Kissipo Learning for Deep Learning
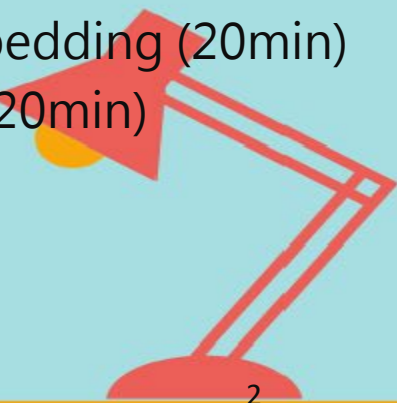
Topic 8: Image Processing basics (20min)

Hsueh-Ting Chu

KLDL-W3-08

Topics

- Topic 01: Introduction to Deep Learning (20min)
- Topic 02: Kissipo Learning for Deep Learning (20min)
- Topic 03: Python quick tutorial (20min)
- Topic 04: Numpy quick tutorial (15min)
- Topic 05: Pandas quick tutorial (15min)
- Topic 06: Scikit-learn quick tutorial (15min)
- Topic 07: OpenCV quick tutorial (15min)
- Topic 08: Image Processing basics (20min)
- Topic 09: Machine Learning basics (20min)
- Topic 10: Deep Learning basics (20min)
- Topic 11: TensorFlow overview (20min)
- Topic 12: CNN with TensorFlow (20min)
- Topic 13: RNN with TensorFlow (20min)

- Topic 14: PyTorch overview (20min)
- Topic 15: CNN with PyTorch (20min)
- Topic 16: RNN with Pytorch (20min)
- Topic 17: Introduction to AOI (20min)
- Topic 18: AOI simple Pipeline (A) (20min)
- Topic 19: AOI simple Pipeline (B) (20min)
- Topic 20: Introduction to Object detection (20min)
- Topic 21: YoloV5 Quick Tutorial (20min)
- Topic 22: Using YoloV5 for RSD (20min)
- Topic 23: Introduction to NLP (20min)
- Topic 24: Introduction to Word Embedding (20min)
- Topic 25: Name prediction project (20min)

Content

- Topic 08: Image Processing basics (20min)
  - PIL (Python Imaging Library)
  - scikit-image (Image processing in Python)
  - Image class and image I/O
  - Sub-image
  - Rotate and Flip
  - Denoising filters
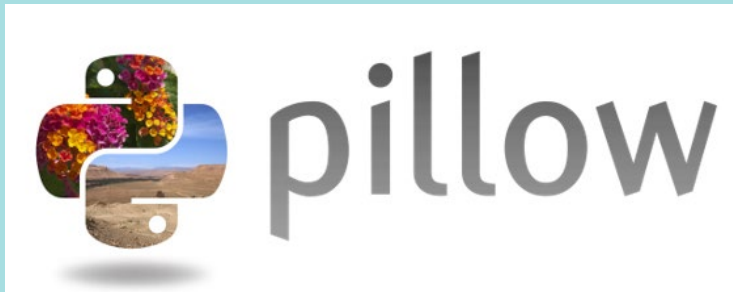
PIL and *scikit-image*

