

Motion Perception

- ✦ one of the most basic aspects of vision
 - selective evolutionary pressure
- ✦ motion agnosia
 - pouring
 - talking
 - walking around

Sensitivity to Movement



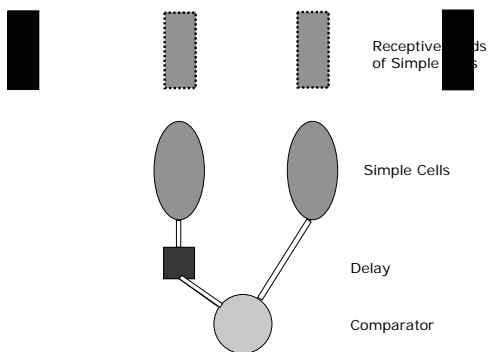
2.5 mm/s

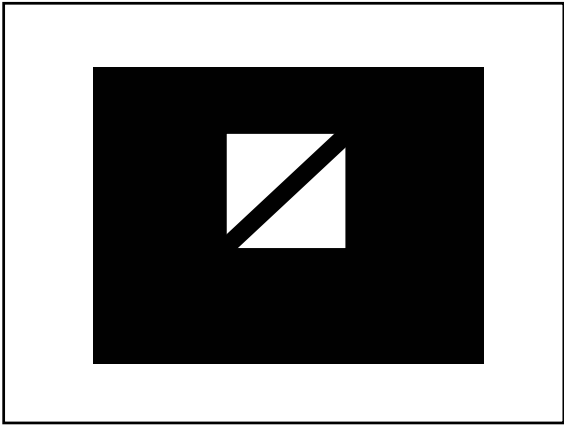
0.25 mm/s

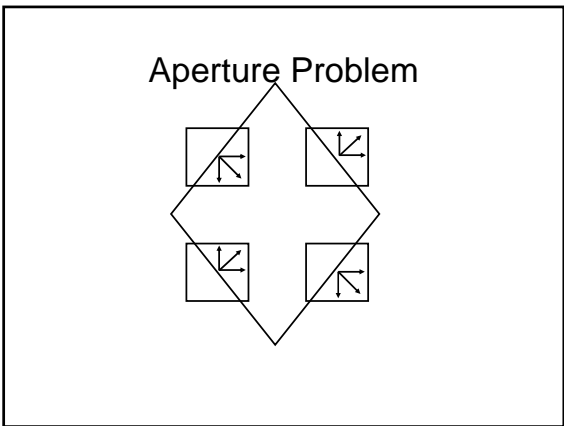
Snail to cross a regular office desk (1.5m) would take 10 min

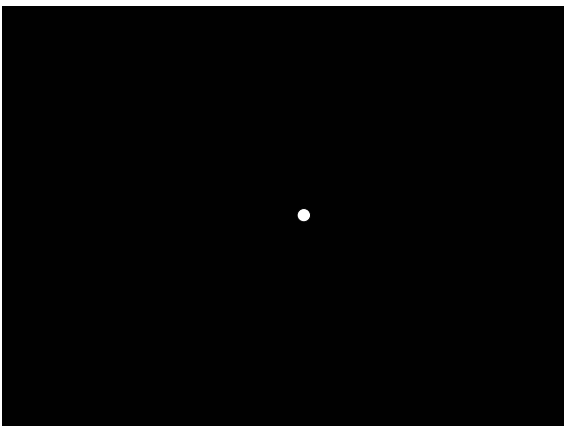
Snail to cross a regular office desk (1.5m) would take 100 min

