SHANTANU SHRIPAD MANE - GAMEPLAY SOFTWARE ENGINEER

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EDUCATION

University of Utah - *Expected Graduation - May 2019*
Pursuing a Masters in Entertainment Arts & Engineering - Game Engineering Track

K.J. Somaiya College of Engineering, Mumbai, India - *June 2015*
Secured a Bachelor of Engineering in Computer Engineering with *First Class Honors*

SKILLS

Programming Languages - C++, C#, Blueprints, Assembly
Relevant Knowledge - 3D Math, Data Structures, Memory & Cache
Soft Skills - Iteration, Collaboration, Problem Solving, Organization
Software Architecture - UML, Dia
Software Used - Unreal Engine 4, Unity, Maya, Flash
Version Control - Perforce, Git

GAME PROJECTS

2D Collision System - *Gameplay Software Engineer - C++* - Feb '18 to May '18 - Portfolio Page
- Created the Collision & gameplay supporting systems for a 2D Game Engine and implemented Pong using it.
- Implemented the Swept Separating Axis Test for collision checks, and two types of responses to them - block & overlap.
- Optimized collision system by updating coordinate transformation matrices only for moveable objects, checking collision of only the ball with other objects & responding to only the earliest collision, capitalizing on the game world being sparse.
- Created libraries of 4x4 Matrix & Vector4 operations for transformations used primarily by collision system.

Memory Manager - *Engine Core Programmer - C++* - Oct '17 to Dec '17 - Portfolio Page
- Created a memory manager in C++, with Fixed Size & Dynamic Size Allocators, that passes a robust unit test.
- Implemented Fixed Size Allocators for certain allocation sizes that use arrays of bits to track their memory blocks.
- Optimized bit operations with Compiler Intrinsic instructions to speed up looking through the bit-arrays.
- Created a Dynamic Size Heap Allocator to allocate memory of requested size from the reserved heap of memory.

Combat System Project - *Gameplay Software Engineer - C++, UE4* - Current Project - Portfolio Page
A combat system similar to that of Bayonetta, focusing on player input and combat mechanics.
- Created a system for chain attacks/combos based on input timing, which is robust enough to allow adding any number of combat moves by designers and chaining between them.
- Improved responsiveness by accepting next attack input before an attack finishes and later executing the 'Pending Attack'.

Mavrick - *Gameplay Software Engineer - Blueprints, UE4* - Published April 2018 on Play Store and itch.io
An Action Game where you pinball and charge at enemies with your fists to send them flying out with an explosion.
- Implemented a spawn system allowing to create desired intensity in the game by tuning the difficulty of a set of spawned waves and the kill threshold to spawn every new wave.
- Worked on the 'Fighter' enemy AI that blocks attacks from the front, needs to be stunned from behind before being able to take damage and can do a short-range charge at the player.
- Setup complete animation state machines for the 'Fighter' and 'Shotgunner' enemies.
- Designed player abilities and enemies to create intense and high-octane gameplay.

Warlocks - *Gameplay Software Engineer - C#, Unity* - Aug '18 to Dec '18 - Portfolio Page
A recreation of a MOBA-esque King-of-the-Hill PvP where you cast spells to fight and defeat other players.
- Created an input system that can switch between input types - selection & movement, spell-casting & targeting types.
- Created robust Unit Statistics, Damage and Status Effects systems and pipelines.
- Implemented a well-rounded spell system with ability interactions, spell-cast types, spell levels, cast times, and cooldowns.
- Implemented Object Pools to instantiate spells/abilities before game start to eliminate overhead of on-demand creation.