ATTENTION

*An in-depth look into the human brain & attention*

Information sourced from Dr. Marlene Behrmann's publications
https://www.cmu.edu/dietrich/behrmannlab/Publications/index.html

Attention helps the brain manage continuous sensory information while organizing other information from long-term, short-term, and working memory.

There are 2 ways we process sensory information:

- **Bottom-up processing**: involved in stimulus detection & highly sensitive to arousal

- **Top-down processing**: involves 6 executive domains to resolve conflict between external & internal stimuli
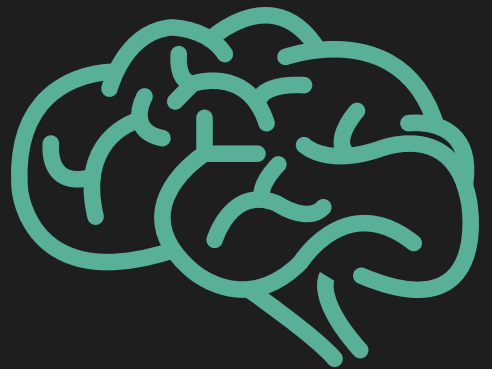
VISUAL ATTENTION

PROCESSING VISUAL STIMULI

Depending on the stimulus, both ways of processing are used.

Simple stimuli activates bottom-up visual attention (Ex: flash of light)

Complex stimuli activates top-down visual attention (Ex: a dog walking on 2 legs)

ATTENTION FORMS

- **Object based**: uses object structure

- **Location based**: uses spatial arrangement in environment

- **Feature based**: uses individual features of a larger object with many features

DR. BEHRMANN'S RESEARCH

Psychophysics of top-down visual attention

How we sift out irrelevant stimuli in an environment filled with many different visual stimuli.

How shape, size, structure, features, spatial orientation, & stimulus duration affects attentional processing of our visual field
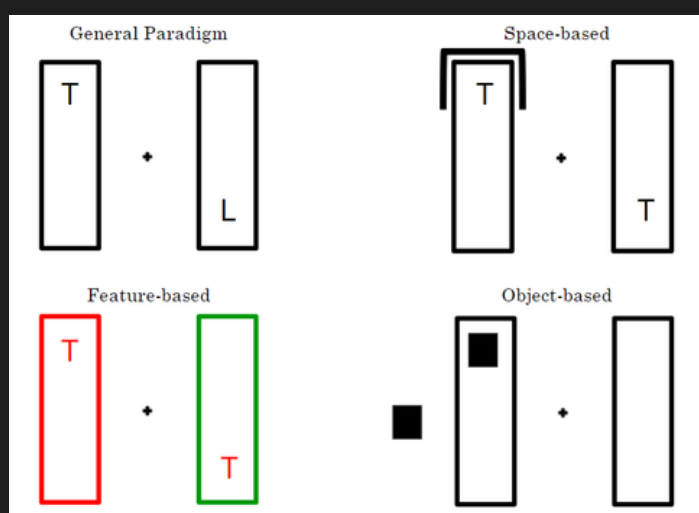
Published works include

How reaction time for stimulus detection differs when primed to use object-, location-, or feature-based visual attention.

How mode of presentation impacts our processing of visual stimuli (one item or many items at a time)

Which brain regions are most activated during top-down visual processing

General Cueing Paradigm

The general cueing paradigm seen here is one of the tools used in Dr. Behrmann's lab. It consists of a cue & a target. Participants indicate where the target is after being shown a cue. Reaction time is measured.