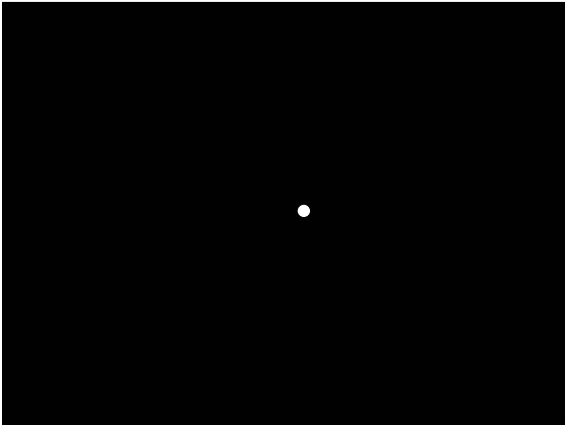
Reichardt Detector





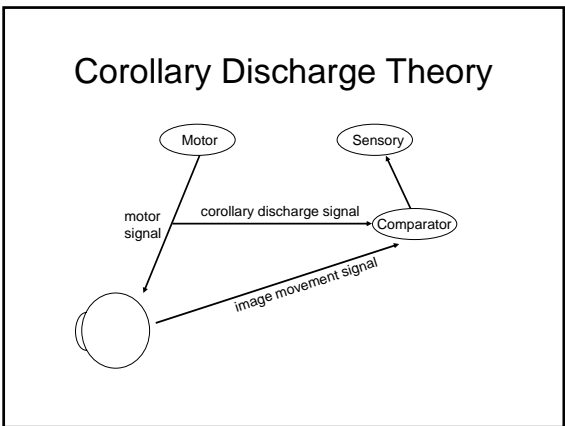


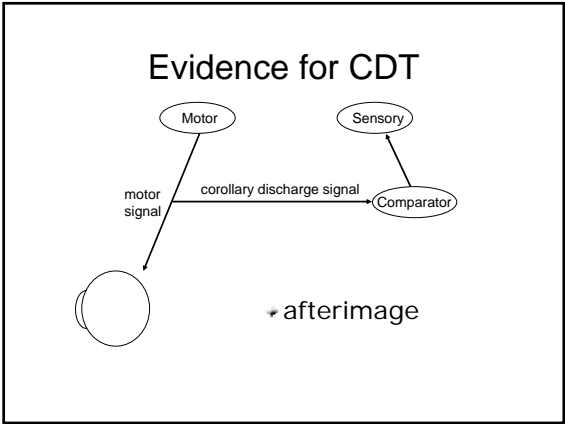


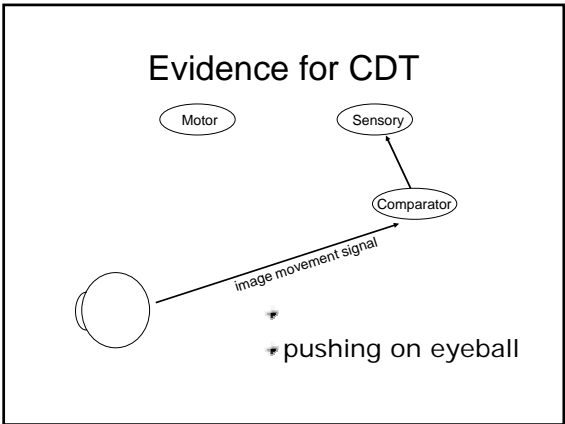


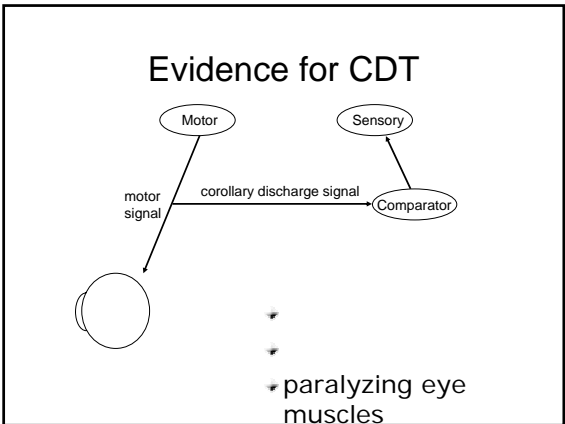
How do we perceive motion?

