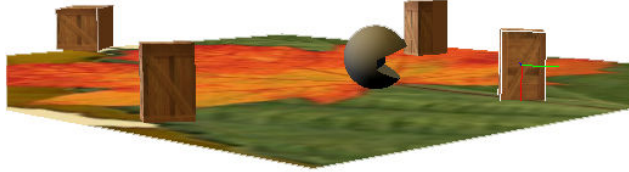
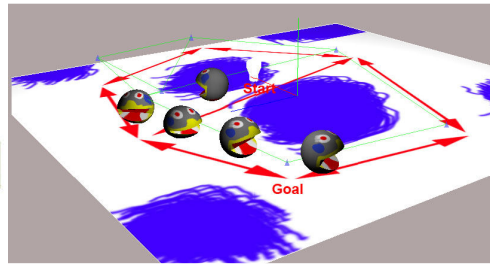


Interactive character animation, digital puppets - Character Go To and network of goals, nodal path

JMG - Spring 2008



Character Go To and...



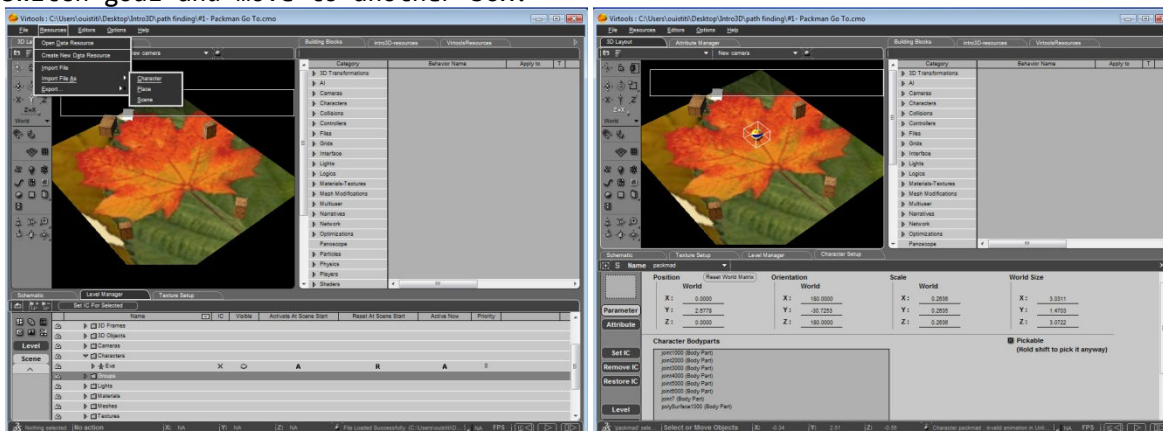
...character follows a nodal path

This tutorial shows interactive behaviors that can be used for digital puppetry in scenes where 3D objects are activated in order to trigger or to orientate a character animation. A simple scene will require a character going to simple goals for example boxes. The next step is to set up a character navigating between a network of goals and avoiding obstacles. Part 1 shows how to add a “Go To” behavior to a character Part 2 shows how to create a network of goals for a character or for a group of characters. Setting up a character is straight forward as long as you keep a consistency of space and time between the character and the scene. Your Virtools import check list includes:

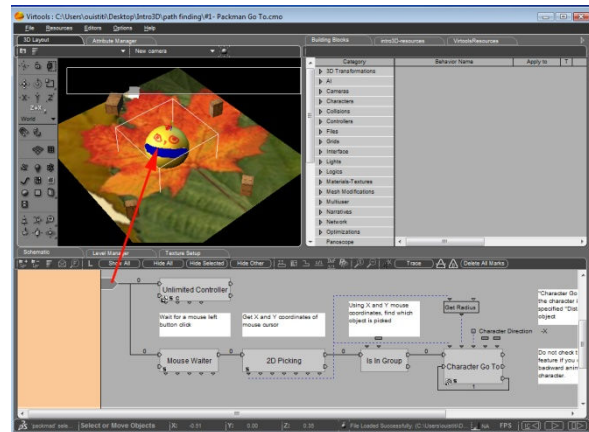
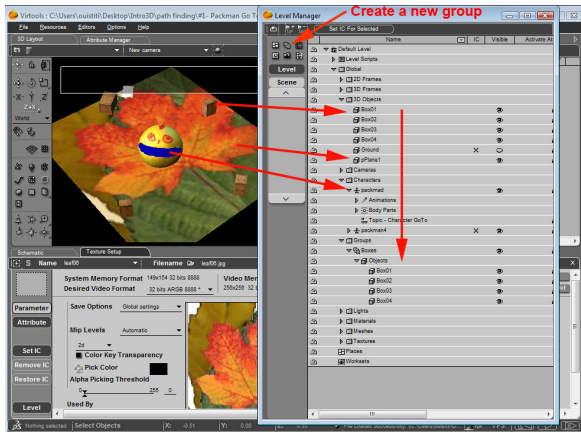
- Character’s joint 1 is centered on the origin 0.0.0
- Character’s animation is a walk cycle with a timeline duration around one second
- The character is scaled in proportion of the scene and of the network of goals

