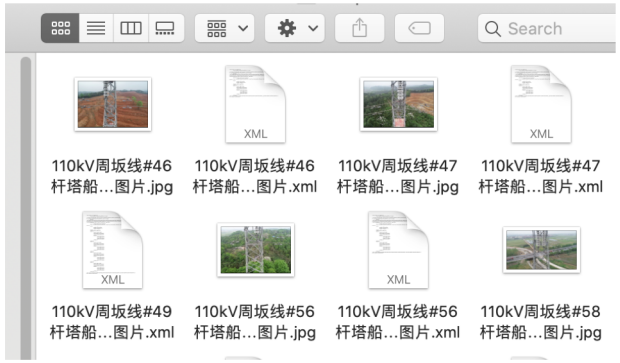
Let’s test starting from a folder of 5 images, along with their annotations

A folder of images

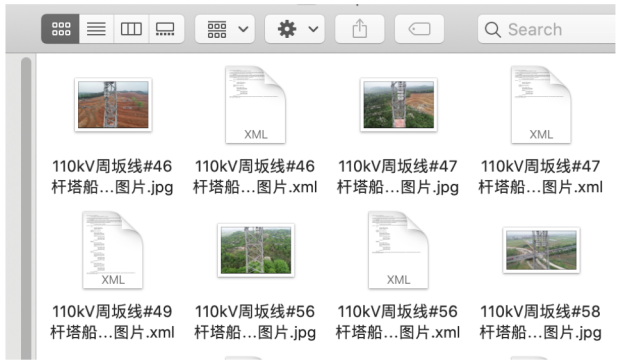


Annotation of all images

```
# Load annotations
# VGG Image Annotator saves each image in the form:
# { 'filename': '28503151_5b5b7ec140_b.jpg',
#   'regions': {
#       '0': {
#           'region_attributes': {},
#           'shape_attributes': {
#               'all_points_x': [...],
#               'all_points_y': [...],
#               'name': 'polygon'}},
#       ... more regions ...
#   },
#   'size': 100202
# }
```

class **AnnotatedImages**

A folder of images



Annotation of all images

```
# Load annotations
# VGG Image Annotator saves each image in the form:
# { 'filename': '28503151_5b5b7ec140_b.jpg',
#   'regions': {
#       '0': {
#           'region_attributes': {},
#           'shape_attributes': {
#               'all_points_x': [...],
#               'all_points_y': [...],
#               'name': 'polygon'}},
#       ... more regions ...
#   },
#   'size': 100202
# }
```

Member fields

images: list of image file paths (directory + filename)

we will load an image only when we process it

annotation_dict: load the JSON annotation file into this dict object

Member functions

__init__ (image_directory, annotation_file_path)

Assistant global functions

use shapely's Polygon class

bounding_box(x, y, w, h)

polygon in the bbox
with new coordinates ⟵ **compute_polygon** (image_shape, polygon, bbox)

list of polygons in bbox ⟵ **range_query** (bbox, rtree<image polygons>)

You will index all polygons of an image using rtree, before doing bbox sliding

above subfunctions are used by:

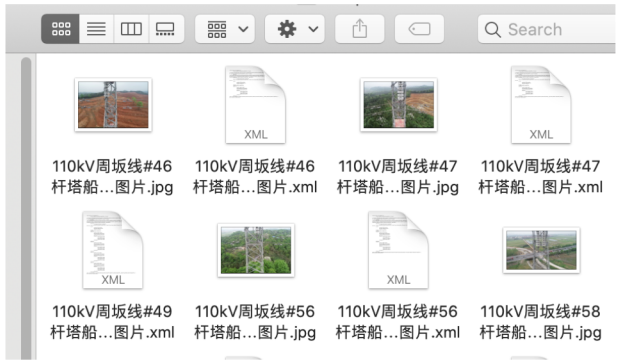
skimage's image object

a list of (image, list of polygons) ⟵ **convert_image** (image, list of polygons, bbox_shape)

This function slides a window of bbox_shape on an image
For each bbox window, it computes the part of image in bbox, and a list of polygons inside bbox, with new coordinates

class **AnnotatedImages**

A folder of images



Annotation of all images

```
# Load annotations
# VGG Image Annotator saves each image in the form:
# { 'filename': '28503151_5b5b7ec140_b.jpg',
#   'regions': {
#       '0': {
#           'region_attributes': {},
#           'shape_attributes': {
#               'all_points_x': [...],
#               'all_points_y': [...],
#               'name': 'polygon'}},
#       ... more regions ...
#   },
#   'size': 100202
# }
```

Member functions

generate (bbox_shape, output_image_directory, output_annotation_file_path)

For each image,

this function calls **convert_image**(.) to generate a a list of (image, list of polygons), which are then added to output_image_directory and output_annotation_file