History

1957 — Sensorama — 3D Images, Smells, Sounds

1968 — The sword of Democles — The 1st HMD

1987 — EYEPHONE + DATAGLOVES

1991 — Virtuality 1000 — stereoscopic 3D, multiplayer

1993 SEGA VR — Head tracking
stereo sound
LCD screen

1994 SEGA VR-1 — 3D polygon graphics
motion simulator

1995 Nintendo
Virtual boy

2005 EMagin Z800
3D Visor — OLED
hi-fi sound
head tracking
360° FOV

2012 Oculus Rift DK1 — good stereo 3D, lightweight

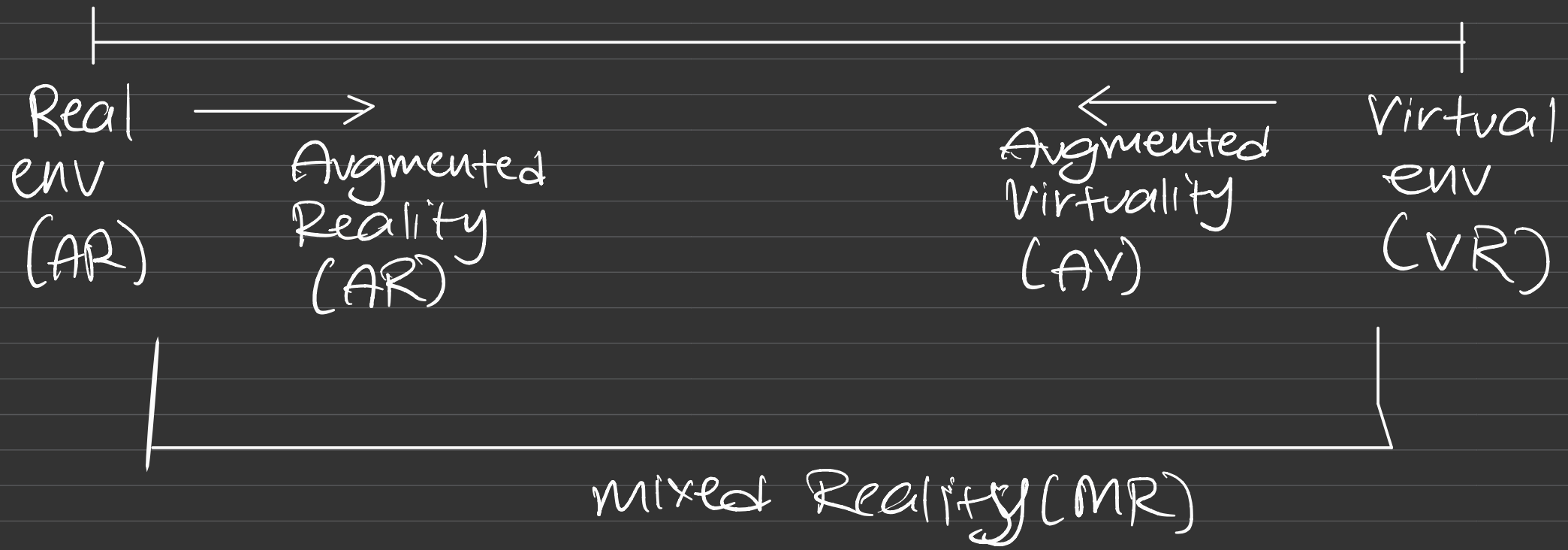
2014 Google Cardboard — cheap, use existing phones

2015 Samsung gear VR

2016 HTC Vive
Oculus Rift
Playstation VR

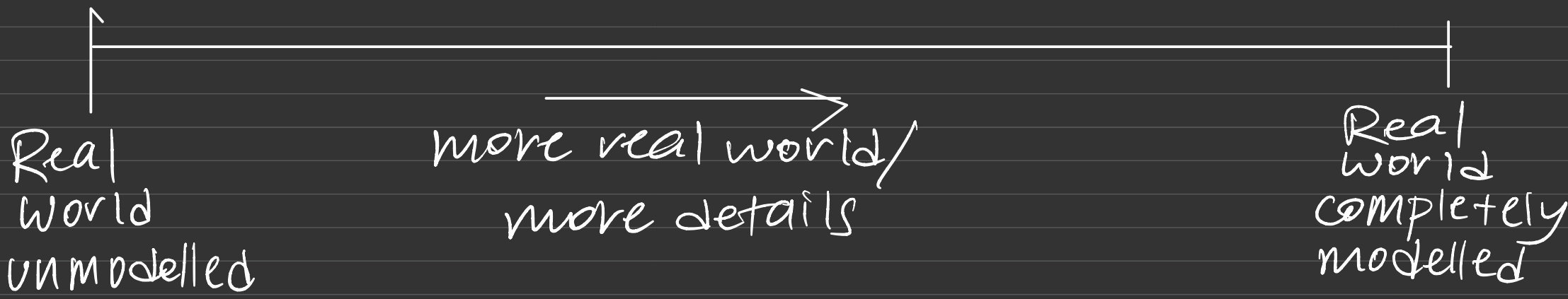
VR	cover entire vision looking at entire diff place or space feeling of transported to diff dimension
AR	see the real world augmenting real world adding some fixed items
MR	like AR but the items you put inside the real world can actually understand the real world (spacial knowledge) eg. geometry
XR	mix of all 3 above or just a mix

Milgram-Kishino's RV continuum



Dimensions of RV continuum

1. Extent of World Knowledge (EWK) continuum



- how much the system knows about/understand the real world

2. Reproduction Fidelity (RF) Continuum

- how realistic the assets / items are
- can be in terms of visual (details), sound etc.

3. Extent of Presence Metaphor (EPM) continuum

- how interaction affords realism
- when you interact with the system, how real does it feel
- grab, gestures