Part 1 - Character Go To

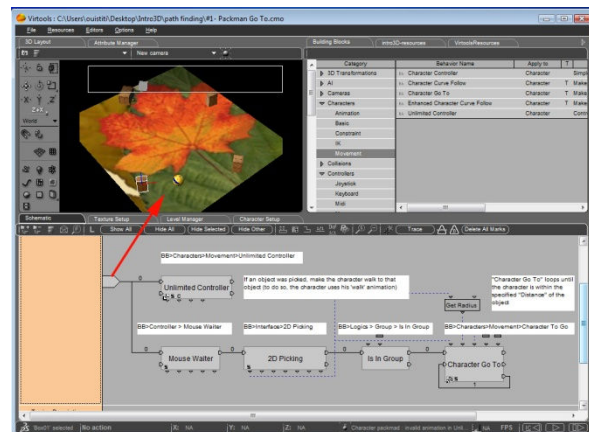
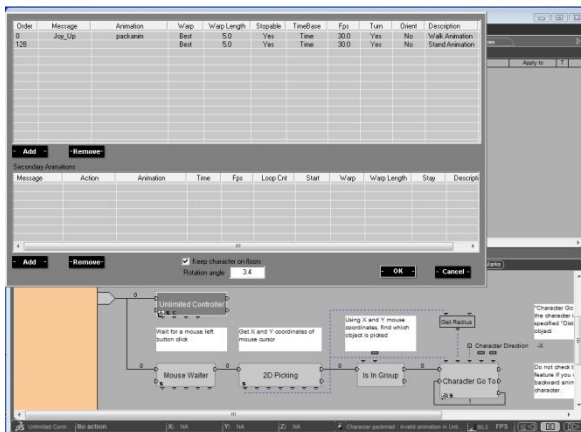
In this example the Pacman character is moving towards the box on the right. If you move the box, Pacman will follow the box. If you select another box Pacman will switch goal and move to another box.



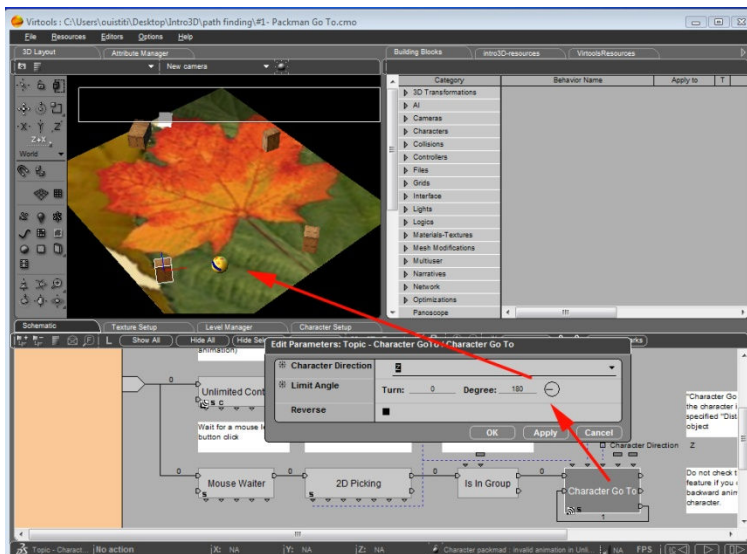
Import the goals and the floor as 3D objects, 3D Entities. Then import a character with a walk cycle. Place the character above the ground. For example Pacman, created in the Pacman design and animation tutorial. If the ground is a terrain you can set the ground as a floor and use “Objects Keep on Floor” and “Character Keep on Floor”.



