



real environment

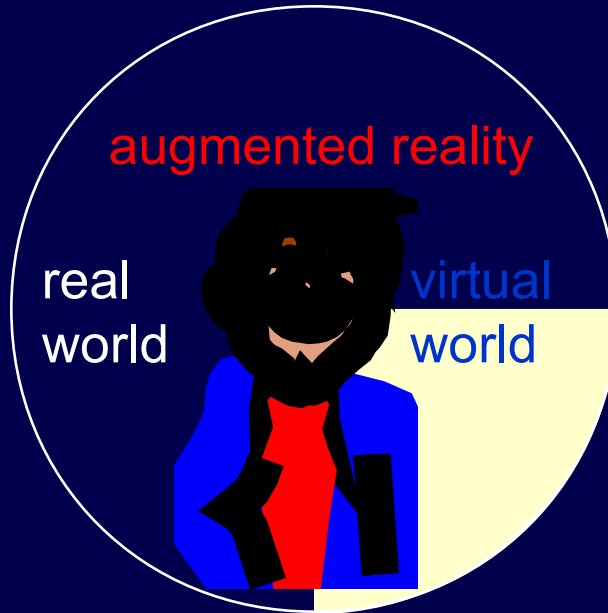
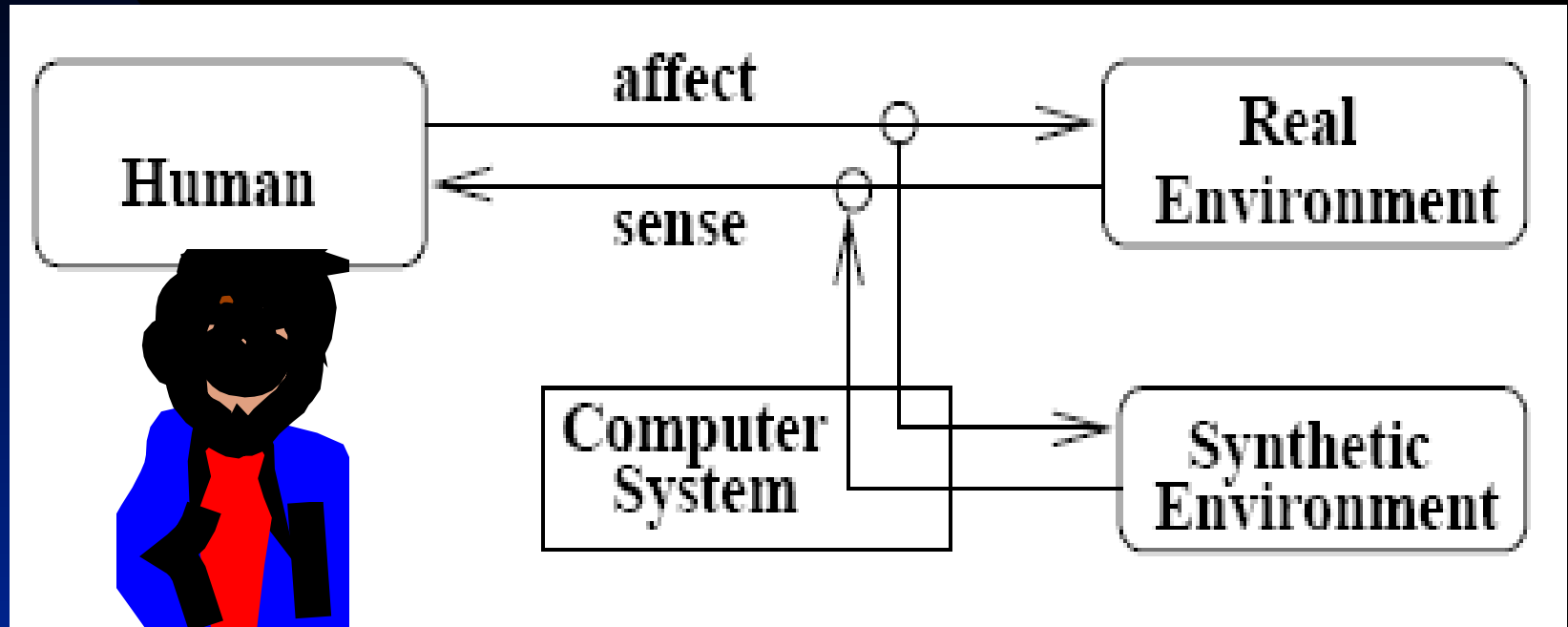


