Sidhant Gumber

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PROFESSIONAL SUMMARY

Passionate Master's student in Computer Science with a robust foundation in game development and software engineering, combining technical prowess in Unity and Unreal Engine. Experienced in developing innovative VR applications, tools for game design and development, software development, showcasing versatility in coding, system design, and problem-solving. Proven ability to contribute to collaborative teams, with a track record of enhancing user experiences and streamlining development processes. Eager to apply my deep understanding of game design and programming skills in a dynamic development environment.

EDUCATION

Drexel University | MS in computer science, GPA: 3.96 2023–2025

The Northcap University | BTech in computer science, GPA: 8.12 2019–2023

WORK EXPERIENCE

1.) Tooliqa | Trainee Jan'23–April'23

Project

- Working in the Game Engine Unity to build the software for "TWINN" which is a disruptive handheld device with built-in intelligence to perceive the built-up environment in 3D and represent the same in real-time.
- I was responsible for working on their 3D Modelling app, twinn editor and was responsible for building blender like editor functionalities in C#.
- Used and built upon various open source editor plugins for unity by implementing the factory pattern.
- Was also in charge of several bug fixes and UI development using Unity's USS editor.

2.) XR Central | Intern Jun'22–Jul'22

Projects

- Worked on a live project which was a virtual reality showcase of the International Tennis Hall of Fame Museum using the game Engine unity. I was incharge of programming the movement and interactions in the project.
- Worked on a virtual reality project which aimed at providing a vocational training experience for electricians and welders. This was pitched to the Government of India as a part of their online national vocational training initiative.
- Worked in BabylonJs on a WebXR based framework for the company's proprietary software.

Key achievements

- The VR application I programmed during my internship was showcased live in New York at the US Open
- Implemented haptics and vibration feedback for meta quest controllers to increase immersion of the showcase.

SKILLS

- **Programming Languages**: C++, Java, C#, Python, C, Javascript: ThreeJs/BabylonJs, HTML CSS
- **Software:** Game Development, Virtual Reality Development, Augmented Reality Development in Unity-C# and Unreal Engine-C++, Adobe Photoshop for 2D asset creation and pixel art, 3DS Max; Video editing in Final Cut Pro X
- **General:** Game-AI Programming, Level Design,Cinematic Design and Direction, Linear Algebra and Vector Mathematics for games, Object Oriented Programming, Data Structures and algorithms, Operating Systems, Machine Learning in Python

PROJECTS : https://www.devbysid.com/projects

Game Development

- **Project White Tail**: A third person souls like action RPG currently in development in Unreal Engine 5.3 and C++. Undertaking this solo project to solidify my understanding of unreal engine by functionalities like foot IK, souls system, dodge mechanics, sword combat, mesh manipulation and treasure system.
- **Hel's Gate - Action RPG** : One of my biggest projects, hel's gate is a click to move action RPG, took 3 months of development, 4000 lines of code and approximately one week of bug fixing. I implemented all the features of a modern game: multiple weapon types, Fully working Enemy AI, Skill based progression and autosaving via binary file creation and the end result was polished enough to help me secure my first internship at a leading metaverse studio.
- **Search For Annie :** A cross platform third person shooter for android and windows. Features a behaviour tree for enemy AI, one of my most challenging programming projects. Built a custom editor in unity to build a node based dialogue system inspired by the witcher 3 featuring multiple dialogue options. Also features gun combat and enemies.
- **Rocket Rush - Space Adventure:** Features space exploration using a rocket with a carefully crafted level design.
- **Jumping Bad - Flappy bird with a twist:** Recreation of an iconic classic with a satirical twist from the show breaking bad.
- **Time Out - First Person Shooter**: I undertook this project to learn how to develop shooting in first person games and how to work with a 3D open world. Features boss battles and puzzles as well.
- **Rage The Game - Puzzle platformer:** This game was made for a game jam called BYOG 2021 and it got a special mention, getting a place in the top 20 games made in BYOG.

