

CIS 660: Advanced Topics in Computer Graphics and Animation

Homework Assignment 4 (Spring 2014)

L-System Plug-in with Houdini Development Kit

Due: Monday, Feb. 20, 2013

The goal of this assignment is to learn how to use the Houdini Development Kit (HDK) to create C++ plugins for Houdini. In this assignment, the same LSystem.cpp file you used in the development of the Maya Plugin will be used in the creation of the Houdini plugin.

1. Setting up Visual Studio for Houdini (20 points)

If you haven't done so already, download Houdini from www.Sidefx.com and install it on your machine. The HDK is included with the Houdini install and is usually configured for the version of Visual Studio that was used to build Houdini. For example, VC9 means that version of Houdini was compiled using Visual Studio 2008. Since Houdini 12 and Houdini 13 are built using Visual Studio 2008, you will need to use Visual Studio 2008 when developing your Houdini plugin in this assignment.

Note: Most of the Visual Studio settings are automatically setup in the project files provided with this assignment. However, if you still have issues getting things to work follow the procedures described in the link below:

<http://www.apileofgrains.nl/setting-up-the-hdk-for-houdini-12-with-visual-studio-2008/>

2. Creating the Houdini L-System Node (80 points)

Once you have your development environment setup and working properly, the next step is create a custom node using the Houdini Development Kit. The functionality of your Houdini node should be similar to the one that was created for the Maya plugin. This can be accomplished by following the instructions contained in the LsystemPlugin.c file of your Houdini Visual Studio project and completing all sections of the code where it says: "PUT YOUR CODE HERE".

Note : The Houdini Development Kit (HDK) comes with a lot of examples located in the folder:

C:\Program Files\Side Effects Software\Houdini 13.0.198.21\toolkit\samples

For this assignment, all the examples in the SOP folder, especially SOP star, are very helpful.

3. Extra credit (Maximum 50 points)

By default Houdini comes with an L-System node. Play around with the features of the default Houdini L-System node and compare it with the custom node you created. You will see a number of helpful features and options implemented inside the default L-System node. Try to recreate those features and options and incorporate them into your custom L-System node. You will receive 10 points for each new option and/or feature created, up to a maximum of 50 additional points.