Living in the Holo(s)cene

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Navigation

Games

Task Assistance

Columbia Touring Machine, 1996–

O. Oda et al., 2009

S. Henderson & S. Feiner, ISMAR 2011
> 45 Years of VR/AR Research

Ivan Sutherland, Head-tracked VR/AR, 1968
“The ultimate display would, of course, be a room within which the computer can control the existence of matter. A chair displayed in such a room would be good enough to sit in. Handcuffs displayed in such a room would be confining, and a bullet displayed in such a room would be fatal. With appropriate programming such a display could literally be the Wonderland into which Alice walked.”

The Ultimate Display

- Multimodal
- But,…
  - One user
  - One room
  - Indoors
AR Task Assistance

1991–1993

1996–1997

2007–2008

2011–
AR Remote Task Assistance

Local Technician

Remote SME
AR Remote Task Assistance

- Tasks
  - Get Tech to move to correct location
  - Get Tech to perform correct task
Getting the Tech in Place

O. Oda, M. Sukan, S. Feiner, & B. Tversky, 3DUI 2013
Getting the Tech in Place  ParaFrumtum

Getting the Tech in Place

Head volume

Tail volume

ParaFrustum
Performing the Task

UI Design for AR

Multiple People

Multiple Viewpoints

Multiple Displays
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