



Perceiving Two Dimensions

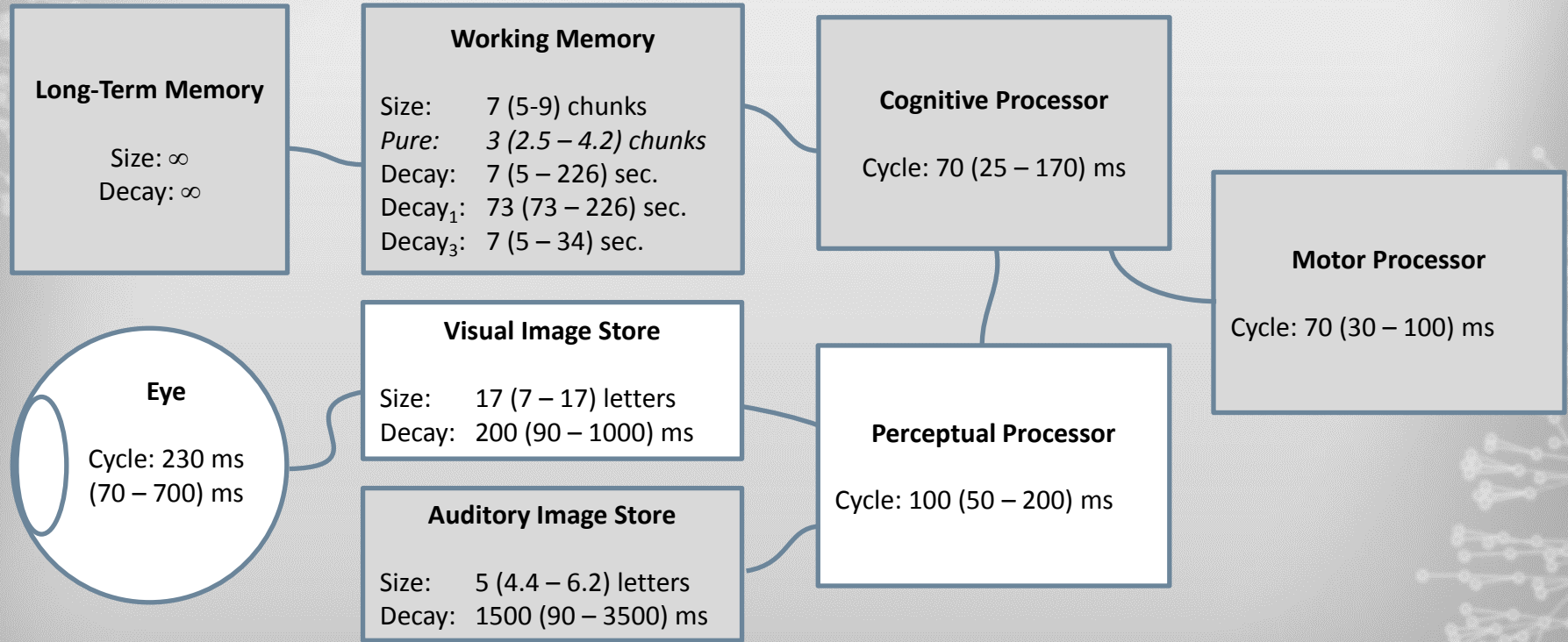
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What We Will Learn

