FIT2097 - Games Programming 2

Visual Effects & Particle Systems

WEEK 4

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Learning objectives

Warm Up

- Getting our minds in the right place

Housekeeping

- Reminders and Questions

Breaking Down Games

- Identifying Emitters
- Controlling Particles via Code

Warm Up

Warm Up Exercise - 10 Minutes

- To get us warmed up and thinking about games
- Think of a time when you saw a Particle Effects in a game
  - Have you ever seen a Particle Effect?
  - What was the effect you saw?
  - How do you think it was done?

Discussion With The Class - 5 Minutes

- Let's also get a few people to talk about the game they chose
  - Have you ever seen a Particle Effect?
  - What was the effect you saw?
  - How do you think it was done?

Housekeeping

Housekeeping

- Reminder to keep on top of lab tasks
- Make sure to check out the Assignment 1a rubric
- Ask any questions you may have as we go along

Identifying Particle Effects

Final Fantasy 16

Quick Overview

- Final Fantasy 16 is JRPG that came out in 2023
- The game uses a semi-realistic visual aesthetic with lots of particle effects and post processing
- This week we will be focussing on particle effects within the Battle System
- We will not be including spoilers, this gameplay is from 2 hours into the game!

Final Fantasy 16

- Let’s examine the following video of gameplay

Identifying Emitters - 10 mins

- Select 1 particle effect you see present within the video
- In groups of 3-5, discuss what emitters you believe are used to create the effect
- Using the knowledge you learnt from the Pre-Class Videos
- Identify the following:
  - Which effect are you breaking down
  - List out each emitter you believe is present
    - What type of emitter is it? Spawn Burst, etc.
    - Why do you believe this is used

Discussion With The Class - 5 Minutes

- Let’s get a handful of groups to share their observations

Identifying Modules - 20 mins

- With the emitters from the previous activity
- Identify which modules would be used if done in Unreal Engine
    - Refer to:

      https://docs.unrealengine.com/5.2/en-US/system-and-emitter-module-reference-for-niagara-effects-in-unreal-engine/
- Explain what each module would be need for in the effect
- What values would be used

Discussion With The Class - 5 Minutes

- Let’s get a handful of groups to share their observations

Identifying C++ Parameters - 20 mins

- Consider what parameters can be controlled from C++
- Having these controllable with code allows for greater flexibility and customization at run time
- Note the following
  - What parameters will be customisable?
  - Which emitters are they in?
  - Why do you believe they should be customised?

Discussion With The Class - 5 Minutes

- Let’s get a handful of groups to share their observations

Creating our own effects

Creating our own effects - 15 mins

- In groups of 3-5, discuss what effects you would like to create for your assignments (or other projects)
- Discuss amongst yourselves:
  - What effect components would be useful to consider in your design of the overall effect?
    - This can be simply describing parts of the effect if it's difficult to identify exact in-engine effects
  - Where could you get inspiration for your chosen effect?

Consultation Time

Additional Consultations

- We will have another game example to work through available
- However, if people want to talk with the demonstrators about their assignments we will have space for that too

Additional Game Example

And We’re Done!

Labs

This week in the labs we will focus on the construction of a particle effect that players on death.

To The Audience

If you haven’t been through the pre-class content, ensure you done this before you lab class.