Training started on Date: 31/05/2025, Sat, at time: 11:13
==========
Training Configuration:
==========
name: snake_imitation
schedular: False
conv_layers: [[4, 5, 5]]
max_pool: [2, 2]
pool_after_layers: 1
act_fn: relu
batch_norm: False
dropout: None
hid_layers: [256, 256]
lr: 0.001
epochs: 10
clip_grad: 0.5
metric_param: val_acc
train_batch_size: 16
test_batch_size: 32
val_batch_size: 32
test_trans: Compose(
Resize(size=[18, 36], interpolation=InterpolationMode.BILINEAR, antialias=warn)
ToTensor()
Normalize(mean=[0.5], std=[0.5], inplace=False)
)
train_trans: Compose(
Resize(size=[18, 36], interpolation=InterpolationMode.BILINEAR, antialias=warn)
ToTensor()
Normalize(mean=[0.5], std=[0.5], inplace=False)
)
val_trans: Compose(
Resize(size=[18, 36], interpolation=InterpolationMode.BILINEAR, antialias=warn)
ToTensor()
Normalize(mean=[0.5], std=[0.5], inplace=False)
)
plot_params: ['Training Loss', 'Training Accuracy', 'Validation Loss', 'Validation Accuracy']
==========
Training Dataset:
Dataset size: 7000
direction
rectilinear_backward   1400
straight   1400
