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

**Lecture – 40**
**Sensation and Perception**

What is Perception? What is Sensation? What are the differences between these two terminologies? These are important terminologies we will be using throughout this course. So, it is very important to understand the that differences under relation between these two terminologies. So, sensation is for predicting the our environments. We have 5 senses. Using our 5 senses, we are converting the external stimulus into neural impulses.

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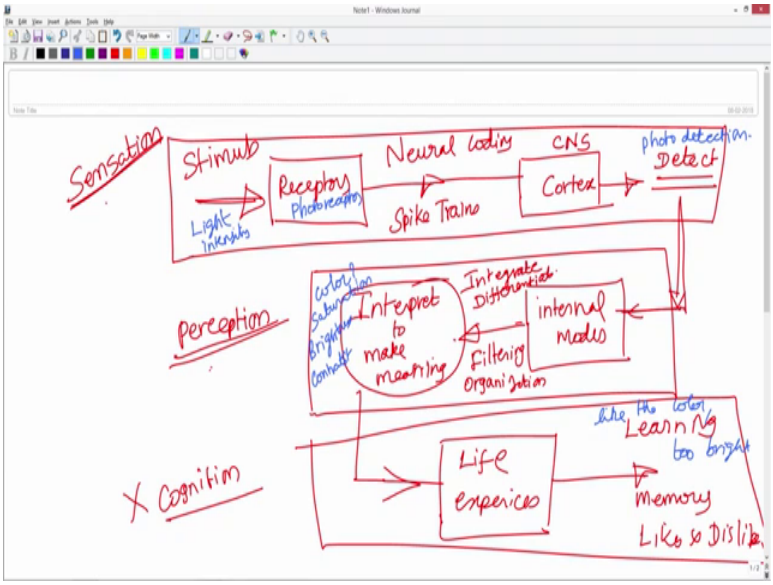


Tradition starts with stimulus input. Our receptors convert the input stimulus into neural codings or spike train to be more technical. And this neural coding is then given to cortex to be more technical, let us say central nervous system, and the cortex we detect the signal.

Once we detect the signal, we use some internal models in our brain to interpret the stimulus; Interpretation of the stimulus to make meaning out of the the stimulus. This stage is called the perception, the perception where the detected stimulus is compared with the internal models and then it is interpreted. Where as this stage until that reduction is called the sensation. Once we make the meaning of this input signal, then we use our

life experiences to make higher level of processing, such as learning, memory or likes and dislikes. This process is called cognition.

We will be interested in focusing on sensation and perception. Not much on the their cognition part of it. So, from this simple schematic diagram, we can see that sensation starts with the stimulus and then ends with the the basic traduction sensing. The higher level of traduction makes meaning out of this the basic traduction that is a perception. The difference between the sensation perception is that, sensation precedes the perception or perception follows the sensation.

So, we have talked about the the psychophysical parameters. There are some parameters for sensation, there are some parameters for perception. If you remember the absolute threshold or the JND, these are the sensation psychophysical parameters. If you look at the the contrast or adaptation, these are all perceptual psychophysical parameters.

So, there are that is only for the light region. Similarly, for each of this modality for the touch for the hearing, there are sensational psychophysical parameters, there are perceptual psychophysical parameters. To add little more details, essentially this stage of when we are making the interpretation, we integrate these signals coming from different stimulus coming from individual modalities in order to make a meaning of the signal.

For example, the signal coming from the touch and the vision can be integrated together. On the same modality two receptors signals can be integrated in order to give a meaning to the stimulus. Integrate or differentiate, or we can do the filtering, or now some level of organization. All this seems to make a many of the stimulus.

That is again only the basic meaning. And then the higher level of meaning will be in the cognition stage which will not focus on it. To give an example let us take light as an example. The stimulus is light intensity, the stimulus is light intensity, then our photoreceptors receive the stimulus, and then we are only photo detecting detection.

So, psychophysical parameters will be like absolute threshold of the light intensity, we have already seen it; Now, after the photo detection, now what frequency of the light? It depends upon the frequency of the light it can be interpreted for example, what is the color. What is the saturation, what is the brightness, what is the contrast; these are the

psychophysical parameters which will interpret it. At the cognition level whether I like the color are too bright, all these things at the higher level of cognition.

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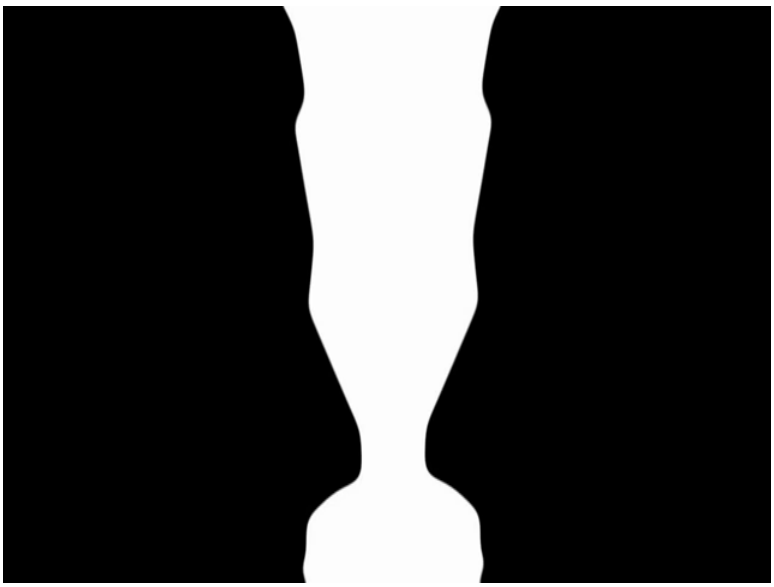

To give another important example of the sensation and perception let us look at the image shown on the screen. You can see the signal is the same two different perceivers, depending upon their internal models, different person will perceive this image differently. So, in this case sensation is same for both the observers, but the perception is different; because their internal model is different, the way they integrate or they differentiate or filters or organize, it is all different for different observers that make a lot of difference. That is why there are a lot of visual illusions.

I hope this clarifies the difference between sensation and perception.

Thank you.