

```

In [1]: import optuna
        from objective import objective
        import pandas as pd
        import numpy as np
        from sklearn.model_selection import train_test_split
        from dataloader import get_dataloaders_with_norm
        from dataloader import get_init_norm_transform
        from dataloader import get_norm_transform
        from dataloader import get_train_dataloader_no_norm

        import torch
        import torchvision
        from model import get_object_detection_model
        from utils import convert_evalset_coco

        def get_mean_std_dataset(image_dir, train_ids, validation_ids, annotations):
            t_loader = get_train_dataloader_no_norm(image_dir, train_ids, validation_ids, annotations)
            channel_sum = torch.zeros(3)
            channel_squared_sum = torch.zeros(3)
            num_batches = 0
            for b in t_loader:
                images, targets = b
                if isinstance(images, (list, tuple)):
                    images = torch.stack(images, dim=0)
                elif isinstance(images, torch.Tensor):
                    pass
                else:
                    raise ValueError(f"Unexpected type for images: {type(images)}")

                channel_sum += torch.mean(images, dim=(0, 2, 3))
                channel_squared_sum += torch.mean(images ** 2, dim=(0, 2, 3))
                num_batches += 1
            mean = channel_sum / num_batches
            std = (channel_squared_sum / num_batches - mean ** 2) ** 0.5
            return mean, std

        def data_init(annotations_file):
            # Setting up data
            train_sample_size = 1000
            labels = pd.read_csv(annotations_file)

            print('Total positive sample size', len(labels[labels['Target'] == 1]))
            print('Total negative sample size', len(labels[labels['Target'] == 0]))
            positive_patient_ids = labels[labels['Target'] == 1]['patientId'].unique()
            negative_patient_ids = labels[labels['Target'] == 0]['patientId'].unique()
            np.random.seed(42)
            np.random.shuffle(positive_patient_ids)
            np.random.shuffle(negative_patient_ids)

            positive_train_ids, positive_val_ids = train_test_split(
                positive_patient_ids,
                train_size=0.8,
                random_state=42,
                shuffle=True
            )

            # Split negative patient IDs
            negative_train_ids, negative_val_ids = train_test_split(

```

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        negative_patient_ids,
        train_size=0.8,
        random_state=42,
        shuffle=True
    )

    # Combine for training and validation
    patient_ids_train = list(positive_train_ids) + list(negative_train_ids)
    patient_ids_validation = list(positive_val_ids) + list(negative_val_ids)
    print('size of patient_ids_train', len(patient_ids_train))
    print('size of patient_ids_validation', len(patient_ids_validation))
    return patient_ids_train, patient_ids_validation, labels

annotations_file='~/Documents/CS230/Project/rsna-pneumonia-detection-challenge,
image_dir='/Users/suryasanapala/Documents/CS230/Project/rsna-pneumonia-detectio
num_epochs=5
device=torch.device('cuda') if torch.cuda.is_available() else torch.device('cpu')
train_ids, validation_ids, annotations=data_init(annotations_file)
mean, std=get_mean_std_dataset(image_dir, train_ids, validation_ids, annotations)
train_loader, valid_loader= get_data loaders_with_norm(image_dir, train_ids, valid
coco_format_validation_ds=convert_evalset_coco(validation_ids, annotations, './'
#####initialize model#####

def objective_setup(trail):
    return objective(trail, train_loader, valid_loader, device, coco_format_valida

if __name__ == "__main__":

    #optuna trials to run training and evaluation and find optimal values for l
    study = optuna.create_study(direction="maximize")
    study.optimize(objective_setup, n_trials=15)
    print('Best trial:')
    trial = study.best_trial

    print('  Value: {}'.format(trial.value))
    print('  Params: ')
    for key, value in trial.params.items():
        print('    {}: {}'.format(key, value))

```

/Users/suryasanapala/anaconda3/envs/fsl_230/lib/python3.11/site-packages/tqdm/
auto.py:21: TqdmWarning: IPProgress not found. Please update jupyter and ipywid
gets. See https://ipywidgets.readthedocs.io/en/stable/user_install.html

from .autonotebook import tqdm as notebook_tqdm

Total positive sample size 30227

Total negative sample size 30227

size of patient_ids_train 800

size of patient_ids_validation 200

```
[I 2024-11-15 14:48:09,465] A new study created in memory with name: no-name-b
8624951-61f8-4849-a49a-e22af78bf821
/Users/suryasanapala/Project files/objective.py:12: FutureWarning: suggest_log
uniform has been deprecated in v3.0.0. This feature will be removed in v6.0.0.
See https://github.com/optuna/optuna/releases/tag/v3.0.0. Use suggest_float
(..., log=True) instead.
    lr = trial.suggest_loguniform('lr', 1e-5, 1e-3)
/Users/suryasanapala/Project files/objective.py:13: FutureWarning: suggest_uni
form has been deprecated in v3.0.0. This feature will be removed in v6.0.0. Se
e https://github.com/optuna/optuna/releases/tag/v3.0.0. Use suggest_float inst
ead.
    momentum = trial.suggest_uniform('momentum', 0.8, 0.99)
/Users/suryasanapala/Project files/objective.py:14: FutureWarning: suggest_log
uniform has been deprecated in v3.0.0. This feature will be removed in v6.0.0.
See https://github.com/optuna/optuna/releases/tag/v3.0.0. Use suggest_float
(..., log=True) instead.
    weight_decay = trial.suggest_loguniform('weight_decay', 1e-6, 1e-3)
/Users/suryasanapala/anaconda3/envs/fsl_230/lib/python3.11/site-packages/torch
vision/models/_utils.py:208: UserWarning: The parameter 'pretrained' is deprec
ated since 0.13 and may be removed in the future, please use 'weights' instea
d.
    warnings.warn(
/Users/suryasanapala/anaconda3/envs/fsl_230/lib/python3.11/site-packages/torch
vision/models/_utils.py:223: UserWarning: Arguments other than a weight enum o
r `None` for 'weights' are deprecated since 0.13 and may be removed in the fut
ure. The current behavior is equivalent to passing `weights=FasterRCNN_ResNet5
0_FPN_Weights.COCO_V1`. You can also use `weights=FasterRCNN_ResNet50_FPN_Weig
hts.DEFAULT` to get the most up-to-date weights.
    warnings.warn(msg)
```

```

Epoch 0, Iteration 0, Loss: 0.8027990460395813, Number of Images per iteration: 4
Epoch 0, Iteration 100, Loss: 0.09899424016475677, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.01s).
Accumulating evaluation results...
DONE (t=0.00s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.000
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.002
Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.000
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.000
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.000
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.009
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.009
Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.009
Epoch 1, Iteration 0, Loss: 0.20541556179523468, Number of Images per iteration: 4
Epoch 1, Iteration 100, Loss: 0.2234281748533249, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.05s).
Accumulating evaluation results...
DONE (t=0.01s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.004

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Average Precision (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.01
4
Average Precision (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.00
1
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.00
4
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.00
9
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.07
2
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.10
6
Average Recall    (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.10
6
Epoch 2, Iteration 0, Loss: 0.16865870356559753, Number of Images per iteratio
n: 4
Epoch 2, Iteration 100, Loss: 0.16276757419109344, Number of Images per iterat
ion: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.09s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.00
6
Average Precision (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.02
3
Average Precision (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.00
4
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.00
6
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.01
7
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.08
6
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.14
0
Average Recall    (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0

```

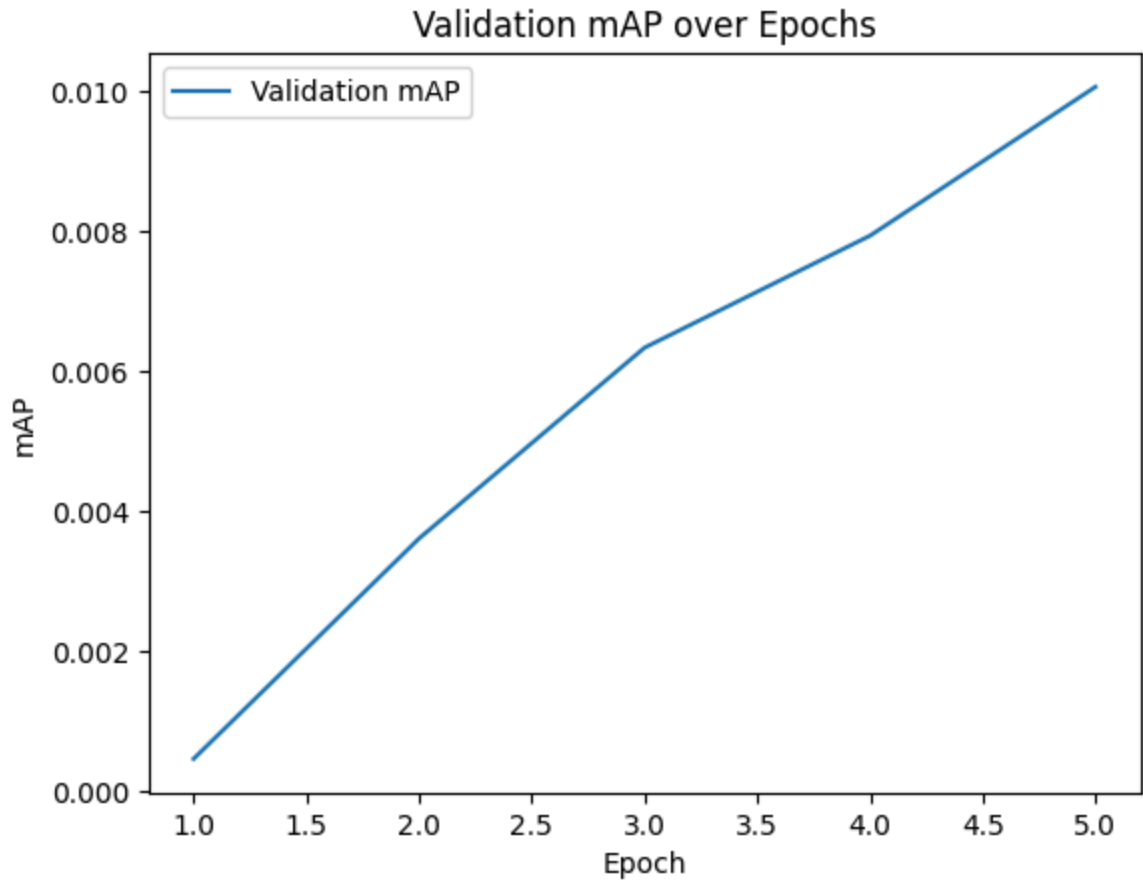
```