In Level Manager, create a group > SHIFT select the 3D Objects, goals, for example boxes > Drag the 3D Objects in the Group.

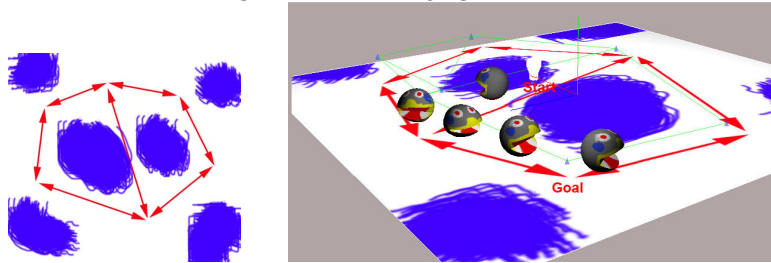


In Building Blocks, select Character > Movement > Unlimited Controller. Drag on Level Manager > Levels > Characters > Pacman, in order to add a script to the character. Edit the first line and second column of the Unlimited Controller BB with the name of the animation walk cycle for your character. When the "Character Go To" BB is activated, the message "Joy_Up" of the "Unlimited Controller" BB is activated. This triggers the animation walk cycle.

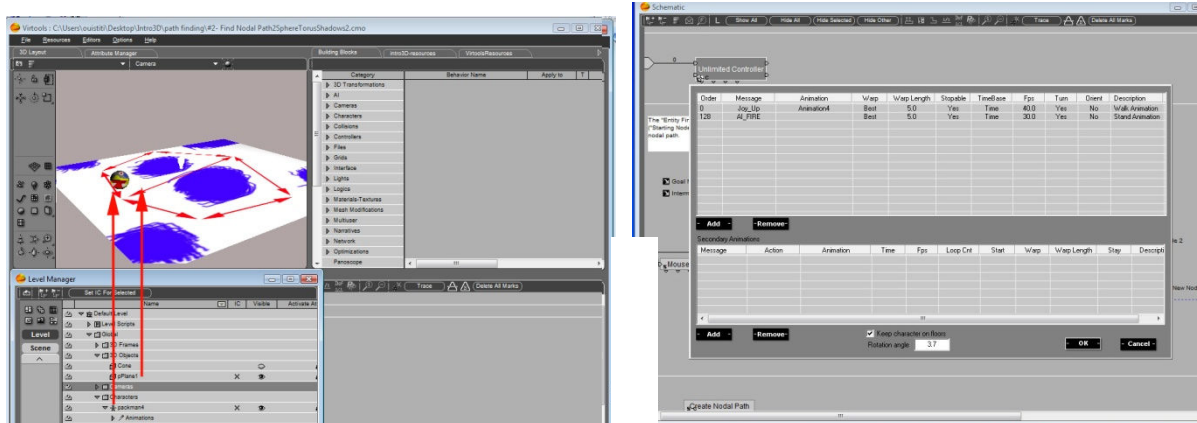


In the “Character Go To” BB setup, you can adjust the direction of the character. Although this is similar to the direction of the axis used for character animation in Maya, I suggest trial and error until you find the right behavior for the character.

Part 2 - Creating a network of goals, Nodal Path

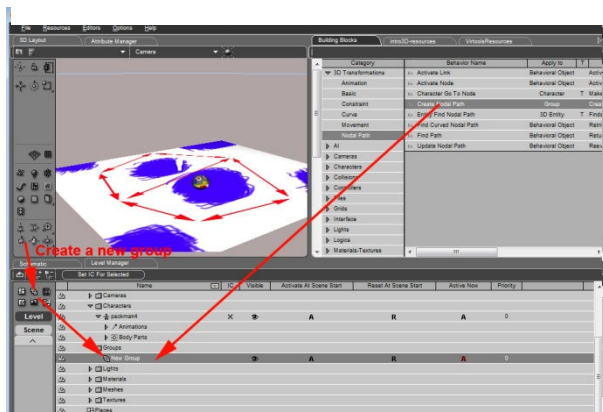


This sketch shows a diagram of the network and its interpretation in a 3D scene. The possibilities offered by a network of goals and nodal paths for storytelling remain to be explored in depth.