- movement of an image across the retina?
 - perceive movement despite no actual movement
 - autokinetic effect
 - induced motion
 - apparent motion
 - movement aftereffect
 - tracking – smooth pursuit movement
 - scanning – position & direction constancy



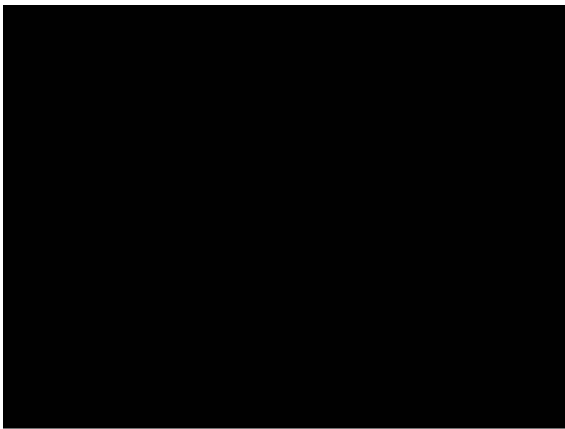


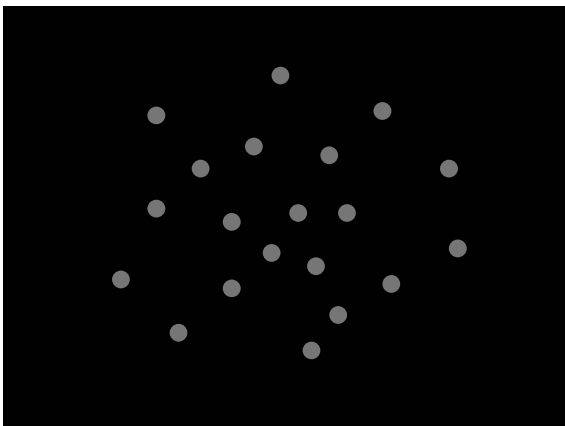


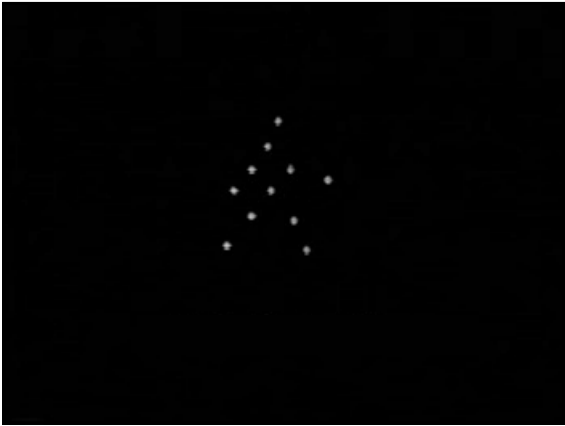


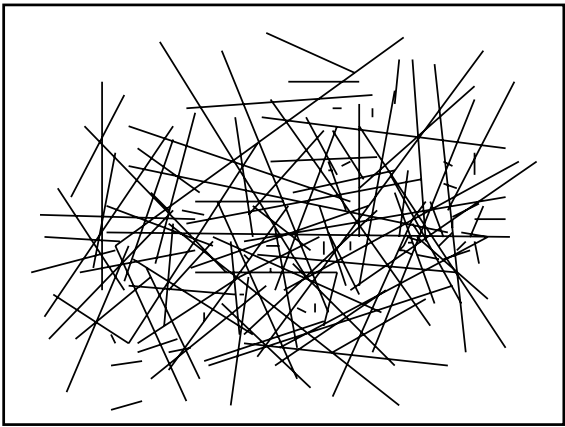
Information in the Optic Array

- ✦ optic array – the structure created by surfaces, textures, and contours in the environment
- ✦ local disturbances – accretion/deletion
- ✦ global optical flow