00
Average Recall      (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.14
0
Epoch 3, Iteration 0, Loss: 0.10067179054021835, Number of Images per iteration: 4
Epoch 3, Iteration 100, Loss: 0.18340332806110382, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.10s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision  (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.00
8
Average Precision  (AP) @[ IoU=0.50      | area= all | maxDets=100 ] = 0.02
9
Average Precision  (AP) @[ IoU=0.75      | area= all | maxDets=100 ] = 0.00
4
Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.00
8
Average Recall     (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.02
1
Average Recall     (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.08
8
Average Recall     (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.15
2
Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.15
2
Epoch 4, Iteration 0, Loss: 0.18780209124088287, Number of Images per iteration: 4
Epoch 4, Iteration 100, Loss: 0.1960774064064026, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.10s).
Accumulating evaluation results...

```

DONE (t=0.02s).

Average Precision	(AP) @[IoU=0.50:0.95 area=	all maxDets=100]	= 0.010
Average Precision	(AP) @[IoU=0.50 area=	all maxDets=100]	= 0.036
Average Precision	(AP) @[IoU=0.75 area=	all maxDets=100]	= 0.007
Average Precision	(AP) @[IoU=0.50:0.95 area=	small maxDets=100]	= -1.000
Average Precision	(AP) @[IoU=0.50:0.95 area=	medium maxDets=100]	= -1.000
Average Precision	(AP) @[IoU=0.50:0.95 area=	large maxDets=100]	= 0.010
Average Recall	(AR) @[IoU=0.50:0.95 area=	all maxDets= 1]	= 0.027
Average Recall	(AR) @[IoU=0.50:0.95 area=	all maxDets= 10]	= 0.091
Average Recall	(AR) @[IoU=0.50:0.95 area=	all maxDets=100]	= 0.165
Average Recall	(AR) @[IoU=0.50:0.95 area=	small maxDets=100]	= -1.000
Average Recall	(AR) @[IoU=0.50:0.95 area=	medium maxDets=100]	= -1.000
Average Recall	(AR) @[IoU=0.50:0.95 area=	large maxDets=100]	= 0.165



[I 2024-11-15 16:00:35,196] Trial 0 finished with value: 0.010057744167329406 and parameters: {'lr': 1.832893326770909e-05, 'momentum': 0.9785001070531196, 'weight_decay': 2.8437861611065583e-06}. Best is trial 0 with value: 0.010057744167329406.

```

Epoch 0, Iteration 0, Loss: 0.6917394995689392, Number of Images per iteration: 4
Epoch 0, Iteration 100, Loss: 0.05128953605890274, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.01s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.12s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.024
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.091
Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.002
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.024
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.040
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.146
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.201
Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.201
Epoch 1, Iteration 0, Loss: 0.10383620113134384, Number of Images per iteration: 4
Epoch 1, Iteration 100, Loss: 0.1396065652370453, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.10s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.037

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Average Precision (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.14
5
Average Precision (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.00
4
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.03
7
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.06
5
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.19
6
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.25
4
Average Recall    (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.25
4
Epoch 2, Iteration 0, Loss: 0.0433460958302021, Number of Images per iteratio
n: 4
Epoch 2, Iteration 100, Loss: 0.2895738482475281, Number of Images per iterati
on: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.08s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.04
9
Average Precision (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.18
1
Average Precision (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.02
2
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.04
9
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.08
0
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.22
4
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.28
2
Average Recall    (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0

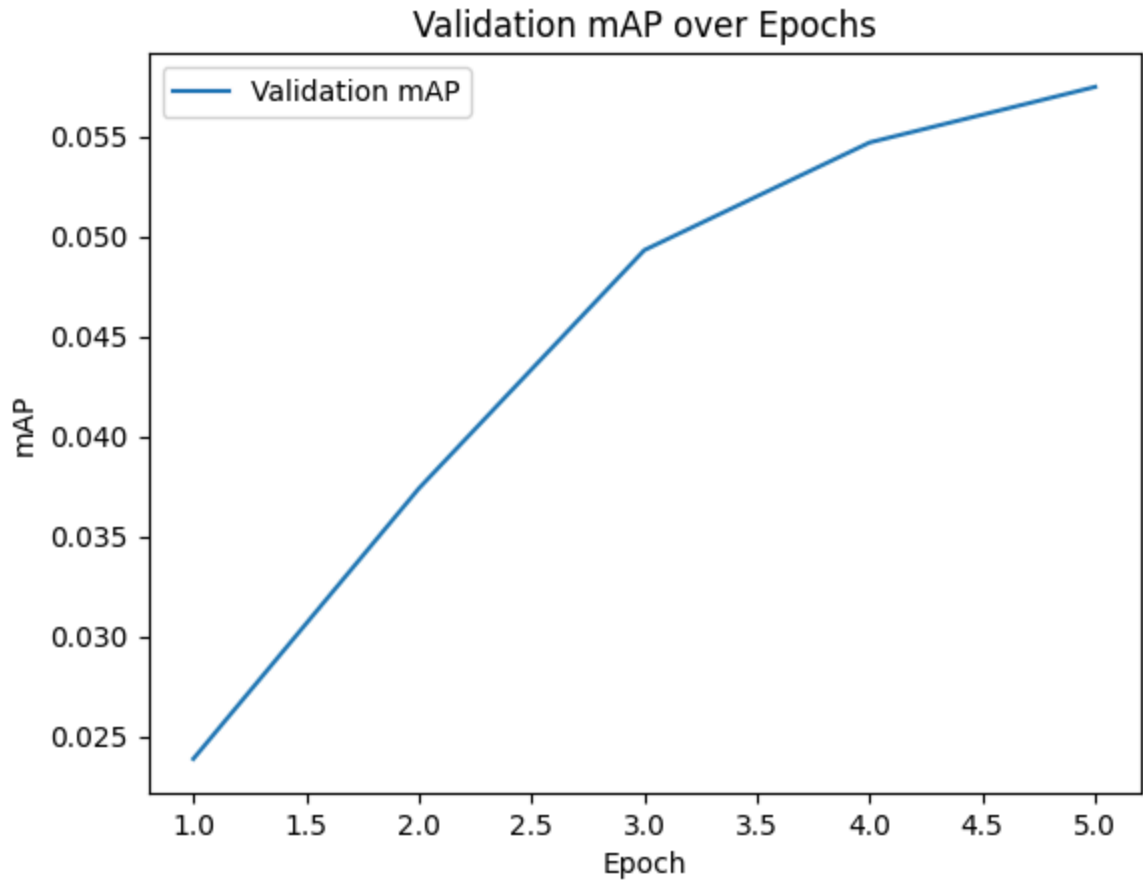
```

```

00
Average Recall      (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.28
2
Epoch 3, Iteration 0, Loss: 0.21309702098369598, Number of Images per iteration: 4
Epoch 3, Iteration 100, Loss: 0.05946731939911842, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.01s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.08s).
Accumulating evaluation results...
DONE (t=0.01s).
Average Precision  (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.05
5
Average Precision  (AP) @[ IoU=0.50      | area= all | maxDets=100 ] = 0.20
8
Average Precision  (AP) @[ IoU=0.75      | area= all | maxDets=100 ] = 0.00
8
Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.05
5
Average Recall     (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.08
4
Average Recall     (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.22
7
Average Recall     (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.27
9
Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.27
9
Epoch 4, Iteration 0, Loss: 0.17615589499473572, Number of Images per iteration: 4
Epoch 4, Iteration 100, Loss: 0.2667747139930725, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.08s).
Accumulating evaluation results...

```

```
DONE (t=0.01s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.057
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.226
Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.014
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.057
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.079
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.224
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.282
Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.282
```



[I 2024-11-15 17:10:52,018] Trial 1 finished with value: 0.0574621965039001 and parameters: {'lr': 0.0005518760971824946, 'momentum': 0.9360846151032202, 'weight_decay': 0.00021566204988945247}. Best is trial 1 with value: 0.0574621965039001.