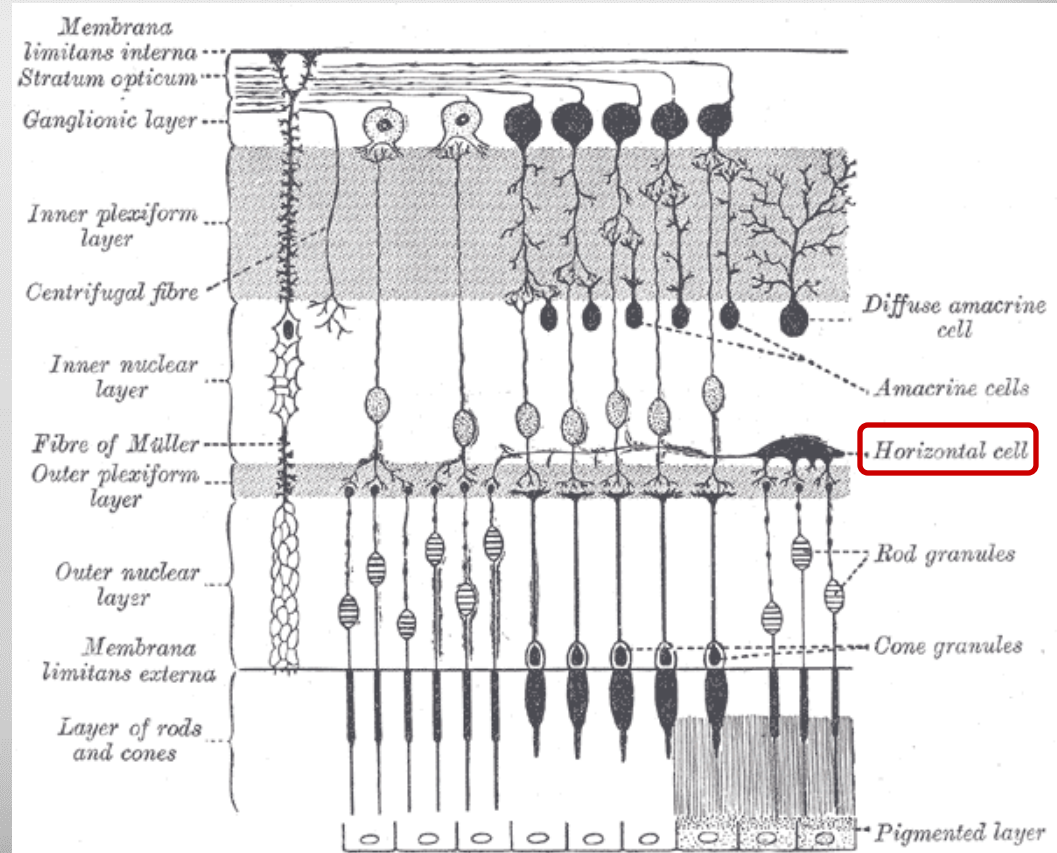
- How does the human visual system collect individual rod and cone signals into a shape?
- How can I make sure visual data will be properly perceived?

The Model Human Processor

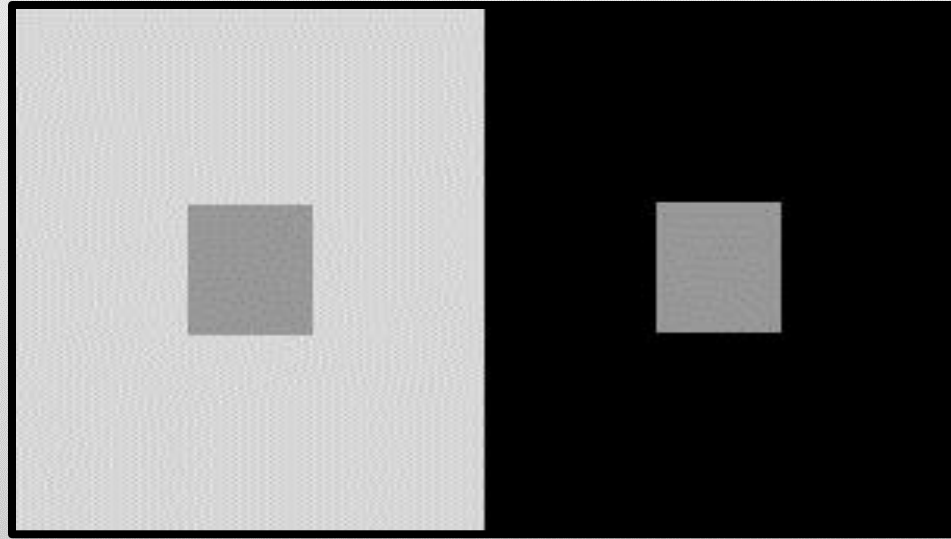


Lateral Inhibition

- Horizontal cells accentuate and exaggerates differences in space and time
- Eye's internal real-time edge and motion detector
- Used to detect predators like tigers in the bushes



