Collision Demo - Introduction

Introduction

Welcome to Tutorial number 3 - the Golf/Ball tutorial. This tutorial will show you how to do the following:

- Save a motion file for use as an interactive object.
- Learn the difference between a Dynamic and Interactive Dynamic Object.
- Change the characteristics of an object - spring strength, friction, etc.

NOTE: You cannot save motion or camera files with the demo version of ReelMotion. Therefore, we have provided you with the motion files you will need to import for the various parts of the tutorial.

TIP: For faster realtime performance in the ReelMotion simulator, you usually do not want any other applications open while you are in ReelMotion. Therfore, if you can, you should try to print out this tutorial. If not, it will run fine but maybe a little slower, depending upon your machine. You should also set your monitor to thousands of colors.

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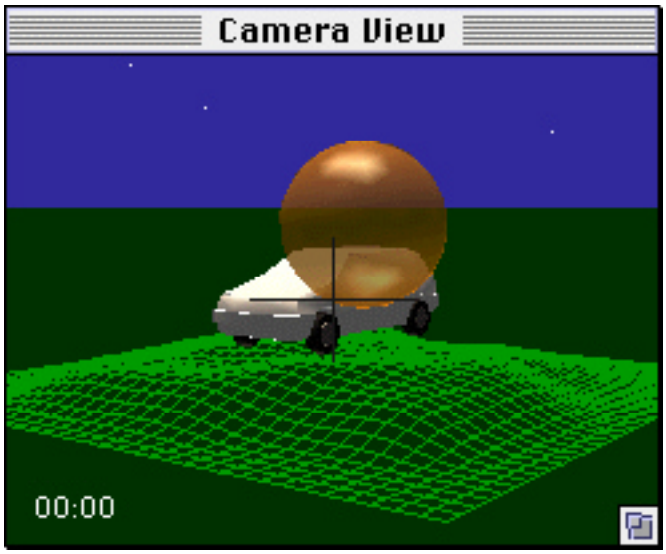
Setting it up in ReelMotion

- Launch the ReelMotion Simulator
- Be sure that your working units are set to Meters (under Preferences>WorkingUnits)
- Go to the top menu and select Add>DXF Terrain and bring in the file called BallTerrainRM. (Note: All files can be found in the Support Files folder). This terrain represents a little hill or mound of dirt that we will interact with in this tutorial. After finishing this tutorial, try importing the file called LargeTerrain and have fun driving on that. Or feel free to make your own terrains to import. If the terrain that you make does not import with the proper rotation, click on the Transform button that appears in the DXF Terrain import menu. Sometimes simply changing from Right Hand to Left Hand coordinates is enough to rotate your terrain in the proper direction.
- Now we want to import the file called YellowBall as an Interactive Dynamic Object. To do this, select File>Add>Interactive>DynamicObject from the top menu.
- You may need to hit the F12 key to position your camera so that you can see everything. Your scene should look similar to the one below. Hit F12 again to place it back in driving mode.
- We would like to move the car away from the terrain and with the nose pointing back at it so we will need to change the Initial Conditions.



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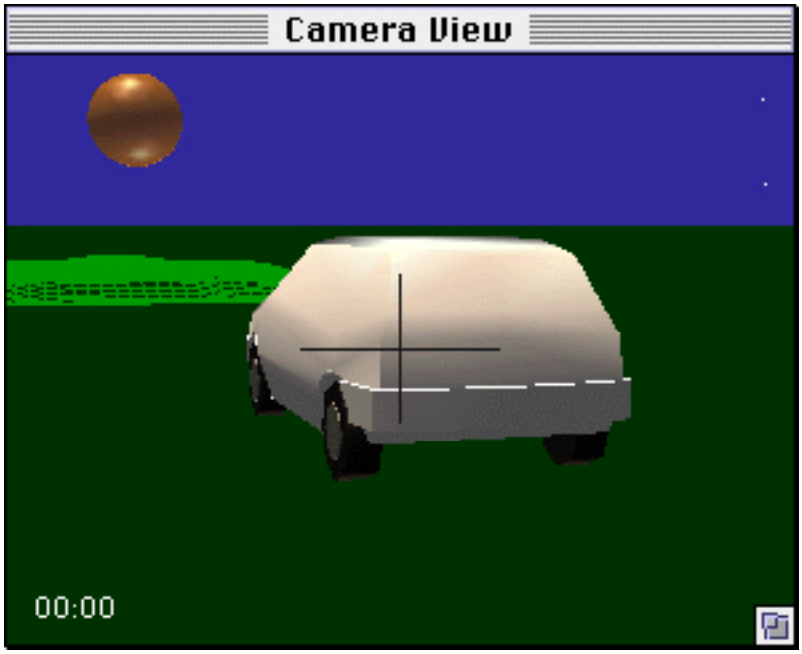
Setting up the Scene

- Choose Simulation>Initial Conditions from the top menu (command-I). Since the gold ball in our scene is a pre-recorded motion file, the Initial Conditions menu will only apply to the current simulation object, which is the Golf car in our scene.
- In the Initial Conditions menu, enter the following values:
  - In the Position field enter 20 in the Forward box.
  - In the Position field enter 1 in the Up box.
  - In the Orientation field enter 180 degrees in the Yaw box.

As you can see by the orientation guide (below) with the little red cars in the Initial Conditions window, Yaw is the orientation that would spin the car to point its nose at a different compass heading.

- ReelMotion will automatically move the camera out so you can see the new position of your car. You may still want to move the camera a bit so that everything will appear in your scene. To do so, hit the F12 Key again and try to position your camera similar to the scene below.



- If you are not yet that experienced positioning the camera or are having other difficulties with this scene and wish to move on, open the ReelMotion project file called Collision Setup. And continue with the tutorial.

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Making a Collision

NOTE: Certain collision situations may cause some unexpected results so you might occasionally have to try it again. You may also get an error that says "Simulation Became Unstable" if the objects crash too hard with one another and exceed the maximum compression values of the object.

Now that everything is in place, you are ready to begin your collision scene.

- Select Simulation>Begin (command-B). You will see your ball drop and it should roll forward.
- Try and run into it with the car. It may take you a couple of tries until you get it right. To start over, simply hit the Escape key and then begin again (command-B).
- For added fun to your animation, try hitting the ball and then drive the car up over the hill. Try pushing the ball around over the hill if you want.

Since the demo version of ReelMotion will not save the motion file, you should just keep playing at this point. Try experimenting with different gravity settings to see the results. Also play with external forces to see how they affect your objects. Try everything.

In the full working version of ReelMotion, you would run the simulation until you are happy with the results and save out a motion file. You could then reimport that motion file and play it repeatedly while experimenting with various camera modes. Then once you have also created an ideal camera file, you would save the camera motion as well. At this point you would either use the Biovision or Acclaim motion file formats or the import plug-in that has been developed specifically for your animation program. Once the data has been brought in, you simply attach the various objects in your scene to their proper effector and render away.