```

Epoch 0, Iteration 0, Loss: 0.5005908608436584, Number of Images per iteration: 4
Epoch 0, Iteration 100, Loss: 0.020586740225553513, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.10s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.002
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.010
Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.000
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.002
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.002
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.052
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.120
Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.120
Epoch 1, Iteration 0, Loss: 0.1252114176750183, Number of Images per iteration: 4
Epoch 1, Iteration 100, Loss: 0.14904522895812988, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.13s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.005

```

```

Average Precision (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.02
4
Average Precision (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.00
0
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.00
5
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.01
3
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.07
9
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.14
6
Average Recall    (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.14
6
Epoch 2, Iteration 0, Loss: 0.03840971365571022, Number of Images per iteration: 4
Epoch 2, Iteration 100, Loss: 0.014349425211548805, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.12s).
Accumulating evaluation...
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.00
8
Average Precision (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.04
3
Average Precision (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.00
0
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.00
9
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.02
5
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.10
5
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.17
5
Average Recall    (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0

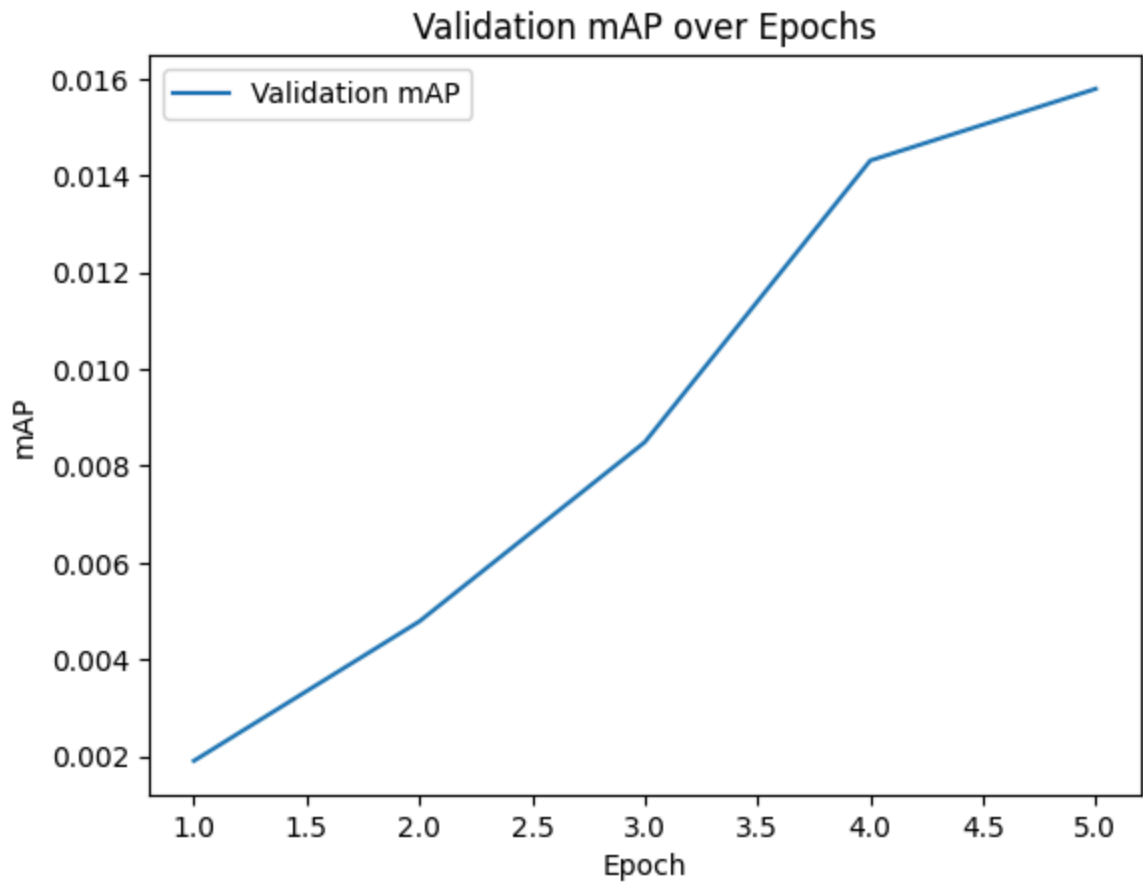
```

```

00
Average Recall      (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.17
5
Epoch 3, Iteration 0, Loss: 0.15179429948329926, Number of Images per iteration: 4
Epoch 3, Iteration 100, Loss: 0.13858699798583984, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.01s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.10s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision  (AP) @[ IoU=0.50:0.95 | area=  all | maxDets=100 ] = 0.01
4
Average Precision  (AP) @[ IoU=0.50      | area=  all | maxDets=100 ] = 0.06
1
Average Precision  (AP) @[ IoU=0.75      | area=  all | maxDets=100 ] = 0.00
0
Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.01
4
Average Recall     (AR) @[ IoU=0.50:0.95 | area=  all | maxDets=  1 ] = 0.04
6
Average Recall     (AR) @[ IoU=0.50:0.95 | area=  all | maxDets= 10 ] = 0.12
8
Average Recall     (AR) @[ IoU=0.50:0.95 | area=  all | maxDets=100 ] = 0.20
3
Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.20
3
Epoch 4, Iteration 0, Loss: 0.21728326380252838, Number of Images per iteration: 4
Epoch 4, Iteration 100, Loss: 0.0738697499036789, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.10s).
Accumulating evaluation results...

```

```
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.016
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.071
Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.001
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.016
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.041
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.145
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.212
Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.212
```



[I 2024-11-15 18:22:22,322] Trial 2 finished with value: 0.01579290357454134 and parameters: {'lr': 0.00011276375477083424, 'momentum': 0.9392793680931689, 'weight_decay': 9.31730171819615e-06}. Best is trial 1 with value: 0.0574621965039001.

```

Epoch 0, Iteration 0, Loss: 0.9701216816902161, Number of Images per iteration: 4
Epoch 0, Iteration 100, Loss: 0.02366526424884796, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.08s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.002
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.011
Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.000
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.002
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.001
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.062
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.148
Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.148
Epoch 1, Iteration 0, Loss: 0.18542109429836273, Number of Images per iteration: 4
Epoch 1, Iteration 100, Loss: 0.11138635873794556, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.01s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.12s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.004

```



```

Average Precision (AP) @[ IoU=0.50      | area=  all | maxDets=100 ] = 0.02
0
Average Precision (AP) @[ IoU=0.75      | area=  all | maxDets=100 ] = 0.00
0
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.00
4
Average Recall    (AR) @[ IoU=0.50:0.95 | area=  all | maxDets=  1 ] = 0.00
7
Average Recall    (AR) @[ IoU=0.50:0.95 | area=  all | maxDets= 10 ] = 0.07
6
Average Recall    (AR) @[ IoU=0.50:0.95 | area=  all | maxDets=100 ] = 0.17
8
Average Recall    (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.17
8
Epoch 2, Iteration 0, Loss: 0.15368255972862244, Number of Images per iteratio
n: 4
Epoch 2, Iteration 100, Loss: 0.16065485775470734, Number of Images per iterat
ion: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.01s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.10s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area=  all | maxDets=100 ] = 0.00
8
Average Precision (AP) @[ IoU=0.50      | area=  all | maxDets=100 ] = 0.03
8
Average Precision (AP) @[ IoU=0.75      | area=  all | maxDets=100 ] = 0.00
1
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.00
8
Average Recall    (AR) @[ IoU=0.50:0.95 | area=  all | maxDets=  1 ] = 0.02
4
Average Recall    (AR) @[ IoU=0.50:0.95 | area=  all | maxDets= 10 ] = 0.12
0
Average Recall    (AR) @[ IoU=0.50:0.95 | area=  all | maxDets=100 ] = 0.20
3
Average Recall    (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0