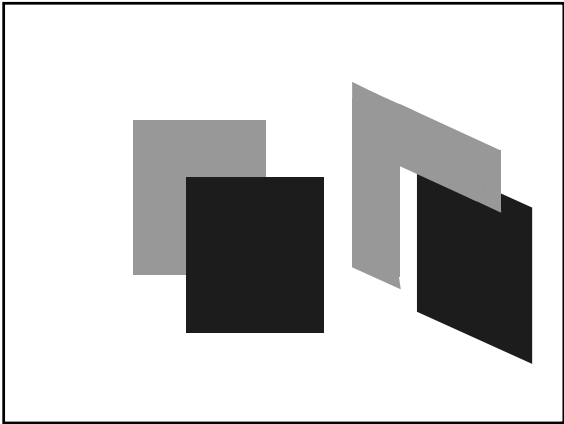






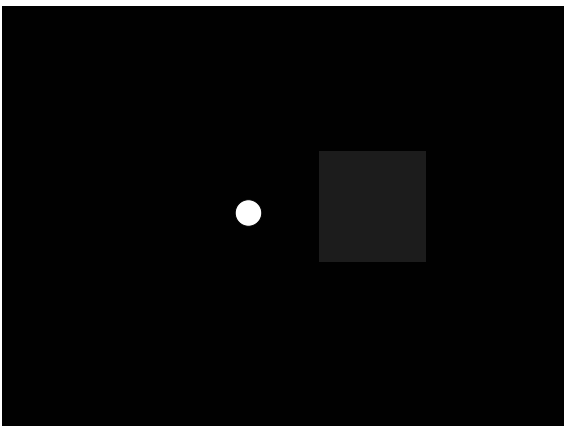
Perceptual Organization

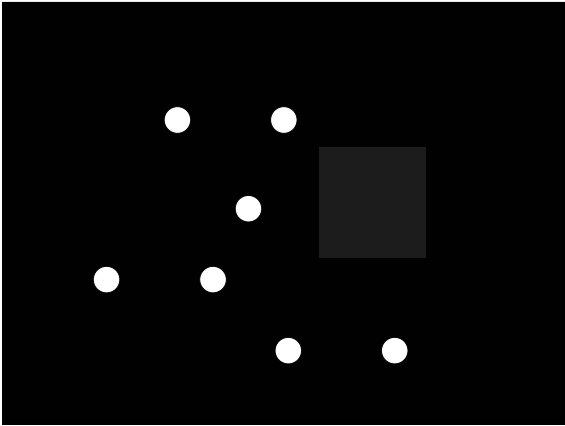
- ✦ point-light
- ✦ camouflage
- ✦ kinetic depth effect (structure from motion)

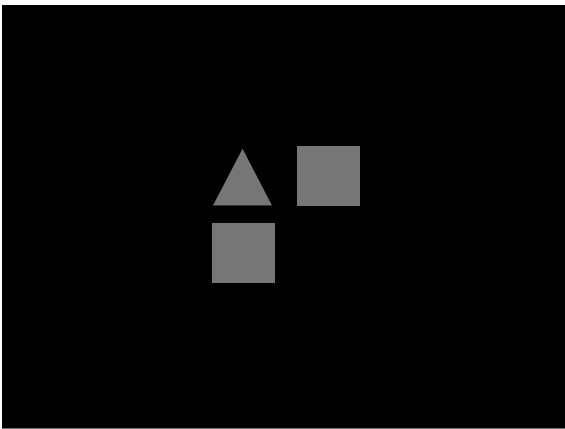


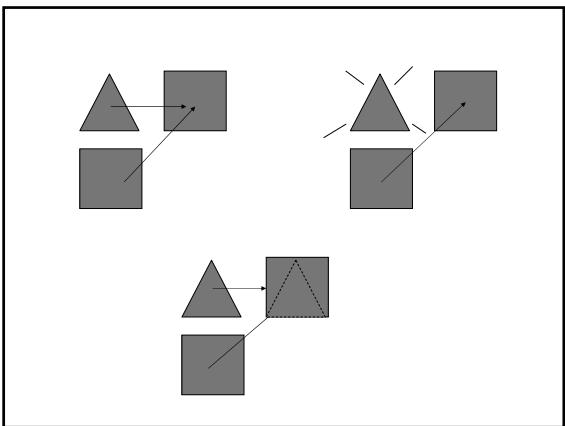
Intelligence of Motion Perception

- perceptual system takes characteristics of the environment, as well as knowledge, expectations and memories, into account to make sense of stimuli









Knowledge about human body

- ✦ Shiffar and Freyd – picture of person with fist behind head alternated with picture of person with fist in front of face



- ✦ < 200ms interval fist passed through head
- ✦ > 200ms interval fist went around head

Take home message

- ✦ motion perception covers a large range of phenomena
- ✦ from very simple movements like a single dot moving left to right, all the way up to the complex movements of the human body
