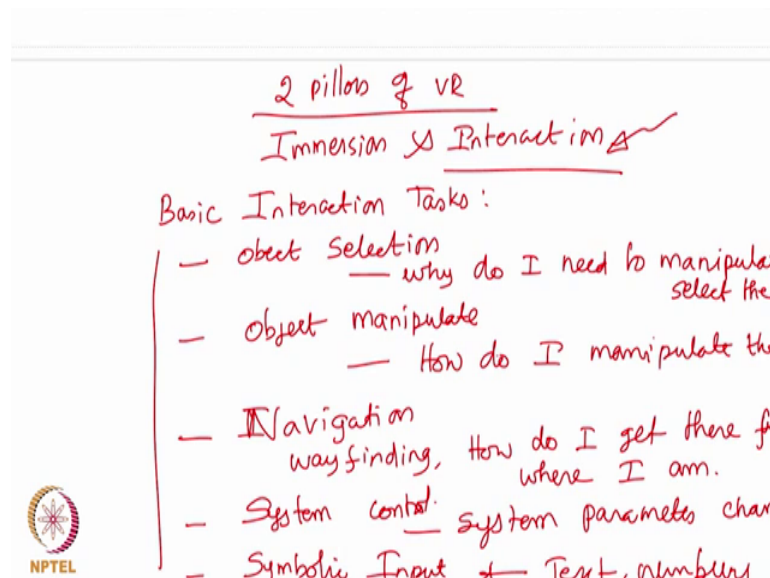


Virtual Reality Engineering
Dr. M. Manivanan
Department of Biomedical Engineering
Indian Institute of Technology, Madras

Lecture – 65
Why Haptics?

Welcome back in this class, we talk about why studying haptics in a Virtual Reality course. As we saw in the beginning of the course, we saw that there are 2 pillars of virtual reality: one pillar is called a immersion and the other pillar is called the interaction.

(Refer Slide Time: 00:37)



Let me write it down; 2 pillars of VR immersion and interaction. So, the haptic come into picture, in the second part of the pillars it is the interaction. If you look at why do we need a interaction; what are the different ways in which we interact with the virtual reality, you will see that at a haptics is a essentially a part of it.

In order to understand, how to improve the interaction with a virtual reality we need to understand and the haptics part of it ok. So, let me list out what are the basic interaction task we have, task. So, the first and foremost basic task is to have the object selection. So, here we can say why do we; why do I need to manipulate this object or select an object manipulate or select an object or select an object.

The second way of interaction is that, it is manipulating the object manipulation; how do I manipulate an object? Is it just a click of the button is it just an selecting or it is rotating or you know any other task. And then third type of interaction we all be interested is navigation; navigation systems.

So, it is like way finding we want to we move around the virtual reality, even the turning of the head is the navigation system. So, we want to look around the virtual our environment to find out what objects are there, then only we get into object selection or object manipulation ok.

We are finding; so basically we want to answer how do I get there from where I am; first we need to know where we are in the virtual reality. We need to find out where do we want to go and how do we go from where we are actually there. The next object interaction is the system control.

For example, we can change the system parameters can be changed for example, if we want to change the color of the environment or the way then a virtual environment is looking right. And then the final way of basic interaction is that at symbolic input.

We want to input text or numbers; these are the different ways in which we are actually interacting with the virtual reality. If you look at many of this task it needs, now the use of the hands; the hand is a true organ of interaction of course, there are people who can interact at with other limbs for example, lower limb legs, but here we mainly assume that, we use the hands to interact with the virtual reality world.

So, in order to help designing better interaction systems, we need to understand how our hand is actually working? What is haptics; that is the science part of the haptics ok? There is a human haptics we are going to talk about and then our understanding of how our hand is working is converted into technology.

We are going to talk about the different interfaces haptic interfaces; there is a technology part of it. In the next few classes, we will talk about the science of a using the hands that is the science of touch it is called the haptics and technology of haptics where we develop interfaces in order to give you in order to enable better interaction with a virtual world.

In the next lecture we will start with the definition of, what haptics is?

Thank you.