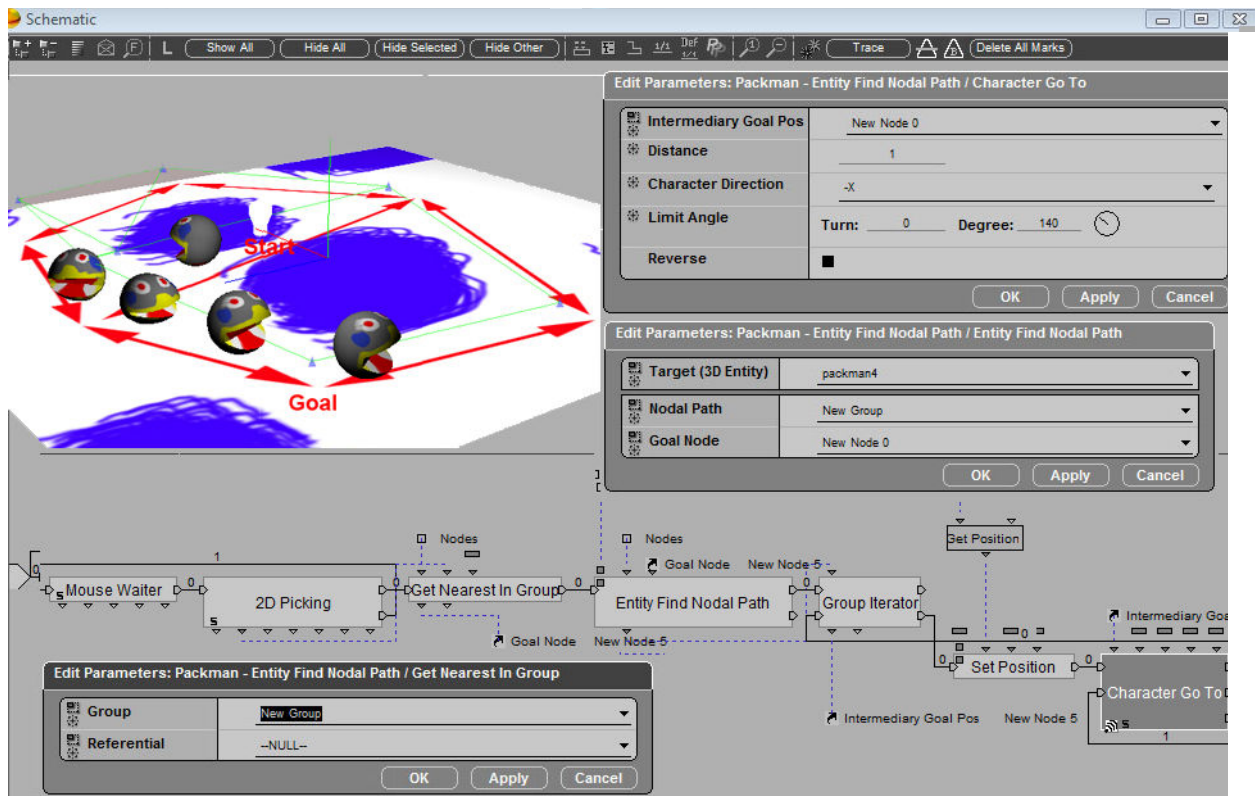
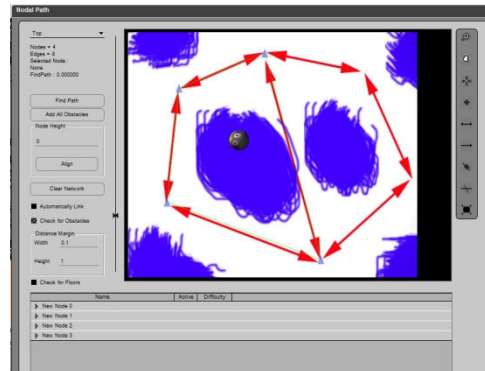
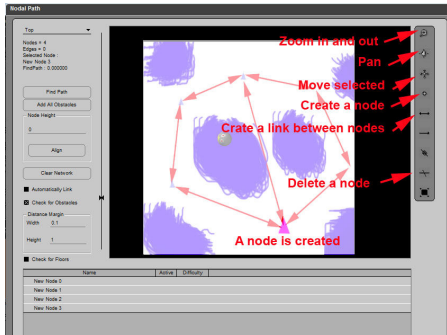


Let’s start with one 3D objects the ground and a character, Pacman. Go to Building Blocks, select Character > Movement > Unlimited Controller. Drag on Level Manager> Levels > Characters > Pacman, in order to add a script to the character.