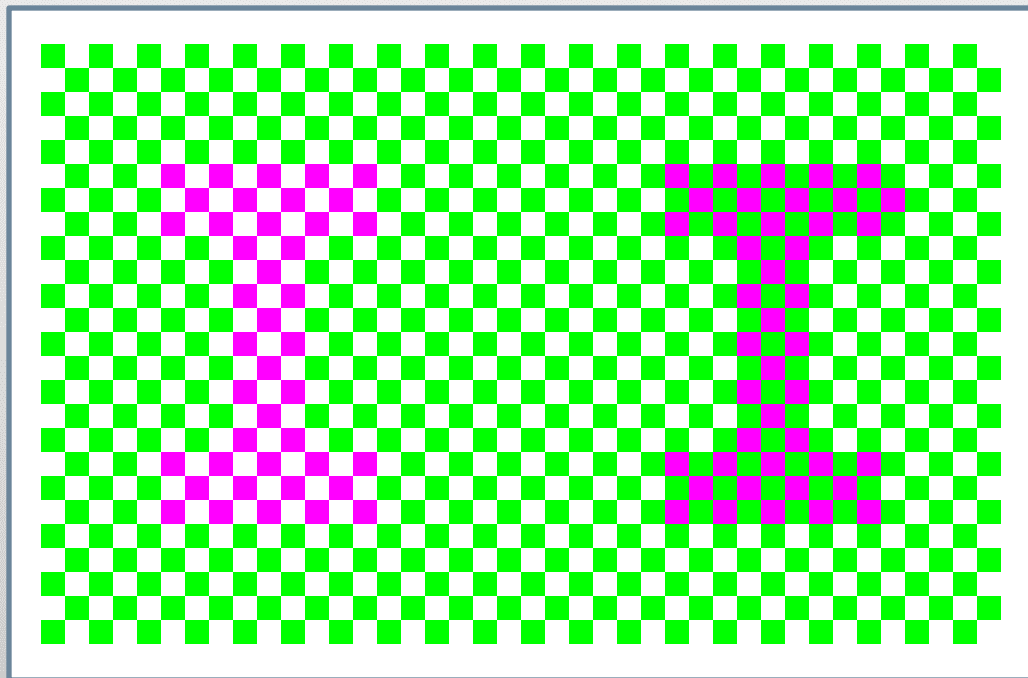
Shade Context



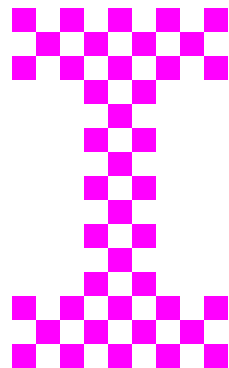
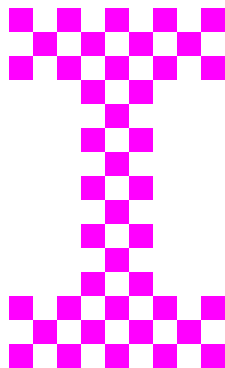
Shade Context



