



Virtual Reality HW1

Articulated Animal Animation

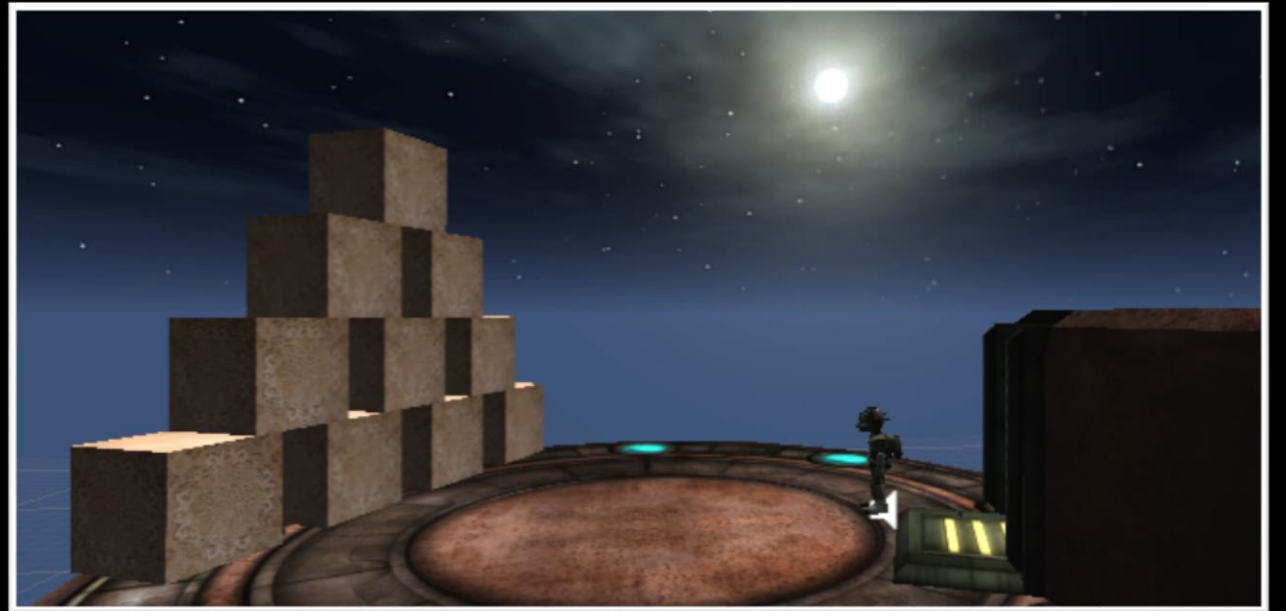
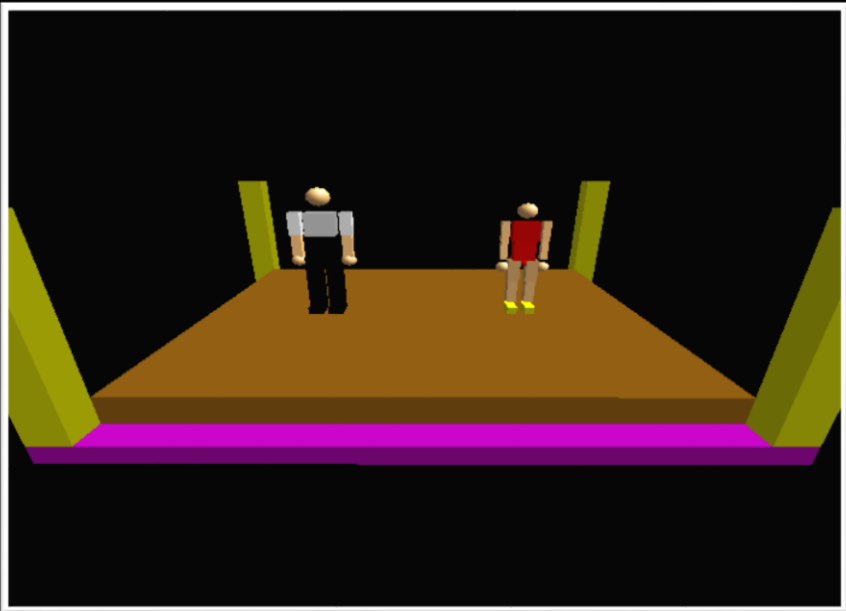


Requirements

- Simulation (real time) of articulated animals (including humans)
- **30** seconds or above (demo final results at class)
- C/C++ with OpenGL or Unity3D (no restrictions)
- due date: **2014/04/21**

Sample Programs

- Dance (C/C++ with OpenGL)
- game (Unity3D)





Dance

2000 by duke

2012 by Yu Tu

Dance - Setup(1/2)

- Use visual studio to open Dance.sln

Dance - Microsoft Visual Studio

File Edit View Project Build Debug Tools Test Window Help

Debug Win32 strcmp(nodeName, "

Solution Explorer - D...

