Interactive Session 6: Haptic Illusions

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Visual Illusions

Haptic Illusions

A great paper:


Slide courtesy Heather Culbertson (USC)
Comb Illusion

Fishbone Tactile Illusion

Bump and Hole Illusions

Refresigerator magnet polarization

G. Robles-De-La-Torre, V. Hayward, Force can overcome object geometry in the perception of shape through active touch, Nature 412 (2001) 445-448.
Passive Haptics

The passive haptics model of the marble counters was constructed from styrofoam blocks and particle board. The walls of the Pit Room were built from styrofoam blocks. Plywood was used to construct the 1.5-inch-thick physical ledge and the 2.25-inch-thick diving board, Figure 2-6. A real radio placed at the location of the virtual radio conveyed instructions to the participants. There were no other auditory stimuli designed into the experiment. A real chair in the Pit Room and a real pedestal in the Training Room were registered with their virtual counterparts.

Subjective presence was measured using the University College of London (UCL) Presence Questionnaire (Usoh et al., 1999). This questionnaire assesses three factors: reported presence – assesses the extent to which participants report feeling present, reported behavioral presence – assesses the extent to which the participants report acting present, and ease of locomotion – assesses the ease of moving through the virtual environment. The questionnaire consists of 13 questions answered on a one to seven scale. The questionnaire is scored by counting the number of five, six, and seven responses (Meehan, 2001). The reported presence score ranges from zero to seven, whereas reported behavioral presence and ease of locomotion range from zero to three.

Brent Insko Ph.D. Dissertation, UNC Chapel Hill Computer Science 2001
tested and the reported measures we used to evaluate validity.

significant physiological reactions. Whether less stressful environments also elicit statistically

investigation is a first step. For most of us, doing that, if we can,

presence. If so strong a stress-inducing VE does not produce

enables investigation of physiological reaction as a measure of

This environment, with its ability

requires conscious mustering of will.

were a solid glass floor. For most of us, doing that, if we can,

at the doorway. A few boldly walk out over the hole, as if there

not walk out on the ledge and ask to stop the experiment or demo

Users report feeling frightened. So

walkway. Below is a furnis

unexpected hazard, a virtual drop of 20 ft. if they move off the

designated spot. The door opens, and they walk through it to an

they are told to carry an object into the next room and place it at a

and picking up and placing objects in the Training Room. Then

tracked stereoscopic head-mounted

lab's wide-area ceiling tracker. Users, equipped with a head-

room virtual space fits entirely within the working space of our

floor leading to a room 20 ft. belo

[1999]. Figure 1 shows the envi

1.3. Our Environment and Measures

full account of all measures,

remainder of this paper will treat chiefly the results for it. For a

Since Change in Heart Rate best followed the hypotheses, the

whether it can reliably differentiate among multiple levels of

Change in Heart Rate. More inve

differentiation in some experiment

Change in Skin Conductance Level yielded significant

response curves are similar. It

slower responding than Change in Heart Rate, although its

Change in Skin Temperature is

es [McMurray 1999; Slonim 1974].

llow-on research should investigate

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Yet another weight illusion:

**Barbie-Cueing Weight Perception**

“Conceptual knowledge, in the form of culturally reinforced biases, seems to affect how we perceive... weight.”

- Saccone and Chouinard
  i-Perception 2019
Reminders:
Assignment 2 due today
Add/drop deadline tomorrow
Assignment 3 to be posted today (no late submissions allowed due to posted solutions)

Quiz 1 plan: 60 minutes, taken online any time on Friday, May 1

Office Hours/Q&A with Allison until 10 am.
Question queue (see tab with today’s date): https://tinyurl.com/HapticsAllison