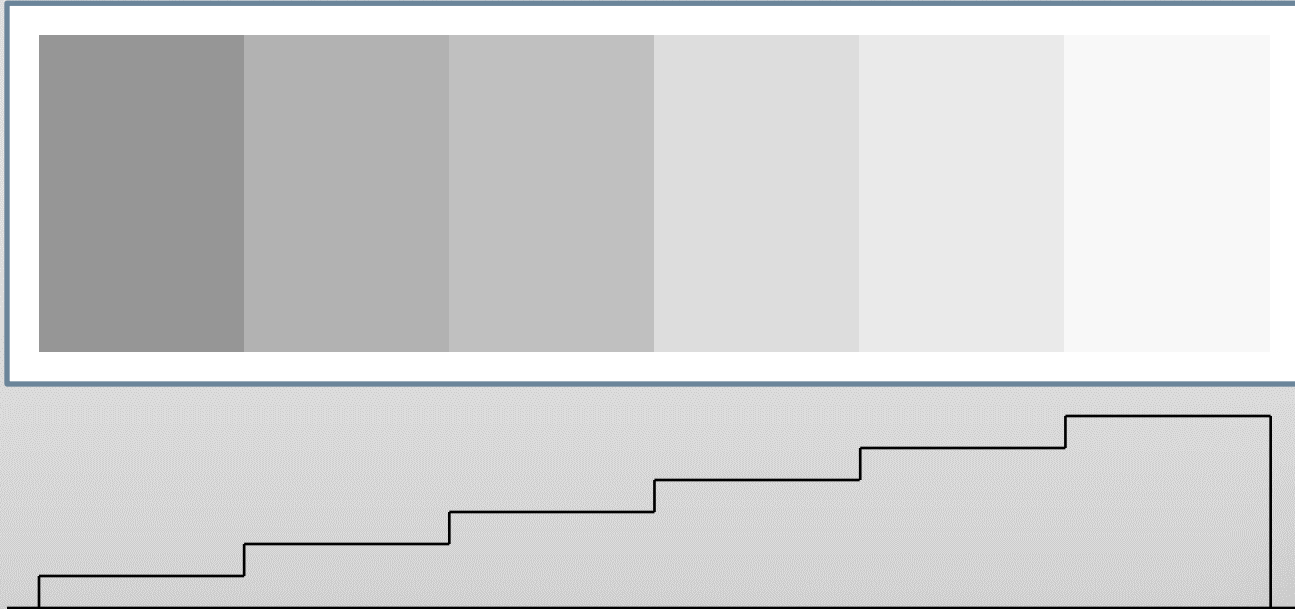
Color Context



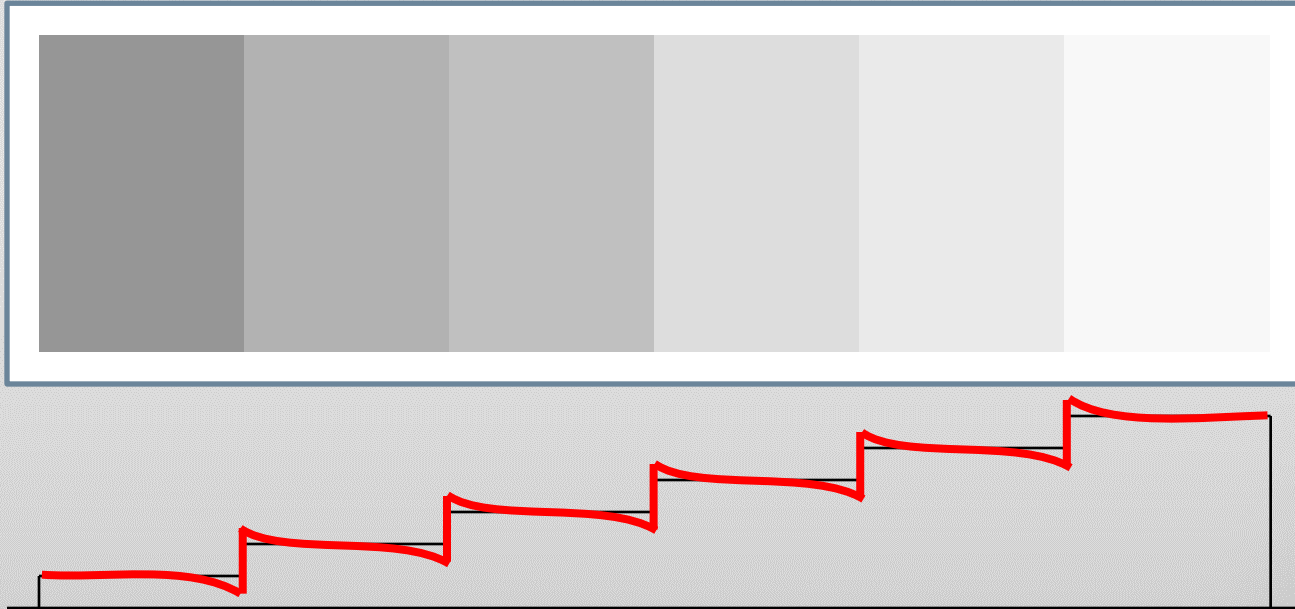