Image class and image I/O

```python
from PIL import Image
from urllib.request import urlopen
img1 = Image.open(urlopen("https://au360.asia.edu.tw/assets/images/4.jpg"))
plt.imshow(img1)
plt.show()
```

```python
from skimage import io
# reading the sample image from a url
img2 = io.imread('https://au360.asia.edu.tw/assets/images/4.jpg')
plt.imshow(img2)
plt.show()
```
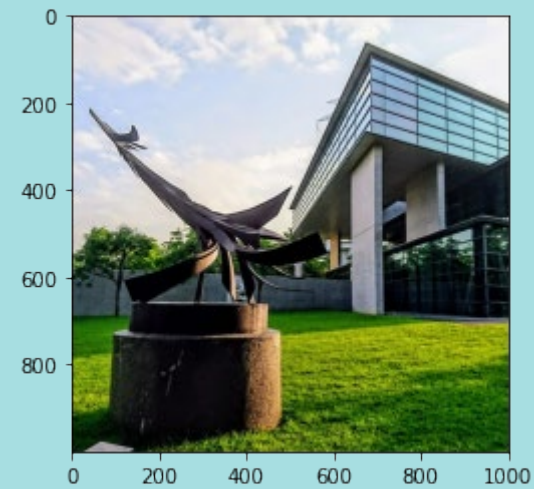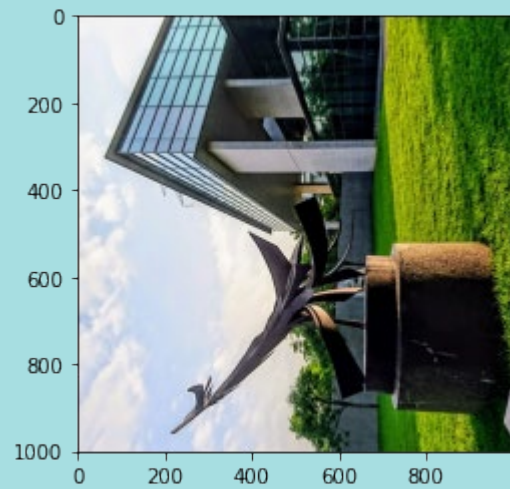
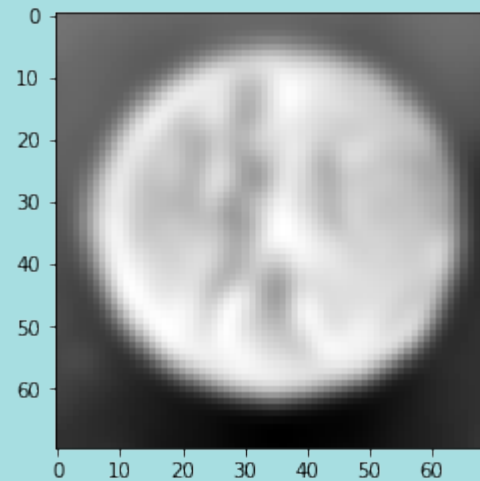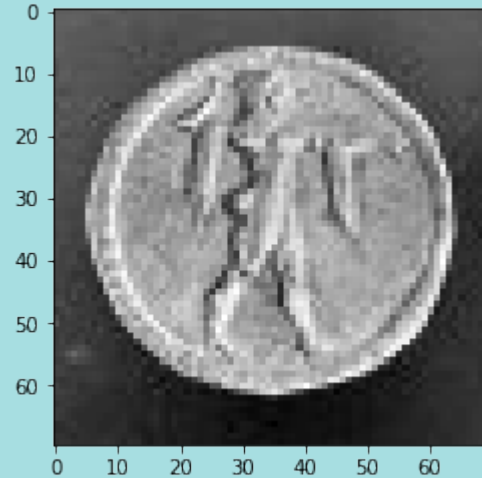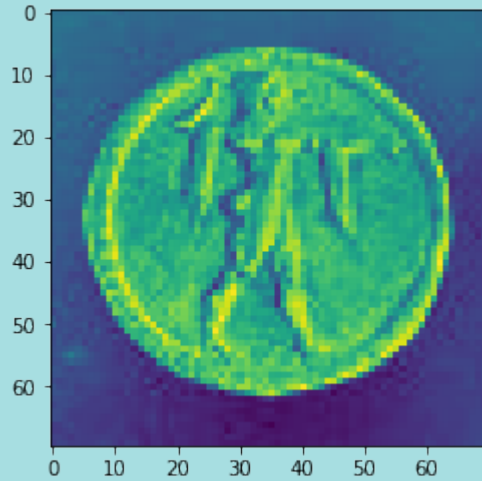https://scikit-learn.org/
