Angad Basandrai

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Education

IIEST Shibpur — Shibpur, Howrah, West Bengal
Bachelor of Technology in Computer Science and Technology — *Aug. 2025 – Aug. 2029*

Kundan Vidya Mandir Sr. Sec. School — Ludhiana, Punjab
High School — *Apr. 2011 – May 2025*

Projects

Physics Engine | *C++, OpenGL, GLFW* — Sep 2025 – Presentt

- Designed and implemented a custom 2D physics engine in Python/C++ to simulate rigid body dynamics, collisions, and gravity.
- Developed efficient numerical integration and collision-response algorithms to ensure real-time performance.
- Visualized simulations to debug and demonstrate engine accuracy and stability.

Simple Gravity Simulation | *Unity, C#* — Apr 2024 – May 2024

- Created a particle-based physics system in Unity (C#) to simulate gravity, collisions, and motion.
- Built a lightweight rendering and update pipeline for real-time interaction and experimentation.
- Designed object-oriented code architecture allowing scalable particle counts and configurable parameters.

Chronix OS | *x86 asm, C* — Dec 2023 – Present

- Built a minimal operating system from scratch in x86 Assembly and C, focusing on low-level system design.
- Implemented bootloader and interrupt handling to achieve a working kernel.
- Gained hands-on experience with BIOS interrupts, paging, and hardware-software interaction.
- Explored modular OS design principles, laying groundwork for multitasking and filesystem integration.

Boids Simulation | *Unity, C#* — Oct 2023 – Nov 2023

- Developed a real-time flocking simulation in Unity (C#) based on Craig Reynolds' "Boids" algorithm.
- Implemented steering behaviors (alignment, cohesion, separation) to replicate realistic group movement.
- Tuned performance to handle thousands of agents simultaneously while maintaining stable frame rates.
- Multiple types of species to simulate more complex group flocking and different attitude tables between species to create distinct and somewhat realistic flocking behaviors.

Technical Skills

Languages: Java, Python, C/C++, SQL, JavaScript, HTML/CSS, R, C#, GDScript, PHP
Frameworks: React, WordPress, jQuery, Selenium, Tensorflow
Developer Tools: Git, VS Code, Visual Studio, PyCharm, IntelliJ, Eclipse
Other Skills: Blender, Photoshop

Certifications and Other Skills

Machine Learning Specialization from Stanford University and DeepLearning.ai
Rated 900+ on Codeforces.com