

# Turing test

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A more viable formulation is: "Getting the behavior of a person is indistinguishable from the behavior in a real environment."



<http://science.howstuffworks.com/life/>

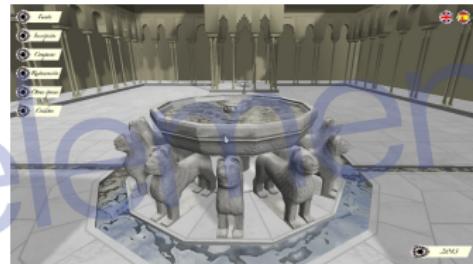
virtual-medicine1.htm

<http://www.sciencedaily.com/releases/2008/>

03 / 080320132646.htm

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- Training  
(simulators)
- Planning (surgery, industry  
....)
- Assessment and diagnosis
- Entertainment and  
dissemination
- therapeutic treatment



<http://lrv.ugr.es>

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- Risk Reduction
- realistic scenarios
- Cost reduction in complex processes
- Reproducibility of rare situations
- monitoring



<http://lrv.ugr.es>

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- initial cost of technology and development
- Defects immersion
- eyestrain
- Discomfort



<http://lrv.ugr.es>

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- 1965: Ivan Sutherland designs "Ultimate Display", the first quarter.
- 1971: Frederick Brooks designed the first haptic device (GROPE-II).
- 1988: VPL Research designed the first commercial center, "Eyephone".
- 1992: Carolina Cruz-Neira is the first CAVE at the University of Illinois.
- 2012: Oculus VR initiates the development of a low cost helmet, the Oculus Rift, as kickstarter.



"The Ultimate Display," Sutherland, IE, Proceedings of IFIPS Congress 1965, New York, May 1965, Vol. 2, pp. 506-508.

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- Represent realistic scenarios in a computer system.
- Create representations of real-world scenarios faithful.
- Interact naturally.
- Transmit sensory information to the user to give a sense of reality.
- Getting sense of immersion.

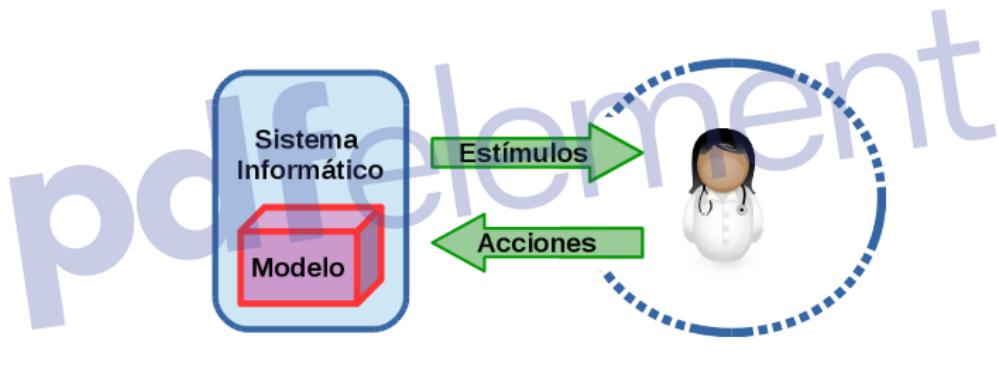


### 3. Structure of an immersive system

# Schema system RV

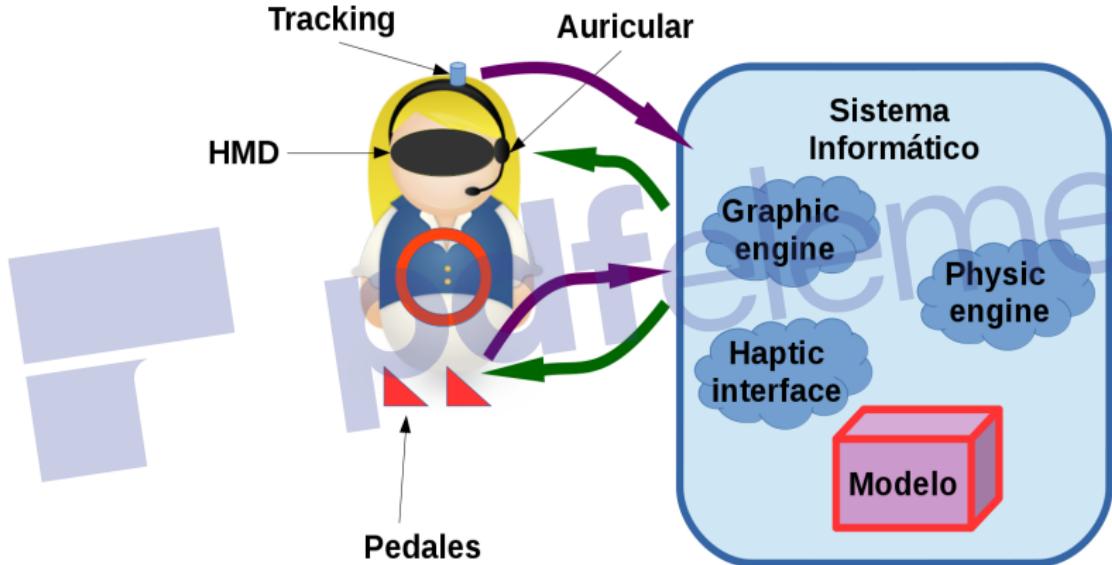
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- Model
- effectors
- sensors