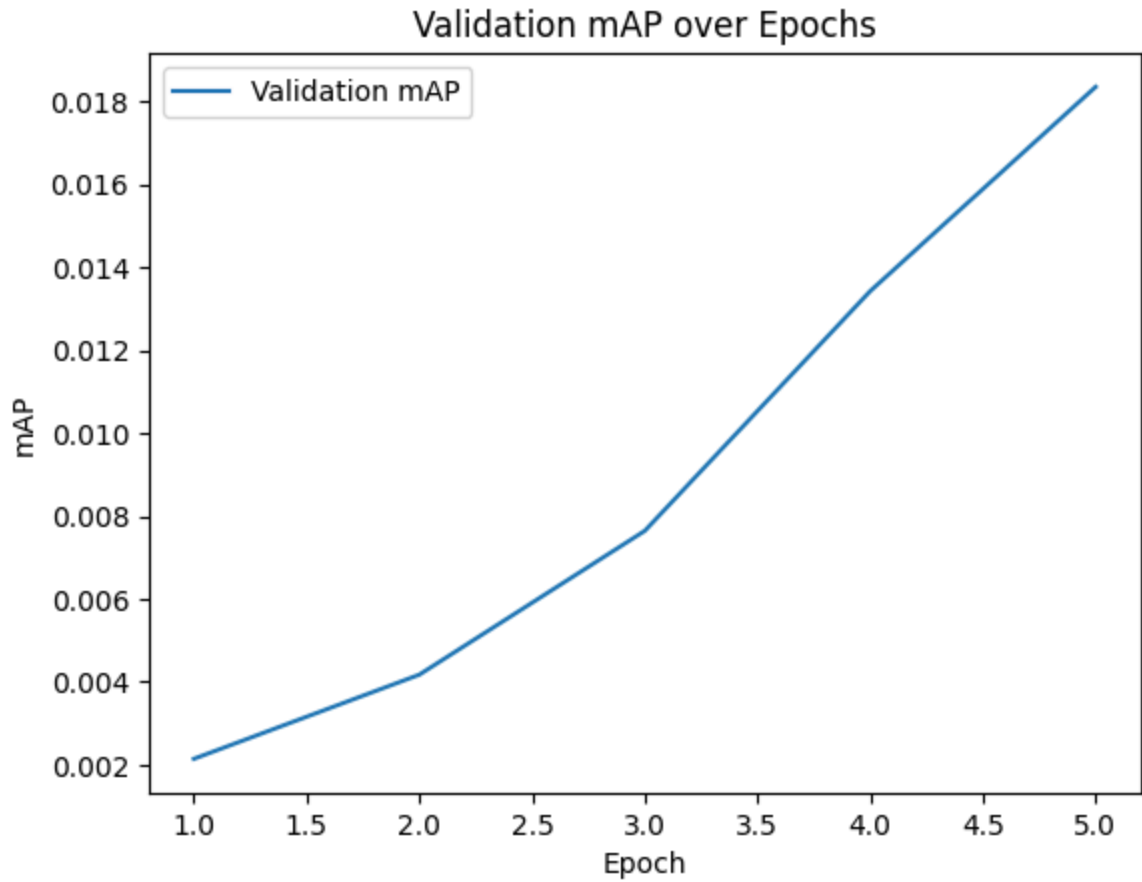
```

```

00
Average Recall      (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.20
3
Epoch 3, Iteration 0, Loss: 0.3072876036167145, Number of Images per iteration: 4
Epoch 3, Iteration 100, Loss: 0.15887458622455597, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.11s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision  (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.01
3
Average Precision  (AP) @[ IoU=0.50      | area= all | maxDets=100 ] = 0.06
5
Average Precision  (AP) @[ IoU=0.75      | area= all | maxDets=100 ] = 0.00
1
Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.01
4
Average Recall     (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.03
6
Average Recall     (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.12
6
Average Recall     (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.21
8
Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.21
8
Epoch 4, Iteration 0, Loss: 0.14580070972442627, Number of Images per iteration: 4
Epoch 4, Iteration 100, Loss: 0.10473866760730743, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.10s).
Accumulating evaluation results...

```

```
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.018
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.093
Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.001
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.019
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.054
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.155
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.216
Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.216
```



[I 2024-11-15 19:34:08,333] Trial 3 finished with value: 0.018356245588881995 and parameters: {'lr': 0.00017966080839014546, 'momentum': 0.8878289697566739, 'weight_decay': 1.4442268812680535e-05}. Best is trial 1 with value: 0.0574621965039001.

```

Epoch 0, Iteration 0, Loss: 1.6455049514770508, Number of Images per iteration: 4
Epoch 0, Iteration 100, Loss: 0.39984095096588135, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.01s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.13s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.018
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.071
Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.006
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.018
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.046
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.150
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.220
Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.220
Epoch 1, Iteration 0, Loss: 0.2490920126438141, Number of Images per iteration: 4
Epoch 1, Iteration 100, Loss: 0.016499176621437073, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.01s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.12s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.028

```

```

Average Precision (AP) @[ IoU=0.50      | area=  all | maxDets=100 ] = 0.11
3
Average Precision (AP) @[ IoU=0.75      | area=  all | maxDets=100 ] = 0.00
6
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.02
8
Average Recall    (AR) @[ IoU=0.50:0.95 | area=  all | maxDets=  1 ] = 0.06
8
Average Recall    (AR) @[ IoU=0.50:0.95 | area=  all | maxDets= 10 ] = 0.19
8
Average Recall    (AR) @[ IoU=0.50:0.95 | area=  all | maxDets=100 ] = 0.27
0
Average Recall    (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.27
0
Epoch 2, Iteration 0, Loss: 0.18374726176261902, Number of Images per iteratio
n: 4
Epoch 2, Iteration 100, Loss: 0.1856340765953064, Number of Images per iterati
on: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.73s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.13s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area=  all | maxDets=100 ] = 0.03
5
Average Precision (AP) @[ IoU=0.50      | area=  all | maxDets=100 ] = 0.12
9
Average Precision (AP) @[ IoU=0.75      | area=  all | maxDets=100 ] = 0.00
3
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.03
5
Average Recall    (AR) @[ IoU=0.50:0.95 | area=  all | maxDets=  1 ] = 0.07
8
Average Recall    (AR) @[ IoU=0.50:0.95 | area=  all | maxDets= 10 ] = 0.21
3
Average Recall    (AR) @[ IoU=0.50:0.95 | area=  all | maxDets=100 ] = 0.27
9
Average Recall    (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0

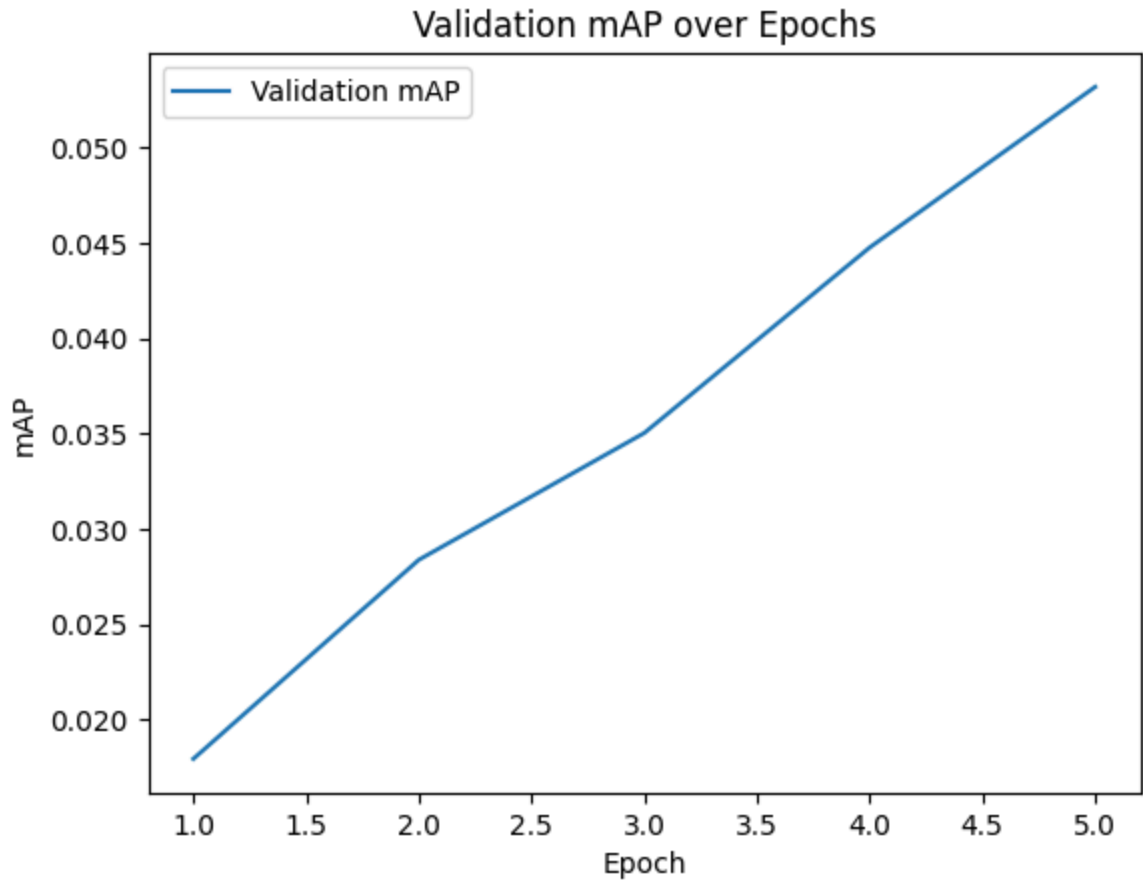
```

```

00
Average Recall      (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.27
9
Epoch 3, Iteration 0, Loss: 0.056213025003671646, Number of Images per iteration: 4
Epoch 3, Iteration 100, Loss: 0.10027985274791718, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.01s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.08s).
Accumulating evaluation results...
DONE (t=0.01s).
Average Precision  (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.04
5
Average Precision  (AP) @[ IoU=0.50      | area= all | maxDets=100 ] = 0.17
3
Average Precision  (AP) @[ IoU=0.75      | area= all | maxDets=100 ] = 0.00
6
Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.04
5
Average Recall     (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.09
1
Average Recall     (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.23
4
Average Recall     (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.29
0
Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.29
0
Epoch 4, Iteration 0, Loss: 0.21520428359508514, Number of Images per iteration: 4
Epoch 4, Iteration 100, Loss: 0.10431893169879913, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.01s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.08s).
Accumulating evaluation results...

```

```
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.053
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.199
Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.009
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.053
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.090
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.240
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.294
Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.294
```



```
[I 2024-11-15 20:46:39,043] Trial 4 finished with value: 0.05318030072593041 and parameters: {'lr': 0.00017347698827186388, 'momentum': 0.9768391695249379, 'weight_decay': 1.6691861374536959e-06}. Best is trial 1 with value: 0.0574621965039001.
```

```
Epoch 0, Iteration 0, Loss: 0.6416984796524048, Number of Images per iteration: 4
Epoch 0, Iteration 100, Loss: 0.3016139566898346, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.02s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
[I 2024-11-15 21:00:17,574] Trial 5 finished with value: 0.001456265710381672
and parameters: {'lr': 1.0165463381094431e-05, 'momentum': 0.8233746575418852,
'weight_decay': 0.00022969509972159538}. Best is trial 1 with value: 0.0574621
965039001.
```