Solution 'Dance' (1 project)

Dance

Build
Rebuild
Clean
Project Only
Profile Guided Optimization
Custom Build Rules...
Tool Build Order...
Add
References...
Add Web Reference...
View Class Diagram
Set as StartUp Project
Debug
Cut
Paste
Remove
Rename
Unload Project
Open Folder in Windows Explorer
Properties

Dance Property Pages

Configuration: Active(Debug) Platform: Active(Win32) Configuration Manager...

Common Properties
Configuration Properties
General
Debugging
C/C++
General
Optimization
Preprocessor
Code Generation
Language
Precompiled Headers
Output Files
Browse Information
Advanced
Command Line
Linker
Manifest Tool
XML Document Generat
Browse Information
Build Events
Custom Build Step

Additional Include Directories C:/Users/henry/Documents/99VR/dance

Resolve #using References	
Debug Information Format	Program Database for Edit & Continue (/ZI)
Suppress Startup Banner	Yes (/nologo)
Warning Level	Level 3 (/W3)
Detect 64-bit Portability Issues	No
Treat Warnings As Errors	No
Use UNICODE Response Files	Yes

Additional Include Directories
Specifies one or more directories to add to the include path; use semi-colon delimited list if more than one. (/I[path])

確定 取消 套用(A)

Code Definition Window Call Browser Output

Ready



Dance – Setup(2/2)

- Project Properties

- > Configuration Properties

- > C/C++ (General)

- > Additional Include Directories

- Project Properties (VS 2010)

- > Configuration Properties

- > Linker (General)

- > Enable Incremental Linking -> "No (/INCREMENTAL:NO)"

- Project Properties (VS 2012)

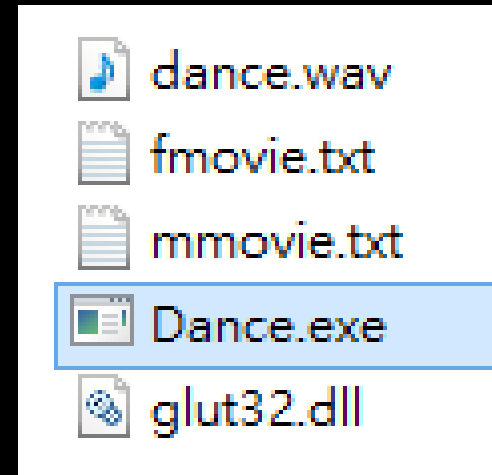
- > Configuration Properties

- > Linker (Advanced)

- > Image Has Safe Exception Handlers -> "No (/SAFESEN:NO)"