rectilinear_forward   1400
sidewinding_left   1400
sidewinding_right   1400
Name: count, dtype: int64
==========
Validation Dataset:
Dataset size: 1500
direction
sidewinding_left   300
rectilinear_backward   300
rectilinear_forward   300
sidewinding_right   300

straight 300
Name: count, dtype: int64
==========
Testing Dataset:
Dataset size: 1500
direction
rectilinear_forward 300
sidewinding_left 300
rectilinear_backward 300
straight 300
sidewinding_right 300
Name: count, dtype: int64"
==========
Model: Sequential(
(0): Conv2d(1, 4, kernel_size=(5, 5), stride=(5, 5), bias=False)
(1): ReLU(inplace=True)
(2): MaxPool2d(kernel_size=2, stride=2, padding=0, dilation=1, ceil_mode=False)
(3): Flatten(start_dim=1, end_dim=-1)
(4): Linear(in_features=12, out_features=256, bias=True)
(5): ReLU(inplace=True)
(6): Linear(in_features=256, out_features=256, bias=True)
(7): ReLU(inplace=True)
(8): Linear(in_features=256, out_features=5, bias=True)
)
==========
Total number of parameters: 70505
Number of classes: 5
Classes: ['rectilinear_backward' 'straight' 'rectilinear_forward'
