COMP210: Interfaces & Interaction

2: Session title here

Immersion

Immersion is the objective degree to which a VR system and application projects stimuli onto the sensory receptors.

- Extensiven
- Matching
- Surrounding
- Vividness
- Interactability
- Plot

Perceptual Modalities

Sight, hearing, touch, proprioception, balance/motion, smell and taste.

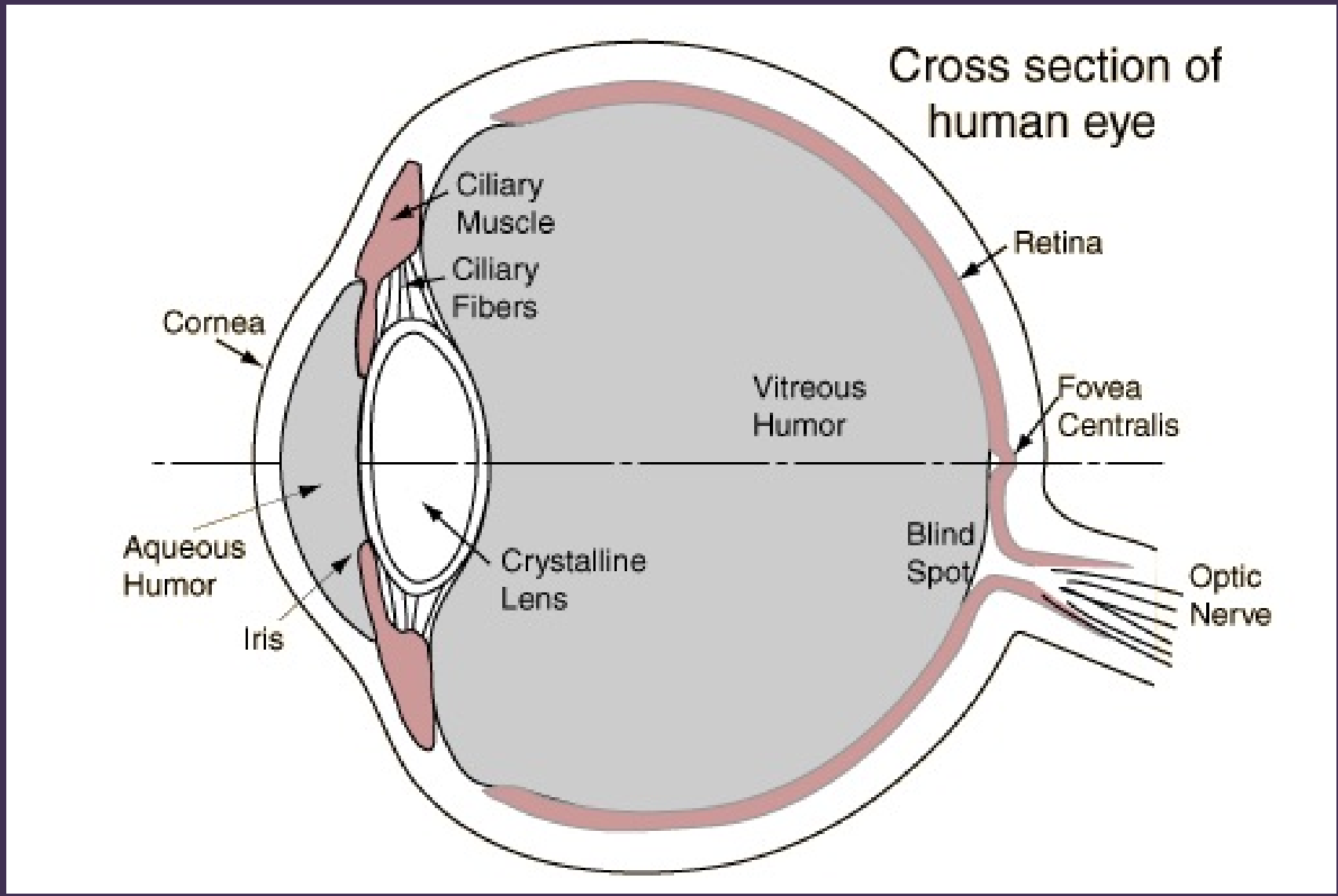
Cross section of human eye
Ciliary Muscle
Ciliary Fibers
Retina
Cornea
Vitreous Humor
Fovea Centralis
Aqueous Humor
Crystalline Lens
Blind Spot
Optic Nerve
Iris