- **Untitled Ghost Game - Puzzle platformer, Satire:** Made this game for global game jam 2022. I originally had the idea of this game as a satire on the duality of man. We tried to showcase the dichotomy between perseverance and greed with respect to the adverse effects of humanity's actions on the environment.
- **Endless Driving:** An endless runner with a car and obstacles, implemented gyroscope functionality for android to make the car turn by tilting your phone.
- **Super Mario - Recreation of a 2D platformer:** I recreated the classic 2D platformer super Mario as an early test project to learn the principles of the game engine Unity.
- **Laser Defender - 2d Space Shooter:** A space shooting game based on the classic game Galaga.
- **Block Breaker - 2d puzzle:** The first game I ever made from start to end, a simple block breaking game consisting of a ball and a paddle.

Augmented Reality Development

- **SolAR Lens - Augmented reality app:** This is an educational app which lets you visualize the planets in the solar system and tells interesting facts about them. This project also features some of my best work with user interfaces. The app gives you the ability to visualise the entire solar system in your own surroundings with real time and exact scaling of the planets. The algorithm I wrote to simulate the rotation and revolution of the planets takes into account their exact rotation and revolution speeds and scales them in your surroundings to provide a realistic motion. Used a custom shader to add shadows and real time light estimation.
- **AR Driver - Augmented reality game:** A remote controlled car game for IOS devices that uses your phone's back camera and lets you drive a car in your own surroundings. Works on iphone 12,13 pro and ipad pro by using the LidAr sensor to map your entire surrounding and generate realistic 3d meshes.I was awarded second prize for this app in the major project competition held in our university.
- **Dancing man AR:** My first AR project, spawned a dancing man to learn spawning AR elements using AR RayCast in unity.

Virtual Reality Development

- **VR Shooting Game - Romeo's Rampage:** A first person shooting game for oculus quest. Uses the built in OpenXR plugin in unreal engine 5.1. Ability to walk and teleport in VR and shoot a bunch of drones to clear out waves of enemies and beating high-scores.
- **Roman Emperors - A Museum Showcase:** My first Virtual Reality App, a museum showcase of the greatest roman emperors made for the oculus quest and rift headsets. One of my first projects in Unreal Engine 5.0

Web XR Development:

- **Web AR Image and Hand Tracking Application:** A marker based AR application that tracks specific images to spawn 3d models using the user's web cam. Also used hand tracking to detect user gestures to make a robot react based on hand gestures. Built using ThreeJs, MindAR and TensorflowJs.

AI/ML:

- **2D Platforming-Game based Image Classification for kids:** Developed an interactive 2D platformer game integrating machine learning algorithms (SVM and Logistic Regression ensemble using Random Forest) to classify and teach children the difference between cats and dogs. Implemented real-time image classification to enhance educational engagement, utilizing gamification principles using pygame. Demonstrated practical application of ML algorithms in an educational setting, contributing to innovative child learning methodologies.
- **Pegboard solving AI:** A command line based AI that solves a given pegboard. Implemented the AI using 3 different strategies: A-Star, DFS and flailing wildly(hit and trial) to demonstrate the efficiency of the three algorithms when it came to solving puzzles with search reaching deeper depths.
- **8-Puzzle solving AI:** A simple command line based AI that solves a given 8-Puzzle by choosing moves at random.
- **Q-Learning AI:** Implemented a basic Q-learning algorithm to make an AI learn a policy of behavior for a simple grid world using Q-learning and coding a q-table.

ACHIEVEMENTS AND INTERESTS

- Got Dean's Merit Scholarship worth $12800 for my Master's in Computer Science program at Drexel University
- Special mentions in two game jams: BYOG 2021 and Global Game Jam 2022.
- Member of the Game Developer's Association at Drexel
- Member of Game Mantra, the gaming society of NorthCap University.
    - Successfully organized a game jam, received 100+ entries from talented developers across India.
    - Conducted various seminars and webinars.
- Wrote articles on tech-related topics which got published in various local newspapers online.
- Student tech ambassador of NorthCap University: interacted with students and helped them choose the right course among various specializations offered by the NorthCap University in the computer science department .
- Senior video editor and content writer for my undergrad college societies and events.
- Public speaking and performing at standup comedy open mics.