

Wintersemester 2012/13

## Assignments for Virtual Reality and Physically-based Simulation - Sheet 3

Due Date : Presentation: 05. 12. 2012, Implementation: 19. 12. 2012

### Exercise 1 (Interaction Metaphors, 10+30 Punkte)

In this exercise, you can let your imagination run wild. The goal is to create a completely new interaction metaphor. We only define a very few constraints:

- the metaphor has to be *new*; this means, you should not re-use any metaphor that you already know from the lecture. Please note, the *interaction task* (e.g., picking an object, moving an object,...) does not have to be necessarily new, but the metaphor (i.e., the way you do it).
- the metaphor should be either *intuitive* or *efficient* or, at least, *aesthetically pleasing*. Obviously, you should be able to argue, that your metaphor fullfills one of these criteria.
- you should use a scripting node in the implementation of your metaphor (Javascript, Java, Delphi,...)

In the first part of this exercise, you should define your metaphor theoretically. Therefore, you should draw an almost complete taxonomy (or decomposition) of it. You will present your metaphor and your taxonomy to your fellow students and me in two weeks time, on December, 5. in the tutorial.

In the second part of this exercise, you should implement your interaction metaphor using VRML or X3D. You will present your results two weeks later, on December, 19.

You can use any kind of input device (but also combinations of different input devices), including the VR devices in our lab:

- mouse, keyboard (boring)
- joystick
- webcam (for face or object tracking. You can find examples at <http://www.instantreality.org/examples/>)
- Microsoft's Kinect (See also <http://www.instantreality.org/examples/>)
- the touchscreens or other sensors of your Android or Apple mobile devices
- 3Dconnexion Spacemouse
- Polhemus Fastrack (an electromagnetic tracking system)
- Novint Falcon (a 6-DOF haptic device)

Please ensure that you are able to include the devices into your X3D/VRML-Viewer. Instant Reality offers tutorials for different devices (<http://doc.instantreality.org/tutorial/>). Moreover, you can explore or contact their forum: <http://forum.instantreality.org/>.