Figure:

Cones and Rods

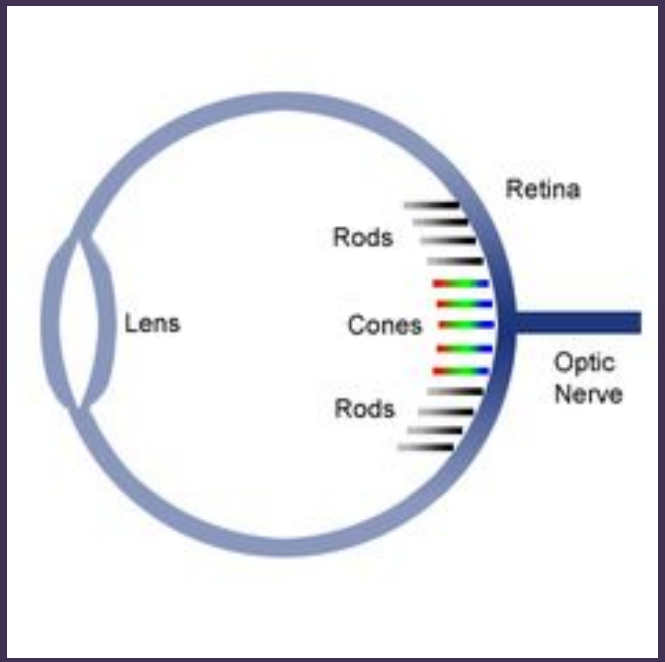

Figure: The retina is covered in two types of photoreceptors, cones and rods. Cones are responsible for vision in ideal conditions and rods are responsible for low light levels and non-ideal conditions.

Central vs. Peripheral Vision

Central

- has high visual acuity,
- optimised for bright daytime conditions, and
- is color sensitive.

Peripheral Vision

- is color insensitive,
- is more sensitive to light than central vision in dark conditions,
- is less sensitive to longer wavelengths (i.e., red),
- has faster response and has more sensitive to fast motion and flicker, and
- is less sensitive to slow motions.

