

Winter Semester 2018/19

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

Due Date November 15. 2018

For this exercises, take a look at the Unreal Engine 4 Documentation and in case of problems also the UE4 AnswerHub.

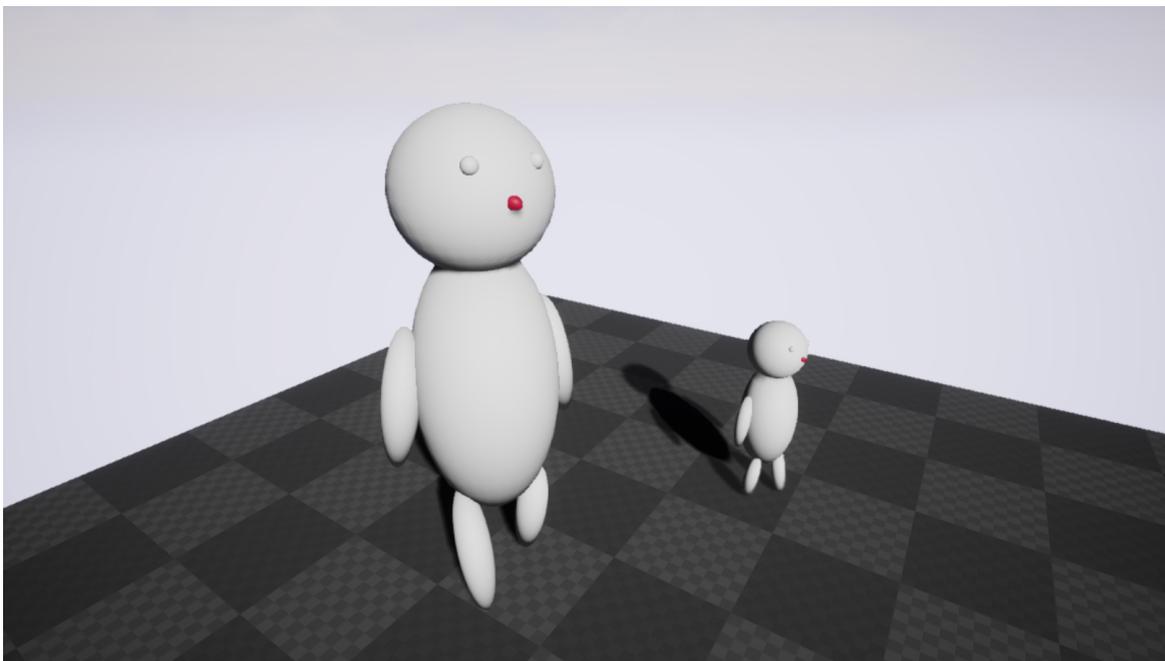


Figure 1: Possible result of this assignment.

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.

- Create a new UE4 project. Please start from a blank project and do not include the starter content to keep the project size small.
- 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*.
- Make sure that rotating the head also rotates the nose and the eyes by defining them in a hierarchy.
- 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).
- Place the actor into a level that is loaded when the game starts.
- 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_1819/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.