Members:

Matthew Oliver

Jackson Almaden

Ben Kurtin

We've chosen to research Procedural Animation. More specifically we will be looking into procedural walk cycles for bipedal creatures, possibly quadrapedal and above as well. We want to learn about procedural animations for two reasons. The first is the obvious reason, we want to be able to talk about it in interviews and such. The second is so we can implement it in our own projects. Being able to use this means programmers like us can have good looking animations without artists to make them. Even on projects with artists it allows us to take some of the load off of them, letting them focus on other things.

To showcase procedural animation, we will create a demo with a bipedal character whose walk cycle adapts to the terrain underneath it. It will be created in the Unreal Engine using default assets. The character will be able to walk across a plane, a ramp, and a set of stairs and adjust its walking animation accordingly. If we finish that and have time to spare, a good stretch goal would be to apply the procedural animation system we create to other characters. For instance, we could apply the system to four-legged or eight-legged creatures.

We chose this project because we all have an interest in Procedural Content Generation (PCG) however, we have been working on a basic PCG system in another class, so we wanted to expand our knowledge. The worth of this project to other developers is the time that can be saved by procedural generating the base animations for NPC’s. Statically building each animation for a character is time consuming and if a company has limited resources this can help alleviate that workload. It can also lend a sense of realism to the player as the animations are happening during run time. For example, in the 2016 release of Doom all the enemies’ animations are procedurally generated so that when the player moves the enemies will track that player and procedurally animate the rotation to face, look, and perform some action. A couple games we believe could benefit from procedural animation would be Stray, Breath of the Wild, Tears of the Kingdom, and any game that can benefit from ragdoll physics.