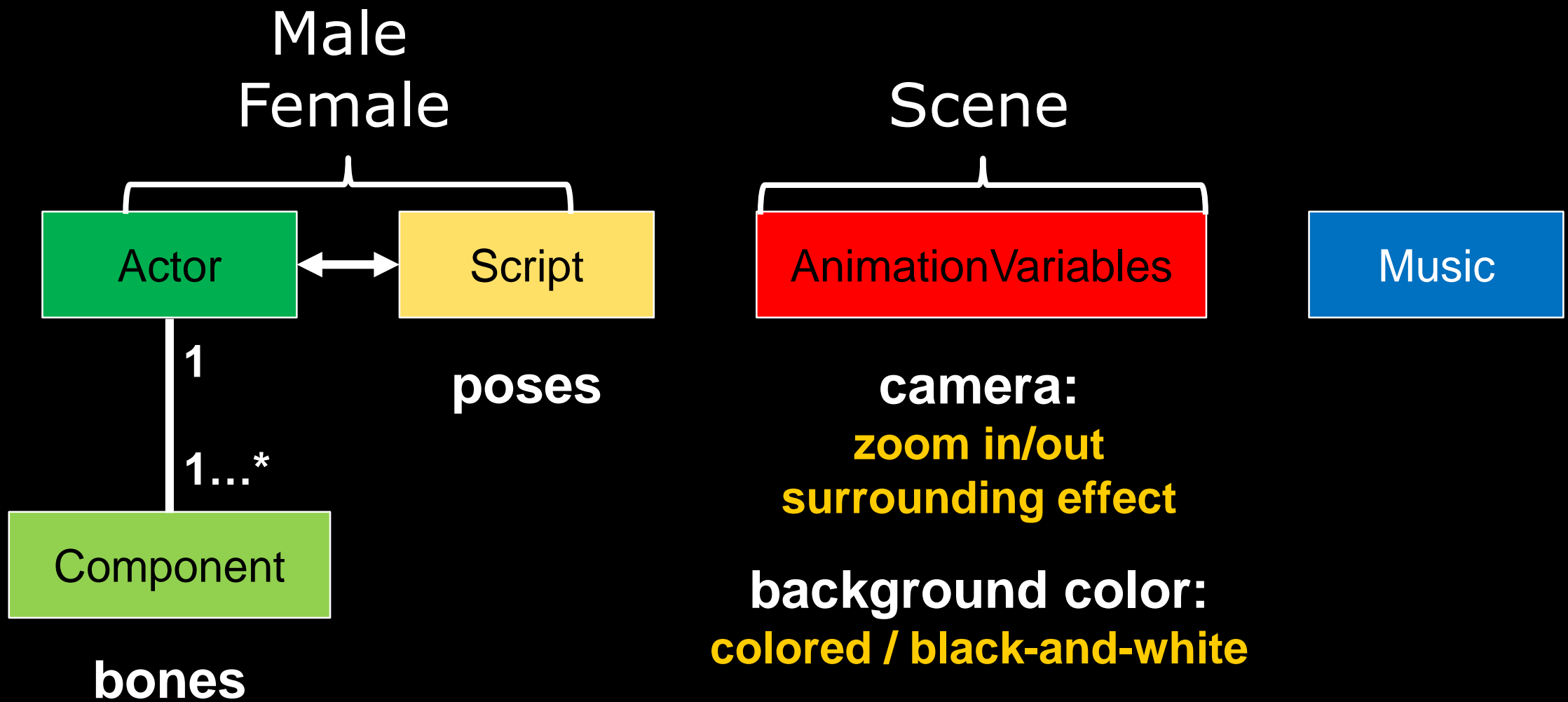
Dance – Execution

- Dance.exe
 - glut32.dll
 - mmovie.txt (male script)
 - fmovie.txt (female script)
 - dance.wav (music)



- Read "README" for more information

Dance – Classes



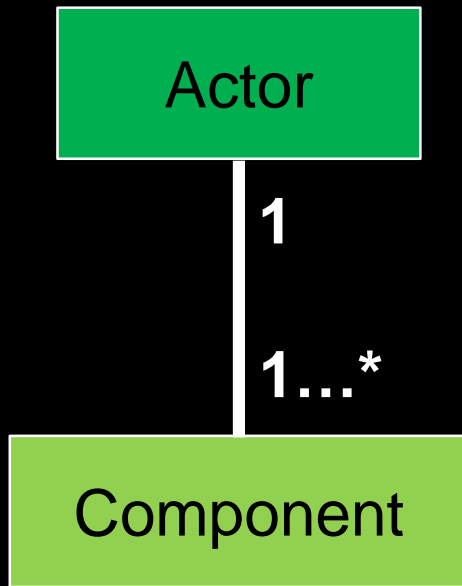
Dance – Actor

- **Actor** consists of several **Component**s

- `getPose(), setPose()` //Read & Write poses
- `performPose()` //Draw poses
//Use cube or sphere to draw the components

- **Component** attributes:

- `Offset[3];` //glTranslatef()
- `Pivot[3];` //rotation center
- `Rotate[3];` //glRotatef()
- `Size;` //radius of the cube or sphere
- `Color[3];` //glColor3f()
- `Scale[3];` //glScalef()



bones

Dance – AnimationVariables

In script.h/script.cpp

AnimationVariables

camera:

zoom in/out

surrounding effect

background color:

colored / black-and-white

- Some global variables
 - viewAngle; //View direction
 - bgColor; //Background color
 - ltColor[4]; //Light color
- Register periods of frames where the **effects** should be showing
 - zoomReg;
 - camSurroundReg;
 - bgColorReg; //ex: (229, 513)

