



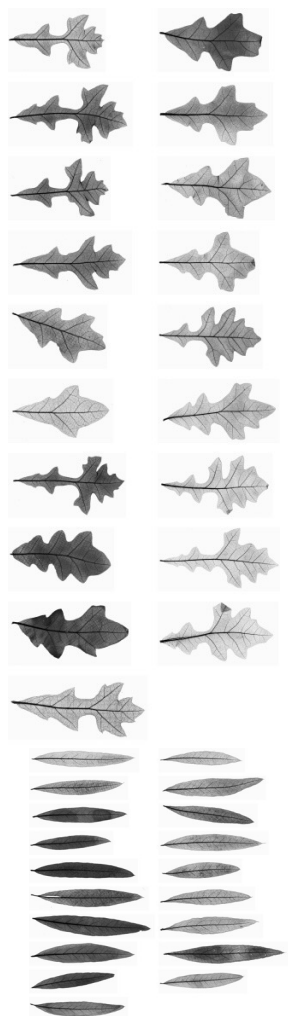
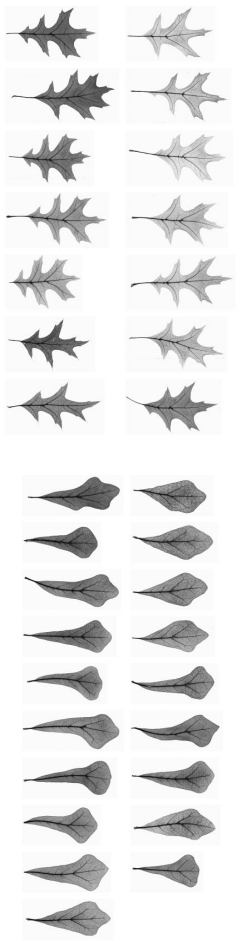
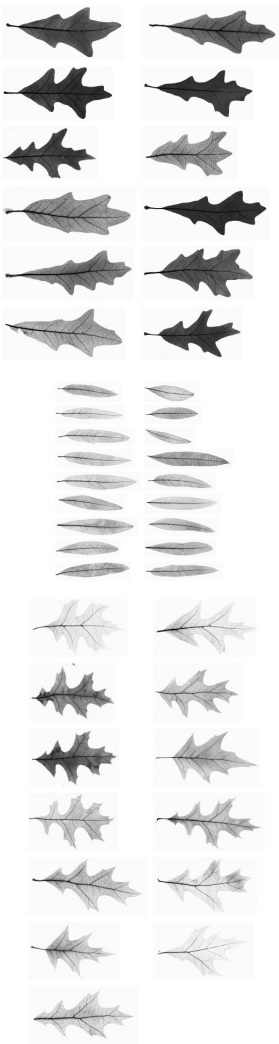
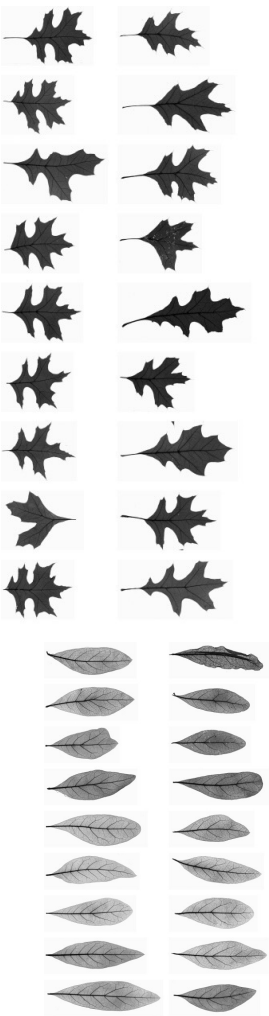
**CS104**

## Lab 5

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Datasets: images, point clouds, and meshes

# Images and image datasets



# Reading an image

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- reading an image using OpenCV
    - `<image> = imread (<image file>, format)`
    - `imwrite (<image file>, <image>)`
    - `imshow(<window name>, image)`
    - `waitKey()`: don't stop showing until I tell you
    - `destroyAllWindows()`: leave your campsite clean
  - image formats: jpg, png, gif, ...
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# Image datasets

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- leaf (CLDB, [Univ California Museum of Paleontology](#))
    - [Berkeley Modern Cleared Leaves](#)
    - IEEE DataPort (e.g., Z. Lin Butterfly Specimens; Chinese Rose Leaf Dataset)
  - MNIST ([LeCun](#), [examples](#)): the problem it solves
  - [Caltech 101](#) (Downloads/caltech-101), Caltech 256
  - ImageNet (FeiFei Li): <https://www.image-net.org/about.php>
  - ground truth datasets (e.g., [image segmentation](#))
  - [Pascal VOC](#), COIL-100
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# Point clouds and LIDAR

# KITTI-360: LIDAR point cloud

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- <https://www.cvlibs.net/datasets/kitti-360/index.php>
  - LIDAR
  - PointNet++
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# **Meshes and mesh datasets**



# Mesh Datasets

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- Stanford Computer Graphics Laboratory
  - <http://www-graphics.stanford.edu/data/3Dscanrep/>
- <https://cims.nyu.edu/gcl/datasets.html>
- Princeton Shape Benchmark:
  - <https://gfx.cs.princeton.edu/proj/shape/>
- [Thingi10k](#)
- [modelnet 40](#)
  - [modelnet.cs.princeton.edu](http://modelnet.cs.princeton.edu)
- <https://paperswithcode.com/dataset/modelnet>

# Mesh formats

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- PLY
  - <https://paulbourke.net/dataformats/ply/>
- OFF
  - [https://segeval.cs.princeton.edu/public/off\\_format.html](https://segeval.cs.princeton.edu/public/off_format.html)
- OBJ
  - [https://en.wikipedia.org/wiki/Wavefront\\_.obj\\_file](https://en.wikipedia.org/wiki/Wavefront_.obj_file)

# More datasets

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- <https://www.tensorflow.org/datasets/catalog/overview>
  - [RCSB Protein Databank](#)
  - [Project Gutenberg](#): natural language datasets
  - [TensorFlow datasets](#)
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