```

DONE (t=0.22s).
Accumulating evaluation results...
DONE (t=0.03s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.00
1
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.00
6
Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.00
0
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.00
3
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.00
2
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.03
4
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.13
8
Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.13
8
An exception occurred:
Epoch 0, Iteration 0, Loss: 0.7899916172027588, Number of Images per iteratio
n: 4
Epoch 0, Iteration 100, Loss: 0.23469358682632446, Number of Images per iterat
ion: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.01s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.07s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.00
6
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.02
4
Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.00
0
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.00
7
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.00
9
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.05

```

```

9
Average Recall      (AR) @[ IoU=0.50:0.95 | area=  all | maxDets=100 ] = 0.11
2
Average Recall      (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall      (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Recall      (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.11
2
Epoch 1, Iteration 0, Loss: 0.09417903423309326, Number of Images per iteratio
n: 4
Epoch 1, Iteration 100, Loss: 0.14143556356430054, Number of Images per iterat
ion: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.10s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision  (AP) @[ IoU=0.50:0.95 | area=  all | maxDets=100 ] = 0.01
1
Average Precision  (AP) @[ IoU=0.50      | area=  all | maxDets=100 ] = 0.04
3
Average Precision  (AP) @[ IoU=0.75      | area=  all | maxDets=100 ] = 0.00
1
Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.01
1
Average Recall     (AR) @[ IoU=0.50:0.95 | area=  all | maxDets=  1 ] = 0.02
1
Average Recall     (AR) @[ IoU=0.50:0.95 | area=  all | maxDets= 10 ] = 0.10
2
Average Recall     (AR) @[ IoU=0.50:0.95 | area=  all | maxDets=100 ] = 0.16
5
Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.16
5
Epoch 2, Iteration 0, Loss: 0.22306588292121887, Number of Images per iteratio
n: 4
Epoch 2, Iteration 100, Loss: 0.1796027421951294, Number of Images per iterati
on: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)

```

```

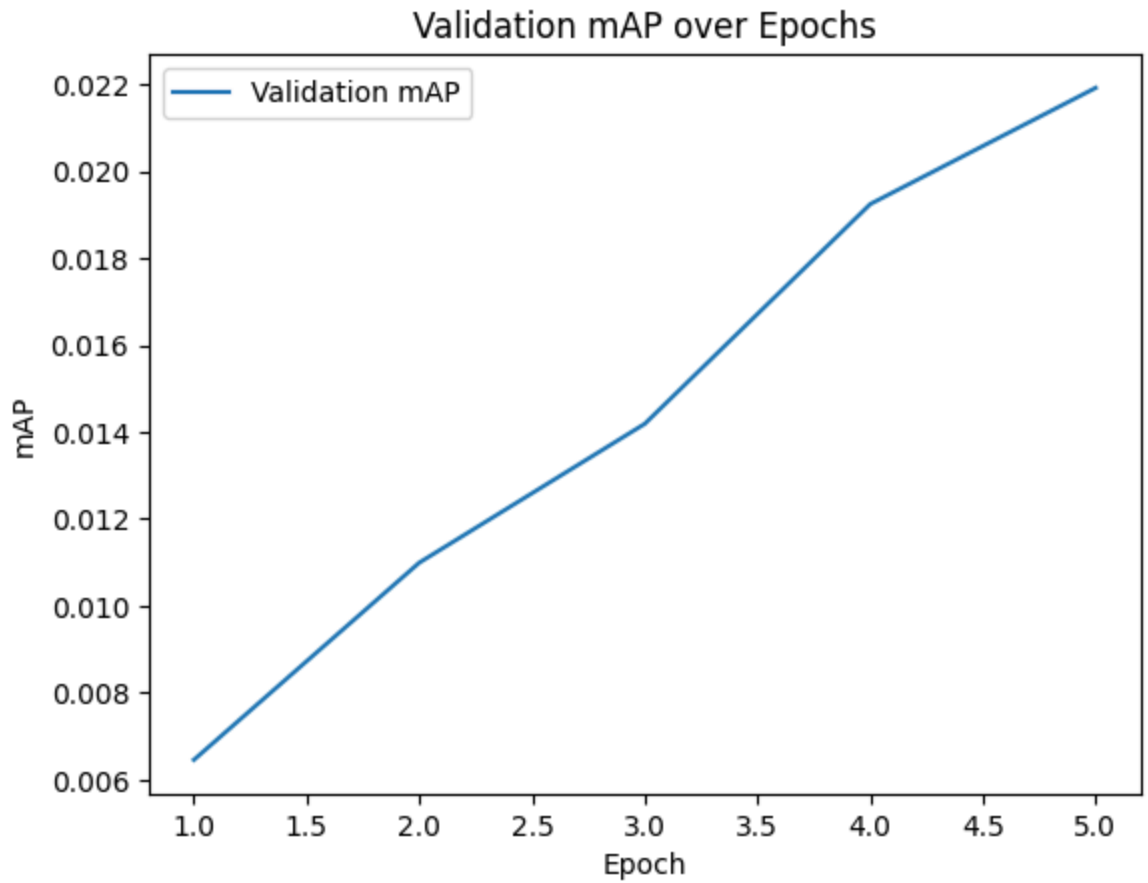
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.10s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.014
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.058
Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.002
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.014
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.033
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.113
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.169
Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.169
Epoch 3, Iteration 0, Loss: 0.17248019576072693, Number of Images per iteration: 4
Epoch 3, Iteration 100, Loss: 0.08324980735778809, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.18s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.09s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.019
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.076
Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.002
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.019

```

```

Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.03
3
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.13
2
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.18
6
Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.18
6
Epoch 4, Iteration 0, Loss: 0.11466772109270096, Number of Images per iteratio
n: 4
Epoch 4, Iteration 100, Loss: 0.24431808292865753, Number of Images per iterat
ion: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.09s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.02
2
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.08
4
Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.00
2
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.02
2
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.04
2
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.13
3
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.19
5
Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.19
5

```



[I 2024-11-15 22:12:42,565] Trial 6 finished with value: 0.02192550211976124 and parameters: {'lr': 6.949662053331e-05, 'momentum': 0.9508739768331484, 'weight_decay': 2.1412752104954603e-06}. Best is trial 1 with value: 0.0574621965039001.

```

Epoch 0, Iteration 0, Loss: 0.9858505129814148, Number of Images per iteration: 4
Epoch 0, Iteration 100, Loss: 0.11778219789266586, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.10s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.003
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.015
Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.000
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.003
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.009
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.077
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.153
Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.153
Epoch 1, Iteration 0, Loss: 0.23746411502361298, Number of Images per iteration: 4
Epoch 1, Iteration 100, Loss: 0.26999491453170776, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.01s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.11s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.004

```

```

Average Precision (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.02
0
Average Precision (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.00
0
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.00
5
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.01
8
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.09
1
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.15
4
Average Recall    (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.15
4

```

An exception occurred:

```

[I 2024-11-15 22:41:54,130] Trial 7 finished with value: 0.004461845272428708
and parameters: {'lr': 0.0001875893242770074, 'momentum': 0.8020096587178593,
'weight_decay': 0.0008771872913183343}. Best is trial 1 with value: 0.05746219
65039001.

```

```

Epoch 0, Iteration 0, Loss: 1.548019528388977, Number of Images per iteration:
4
Epoch 0, Iteration 100, Loss: 0.180284783244133, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.11s).
Accumulating evaluation results...
DONE (t=0.03s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.01
4
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.05
2
Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.00
1
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.01
4
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.02
5
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.11
5
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.16
5
Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.16
5
Epoch 1, Iteration 0, Loss: 0.23047633469104767, Number of Images per iteration:
4
Epoch 1, Iteration 100, Loss: 0.09357596933841705, Number of Images per iteration:
4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.13s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.02
4

```



```

Average Precision (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.09
2
Average Precision (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.00
4
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.02
4
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.04
3
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.15
1
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.20
2
Average Recall    (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.20
2
Epoch 2, Iteration 0, Loss: 0.17753614485263824, Number of Images per iteratio
n: 4
Epoch 2, Iteration 100, Loss: 0.17074504494667053, Number of Images per iterat
ion: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.10s).
Accumulating evaluation...
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.03
0
Average Precision (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.11
4
Average Precision (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.00
4
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.03
0
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.05
9
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.17
8
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.22
5
Average Recall    (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0

