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Assignment on Virtual Reality and Physically-Based Simulation - Sheet 5

Due Date Written Assignment: 20. 01. 2015, Implementation 03. 02. 2015

Exercise 1 (Interaction Tasks / Metaphors, *2 Credits*)

In the class, you have learned about the difference between *interaction task* and *interaction metaphor* (see slide "Interaction Task vs. Interaction Metaphor").

Similarly to the examples described in class, give two more examples (can be from "digital life" or "analogue life") and describe the task and the metaphor.

Exercise 2 (Your own Interaction Metaphor, *10+30 Credits*)

With this assignment we want you to let your imagination run wild. The goal is to create your own interaction metaphor for either your own interaction task or the sample task given below. We only define very few constraints:

- The interaction method should be truly 3-dimensional. This means that it cannot be a simple overlay.
- The metaphor should be either intuitive or efficient or, at least, aesthetically pleasing. Obviously, you should be able to argue, that your metaphor fulfils at least one of these criteria.

Our proposed interaction task is to let the user choose from a number of different items of an inventory (like you can do and see in most games). The user should be able to access the entire inventory. It should be very easy, via configuration, to specify the items of the inventory.
If you want you can alter this task or choose a completely new one, just make sure to explain exactly what your task is.

In the first part of this exercise, you should define your metaphor theoretically. To do so, 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 January, 20 in the tutorium.

In the second part of this exercise, you should implement your interaction metaphor using your preferred VR development environment (for example VRML, X3D, Unity3D, Ogre3D, ...). You will present your results two weeks later, on February, 3. 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 3-DOF haptic device)
- zSpace-Monitor with 3D-tracked glasses and stylus (`http://zspace.com/`)

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