VATSALYA YADAV
Gameplay/Tools Engineer

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SKILLS

Languages	Rendering APIs	Game Engines	Development Tools	Maths and Physics
C/C++,	Vulkan,	Unreal Engine,	Git, Jira,	3D Math,
C#,	OpenGL	Unity3D,	Visual Studio,	Spline Curves,
Lua		Cocos2dx	Resharper C++	Newtonian Dynamics

PROFESSIONAL EXPERIENCE

Gameplay Programmer | **Unannounced Title**   July 2019 - November 2020
GodSpeed Games - Pune, India

First person Platformer Game made using Unreal Engine 4 utilizing both Blueprints and C++.
- Created gameplay mechanics like Grapple Hook, Wall Running and character movement.
- Responsible for programming Human-like Character Animations by leveraging Unreal's Animation Tools.

First person Virtual Reality Game made using Unreal Engine 4 and HTC Vive.
- Developed gameplay elements of a fun fair like throwing hoops and balls and scoring for each game.
- Rapidly prototyped 3 game modes and worked closely with artists and animators to optimize the art pipeline.

TEAM PROJECTS

Tools/Lead-Gameplay Programmer | **Dodge Brawl**   January 2023 - April 2023
2D Couch Co-op Platformer built within Custom Engine using C++, OpenGL, and ImGui with Multithreading.
- Created Debugging & Visualization Tools to monitor performance, FPS and memory usage.
- Integrated Scope Based Profiling Tool to monitor engine performance at runtime.
- Developed De-Serialization system for data driven Archetype System.
- Integrated State Machine Pattern and engineered Pushdown Automaton.
- Achieved creating a competitive couch game which supports up to 4 players.

Lead Gameplay Programmer | **Tank Blitz (Unreal Engine)**   June 2019
Tank Battle game made in Unreal Engine 4 using both Blueprints and C++.
- Programmed the core-mechanics for tank movement, combat and AI.
- Incorporated save-load functionalities using Blueprints.
- Developed complex AI using Blackboard System within Unreal Engine.

SOLO PROJECTS

Graphics Engineer | **Vulkan Real-Time Ray-Tracing**   May 2023 - July 2023
Custom Renderer with Real Time Ray-Tracing, History Tracking and Denoising.
- Implemented Ray-Tracer using the Monte-Carlo Path Tracing Algorithm.
- Computed History Tracing for each frame using Selective Weighted Bi-linear Interpolation method.
- Final Denoising step is implemented using Compute Shader via the À-Trous algorithm.

Software Developer | **Concurrent/Parallel Trie Data Structure**   March 2023 - April 2023
Created Concurrent version of Trie Data Structure using std::threads and mutex based locks.
- Made the Data Structure 2.5 times faster than the Serialized version for big data sets of 10 million words.
- Parallel Trie increases scalability of applications that require fast access and modification of structured data.

Engine Programmer | **Banana Engine**   August 2022 - December 2022
Custom 2D Game Engine supporting ECS, Textures, and Physics.
- Created a Rendering Pipeline which lets users create GameObjects and assign Textures and Materials.
- Developed Component System Architecture that lets developers create User-Defined Components.
- Developed Physics Engine that detects collision between AABB, OBB and Circles.

EDUCATION

Master of Science in Computer Science | Graphics Concentration   Expected Graduation April 2024
DigiPen Institute of Technology - Redmond, WA

Bachelor of Engineering in Computer Science and Engineering   July 2019
Siddaganga Institute of Technology - Tumkur, Karnataka