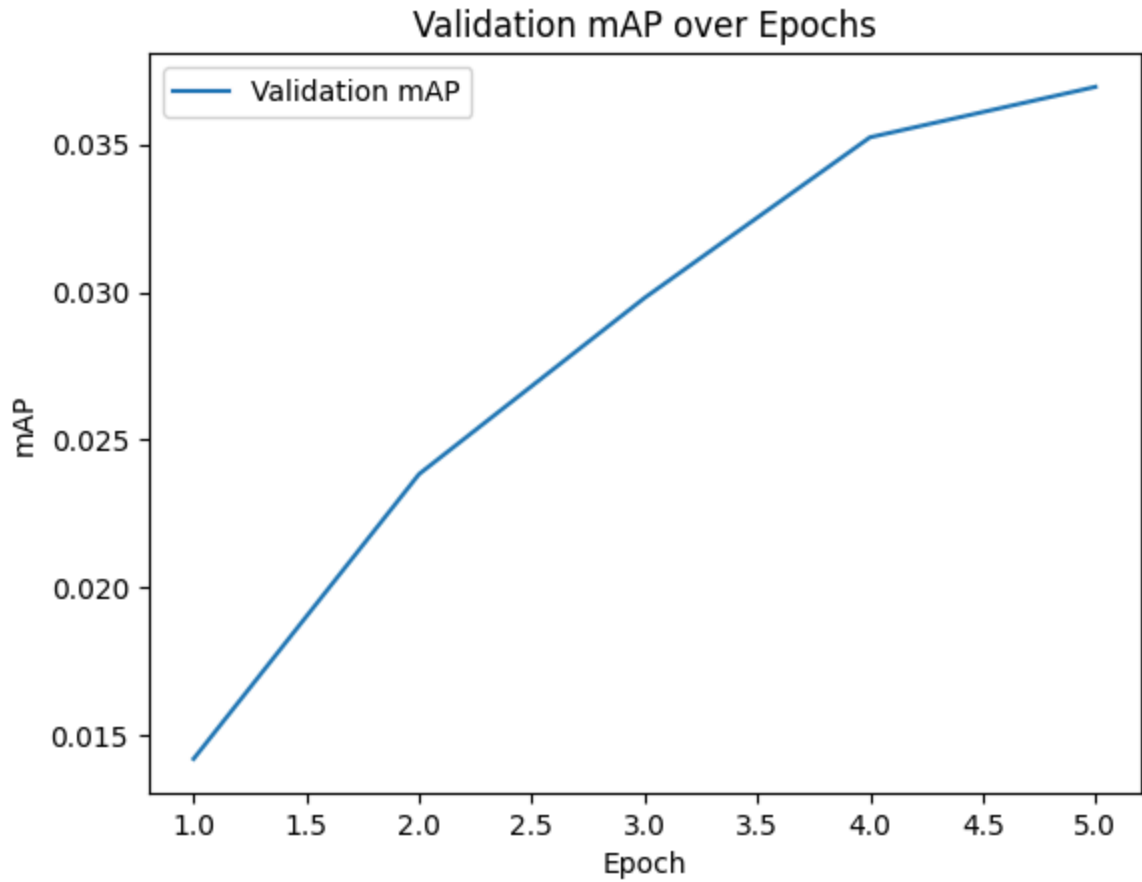
```

```

00
Average Recall      (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.22
5
Epoch 3, Iteration 0, Loss: 0.09893552958965302, Number of Images per iteration: 4
Epoch 3, Iteration 100, Loss: 0.025314968079328537, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.08s).
Accumulating evaluation results...
DONE (t=0.01s).
Average Precision  (AP) @[ IoU=0.50:0.95 | area=  all | maxDets=100 ] = 0.03
5
Average Precision  (AP) @[ IoU=0.50      | area=  all | maxDets=100 ] = 0.13
9
Average Precision  (AP) @[ IoU=0.75      | area=  all | maxDets=100 ] = 0.00
7
Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.03
5
Average Recall     (AR) @[ IoU=0.50:0.95 | area=  all | maxDets=  1 ] = 0.05
9
Average Recall     (AR) @[ IoU=0.50:0.95 | area=  all | maxDets= 10 ] = 0.19
9
Average Recall     (AR) @[ IoU=0.50:0.95 | area=  all | maxDets=100 ] = 0.23
8
Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.23
8
Epoch 4, Iteration 0, Loss: 0.1443791687488556, Number of Images per iteration: 4
Epoch 4, Iteration 100, Loss: 0.25042080879211426, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.11s).
Accumulating evaluation results...

```

```
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.037
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.139
Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.006
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.037
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.079
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.213
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.252
Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.252
```



```
[I 2024-11-15 23:58:55,265] Trial 8 finished with value: 0.036953852451449845
and parameters: {'lr': 0.0003013544586748035, 'momentum': 0.9165004409696107,
'weight_decay': 8.129877963702687e-05}. Best is trial 1 with value: 0.05746219
65039001.
```

```

Epoch 0, Iteration 0, Loss: 0.9606140851974487, Number of Images per iteration: 4
Epoch 0, Iteration 100, Loss: 0.22073981165885925, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.11s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.019
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.080
Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.001
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.019
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.045
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.141
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.209
Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.209
Epoch 1, Iteration 0, Loss: 0.05469421669840813, Number of Images per iteration: 4
Epoch 1, Iteration 100, Loss: 0.123784638941288, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.08s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.032

```

```

Average Precision (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.13
1
Average Precision (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.00
4
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.03
2
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.06
8
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.18
5
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.24
8
Average Recall    (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.24
8
Epoch 2, Iteration 0, Loss: 0.045417092740535736, Number of Images per iterati
on: 4
Epoch 2, Iteration 100, Loss: 0.09851603209972382, Number of Images per iterat
ion: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.11s).
Accumulating evaluation...
DONE (t=0.01s).
Average Precision (AP) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.04
5
Average Precision (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.15
9
Average Precision (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.00
6
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.04
5
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.07
3
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.23
5
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.28
7
Average Recall    (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0

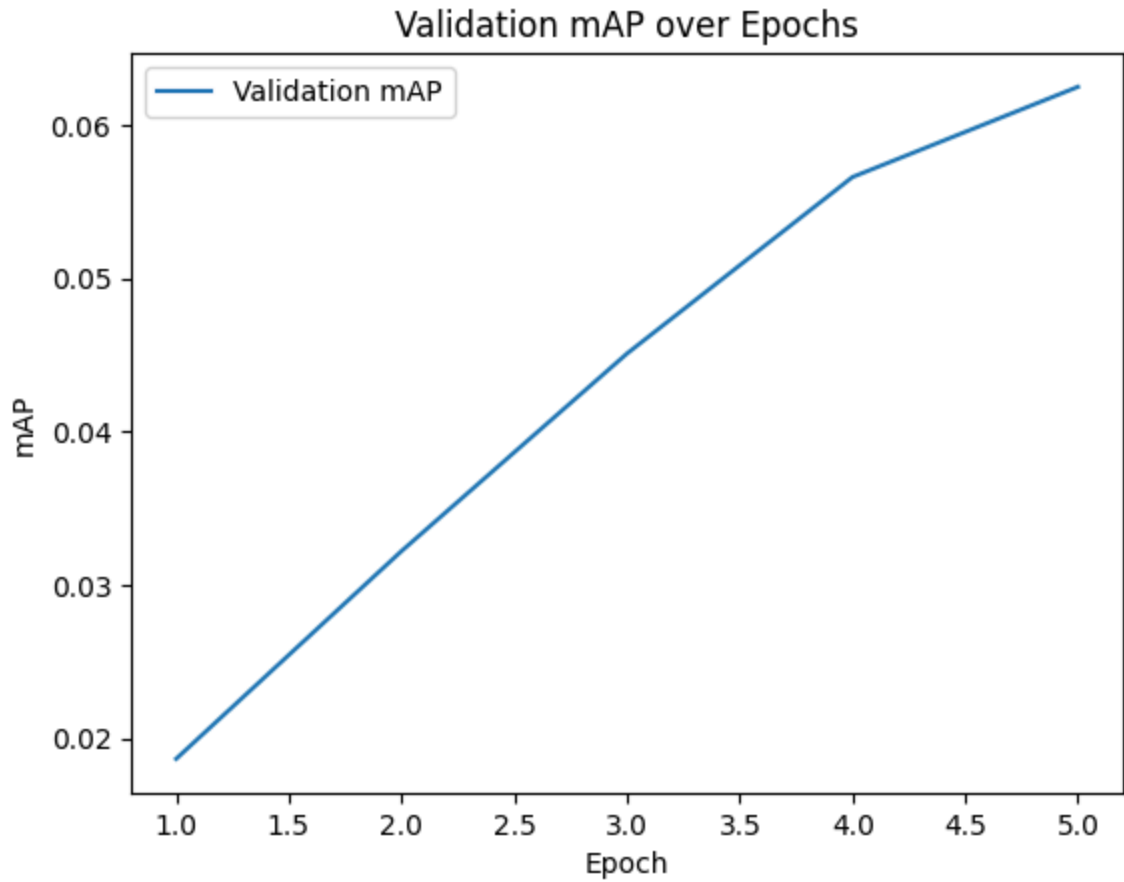
```

```

00
Average Recall      (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.28
7
Epoch 3, Iteration 0, Loss: 0.14333096146583557, Number of Images per iteration: 4
Epoch 3, Iteration 100, Loss: 0.13791783154010773, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.13s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.07s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision  (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.05
7
Average Precision  (AP) @[ IoU=0.50      | area= all | maxDets=100 ] = 0.19
8
Average Precision  (AP) @[ IoU=0.75      | area= all | maxDets=100 ] = 0.00
4
Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.05
7
Average Recall     (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.07
9
Average Recall     (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.24
9
Average Recall     (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.30
3
Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.30
3
Epoch 4, Iteration 0, Loss: 0.16814839839935303, Number of Images per iteration: 4
Epoch 4, Iteration 100, Loss: 0.09465595334768295, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.09s).
Accumulating evaluation results...

```

```
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.062
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.230
Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.002
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.062
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.082
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.251
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.316
Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.316
```



[I 2024-11-16 01:17:30,541] Trial 9 finished with value: 0.06247337089652269 and parameters: {'lr': 0.0008423283877045206, 'momentum': 0.9003619197787218, 'weight_decay': 1.1061204547992518e-05}. Best is trial 9 with value: 0.06247337089652269.