Color Context

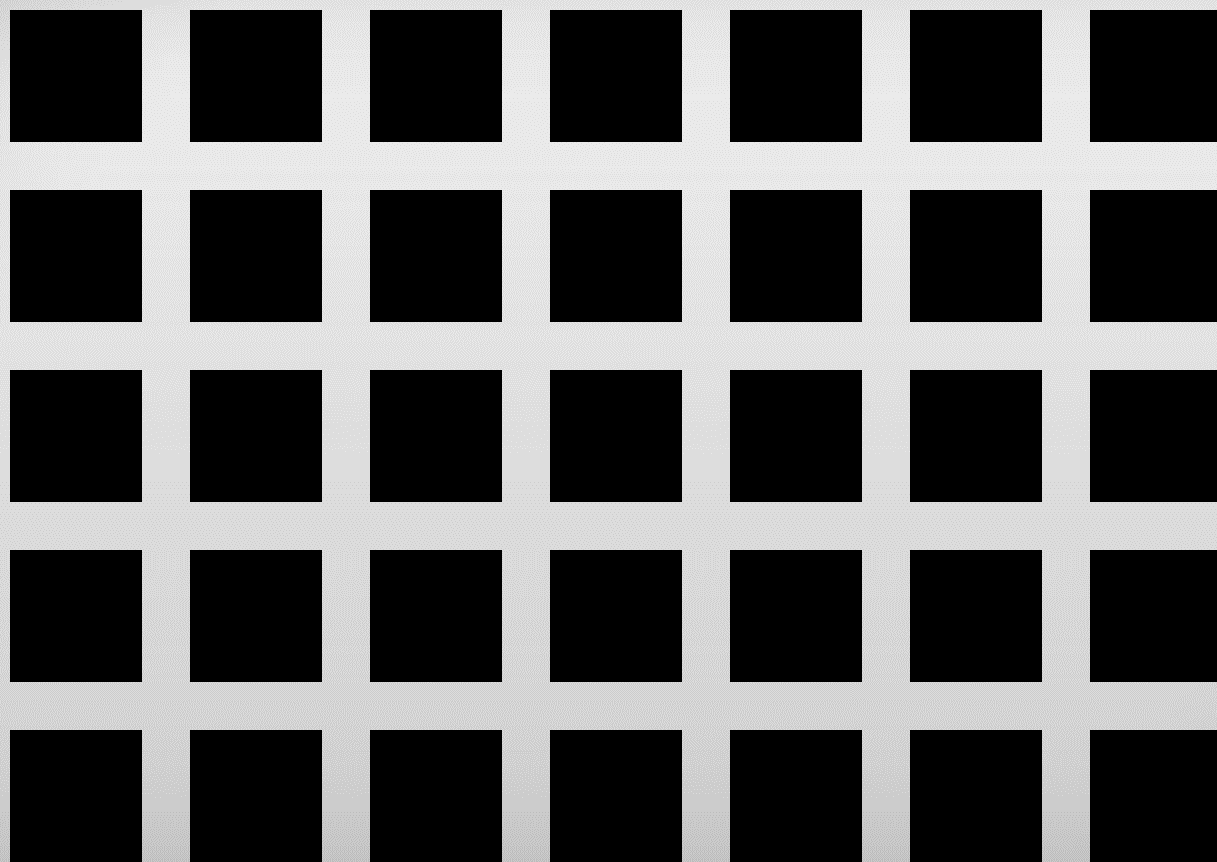


