

Image classification

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Image classification

car



apple

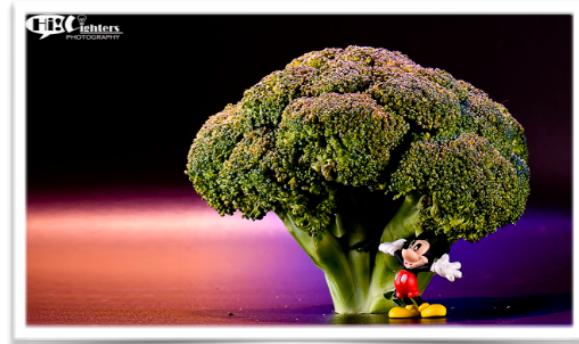


- Assign a single label per image

Christmas tree



broccoli



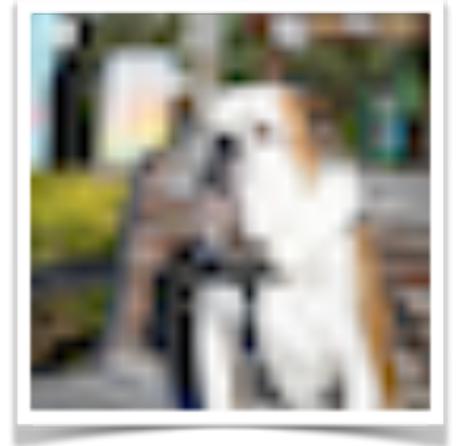
Datasets: CIFAR-10

- Low resolution: 32x32
- 10 classes
- 60,000 images
- Subset of MIT tiny images

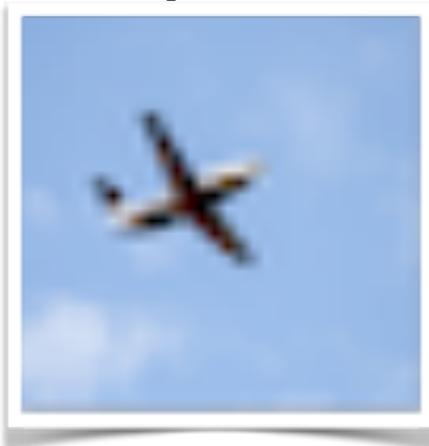
car



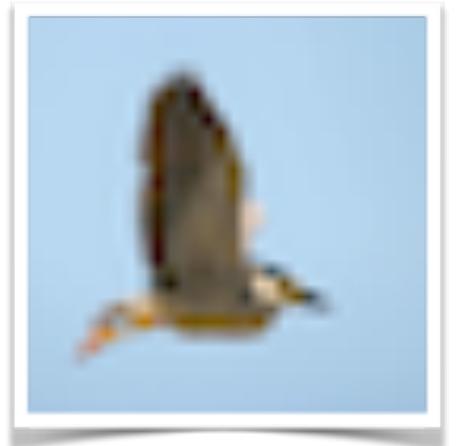
dog



airplane



bird



Learning Multiple Layers of Features from Tiny Images, Krizhevsky & Hinton, Technical report, 2009.

80 million tiny images: A large data set for nonparametric object and scene recognition, Torralba et al., PAMI 2008

