT   **April 2017**

- C and C++ Programming.

One Month   **July 2020**

- HTML Course, CSS Course

Ethnotech   **August 2021**

- Internet Of Things, Arduino