Field of View and Field of Regard

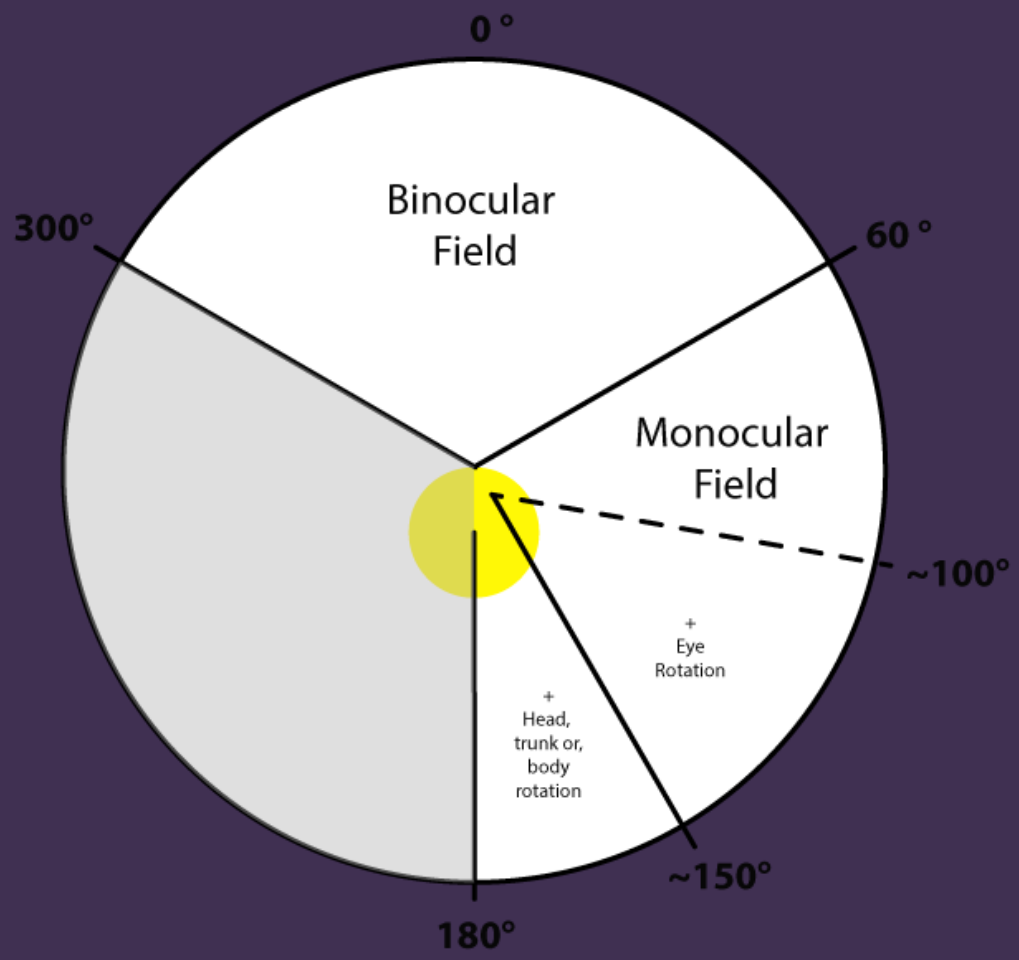

Figure: Horizontal field of view of the right eye with straight ahead fixation (looking towards the top of the diagram)

The Photoreceptors: Cones and Rods

Visual Pathways

acuity

Visual Acuity is the ability to resolve details and often measured in visual angle.

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In perfect conditions a human can see a line as thin as 1/7200th of a degree.

