CS248 Lecture 14

Character Animation in Unity

February 23rd, 2017
Overview

- Animation Controller (3D)
- Blend Shapes
- 2D Sprite Animation
Animation Controller
(3D)

ANIMATION 101
3D Animation

Battlefield 3 Animation (Upright, Crouch, Prone)
3D Animation

Battlefield 4 Animation (Running)
Animation Controller

- State Machine
- Key Concepts
  ‣ States
    (http://docs.unity3d.com/Manual/StateMachineBasics.html)
  ‣ Transitions
    (http://docs.unity3d.com/Manual/StateMachineTransitions.html)
  ‣ Blend Trees
    (http://docs.unity3d.com/Manual/class-BlendTree.html)
- Animation Layers
  (http://docs.unity3d.com/Manual/AnimationLayers.html)
- Target Matching
  (http://docs.unity3d.com/Manual/TargetMatching.html)
- Inverse Kinematics
  (http://docs.unity3d.com/Manual/InverseKinematics.html)
Blend Shapes

FACIAL ANIMATION AND DEFORMATIONS
Facial Animation

Star Citizen Tech Demo
Character Creation

Black Desert Online Character Creator
Basic Deformations

- Have a mesh with a non-deformed shape and have a blend shape that represents its deformed state (i.e. car being crushed).
- Blend between the two to have varying states of “crushed-ness”
- More efficient than storing a single mesh for every degree of being crushed
Unity Blend Shapes

- Create Blend shapes in a modeling program (i.e. Maya)
  - Maya:
    - https://www.youtube.com/watch?v=dmNmdRKtcSs
- Import into Unity and create animation clips using the Unity Animation Window (see Lecture 6) or modify blend shape weights via scripting
- Documentation: http://docs.unity3d.com/Manual/BlendShapes.html
2D Sprite Animation

SKELETAL ANIMATION NOT RECOMMENDED
Sprite Based Animation

Little Fighter 2 Sprite Sheet
Sprite Based Animation

- Create sprite sheet in an image editor (i.e. Photoshop).
  - Each image should occupy the same amount of space. Make your life easy. Use grids.
  - Your “animation” will cycle through multiple images and display them to give a sense of moving.
- Tutorial: [http://michaelcummings.net/mathoms/creating-2d-animated-sprites-using-unity-4.3](http://michaelcummings.net/mathoms/creating-2d-animated-sprites-using-unity-4.3)
- Sprite Editor Tutorial: [https://unity3d.com/learn/tutorials/modules/beginner/2d/sprite-editor](https://unity3d.com/learn/tutorials/modules/beginner/2d/sprite-editor)
- Sprite Editor Documentation: [http://docs.unity3d.com/Manual/SpriteEditor.html](http://docs.unity3d.com/Manual/SpriteEditor.html)
Live Demo

ANIMATION DEMO