'sidewinding_left' 'sidewinding_right']
Input image size (height, width): (360, 640)
Transformed image size (channels, height, width): torch.Size([1, 18, 36])
Total training time: 00:00:40
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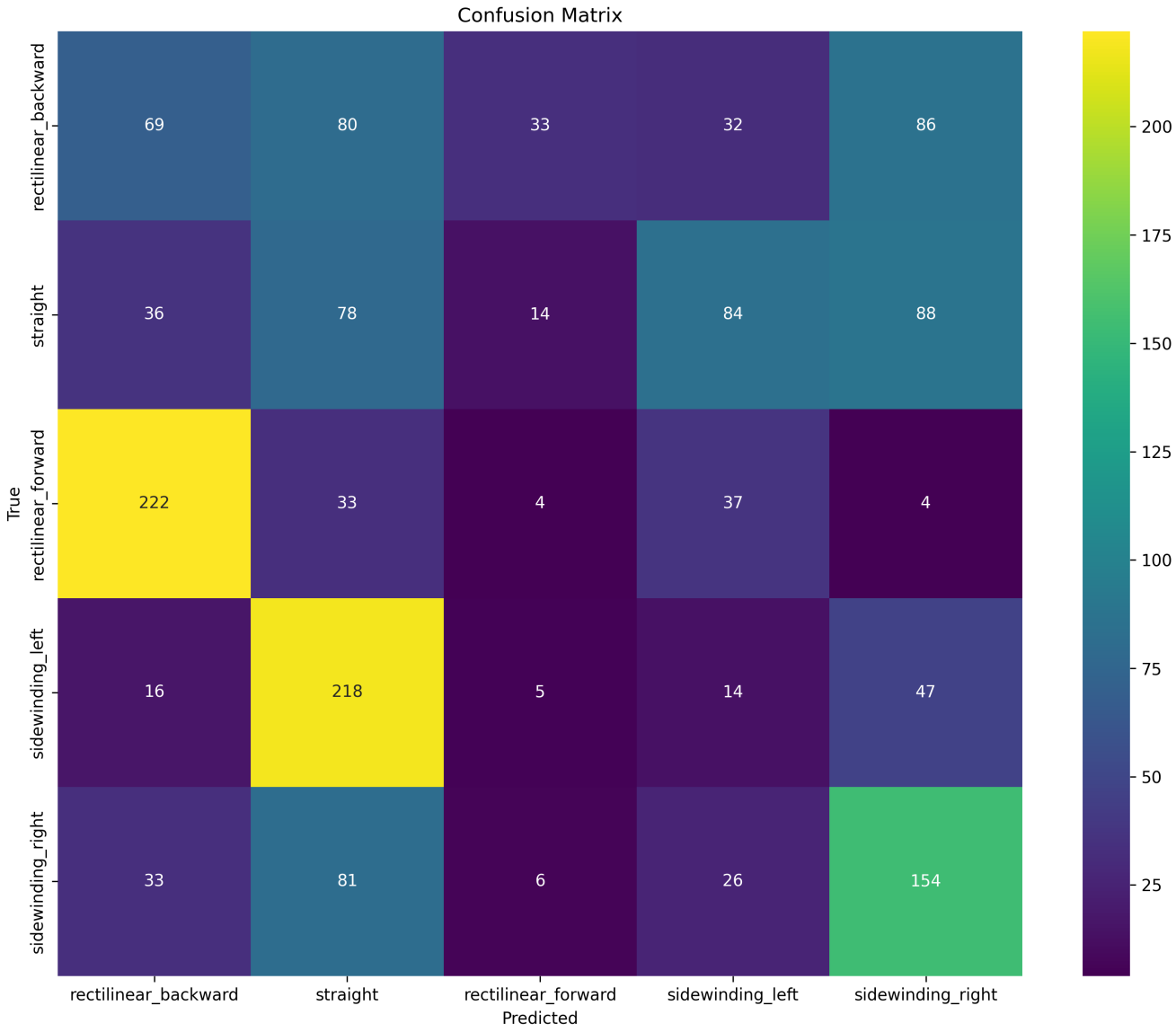
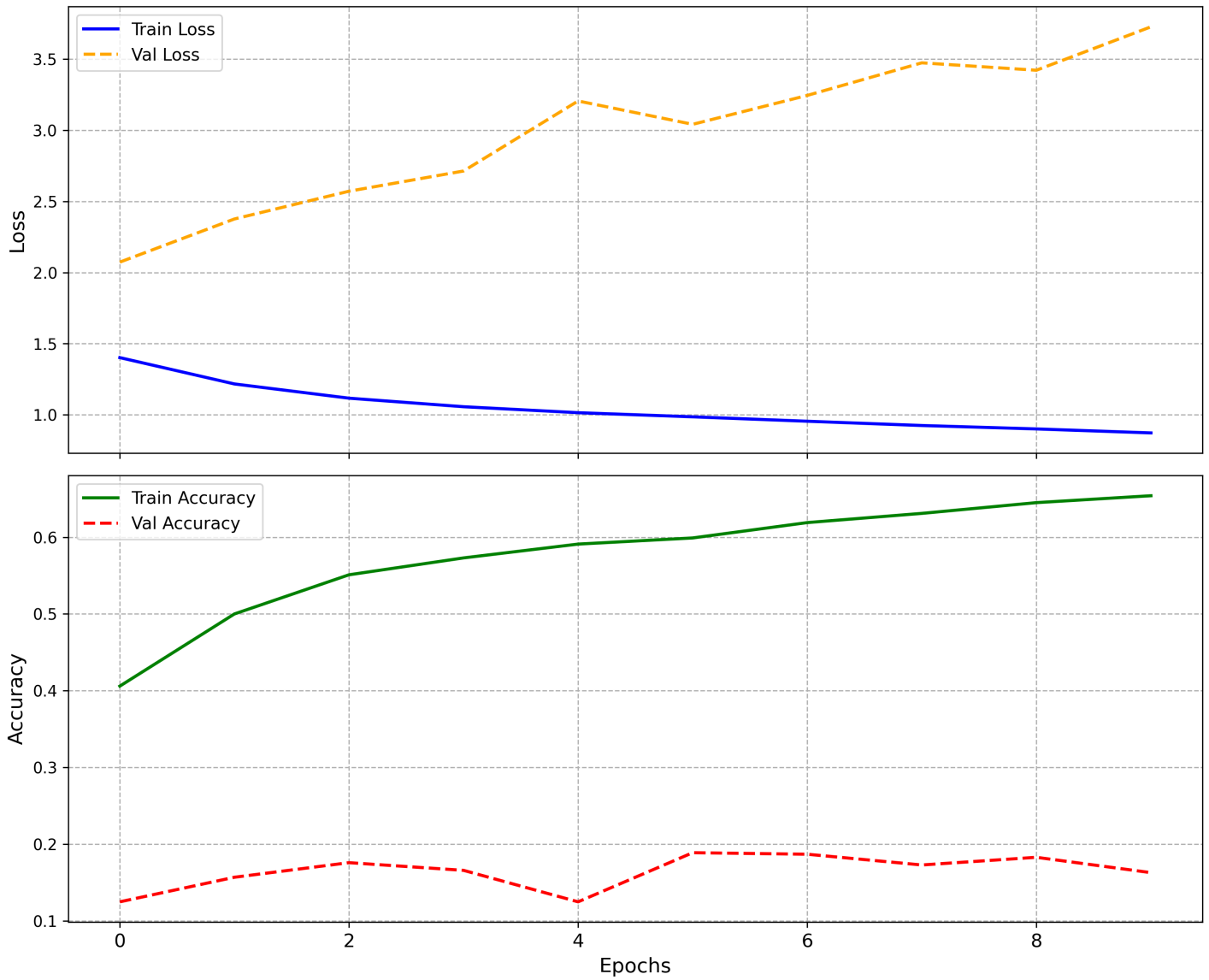
precision recall f1-score support
rectilinear_backward 0.18 0.23 0.20 300
straight 0.16 0.26 0.20 300
rectilinear_forward 0.06 0.01 0.02 300
sidewinding_left 0.07 0.05 0.06 300
sidewinding_right 0.41 0.51 0.45 300
accuracy 0.21 1500
macro avg 0.18 0.21 0.19 1500
weighted avg 0.18 0.21 0.19 1500


Confusion Matrix
rectilinear_backward
straight
rectilinear_forward
sidewinding_left
sidewinding_right
True
69 80 33 32 86
36 78 14 84 88
222 33 4 37 4
16 218 5 14 47
33 81 6 26 154
rectilinear_backward
straight
rectilinear_forward
sidewinding_left
sidewinding_right
Predicted
200
175
150
125
100
75
50
25


Train Loss
Val Loss
Loss
3.5
3.0
2.5
2.0
1.5
1.0
Train Accuracy
Val Accuracy
Accuracy
0.6
0.5
0.4
0.3
0.2
0.1
0
2
4
6
8
Epochs