

Rohit Punjabi

Software Engineer

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EDUCATION:

Master of Science in Computer Science

DigiPen Institute of Technology, Redmond, WA

Expected May 2023

Bachelor of Engineering in Information Technology

Thadomal Shahani Engineering College, Mumbai, MH

May 2021

SKILLS:

Programming Languages : C++, C#, Python, Lua

Libraries : OpenGL, SDL, FMOD, TensorFlow, NumPy

Tools : GitHub, Jira, Jupyter Notebook, Visual Studio

Game Engines : Unity3D, Unreal 4

PROJECTS:

Programmer | 3D Custom Game Engine

September 2022 – Current

- Working in an Agile development environment to make a 3D game engine from scratch
- Created an Audio System for the engine using FMOD Core API
- Integrated a robust game state manager into the game engine that uses a stack-based approach to enable seamless and responsive transitions between different stages.
- Developing game mechanics, systems, and features that align with the game's vision and target audience

Deep Neural Network

January 2023

- Developed a custom neural network using Python and NumPy
- Implemented the backpropagation algorithm to optimize the network's weights and biases during training.
- Evaluated the model's performance using metrics such as the Root Mean Square Error

Soft Body Simulation

November 2022 – December 2022

- Demonstrated soft body simulation of cube with 125 mass points.
- Each mass point connected with a spring mass damping system.
- Applied Runge-Kutta 4th order numerical method for integration and Hooke's law for Spring system.

AI Programmer | 2D Component Based Engine

January 2022 – April 2022

- Developed a robust custom 2D game engine from scratch.
- Designed and implemented a custom behavior tree system for the boss enemy.
- Implemented 2D Collision Detection algorithms such as AABB, and circle collision detection.
- Developed an Input Handling system using Lua Scripting to provide a flexible way to map inputs to in-game actions.

A* Pathfinding

February 2022

- Implemented the A* pathfinding algorithm in C++ to solve the problem of finding the shortest path between two points on a 2D grid.
- Utilized four admissible heuristics like Manhattan, Chebyshev, Octile, Euclidean and changeable weights.
- Applied Rubber banding and Smoothing (Catmull-Rom) on the path.

Planning with Smart Objects

March 2022 – April 2022

- Collaborated with 2 team members to design and implement a tech demo showcasing the use of Goal Oriented Action Planning with Smart Objects in Unreal engine.
- Developed a goal-driven approach for programming game characters that allowed for dynamic and adaptive gameplay experiences.

Shooting Madness | 3D mobile game

May 2020

- Implemented a system to save the player's score using Unity's PlayerPrefs class, to track and store the player's high scores across multiple sessions.
- Developed a touch joystick control system that enables smooth and intuitive camera movement in mobile games.