## Example immersive system

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[Kim07]

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We need input and output devices (sensors and effectors).

- sensors:

- Tracking (position and orientation).
- Address look
- Hands actions
- Displacement

- effectors:

- Image
- Audio
- Touch

# Elements of a VR system

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- Model. Representation of the scene. Interativa compromise between realism and display.
  - Manage levels of detail
  - Manage textures
  - physical simulation
- Interaction.
  - Manage collisions
  - allow manipulation
  - Navigation

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## 4. Senses

pdfelement

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- View
- Ear
- Touch
- Smell
- Taste
- Balance

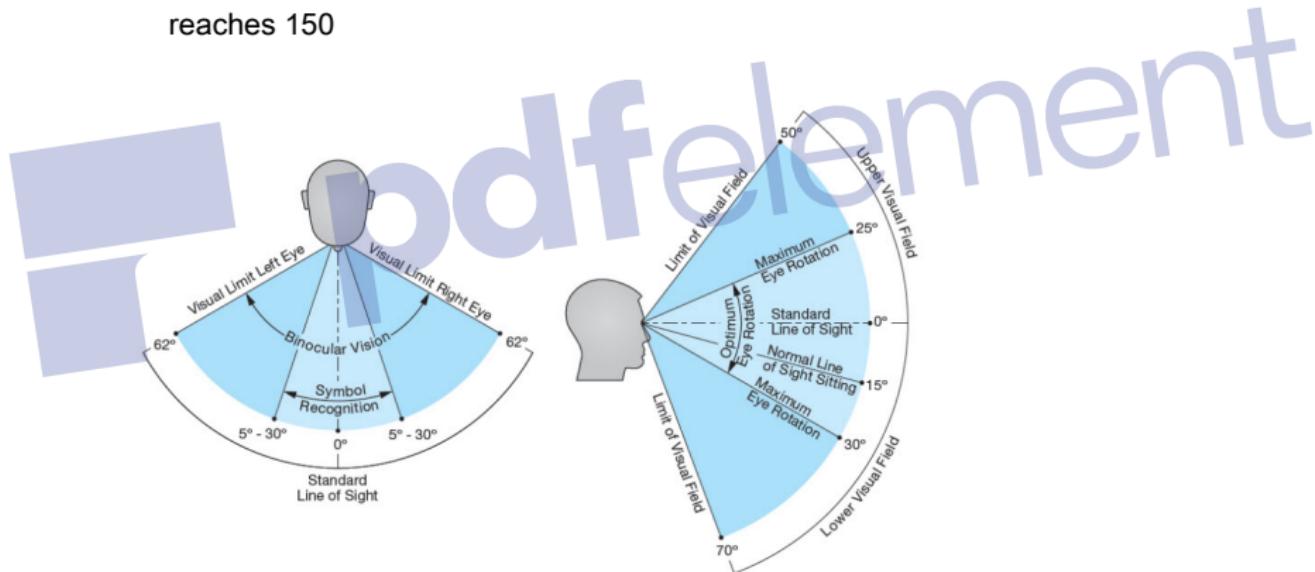
pdfelement

- Field of view
- Visual acuity
- temporal resolution
- Luminance and color
- Stereoscopic vision and depth
- Sensation of movement

## View: FOV

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- Each eye has a field of view (FOV) of about 90 ° horizontally and 120 ° vertically
- Given the ability of eye movement the horizontal visual field of a person reaches 150



<http://www.extron.com>