

1. JSON Annotation 데이터로 YOLO Annotation 데이터 저장

```
def json_to_yolo_bbox(bbox, w, h):  
    # xmin, ymin, xmax, ymax  
    x_center = ((bbox[2] + bbox[0]) / 2) / w  
    y_center = ((bbox[3] + bbox[1]) / 2) / h  
    width = (bbox[2] - bbox[0]) / w  
    height = (bbox[3] - bbox[1]) / h  
    return [x_center, y_center, width, height]  
  
for pth in json_path_list:  
    if pth == train_json_path:  
        split = 'train'  
    elif pth == test_json_path:  
        split = 'test'  
    else:  
        split = 'valid'  
    # json open  
    with open(pth, 'r') as f:  
        info = json.load(f)  
        label_dict = {}  
        for category in info['categories']:  
            label_dict[category['name']] = category['id']  
        ann = info['annotations']  
        for i, ann_info in enumerate(ann):  
            bbox = ann_info['bbox']  
            label_number = ann_info['category_id']  
            id = ann_info['id']  
            image_id = ann_info['image_id']  
  
            image_info = info['images']  
            image_name = image_info[image_id]['file_name']  
            image_name_ = image_info[image_id]['file_name'][: -4]  
            h = image_info[image_id]['height']  
            w = image_info[image_id]['width']  
  
            bbox = json_to_yolo_bbox(bbox, w, h)  
            yolo_x = str(round(bbox[0], 6))  
            yolo_y = str(round(bbox[1], 6))
```

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yolo_x = str(round(bbox[0], 6))
yolo_y = str(round(bbox[1], 6))
yolo_w = str(round(bbox[2], 6))
yolo_h = str(round(bbox[3], 6))

with open(f'\\.\\dataset\\{split}\\labels\\{image_name_ + ".txt"}', 'a') as f:
    f.write(f'{label_number} {yolo_x} {yolo_y} {yolo_w} {yolo_h} \n')
if os.path.exists(f'\\.\\dataset\\{split}\\labels\\{image_name_ + ".txt"}') == False:
    with open(f'\\.\\dataset\\{split}\\labels\\{image_name_ + ".txt"}', 'w') as f:
        f.write('')

img_path = glob.glob(os.path.join('\\.\\dataset', '*', '*.jpg'))
for path in img_path:
    if 'test' in path:
        split = 'test'
    elif 'train' in path:
        split = 'train'
    else:
        split = 'valid'
    name = os.path.basename(path)
    shutil.move(path, f'\\.\\dataset\\{split}\\images\\{name}')

```

Name	Date modified	Type	Size
<input checked="" type="checkbox"/> 1edcbf2b-3db4-4542-8253-a8b1a1f42...	1/30/2023 5:01 PM	Text Document	1 KB
<input type="checkbox"/> 1f2771c6-e4a5-4b26-847c-69e1324548...	1/30/2023 5:01 PM	Text Document	1 KB
<input type="checkbox"/> 1fc9a371-6bbd-4e92-b31e-4bffee712c...	1/30/2023 5:01 PM	Text Document	1 KB
<input type="checkbox"/> 2d894ff4-ce14-45a4-ad8f-acc7f2983e...	1/30/2023 5:01 PM	Text Document	1 KB
<input type="checkbox"/> 3aaac426-79ca-4638-82f7-efca535ee9c...	1/30/2023 5:01 PM	Text Document	1 KB
<input type="checkbox"/> 4f3af5c9-e5d6-4793-9e58-5007c0ea28...	1/30/2023 5:01 PM	Text Document	1 KB
<input type="checkbox"/> 5e77fbf9-2632-44c7-884e-31450e4eec...	1/30/2023 5:02 PM	Text Document	1 KB
<input type="checkbox"/> 7be3320c-dfbf-402f-bae2-ef167a8c7f8...	1/30/2023 5:02 PM	Text Document	1 KB
<input type="checkbox"/> 8b06c92d-7fbb-49a3-9310-90c2a01d2...	1/30/2023 5:02 PM	Text Document	1 KB
<input type="checkbox"/> 9d61d1b4-2804-4166-bef0-63f4b2ed0...	1/30/2023 5:02 PM	Text Document	1 KB
<input type="checkbox"/> 9f946456-1d6f-48b8-bc11-6796afb797...	1/30/2023 5:02 PM	Text Document	1 KB
<input type="checkbox"/> 25_refDetail-0.jpg.rf.c0f1cee64cd96dd...	1/30/2023 5:01 PM	Text Document	1 KB
<input type="checkbox"/> 038d10f7-fbb7-4f19-8631-2cb2763224...	1/30/2023 5:01 PM	Text Document	1 KB
<input type="checkbox"/> 270.jpg.rf.653636c513e3aefe2a5d55b9...	1/30/2023 5:01 PM	Text Document	1 KB
<input type="checkbox"/> 513.jpg.rf.a4dc7e3636fde8001b3c5615...	1/30/2023 5:02 PM	Text Document	1 KB
<input type="checkbox"/> 518.jpg.rf.f89a60da8d5b1a619690e41e...	1/30/2023 5:02 PM	Text Document	1 KB
<input type="checkbox"/> 526.jpg.rf.6a8734d7496424d033b3c4c6...	1/30/2023 5:01 PM	Text Document	1 KB
<input type="checkbox"/> 816_refDetail-0.jpg.rf.ed77b6a6e09ba4...	1/30/2023 5:02 PM	Text Document	1 KB
<input type="checkbox"/> 952ba58e-4155-4878-b78c-daf845e8e8...	1/30/2023 5:02 PM	Text Document	1 KB
<input type="checkbox"/> 1471.jpg.rf.f62b1cce2f18dd7c29095b0...	1/30/2023 5:02 PM	Text Document	1 KB
<input type="checkbox"/> 1472.jpg.rf.bf4f9a9fd6939fd2cf5d8075...	1/30/2023 5:01 PM	Text Document	1 KB
<input type="checkbox"/> 1514.jpg.rf.c156ac89d2ea9ae5e500b3a...	1/30/2023 5:01 PM	Text Document	1 KB
<input type="checkbox"/> 1515.jpg.rf.f62b1cce2f18dd7c29095b0...	1/30/2023 5:01 PM	Text Document	1 KB

2. Mmdetection 학습 및 배운내용 복습