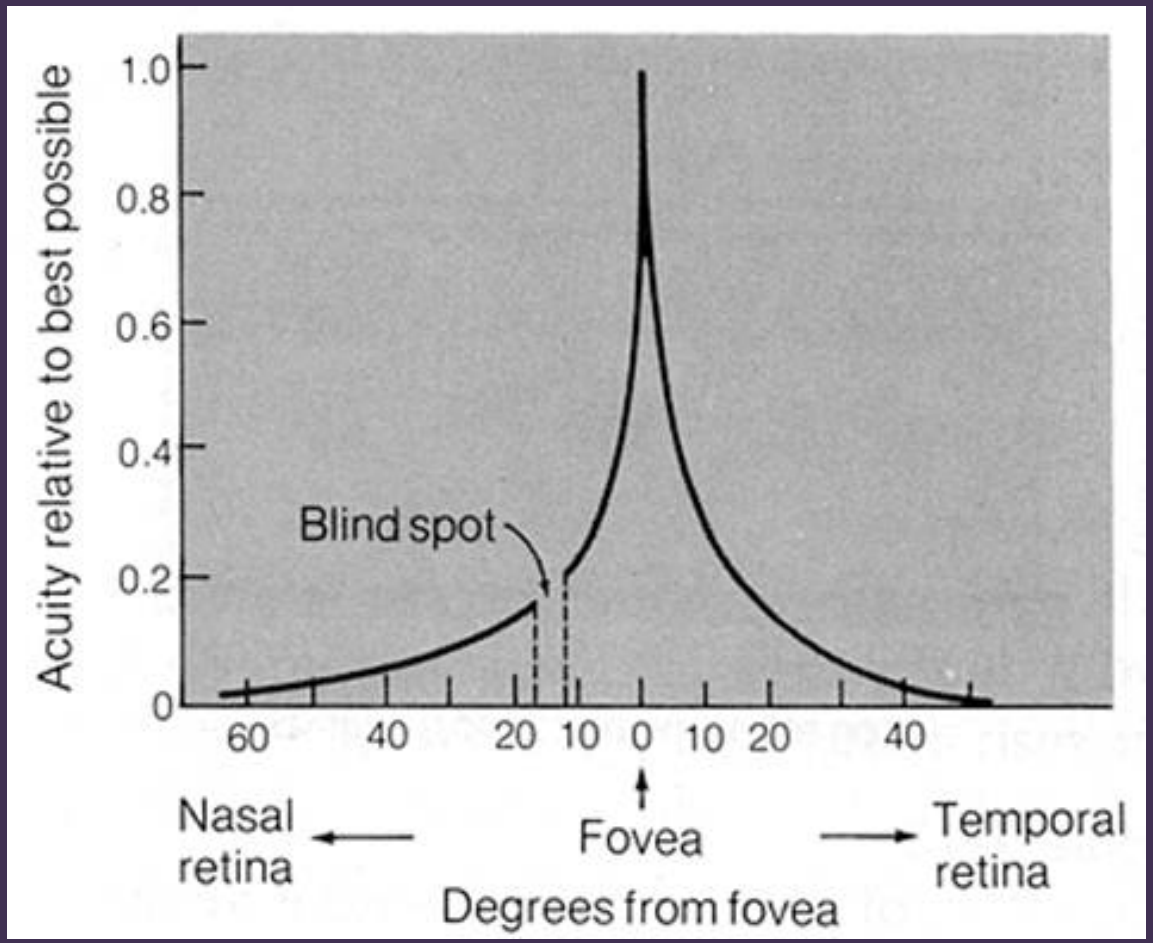
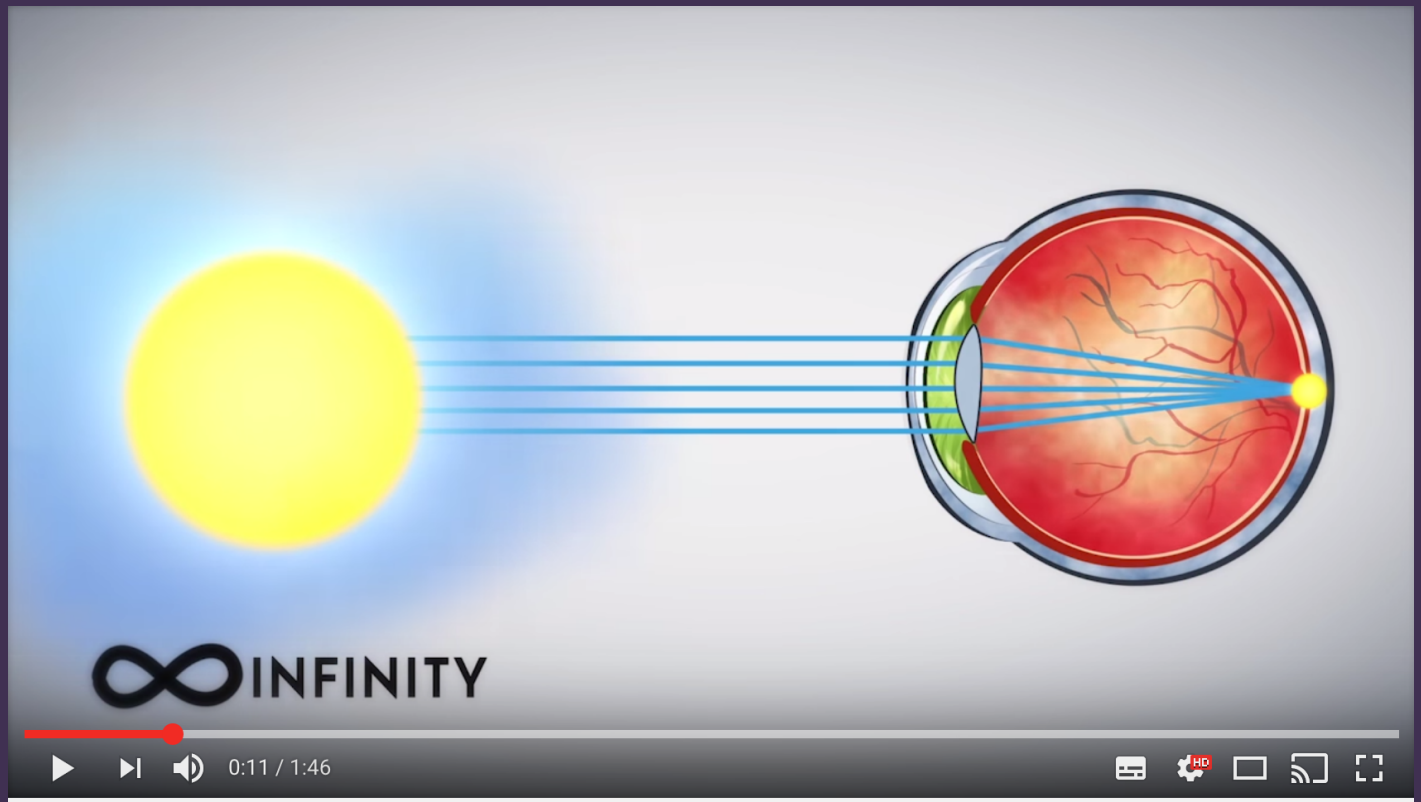


