Vishesh Gupta

+917414043000 | vishesh2603@gmail.com | LinkedIn | Github

Education

Indian Institute of Technology, Kharagpur — Kharagpur, West Bengal
Bachelor of Technology in Electrical Engineering, CGPA 8.55 — *Dec. 2020 – Present*

Vidhyashram International School — Jodhpur, Rajasthan
Indian School Certification Examination — *April 2018 – May 2020*

Experience

Game Developer — January 2022 – Present
Mythfic Studio
- Developed multiple game mechanics including - enemy AIs, character movement, and environmental puzzles for a 2D metroidvania platformer game, inspired by hollow knight and souls like games based on Indian Mythology.
- Developed several unity tools to automate editing processes which reduced the overall debugging and setup time.

Research and Development Head — January 2021 – Present
Computer Graphics Society — *Kharagpur, West Bengal*
- Lead various R&D projects ranging from XR, Procedural Generation, Ray Tracing and Embedded Systems.
- Organised workshops to introduce people to Graphics API, Game Development and Optimization Techniques.

Freelance Game Developer — June 2021 – Aug. 2021
UpUGo
- Co-developed AI/ML (Machine Learning) products with a Graphical Interface for motion based exercise games.
- Built a tennis game which used computer vision to detect the location and movements of player to detect inputs, such as left, right, forehand and backhand, on Unity Game Engine.

Projects

Real-time Participating Media Rendering for Underwater Scenes | *Supervisor: Prof. Subodh Kumar (I.I.T. Delhi)*
- Developing a rendering technique that realistically models participating medium interactions like scattering and caustics and offers excellent renders with decent frame-rate, by offloading the heavy lifting to pre-rendering period.
- Researching on how we can use photon mapping while replacing rays with beams or higher dimensional photon samples for volumetric light transport to speed up the rendering during the rendering trace after the photon trace.

Laboratory Simulations for Mixed Reality | *Supervisor: Assistant Prof. Kuashal Kumar Bhagat (I.I.T. Kharagpur)*
- Created a Virtual Reality application to simulate the working of a silicon wafer FAB machine, to introduce feasible method to train a large group of users, as it is extremely expensive to work directly on the silicon wafer.
- Designed multiple AR simulation to help visualise a multitude of physics experiments, such as the venturi meter experiment and the single slit experiment, letting the user control parameters to play around with the simulation.

Path Tracer (GPU) | *C++, NVIDIA's OptiX Ray Tracing API, Visual Studio, Git*
- Developed a Path Tracer from ground up using RTX accelerated API which uses the rendering equation to render most simple materials such as dielectrics, isotropic medium, and specular and apply various textures to them.
- Integrated anti aliasing, importance sampling methods, and optimisations, to render the scene in real - time.

Procedural Terrain Generation in Unity Engine | *C#, Unity Game Engine, Git*
- Constructed an immersive procedural 3D environment using Unity Engine's terrain system and in-built shaders.
- Employed real-time GPU rendering, and lightmap baking that resulted in a 100% increase in frame rate.

Technical Skills

Languages: C/C++, C#, Processing, Python, Java, JavaScript, HTML/CSS, MATLAB, Verilog
API: Optix RayTracer (Nvidia), CUDA (Nvidia), OpenGL
Developer Tools: Unity Game Engine, Unreal Game Engine, Git, VS Code, Visual Studio

Achievement

- Secured an AIR of 869 for the KVPY Fellowship Examination.
- Secured an AIR of 1511 out of 150k candidates in Joint Entrance Examination Advanced, 2020.
- Secured an AIR of 1025 out of 929k candidates in Joint Entrance Examination Mains, 2020.
- Secured Rank 1 in the Science stream in Grade 11th and 12th at school.