Dance – dance.cpp

- `void init(void);`
- `void reshape(int w, int h);`
- `void baseroom(void);`
 - `//construct the base room`
- `void display(void);`
- `void OnTimer(int value);`
 - `//glutTimerFunc()` registers a timer callback to be triggered in a specified number of milliseconds.
- `void keyboard (unsigned char key, int x, int y);`
 - `//control instructions`

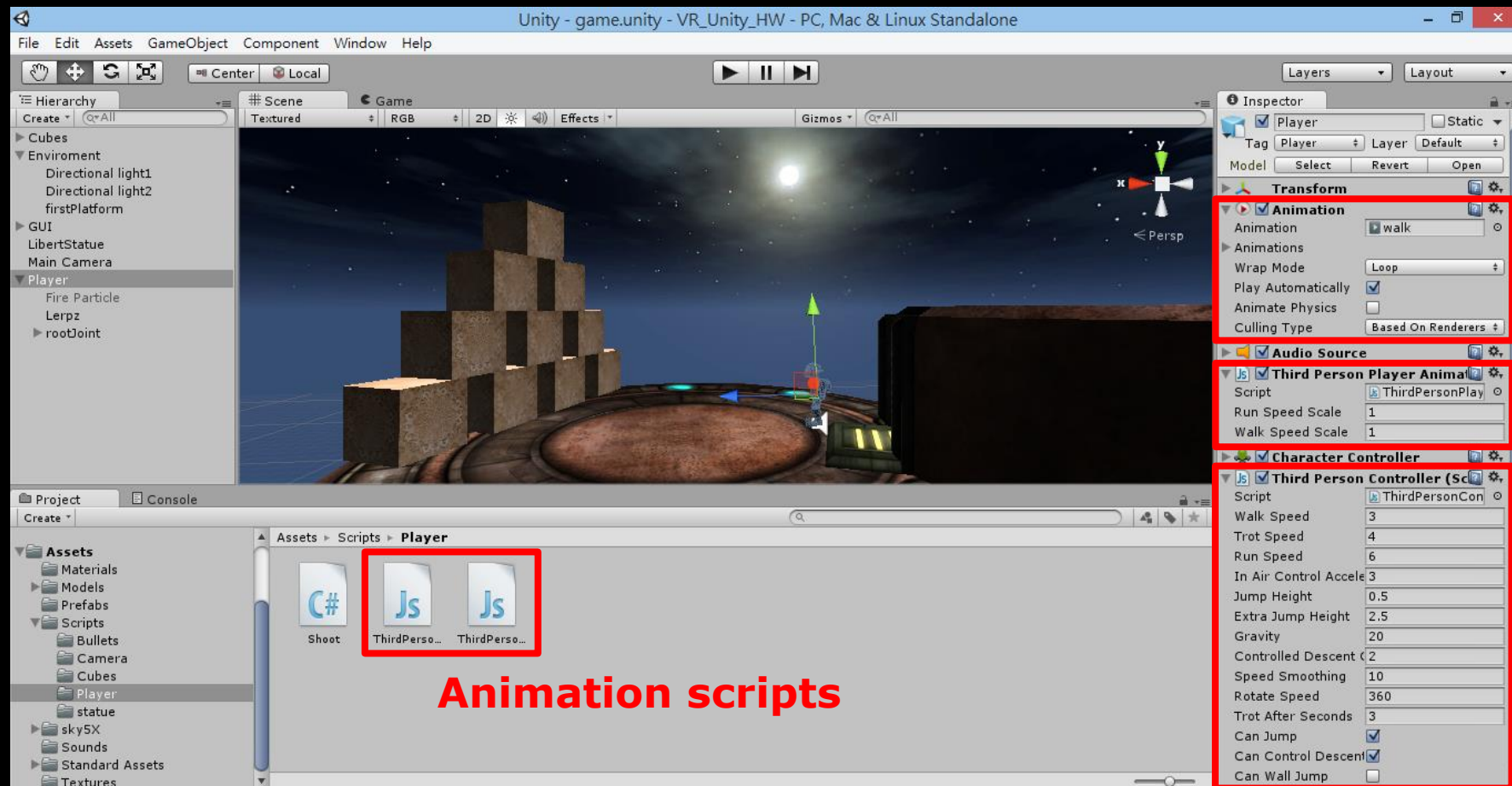


game

2013 by ZonHon Wu

game

- Use Unity to open game.unity



Animation components

Animation scripts

References

- Unity official website
<http://unity3d.com/>
- Unity tutorials
<http://www.cg.com.tw/Unity/Unity.asp>



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