Illustration of Augmented Reality





Telepresence

- Also called **virtual presence**
- The purpose of a telepresence system is to **create a sense of physical presence at a remote location.**



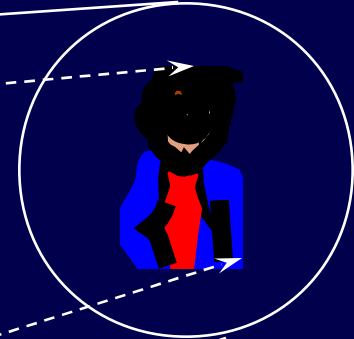
real environment

remote
environment

virtual
environment
is a copy of
the remote
environment



fast
communication
network

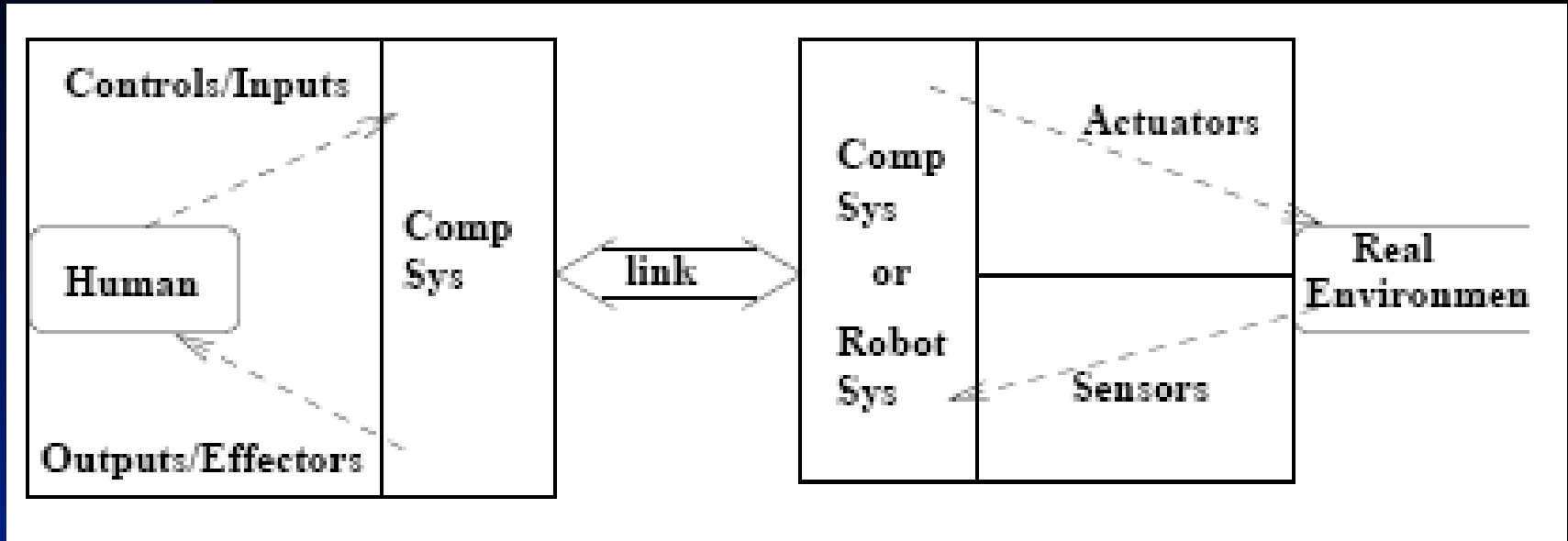


Teleoperation



- Teleoperation system enables operation at a distant remote site by providing local operator with necessary sensory information to simulate operator's presence at the remote location