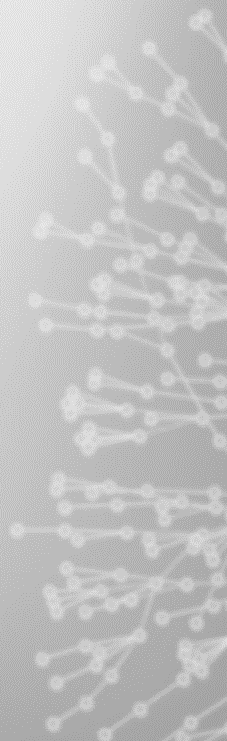
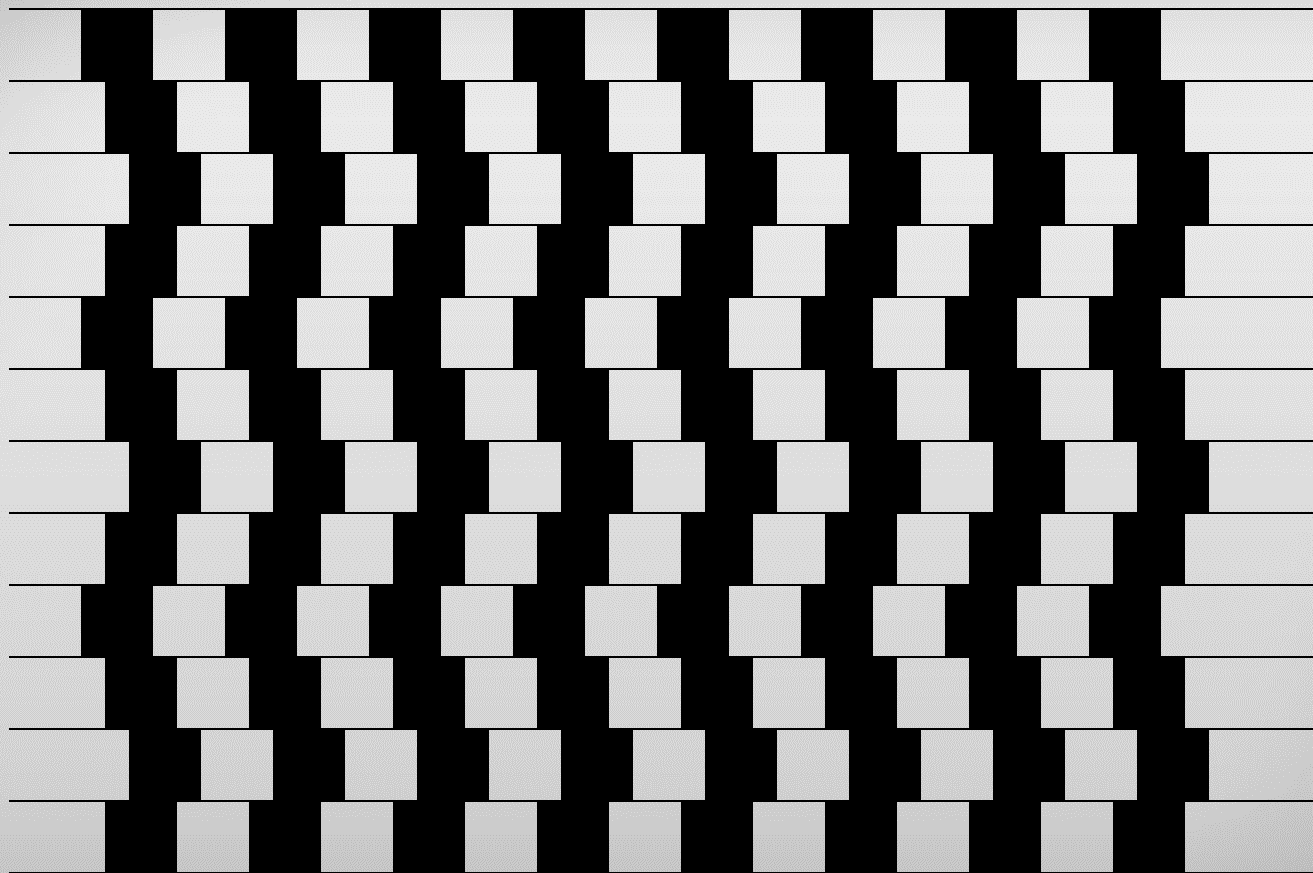
Mach Bands