```

# Dataset register
@DATASETS.register_module(force=True)
class WineLabelsDataset(CocoDataset):
    CLASSES = ('wine-labels', 'AlcoholPercentage', "Appellation AOC DOC AVARegion", "Appellation QualityLevel",
               "CountryCountry", "Distinct Logo", "Established YearYear", "Maker-Name", "Organic",
               "Sustainable", "Sweetness-Brut-SecSweetness-Brut-Sec", "TypeWine Type", "VintageYear")

# config
config_file = './\\configs\\dynamic_rcnn\\dynamic_rcnn_r50_fpn_1x_coco.py'
cfg = Config.fromfile(config_file)
# print(cfg.pretty_text)

# Learning rate setting
# Single GPU -> 0.0025
# cfg.optimizer.lr = 0.02/8
cfg.optimizer.lr = 0.0025

# dataset setting
cfg.dataset_type = 'WineLabelsDataset'
cfg.data_root = './\\dataset'

# train, val, test dataset >> type data root ann file img_prefix setting
cfg.data.train.type = 'WineLabelsDataset'
cfg.data.train.ann_file = './dataset/train/_annotations.coco.json'
cfg.data.train.img_prefix = './dataset/train/'

# val
cfg.data.val.type = 'WineLabelsDataset'
cfg.data.val.ann_file = './dataset/valid/_annotations.coco.json'
cfg.data.val.img_prefix = './dataset/valid/'

# test
cfg.data.test.type = 'WineLabelsDataset'
cfg.data.test.ann_file = './dataset/test/_annotations.coco.json'
cfg.data.test.img_prefix = './dataset/test/'

# Class number

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# Class number
cfg.model.roi_head.bbox_head.num_classes = 13

# small obj를 잡기 위해 change anchor -> df: size 8 -> size 4
cfg.model.rpn_head.anchor_generator.scales = [4]

# pretrained call
cfg.load_from = '.*\\dynamic_rcnn_r50_fpn_1x-62a3f276.pth'

# train_model save dir
cfg.work_dir = '.*\\work_dirs\\0130'




# lr hyp setting
cfg.lr_config.warmup = None
cfg.log_config.interval = 10

# cocodataset evaluation type = bbox
# mAP iou threshold 0.5 ~ 0.95
cfg.evaluation.metric = 'bbox'
cfg.evaluation.interval = 10
cfg.checkpoint_config.interval = 10

# epoch setting
# 8 * 12 = 96
cfg.runner.max_epochs = 88
cfg.seed = 777
cfg.data.samples_per_gpu = 6    # single gpu 일 경우 2개는 거의 고정
cfg.data.workers_per_gpu = 2    #
# print('cfg.data >>', cfg.data)
cfg.gpu_ids = range(1)
cfg.device = 'cuda'
set_random_seed(777, deterministic=False)
print('cfg info >>', cfg.pretty_text)

datasets = [build_dataset(cfg.data.train)]
print('dataset[0]', datasets[0])

```

Name	Date modified	Type	Size
 epoch_10.pth	1/30/2023 6:40 PM	PTH File	322,999 KB
 latest.pth	1/30/2023 6:40 PM	PTH File	322,999 KB
 None.log.json	1/30/2023 6:45 PM	JSON Source File	246 KB

```

Loading annotations into memory...
Done (t=0.14s)
creating index...
index created!
dataset[0]
WineLabelsDataset Train dataset with number of images 3171, and instance counts:
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| category | count | category | count | category | count | category | count | category | count |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 0 [wine-labels] | 0 | 1 [AlcoholPercentage] | 1062 | 2 [Appellation AOC DOC AVARegion] | 2327 | 3 [Appellation QualityLevel] | 662 | 4 [CountryCountry] | 1414 |
| 5 [Distinct Logo] | 3181 | 6 [Established YearYear] | 474 | 7 [Maker-Name] | 4023 | 8 [Organic] | 27 | 9 [Sustainable] | 36 |
| | | | | | | | | | |
| 10 [Sweetness-Brut-SecSweetness-Brut-Sec] | 148 | 11 [TypeWine Type] | 2446 | 12 [VintageYear] | 1229 | | | | |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
('wine-labels', 'AlcoholPercentage', 'Appellation AOC DOC AVARegion', 'Appellation QualityLevel', 'CountryCountry', 'Distinct Logo', 'Established YearYear', 'Maker-Name', 'Organic', 'Sustainable', 'Sweetness', 'TypeWine Type', 'VintageYear')

```

(10 epoch 학습을 완료하여 모델이 저장된 모습)