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## What is memorability?

- objective and quantifiable measure of images
- consistent across observers
- filter for visual data

$$\text{HR(I)} = \frac{\text{hits(I)}}{\text{hits(I)} + \text{misses(I)}} \times 100\%$$



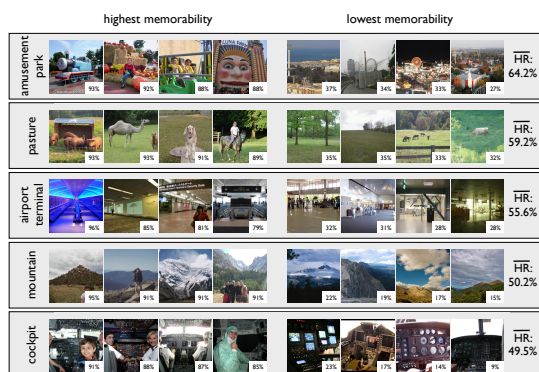
## Crowd-sourced (AMT) memory (image recognition) games

## Application areas



## Is memorability predictable?

## FIGRIM Dataset



Memorability rank  
is consistent  
across participants

## Can we model image context?

$D(I; C) = -\log P_c(f_i)$

$P_c(f_i) = \frac{1}{\|C\|} \sum_{j \in C} K(f_i - f_j)$

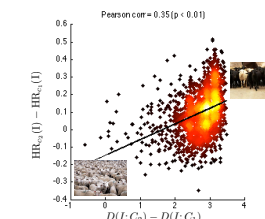
ran 21 separate experiments:

within-category

an additional experiment, combining

→ across-category

## Contextually distinct images are more memorable

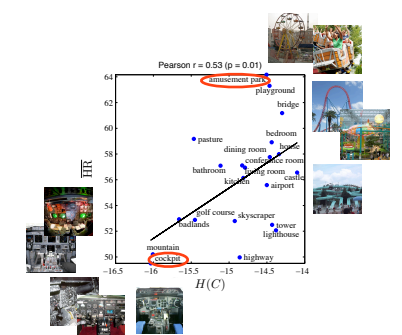


Memorable  
within categories

Memorable  
across categories



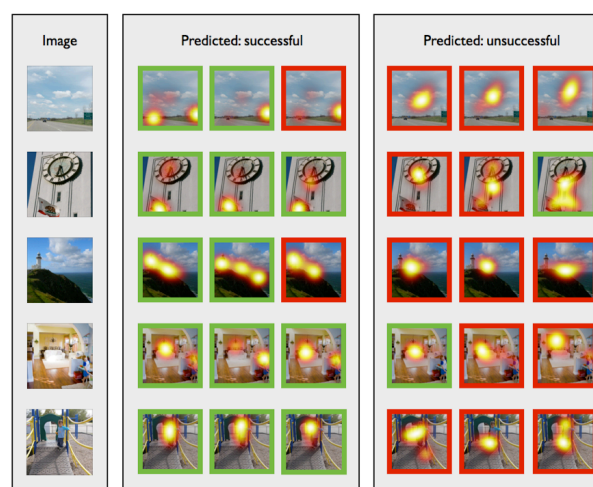
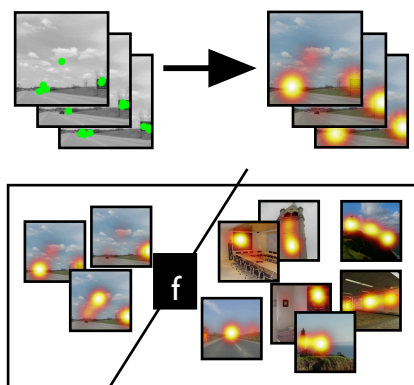
More varied image contexts  
are more memorable overall



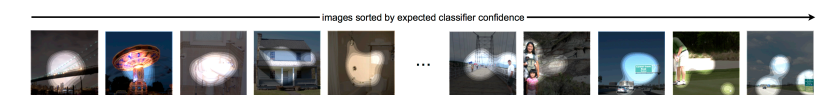
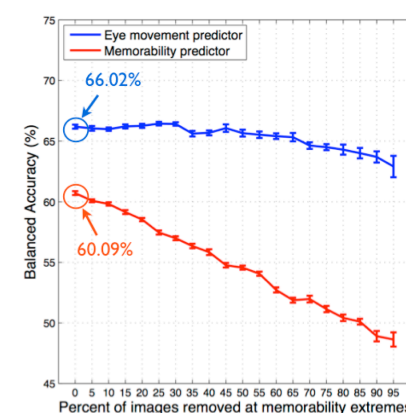
$$H(C) = \mathbb{E}_c[-\log P_c(f_i)]$$

## Can we use eye behavior to make predictions for individuals?

We train a classifier to predict whether a set of eye movements will lead to a successful encoding



Where you look in an image is predictive of whether you'll remember it later



Your pupil dilations and blink rates are indicative of how difficult it is to retrieve an image from memory

### Image memorability categories



Memorability differences  
show up early!