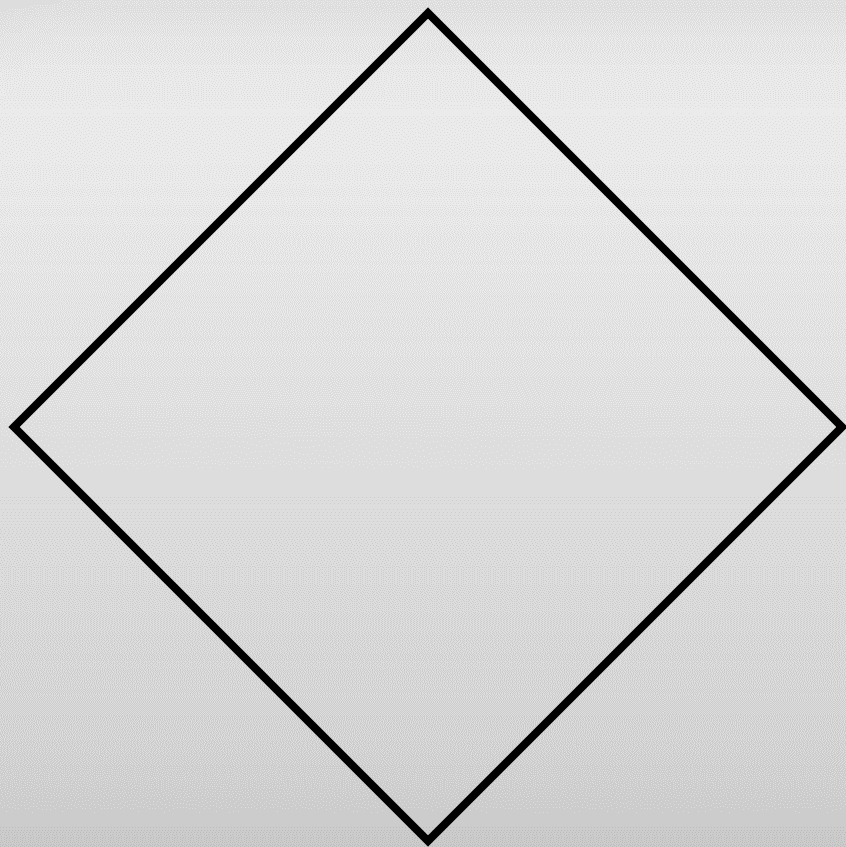
Mach Bands

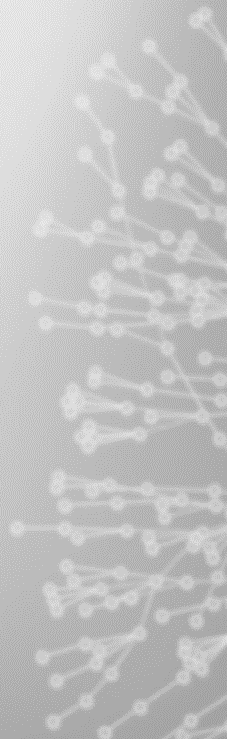
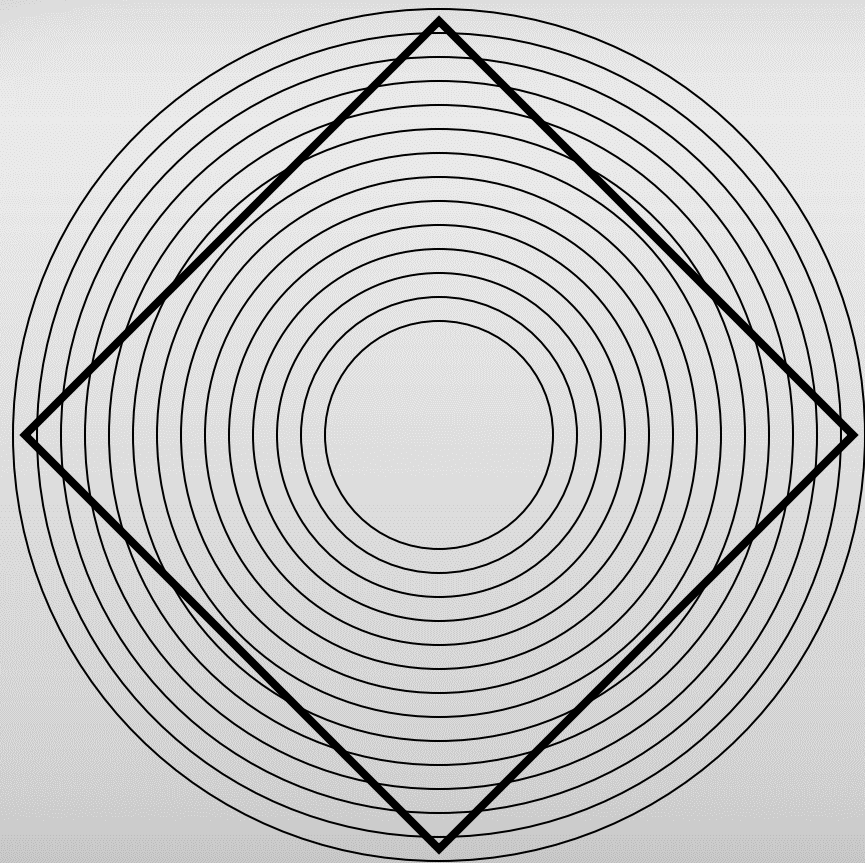




