

Class Participation – 11

Proposal on natural interaction technologies in virtual communities

- ✓ Virtual communities or virtual environments are the computer generated environments in which users can participate in **real time communication**.
 - ✓ Virtual Environments or Virtual Communities can be useful in training the **military soldiers or warfighters** about how to operate the vehicles, weapons systems etc.
 - ✓ Special technologies for developing **virtual humans** for training environments.
 - ✓ It can be used to train soldiers or warfighters in interpersonal skills like **leadership, negotiation, tactical questioning** etc.
 - ✓ For building virtual humans there should be some advances in **Artificial Intelligence, animation and graphics**.
 - ✓ Virtual humans must be able to respond to events in the virtual world and also to express **realistic emotions, speak dialogues** with the humans.
 - ✓ Other **non-verbal communication** like **eye contact, gestures and facial expressions**.
 - ✓ **For example**- When conducting a military exercise, virtual humans should be able to speak in any language that we speak, can understand the world they are in and also able to exhibit emotions.
- **Training** should include
- i. Speech features (**question, emotion detection**)
 - ii. Vision features (**gestures, position of the trainee**)
 - iii. Dialogue information (**goals, current topic**)

Technologies:

1. **One touch control system:** Should be a simple remote control interface that manages all the functional components of the system from one location. All the main features and the components can be accessed from one screen. Also there should be a graphical representation of the display showing the size and position of the windows.
2. **Graphics Sharing:** Should be such that can be able to share and view data in real time. Can be used in research projects, design reviews, remote medical consultations.
3. **Multi-Window:** Should be able to display multiple images at the same time on one screen more quickly. There can be various uses such as speeding up the decision making process, making side by side comparisons, ability to view large amount of information at the same time.
4. **Motion Tracking Interactive Systems:** Should be able to track the motions of the body and applying it to the virtual world. For example, head tracking can be particularly useful in allowing the users to interact with the different types of data such as rotate, move etc., enabling the user to view the required information from various different perspectives in a more natural way.
5. **Gesture and Touch:** Though touch technology is very common nowadays but is widely useful when user wants to open a file with a single finger. For example, touch and swipe with the fingers to enlarge or shrink the image. Whereas in gesture interaction technology, we can control and move the objects using simple hand and body gestures.