Teleoperation





Example: Telesurgery





V.R Devices

- Magnetic position/orientation trackers
- DataGloves
- 3D Mouse and SpaceBall
- MIDI keyboard
- Shutter glasses
- Head Mounted Displays
- CAVE
- Real-time video input
- Real-time audio input
- Haptic interfaces and tactile feedback
- CyberTouch & CyberGrasp
- Audiospace and auditory systems



trackers

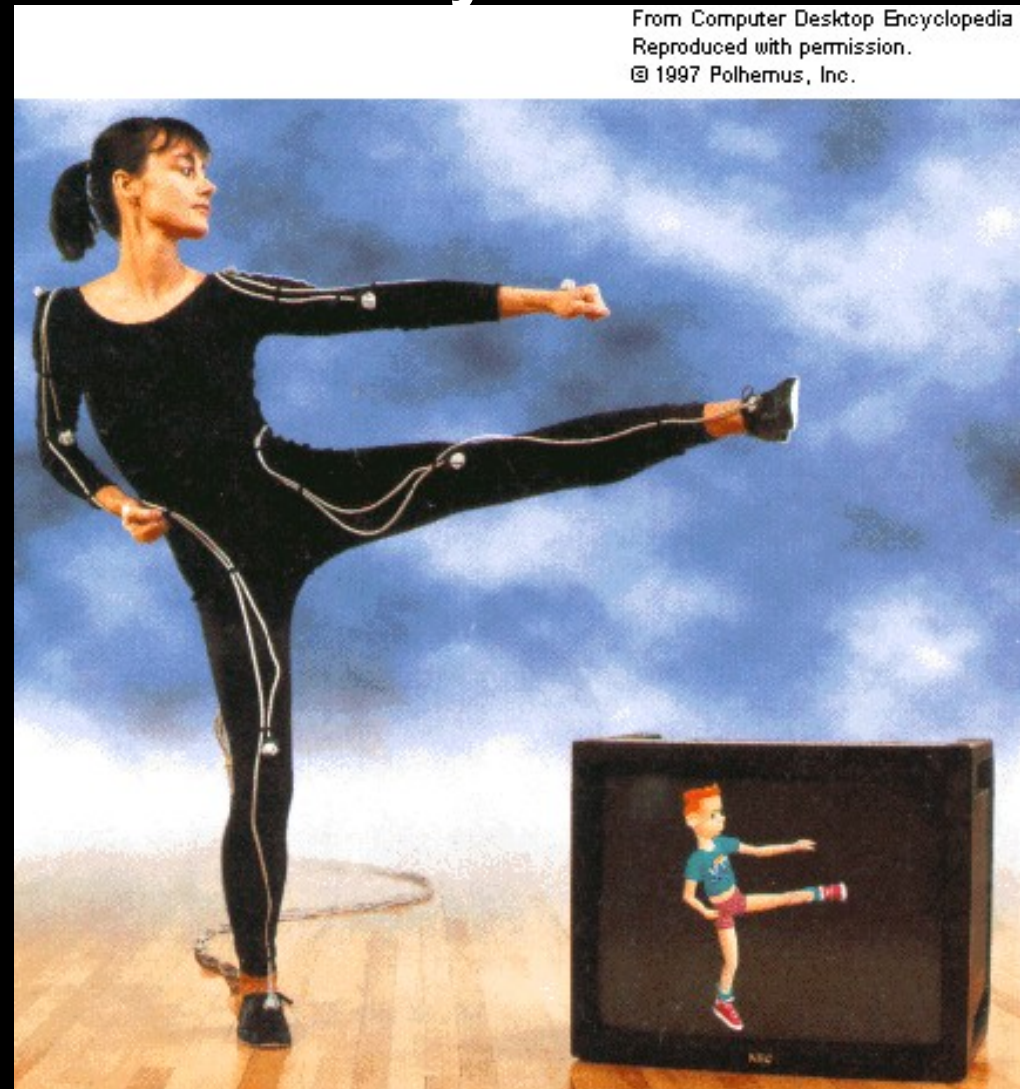
- **ULTRATRACK PRO** a full body motion capture system.
- The **ULTRATRAK PRO** system from Polhemus provides a series of wearable sensors that captures motion in six degrees of freedom (6DOF). The sensors connect via Ethernet, and the **ULTRATRAK PRO** software interfaces with 3D animation programs to provide realtime capture of the person's movements. (Image courtesy of Polhemus, Inc.)





