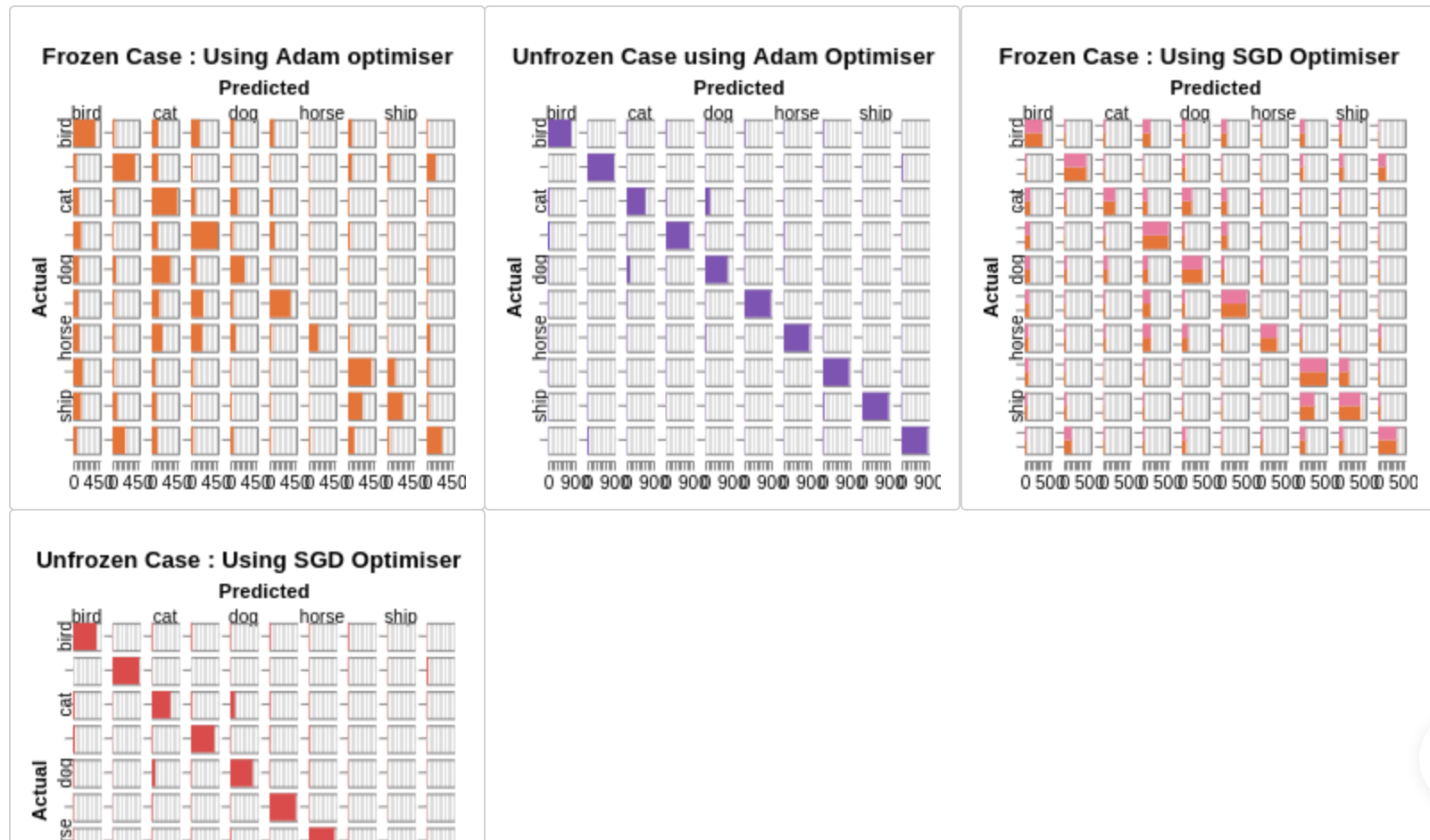


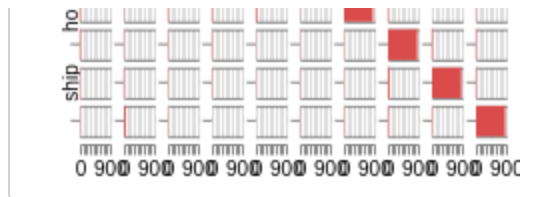
Scalable Data Mining

Roll no: 18MA20005













Altaf Ahmad

▼ Confusion Matrix for Different Cases





☒
Run set 6

Name (6 visualized)	State	Notes	User	Tags	Created ▼	Runtime	Swee
  2b	crashed	-	altafah		1h ago	1h 4m 49s	-
  2a	finished	-	altafah		2h ago	23m 16s	-
  1b	finished	-	altafah		3h ago	1h 44m 3s	-
  1b	crashed	-	altafah		3h ago	3h 12m 50	-
  1a	finished	-	altafah		5h ago	1h 23m 34	-
  1a	crashed	-	altafah		8h ago	4h 1m 18s	-

1-6 ▼ of 6

▼ Confusion Matrix Table

```
runs.summary["resnet18_Freezeed_Adam_Confusion_Matrix_table"]
```

⌘ Merge Tables: Table ▾



Filter

Columns Automated

1-10 of 100

<

>

run.name	Actual	Predicted	nPredictions
2b	plane	bird	176
2b	plane	cat	72
2b	plane	deer	42
2b	plane	dog	20
2b	plane	frog	19
2b	plane	horse	10
2b	plane	ship	146
2b	plane	truck	47

`runs.summary["resnet18_Unfrozen_SGD_Confusion_Matrix_table"]`

⌵ Merge Tables: Table ⚙

Filter

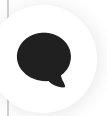
Columns Automated

91-100 of 100

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>

run.name	Actual	Predicted	nPredictions
1a	truck	car	56
1a	truck	bird	5
1a	truck	cat	7



1a	truck	cat	0
1a	truck	deer	0
1a	truck	dog	0
1a	truck	frog	5
1a	truck	horse	9
1a	truck	ship	13
1a	truck	truck	881

