# Knowledge-Based AI for Image Compositional Guidance

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## Introduction

**Image Composition** ~ **Aesthetics**

(Photography)
1. Position
2. Zoom

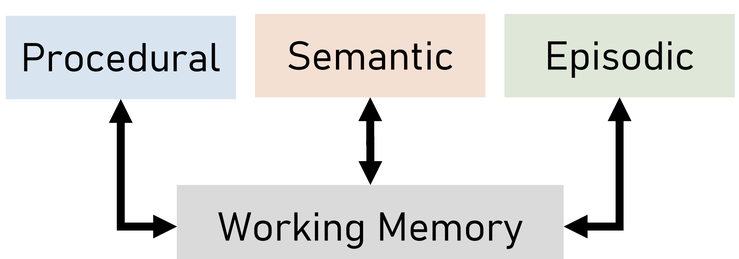
(Human Cognition)
1. Symmetry
2. Averageness
3. Subject Conformity

## Objective

**Move**: Left, Down
**Zoom**: In

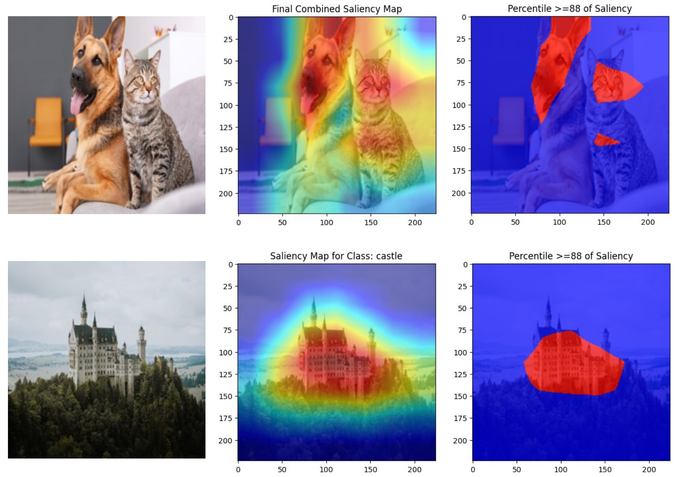
## Methodology

**SOAR** Cognitive Arch.




## Procedural Module - Baseline Processing

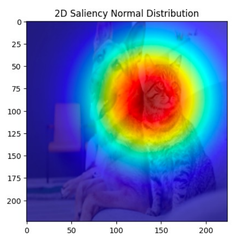
1. Multi-Class Saliency via GradCam




2. Multiple Saliency Regions?

**Yes**

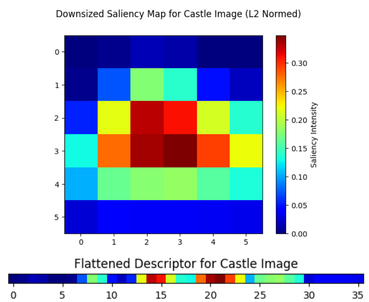
3. Combined Saliency Modelling



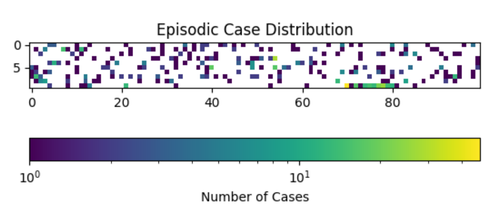

**No**

## Episodic Module

a. Descriptor Formation



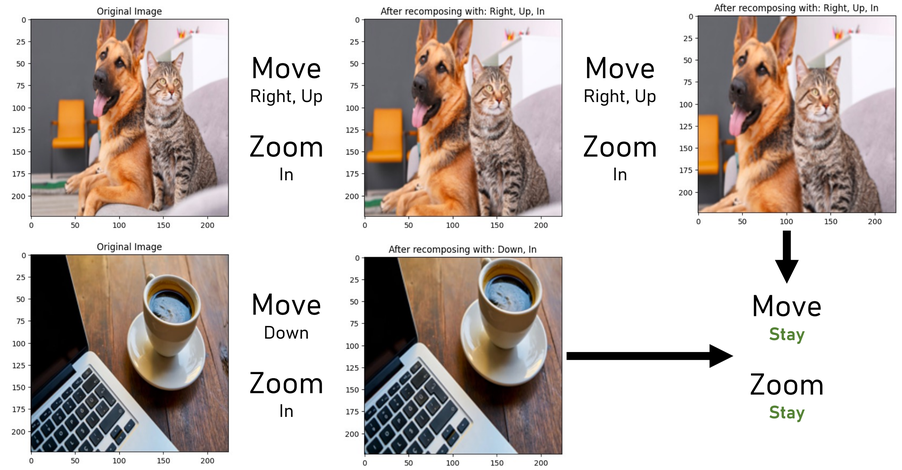

b. KNN lookup across stored cases for dominant class



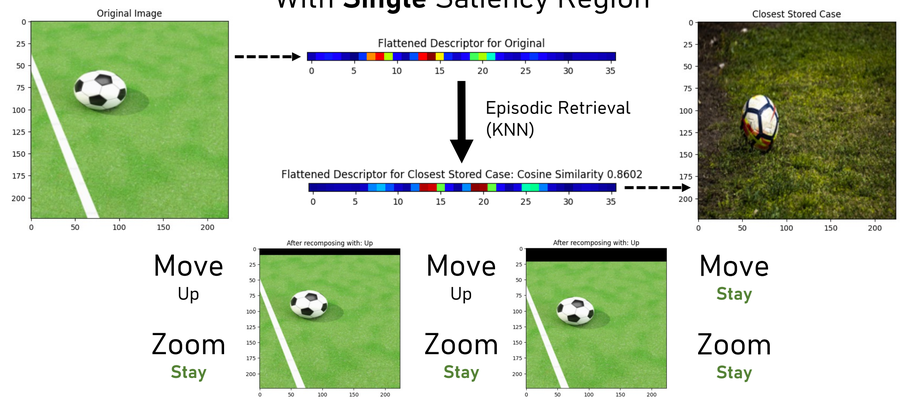

Guidance Computation
(Position + Zoom)

## Results

With **Multiple** Saliency Regions




With **Single** Saliency Region




## Discussion & Conclusions

- General compositional improvements
  - Symmetry, averageness, subject conformity
- Lack of true semantic intuition
  - Relationship between subjects, subject idiosyncrasies
- Future Work
  - Episodic case completeness (ImageNet, CIFAR)
  - Continuous learning and impasse chunking