■ ULTRATRACK PRO a full body motion capture system

For entering of a movement pattern into the computer. For example, if a person, hooked up to sensors, goes through the act of batting a ball, that motion trail can be used to simulate a more realistic baseball player in the computer.



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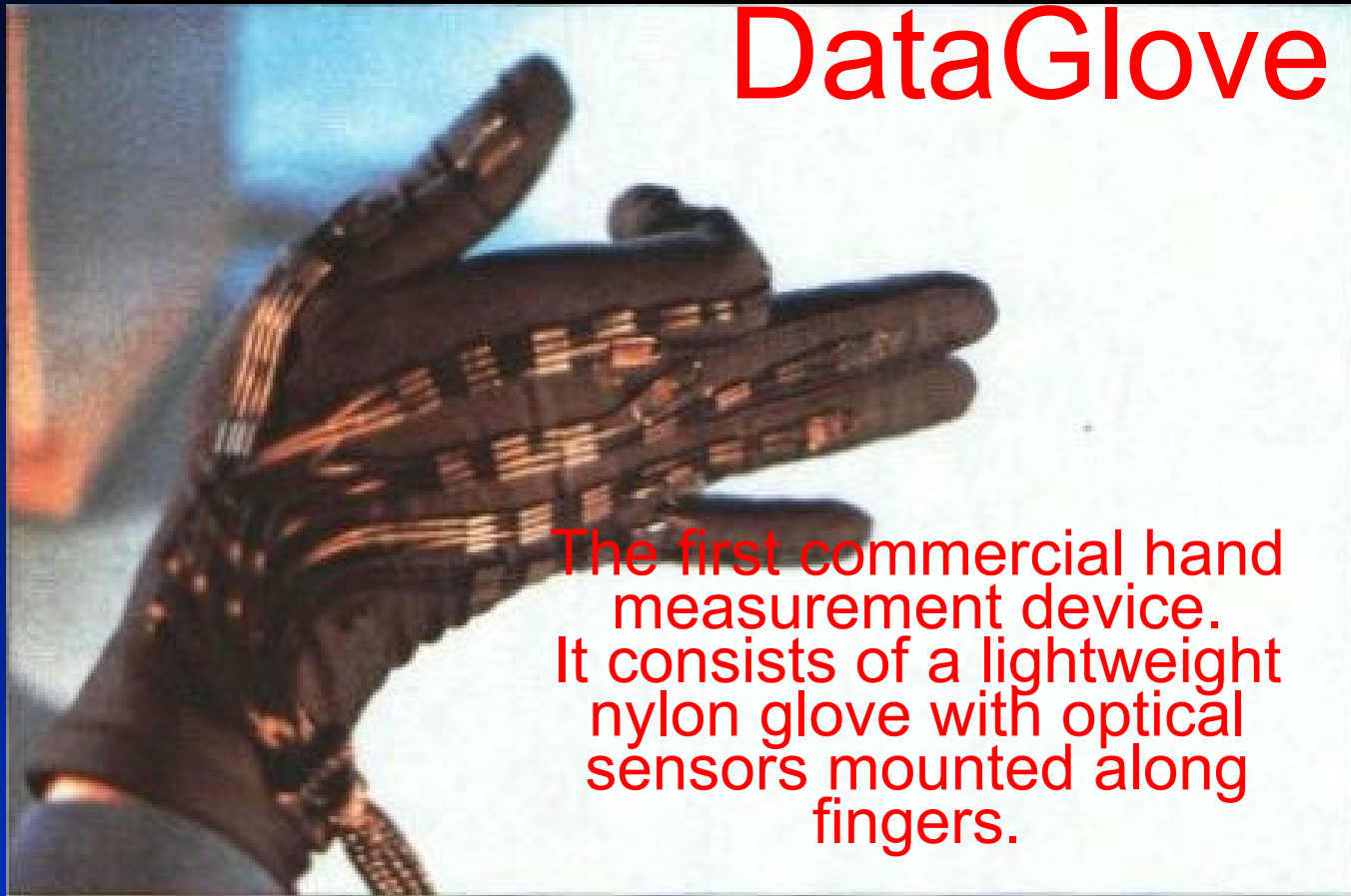
Motion Capture System