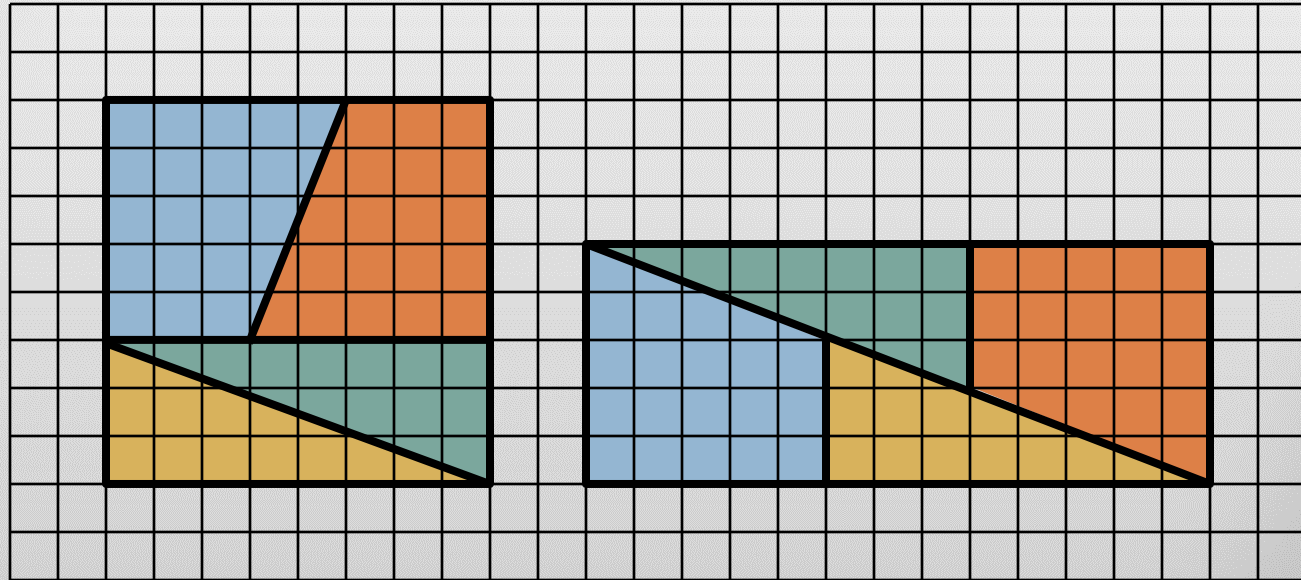


This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.





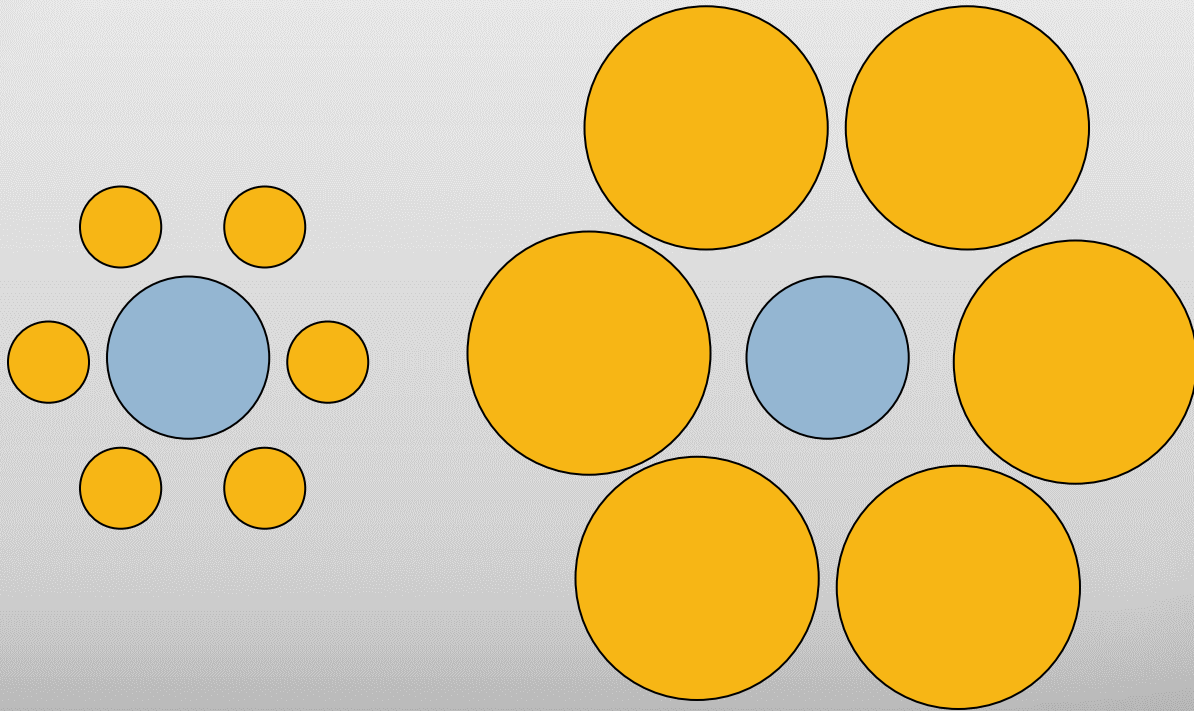
Perception v. Cognition



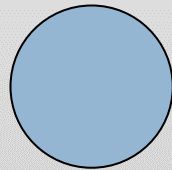
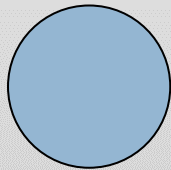
$$8 \times 8 = 64$$

$$13 \times 5 = 65$$

Size Context



Size Context



What Did We Learn?

- Various forms of lateral inhibition help our visual system see and accentuate shapes in context of neighboring shapes
- This lateral inhibition can also interfere with the proper perception of visual data
- Always use consistent contexts for visual comparisons