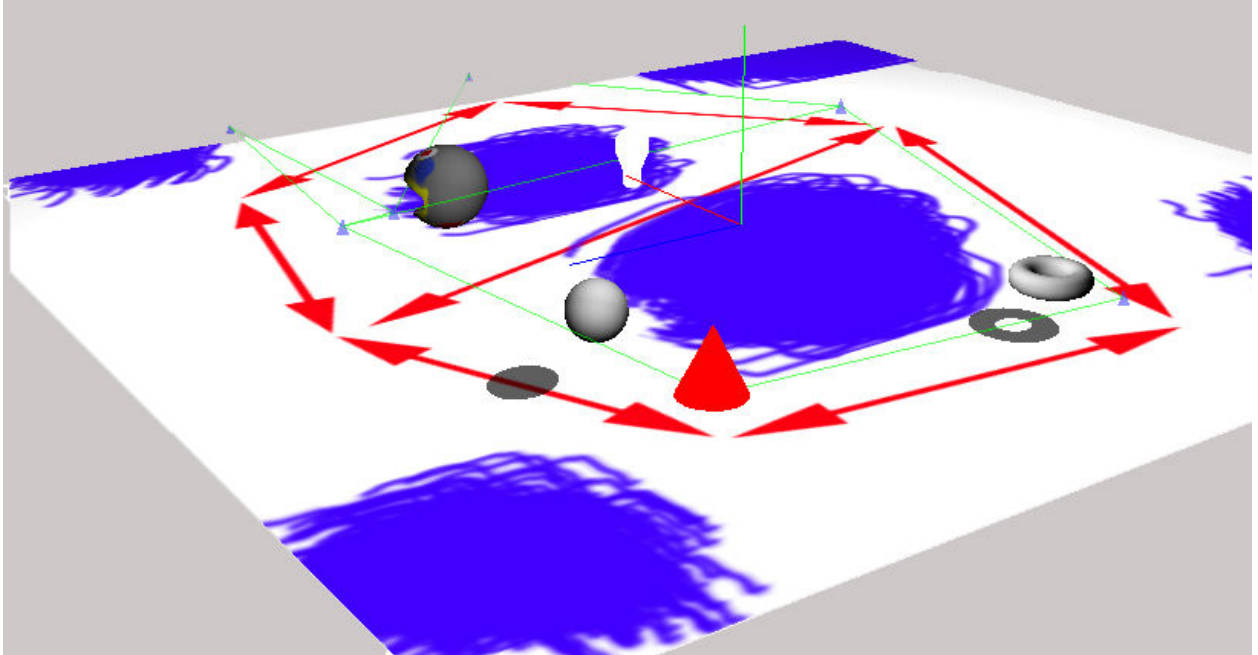
Edit the first line and second column of the Unlimited Controller BB with the name of the animation walk cycle for your character. When the “Character Go To” BB is activated, the message “Joy_Up” of the “Unlimited Controller” BB is activated by. This triggers the animation walk cycle.



Let’s create the Nodal Path. In Level Manager, create a new group. Go to Building Blocks > 3D Transformation > Nodal Path > Create Nodal Path, drag the BB on the new group. The “Nodal Path” window let’s you create a network of 3D frames created with links.



Let's add a "Go To" script to the character. This time the character does not move straight towards a goal but decides which way to go according to the nodal path. In the "Character Go To" BB setup, you can adjust the direction of the character. Although this is similar to the direction of the axis used for character animation in Maya, I suggest trial and error until you find the right behavior for the character.



You can also implement the same behaviors for multiple characters. Copy Paste the behaviors from Pacman on the other characters and edit their respective variables.