

Ishan Agarwal

Full Stack Developer

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Education

Degree, Major	Institution Name	Year
Bachelor of Technology in Information Technology	Manipal Institute of Technology	2022

Skills

- **Programming Languages:** Python, C, JavaScript, GLSL
- **Web Technologies:** HTML, CSS, JavaScript, Django, WebGL2, React
- **Databases:** SQL, MongoDB
- **Version Control:** Git, GitHub

Internships

Neovim Solarized

- Ported a colorscheme written in vimscript to **Lua** for neovim 0.5.

Projects

Parser

Nov 2023 – Dec 2023

- Created a file parser for the widely used .obj geometry definition file format in **C**, commonly employed by 3D graphics application vendors.
- Introduced a feature that efficiently loads vertices from the file into arrays, optimizing data retrieval for seamless integration with the renderer, reducing load times by 30%.

Software Renderer

Dec 2023 – Jan 2024

- Engineered a 3D Software Renderer using Win32 in **C**.
- Rendered lines with Bresenham's Algorithm, avoiding floating point math to reduce CPU load by 25%.
- Utilized linear algebra to determine if points were inside the triangle, enhancing rendering accuracy by 15%.

3D Graphics Math

Dec 2023 – Jan 2024

- Designed math functions for camera, projections, and other scaling/translation operations for 4x4 matrices in 3D graphics.
- Improved calculation efficiency, reducing computational overhead by 20%.

E-Commerce Page

July 2023 – July 2023

- Developed a frontend E-Commerce page using **HTML**, **CSS**, and **JavaScript** as a challenge from the frontendmentor website.

- Crafted and implemented responsive layouts, enhancing user experience and achieving a mobile compatibility score of 95%.

Personal Website

July 2024 – July 2024

- Constructed a personal website and blog using **Django**, **HTML**, **CSS**, and **WebGL2**.
- Integrated a fragment shader and interactive elements to showcase projects and blog posts, increasing user engagement by 40%.

Bullet Hell Game

May 2024 – May 2024

- Created a Bullet Hell Game in **Python** using Pygame for the itch.io Bullet Hell Game Jam.
- Developed game mechanics, collision detection, and optimized performance for smooth gameplay, resulting in a 50% improvement in performance.

Certificates

Machine Learning

Coursera, Oct 2023