Datasets: ImageNet

- 1000 classes
- 1.2M images
- Well balanced
- Well centered object



cheese



golf ball



screwdriver

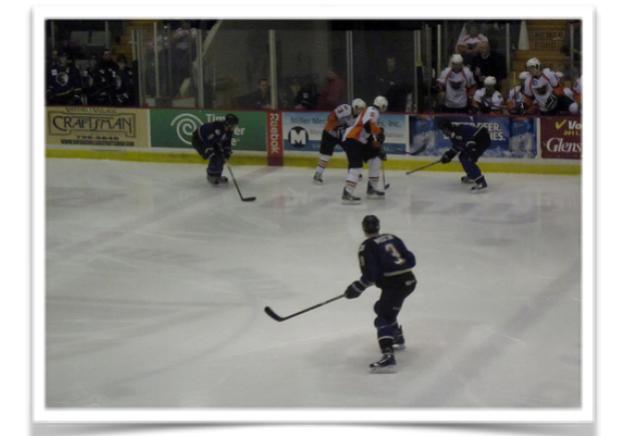
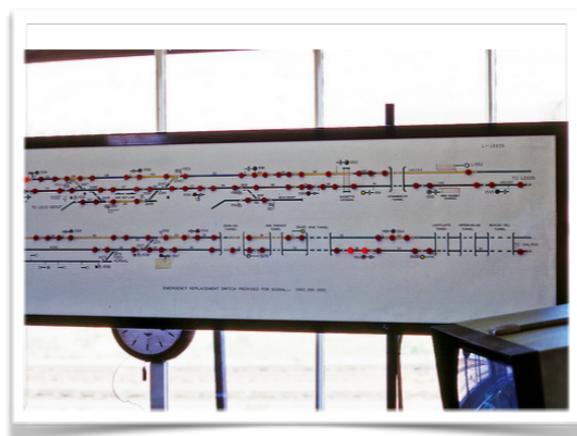