Figure: Visual acuity is much better at the fovea.

VR Lenses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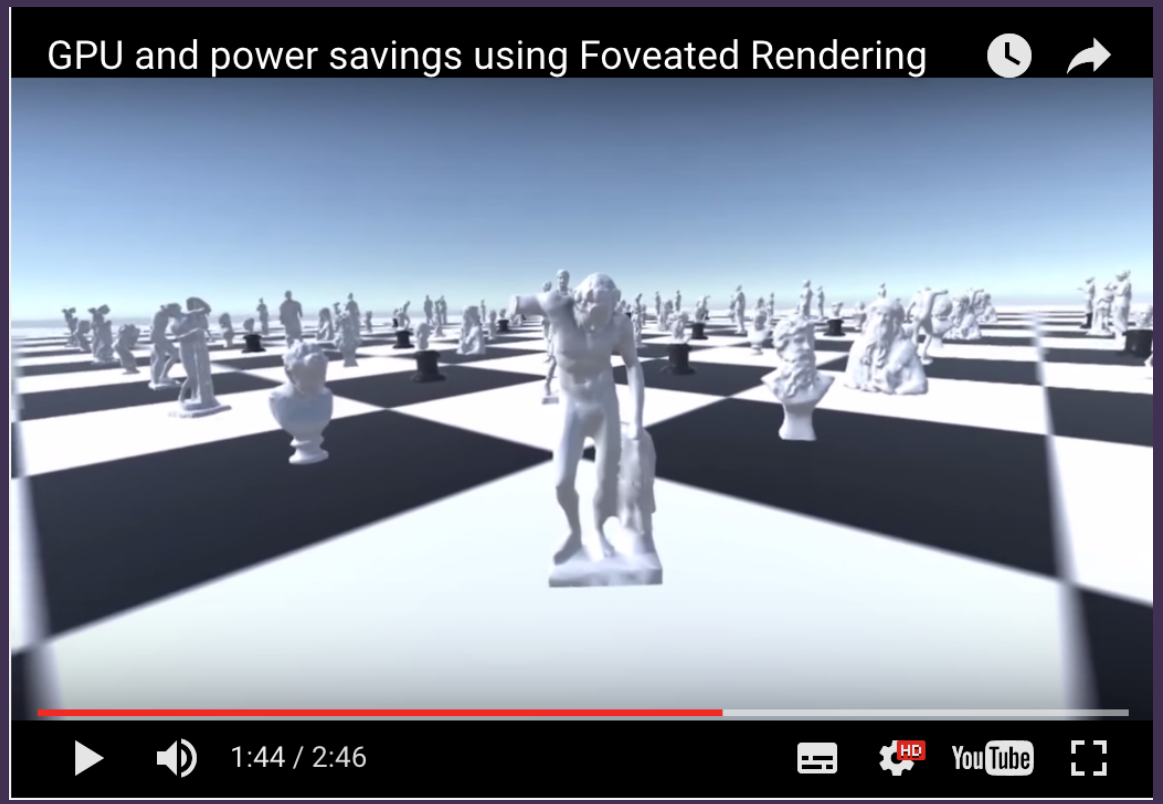

Eye Tracking Demo