```

Epoch 0, Iteration 0, Loss: 0.6152527928352356, Number of Images per iteration: 4
Epoch 0, Iteration 100, Loss: 0.24745169281959534, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.10s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.016
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.072
Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.004
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.017
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.041
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.127
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.197
Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.197
Epoch 1, Iteration 0, Loss: 0.17592193186283112, Number of Images per iteration: 4
Epoch 1, Iteration 100, Loss: 0.10681278258562088, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.10s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.026

```



```

Average Precision (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.10
1
Average Precision (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.00
7
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.02
6
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.06
6
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.20
0
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.25
4
Average Recall    (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.25
4
Epoch 2, Iteration 0, Loss: 0.16073253750801086, Number of Images per iteration: 4
Epoch 2, Iteration 100, Loss: 0.035583339631557465, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.10s).
Accumulating evaluation...
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.03
7
Average Precision (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.13
5
Average Precision (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.00
4
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.03
7
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.07
7
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.21
4
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.27
9
Average Recall    (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0

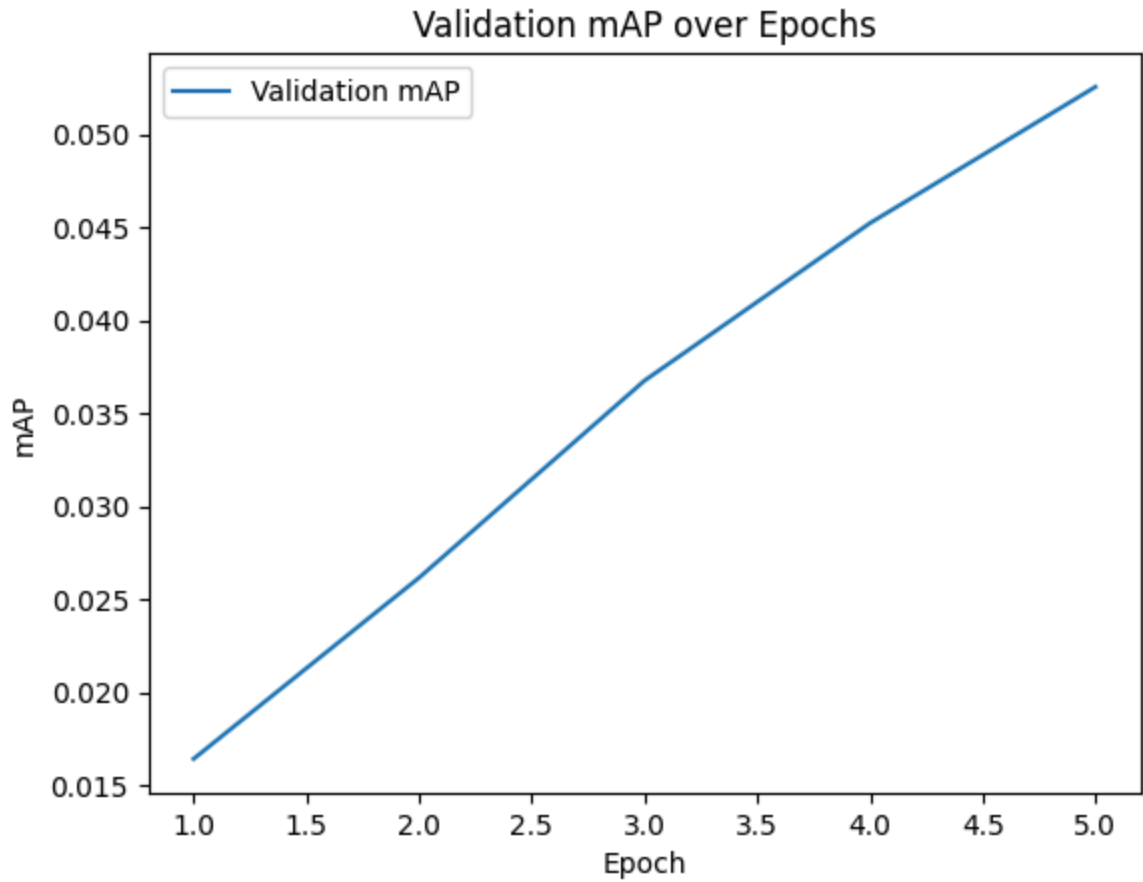
```

```

00
Average Recall      (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.27
9
Epoch 3, Iteration 0, Loss: 0.15995852649211884, Number of Images per iteration: 4
Epoch 3, Iteration 100, Loss: 0.13064394891262054, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.01s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.11s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision  (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.04
5
Average Precision  (AP) @[ IoU=0.50      | area= all | maxDets=100 ] = 0.17
4
Average Precision  (AP) @[ IoU=0.75      | area= all | maxDets=100 ] = 0.00
9
Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.04
5
Average Recall     (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.09
1
Average Recall     (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.23
8
Average Recall     (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.30
3
Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.30
3
Epoch 4, Iteration 0, Loss: 0.1586049348115921, Number of Images per iteration: 4
Epoch 4, Iteration 100, Loss: 0.17877018451690674, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.08s).
Accumulating evaluation results...

```

```
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.053
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.193
Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.002
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.053
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.075
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.242
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.307
Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.307
```



```
[I 2024-11-16 02:33:26,381] Trial 10 finished with value: 0.05254312908493858
and parameters: {'lr': 0.0009053309672445872, 'momentum': 0.8669381830563384,
'weight_decay': 2.2714823778069508e-05}. Best is trial 9 with value: 0.0624733
7089652269.
```

```

Epoch 0, Iteration 0, Loss: 1.0054689645767212, Number of Images per iteration: 4
Epoch 0, Iteration 100, Loss: 0.07381673157215118, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.11s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.015
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.058
Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.001
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.015
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.045
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.148
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.198
Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.198
Epoch 1, Iteration 0, Loss: 0.06368839740753174, Number of Images per iteration: 4
Epoch 1, Iteration 100, Loss: 0.24005259573459625, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.09s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.027

```

```

Average Precision (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.09
6
Average Precision (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.00
7
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.02
7
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.05
2
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.17
9
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.22
5
Average Recall    (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.22
5
Epoch 2, Iteration 0, Loss: 0.10148347914218903, Number of Images per iteratio
n: 4
Epoch 2, Iteration 100, Loss: 0.15262416005134583, Number of Images per iterat
ion: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.09s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.03
7
Average Precision (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.12
9
Average Precision (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.00
3
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.03
7
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.07
4
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.22
3
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.26
9
Average Recall    (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0

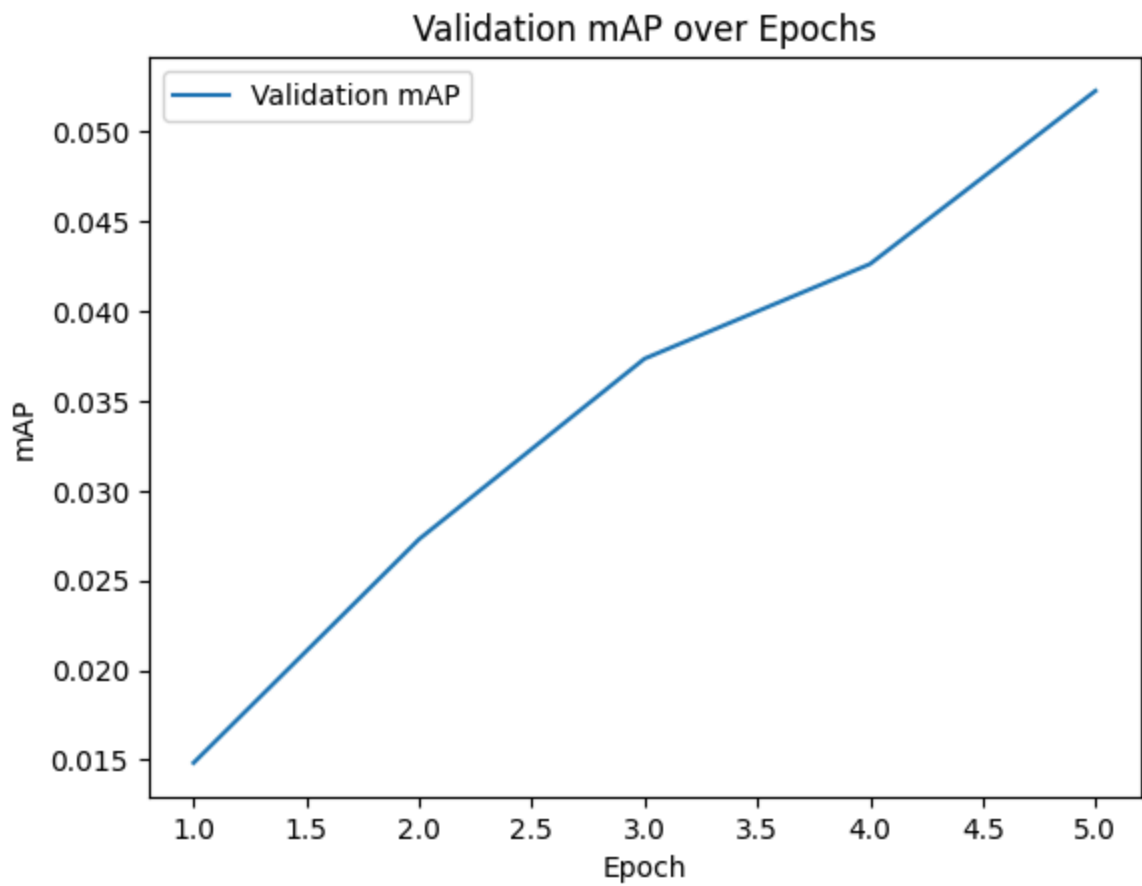
```

```

00
Average Recall      (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.26
9
Epoch 3, Iteration 0, Loss: 0.20887912809848785, Number of Images per iteration: 4
Epoch 3, Iteration 100, Loss: 0.3607875406742096, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.13s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.07s).
Accumulating evaluation results...
DONE (t=0.01s).
Average Precision  (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.04
3
Average Precision  (AP) @[ IoU=0.50      | area= all | maxDets=100 ] = 0.14
2
Average Precision  (AP) @[ IoU=0.75      | area= all | maxDets=100 ] = 0.00
6
Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.04
3
Average Recall     (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.07
6
Average Recall     (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.24
6
Average Recall     (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.28
8
Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.28
8
Epoch 4, Iteration 0, Loss: 0.1895902156829834, Number of Images per iteration: 4
Epoch 4, Iteration 100, Loss: 0.10334408283233643, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.09s).
Accumulating evaluation results...

```

```
DONE (t=0.01s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.052
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.182
Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.006
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.052
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.087
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.245
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.295
Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.295
```



[I 2024-11-16 03:48:58,192] Trial 11 finished with value: 0.05229247281801762 and parameters: {'lr': 0.0009961152516158817, 'momentum': 0.8609778051606991, 'weight_decay': 7.99865571170194e-05}. Best is trial 9 with value: 0.06247337089652269.