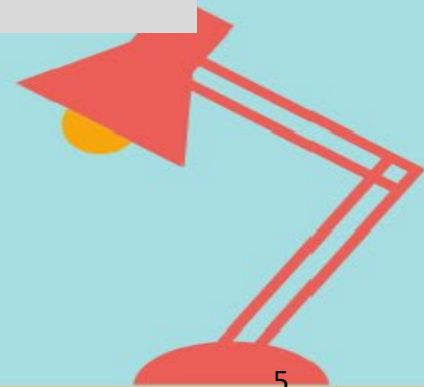
Sub-image
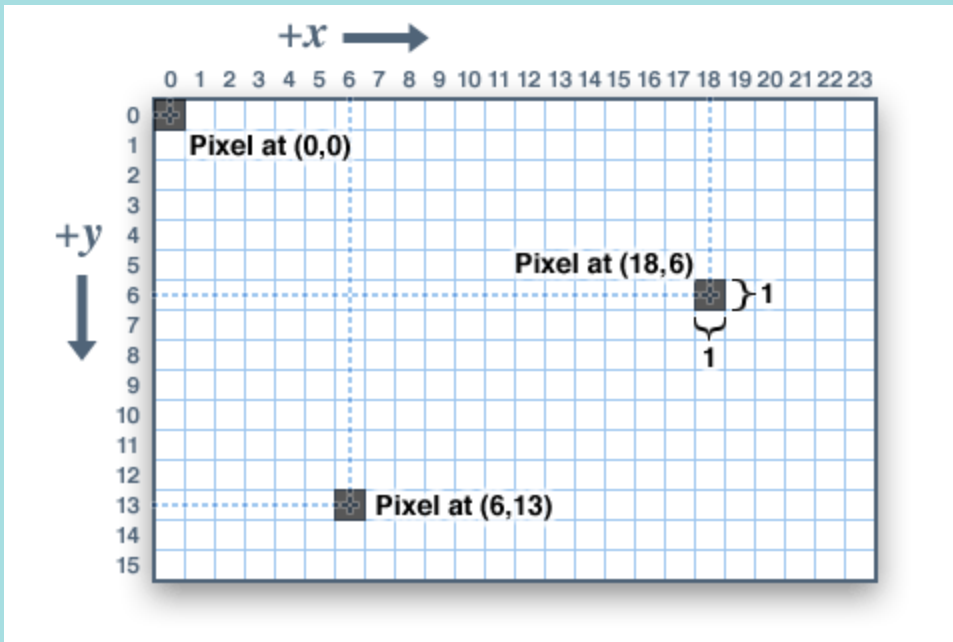

```
box = (100, 100, 400, 400)
sub = img1.crop(box)
plt.imshow(sub)
plt.show()
```
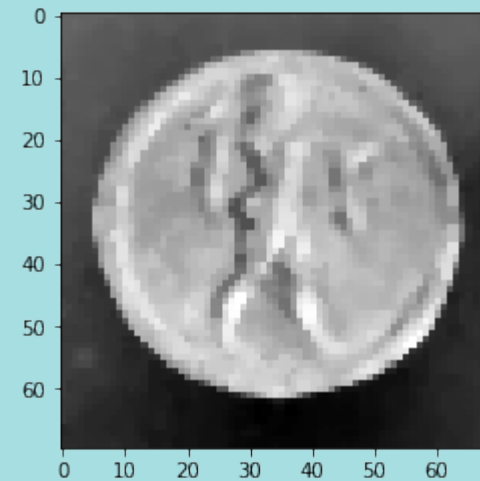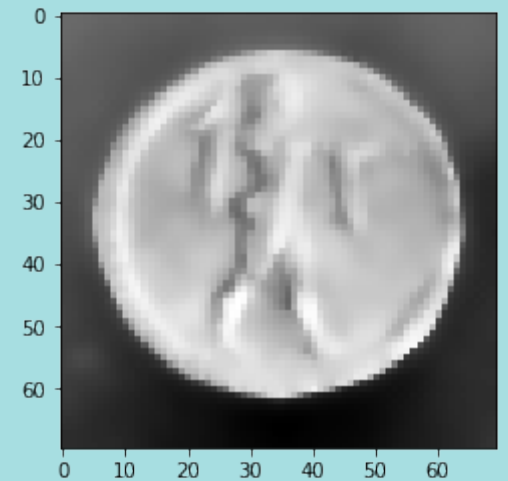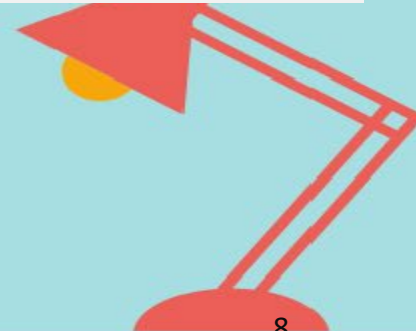
Rotate and Flip
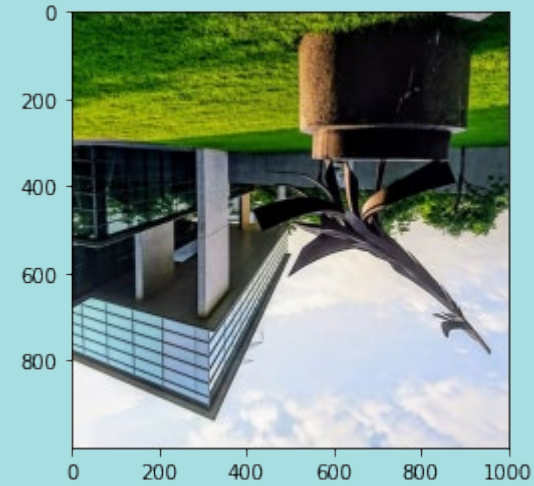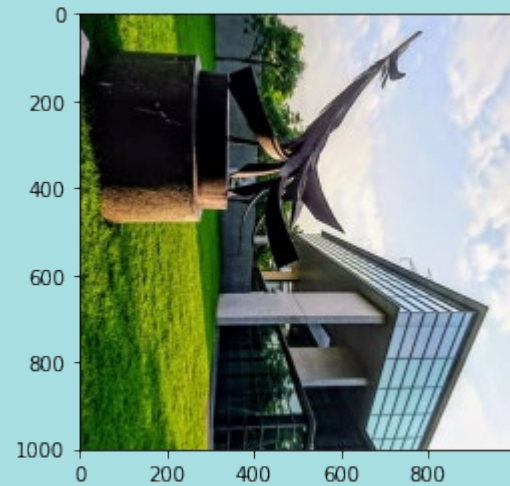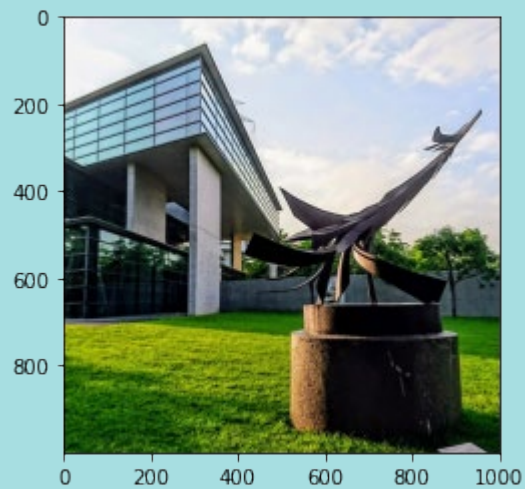
Denoising filters

Gaussian filter

Median filter

TV filter

Thanks! Q&A