harmonica



Datasets: Yahoo Flickr 100M

- >10K classes / tags
- 100M images
- noisy
- unbalanced



Datasets: Open Images

- 6,000 classes
- 9M images
- Creative commons



Datasets: MIT Places

- Scene categorization
- 400+ classes
- 10M images

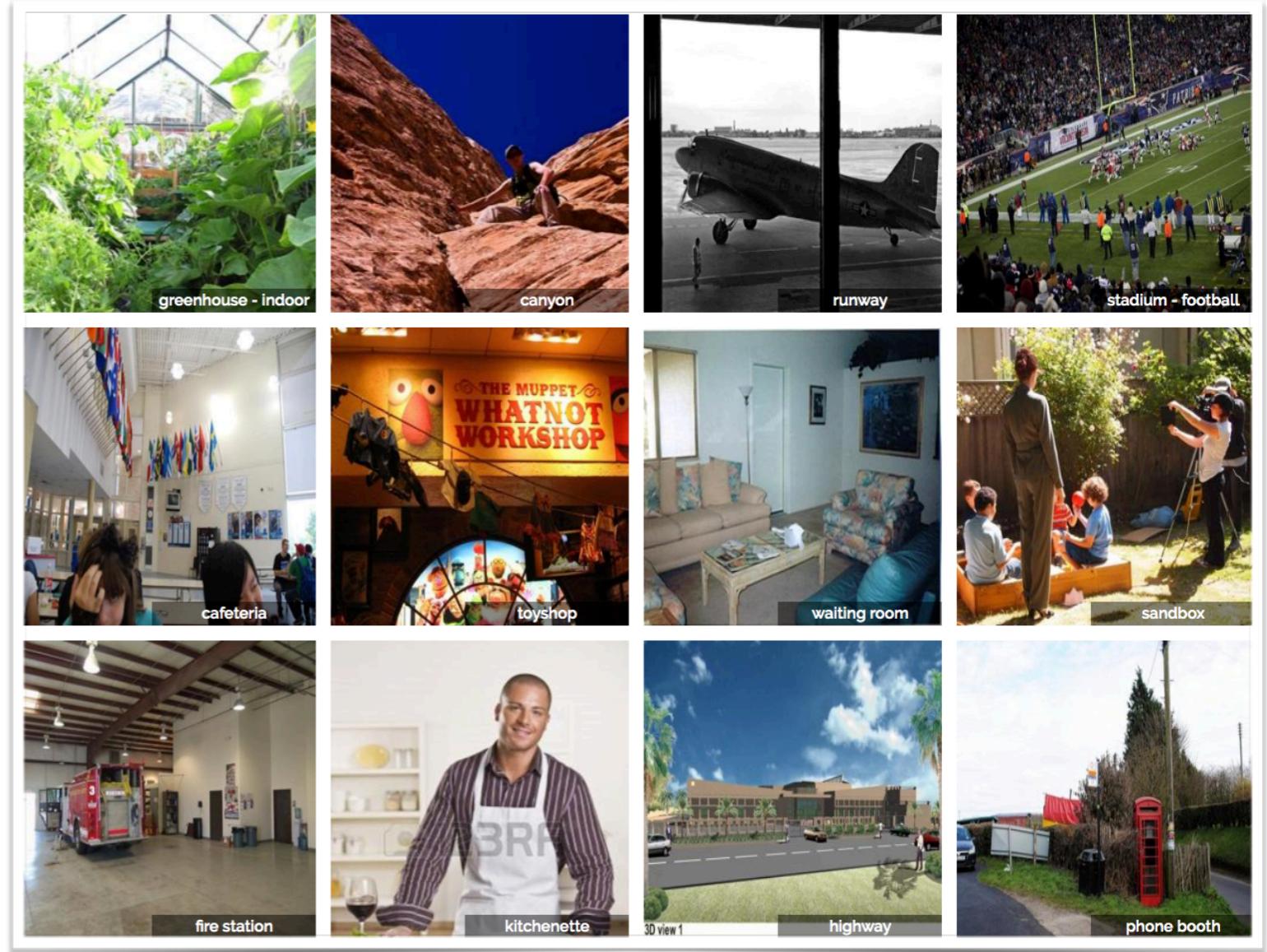
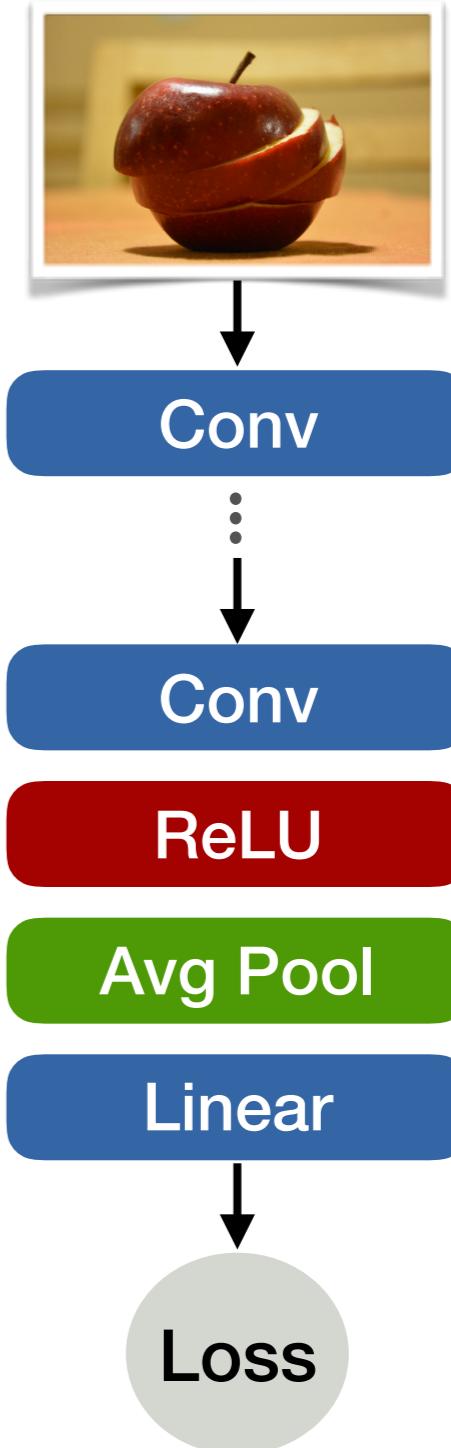


Image source: MIT Places website: [http://
places2.csail.mit.edu/explore.html](http://places2.csail.mit.edu/explore.html)

Image classification

- Input: Image
 - Fixed resolution
- Output: Class label
 - Cross entropy loss



Applications

- Visual search
- Testbed for network design
 - Basis of many vision tasks