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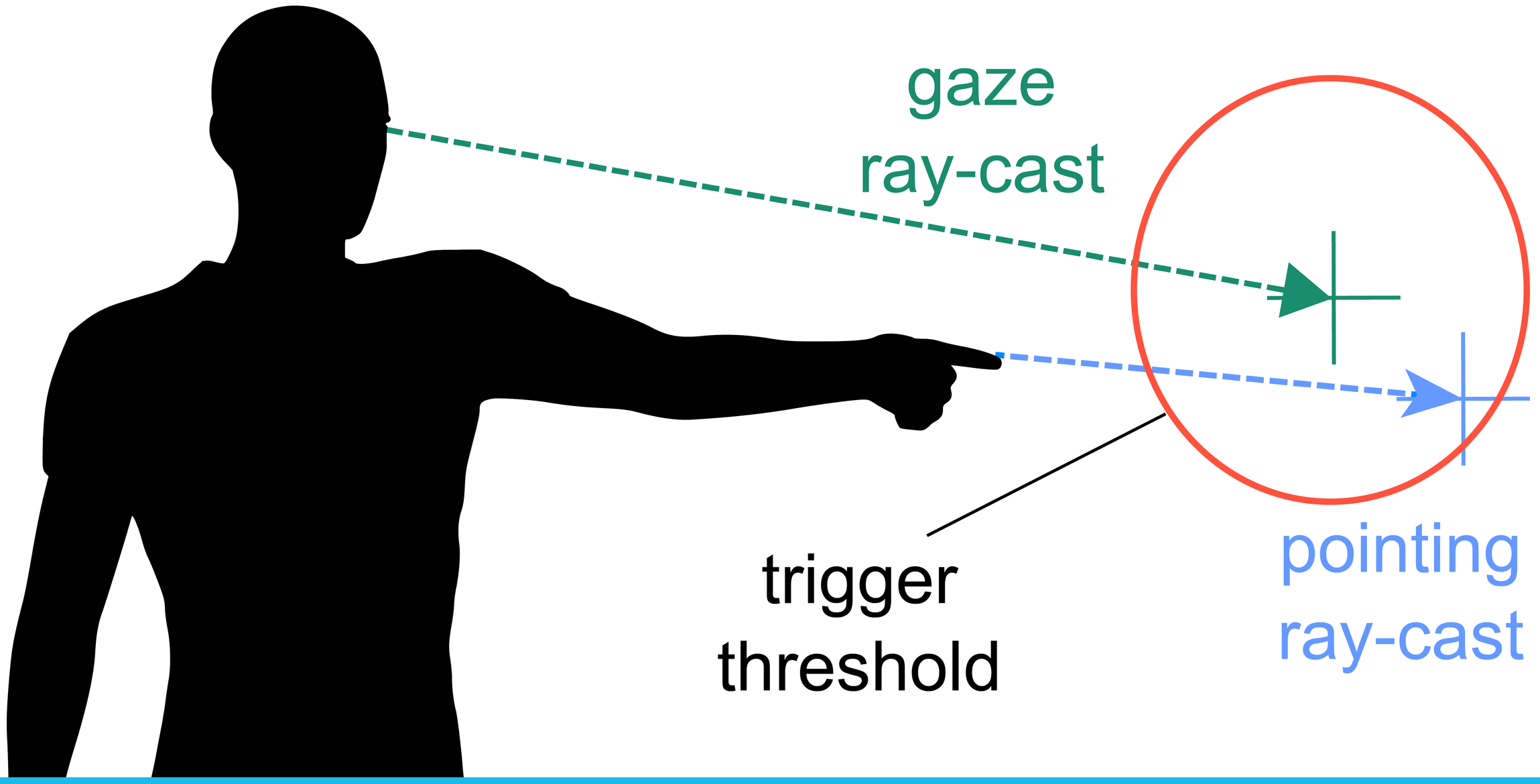

EyePointing: A Gaze-Based Selection Technique

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Abstract

Interacting with objects from a distance is not only challenging in the real world but also a common problem in virtual reality (VR). One issue concerns the distinction between attention for exploration and attention for selection - also known as the Midas-touch problem. While techniques such as MAGIC pointing still require additional input for confirming a selection using eye gaze and, thus, forces the user to perform unnatural behaviour, there is still no solution enabling a truly natural and unobtrusive device-free interaction for selection.

We propose *EyePointing*: a technique which combines the MAGIC pointing technique and the referential mid-air pointing gesture for selecting objects in a distance. While the eye gaze is used for referencing the object, the pointing gesture is used as a trigger. We propose a trigger threshold which is used to determine if an action should be triggered, see Figure above.

Use Cases

Smart Homes
The number of smart devices in everyday life increases permanently. EyePointing provides an easy and natural way of selecting specific devices, compared to only using voice commands and memorizing labels for all devices.

Large high-resolution display (LHRD)
Both display sizes and resolutions are growing constantly. Using standard interaction methods like mouse and keyboard on such systems is cumbersome and slow. We envision EyePointing as a replacement for current interaction techniques on large displays to speed up interactions.

AR and VR
Interacting with a virtual or augmented environment today often requires a handheld controller. We argue, that EyePointing can provide a natural way for interactions without additional devices.

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