```

Epoch 0, Iteration 0, Loss: 0.654898464679718, Number of Images per iteration:
4
Epoch 0, Iteration 100, Loss: 0.06031401827931404, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.12s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.01
0
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.03
7
Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.00
1
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.01
0
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.02
9
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.10
7
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.17
9
Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.17
9
An exception occurred:
[I 2024-11-16 04:04:01,859] Trial 12 finished with value: 0.009783704119207405
and parameters: {'lr': 0.00047308206689344184, 'momentum': 0.9161821094137192,
'weight_decay': 0.0006224908840887566}. Best is trial 9 with value: 0.06247337
089652269.

```



```

Epoch 0, Iteration 0, Loss: 0.9874414205551147, Number of Images per iteration: 4
Epoch 0, Iteration 100, Loss: 0.08519811183214188, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.01s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.13s).
Accumulating evaluation results...
DONE (t=0.03s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.014
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.055
Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.006
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.014
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.035
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.139
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.194
Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.194
Epoch 1, Iteration 0, Loss: 0.22846224904060364, Number of Images per iteration: 4
Epoch 1, Iteration 100, Loss: 0.28231433033943176, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.11s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.026

```

```

Average Precision (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.09
8
Average Precision (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.00
1
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.02
6
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.06
3
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.18
6
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.25
0
Average Recall    (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.25
0
Epoch 2, Iteration 0, Loss: 0.2515379786491394, Number of Images per iteratio
n: 4
Epoch 2, Iteration 100, Loss: 0.1916729211807251, Number of Images per iterati
on: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.01s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.07s).
Accumulating evaluation results...
DONE (t=0.01s).
Average Precision (AP) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.04
1
Average Precision (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.14
3
Average Precision (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.00
8
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.04
1
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.07
6
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.22
2
Average Recall    (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.27
0
Average Recall    (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall    (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0

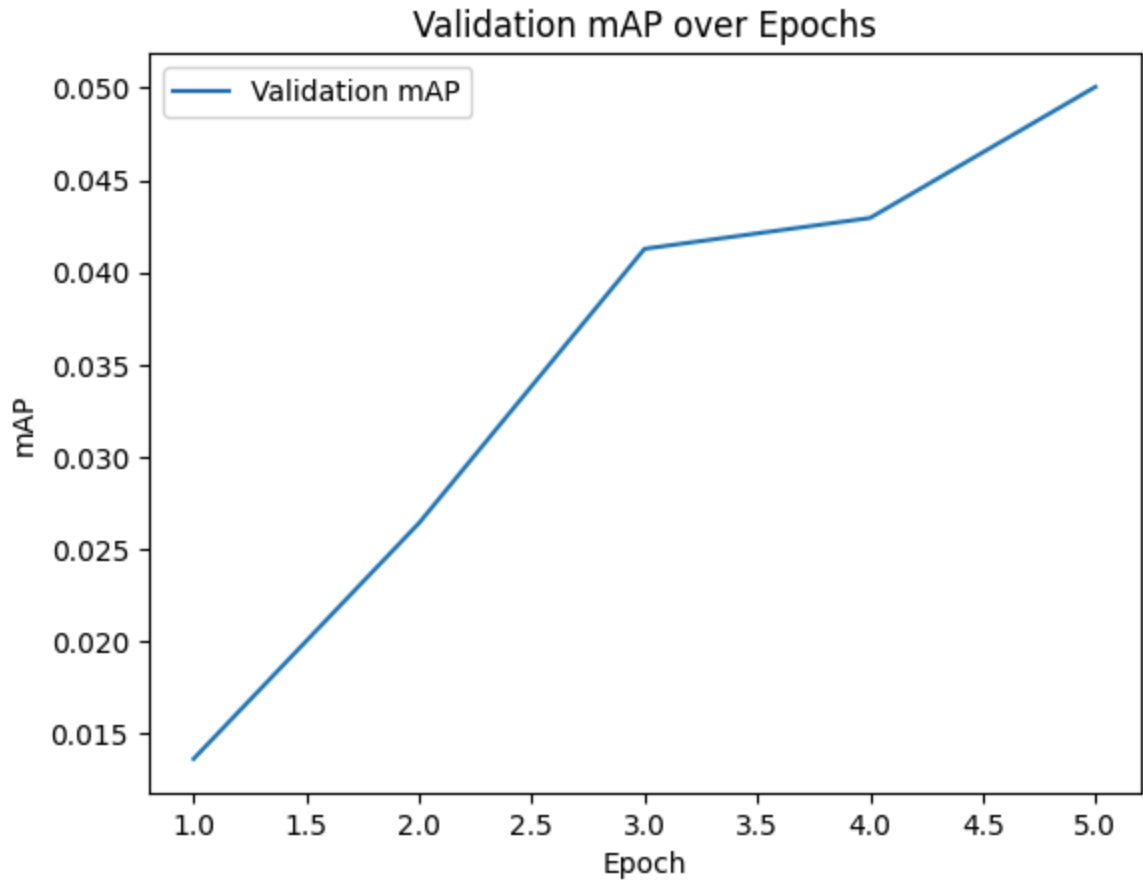
```

```

00
Average Recall      (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.27
0
Epoch 3, Iteration 0, Loss: 0.22150473296642303, Number of Images per iteratio
n: 4
Epoch 3, Iteration 100, Loss: 0.12528096139431, Number of Images per iteratio
n: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.09s).
Accumulating evaluation results...
DONE (t=0.02s).
Average Precision  (AP) @[ IoU=0.50:0.95 | area=  all | maxDets=100 ] = 0.04
3
Average Precision  (AP) @[ IoU=0.50      | area=  all | maxDets=100 ] = 0.15
9
Average Precision  (AP) @[ IoU=0.75      | area=  all | maxDets=100 ] = 0.00
5
Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.04
3
Average Recall     (AR) @[ IoU=0.50:0.95 | area=  all | maxDets=  1 ] = 0.08
1
Average Recall     (AR) @[ IoU=0.50:0.95 | area=  all | maxDets= 10 ] = 0.23
0
Average Recall     (AR) @[ IoU=0.50:0.95 | area=  all | maxDets=100 ] = 0.28
2
Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.0
00
Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.0
00
Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.28
2
Epoch 4, Iteration 0, Loss: 0.20614123344421387, Number of Images per iteratio
n: 4
Epoch 4, Iteration 100, Loss: 0.08602992445230484, Number of Images per iterat
ion: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.10s).
Accumulating evaluation results...

```

```
DONE (t=0.02s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.050
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.172
Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.007
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.050
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.088
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.243
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.299
Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.299
```



[I 2024-11-16 05:19:54,845] Trial 13 finished with value: 0.050049599092683625 and parameters: {'lr': 0.000583175318502705, 'momentum': 0.9063176222539555, 'weight_decay': 6.953828949818744e-05}. Best is trial 9 with value: 0.06247337089652269.

```

Epoch 0, Iteration 0, Loss: 0.8727448582649231, Number of Images per iteration: 4
Epoch 0, Iteration 100, Loss: 0.05963984131813049, Number of Images per iteration: 4
loading annotations into memory...
Done (t=0.00s)
creating index...
index created!
Loading and preparing results...
DONE (t=0.00s)
creating index...
index created!
Running per image evaluation...
Evaluate annotation type *bbox*
DONE (t=0.09s).
Accumulating evaluation results...
DONE (t=0.01s).
Average Precision (AP) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.001
Average Precision (AP) @[ IoU=0.50 | area= all | maxDets=100 ] = 0.008
Average Precision (AP) @[ IoU=0.75 | area= all | maxDets=100 ] = 0.000
Average Precision (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Precision (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.001
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 1 ] = 0.003
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets= 10 ] = 0.032
Average Recall (AR) @[ IoU=0.50:0.95 | area= all | maxDets=100 ] = 0.091
Average Recall (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = -1.000
Average Recall (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.091
An exception occurred:
[I 2024-11-16 05:34:59,104] Trial 14 finished with value: 0.001351523169641994
and parameters: {'lr': 5.7282842281513326e-05, 'momentum': 0.9473609152528971,
'weight_decay': 6.64277162416958e-06}. Best is trial 9 with value: 0.06247337089652269.
Best trial:
Value: 0.06247337089652269
Params:
lr: 0.0008423283877045206
momentum: 0.9003619197787218
weight_decay: 1.1061204547992518e-05

```

In []: