The memorability of visual images
Khosla, Raju, Torralba, Oliva (2015)

Amazon Mechanical Turk:
- **objective memorability scores**
- 60,000 photographs
- consistency across observers

Most memorable
- Focus
- Enclosed Setting
- Dynamics
- Unusual

Least memorable
- No single focus
- Distant view
- Static
- Common

You need to recognize to remember!
Scene Understanding: Context and Objects

**places**

10 million images, 460 categories

first trained CNN with places + imageNet image databases
MemNet
CNN for predicting image memorability


Visualizing CNN “features”

average of images that maximally activate neurons in two layers near output of MemNet (ordered (top to bottom) by correlation with memorability)
Saliency: which image regions are memorable?

generate a *memorability map*: scale up the image size, apply MemNet to overlapping subregions

use memorability map to de-emphasize the less memorable details

AMT experiment shows highlighted regions contribute to higher memorability scores
Preserving most memorable regions

applications of memorability work?

Neural framework of memorability

Perception
(ventral/dorsal visual cortex)

Memory
(Medial Temporal Lobe)

Wilma Bainbridge
Whole Brain Contrast

Memorable vs. Forgettable

Multi-variate Pattern Analysis
Memorable vs. Forgettable

role for the hippocampus in higher-order statistical perception

Bainbridge, Dilks, Oliva (in preparation)

MVPA Searchlight preliminary results (3x3x3 cubic voxel grid)