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Winter Semester 2017/18

Assignment on Virtual Reality and Physically-Based Simulation - Sheet 2

Due Date November 13. 2017

For this exercises, take a look at the Unreal Engine 4 Documentation and in case of problems also the UE4 AnswerHub. Links to these resources and more are available at `http://cgvr.cs.uni-bremen.de/teaching/vr_1718/index.shtml`. Your project must be submitted as specified in section Submission.
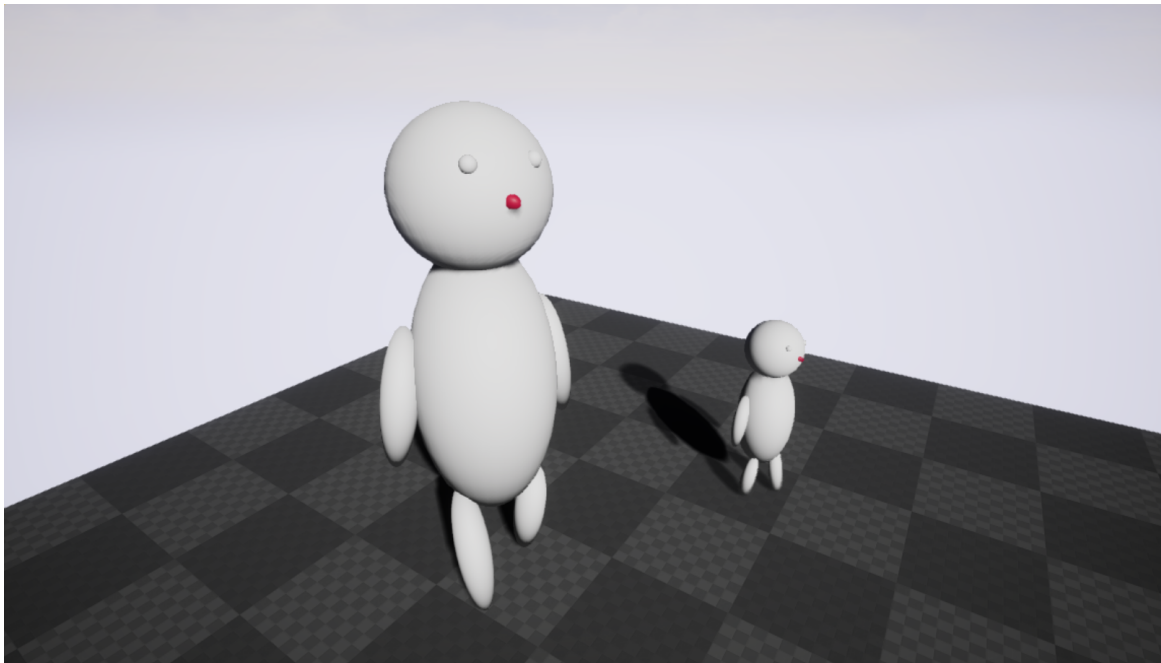

Figure 1: Possible result of this assignment.

Exercise 1 (Unreal editor, *4 Credits*)

Make yourself familiar with the Unreal Engine 4 (UE4) and it's editor. In this exercise, the goal is to create an actor constructed from different parts which are arranged in a scene graph.

a) Create a new UE4 project. Please start from a blank project and do not include the starter content to keep the project size small.

b) In the project, create a new *actor* that looks similar to the character in Figure 1. You can model the individual parts with transformed *Sphere Mesh Components*.

c) Make sure that rotating the head also rotates the nose and the eyes by defining them in a hierarchy.

d) The arms and legs should rotate around the point, where they are attached to the body. Consider *Scene* components as virtual joints (do not use Unreal joints).

e) Place the actor into a level that is loaded when the game starts.

f) Draw the scene graph of your actor by hand or in a computer program.

Exercise 2 (Unreal blueprints 1, *4 Credits*)

Until now, we only have a static scene. Your next task is to add some animations to the legs. The result should look similar to this video `http://cgvr.cs.uni-bremen.de/teaching/vr_1718/uebungen/02_result.webm`.

a) Rotate the legs with a looping run animation.

b) Make the animation speed configurable with a variable in the blueprint that is *Instance Editable*

c) Place at least two instances of your actor in the scene. Both actors should have different walking speeds as you can see in the video.

Submission

Only submit the relevant parts of your project. This is the .uproject file and the Content folder. Make sure that you did not include the starter content in your project and that you do not select hidden directories. The zipped file should be smaller than 1MB. Upload the zip through Stud.IP as you did with the first assignment.

If you have no idea how to animate your legs, you can request a cheat screenshot by mail. However, you will only be able to get three-quarter of this assignment's points.