

WARE Ch1

for 2/13-2/25

Ecological Perception

Saliency

Contrast

The world is its own memory

emphasis on attention

Resource LIMITATIONS

Attention \Rightarrow Pattern FINDING

VISUAL QUERIES

Rods/Cones

Fovea

100×10^6 receptors $\Rightarrow 10^6$ (or less) pathways

saccades

Bottom up vs. top-down

Low level feature detectors

VISUAL WORKING MEMORY

Easier to redo than to remember

"Start with a visual task analysis"

\rightarrow determine the set of visual queries

WARE CH2

PRE-ATTENTIVE IS A MISNOMER

→ Inattentional Blindness

△ need to know what to attend to

CONTRAST - IN ALL FEATURES ← something we get wrong w/
salience

What can and can't be tuned for

- conjunctions
- not enough contrast
- not an extremum

Conjunctions - Different in multiple channels

Clarity vs. coherence

Adding is better than taking away

High-frequency motions are attention grabbing

Multi-scale visual search

Search strategies (?)

Scan

for 2/23-2/25

Healy Perception Web Page

Applet for pre-attentive conjunction

Pre-Attentive Features List

orientation, length, width, size, curvature

closure

density, contrast

hue

intensity luster (?)

intersection, terminators (T)

depth cues, 3D orientation

flicker, motion direction, motion velocity

lighting direction

Pre-attentive boundary detection

Theories of pre-attention

Colin Ware (it's not pre-attention) - builds on all

Feature Integration

Textons

Similarity theory Target/Non-Target vs Non-Target Variance

Guided Search - binning

bottom up - local contrast

top down - feature requests

Boolean Map Theory

Does non-preattentive mean:

scales w/ distractors or just hard

Healy p2

What happens post-attention
seems like pre-attentive info is thrown out

Wolfe's experiments - you don't learn basic visual features

Feature Hierarchy
colors over shape

Change Blindness
attention to detect changes - necessary, but not sufficient

For 2/25

Popout Phenomena

Contrast

Salience

Dominance

Theories

Feature Hierarchy

Variance

why do we care about what stands out?

not so clear cut & contrast, ...

Salience in pictures

vs. importance

in retargeting

Comparison

what makes change blindness hard

In design

- what should be found quickly

- highlighting \equiv better to add than take away

- conjunctions

perceived complexity

spatial grouping

what is biggest?

how to order bar chart

Integral vs. separable cues