A dancer wearing a suit used in an optical motion capture system

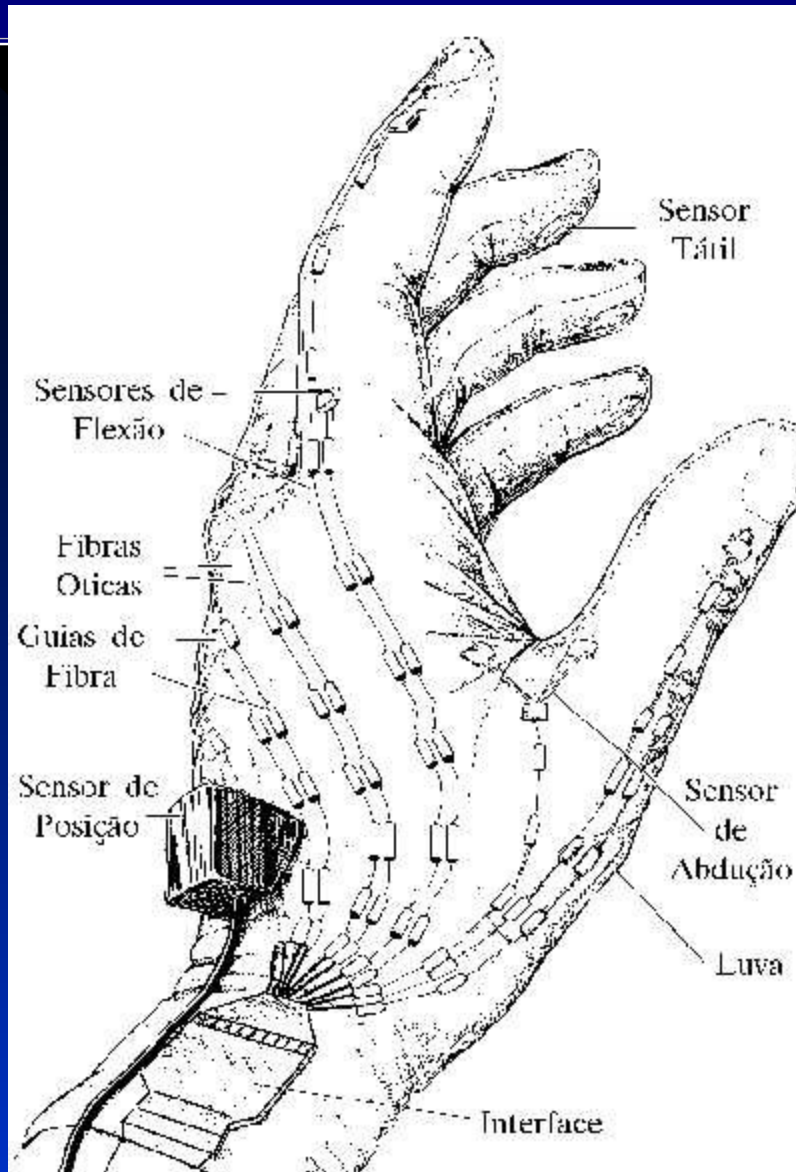
DataGloves

A hand measurement device must sense the flexing angles of the fingers and the position and orientation of the wrist in real-time.



DataGlove

The first commercial hand measurement device. It consists of a lightweight nylon glove with optical sensors mounted along fingers.



The first commercial hand measurement device.

It consists of a lightweight nylon glove with optical sensors mounted along fingers.