`runs.summary["resnet18_Unfrozen_Adam_Confusion_Matrix_table"]`

🔗 Merge Tables: Table ▾



☰ Filter

Columns Automated

1-10 of 100 < >

run.name	Actual	Predicted	nPredictions
1b	plane	cat	10
1b	plane	deer	13
1b	plane	dog	3
1b	plane	frog	6
1b	plane	horse	6



1b	plane	ship	26
1b	plane	truck	19

`runs.summary["resnet18_FreezeSGD_Confusion_Matrix_table"]`

🔍 Merge Tables: Table ▾



Filter	Columns Automated	1-10 of 200	<	>
run.name	Actual	Predicted	nPredictions	
2b	plane	plane	538	
2b	plane	car	29	
2b	plane	bird	82	
2b	plane	cat	13	
2b	plane	deer	46	
2b	plane	dog	16	
2b	plane	frog	16	
2b	plane	horse	23	



runs.summary["resnet18_FreezeAdam_Confusion_Matrix_table"]

🔍 Merge Tables: Table ▾



☰ Filter

Columns Automated

1-10 of 100 < >

run.name	Actual	Predicted	nPredictions
2b	plane	plane	428
2b	plane	car	40
2b	plane	bird	176
2b	plane	cat	72
2b	plane	deer	42
2b	plane	dog	20
2b	plane	frog	19
2b	plane	horse	18

runs.summary["resnet18_Unfrozen_SGD_Confusion_Matrix_table"]

🔍 Merge Tables: Table ▾



☰ Filter

Columns Automated

91-100 of 100 < >

run.name	Actual	Predicted	nPredictions
1a	truck	plane	24



1a	truck	car	56
1a	truck	bird	5
1a	truck	cat	7
1a	truck	deer	0
1a	truck	dog	0
1a	truck	frog	5
1a	truck	horse	9

```
runs.summary["resnet18_Unfrozen_Adam_Confusion_Matrix_table"]
```

🔗 Merge Tables: Table ▾



☰ Filter

Columns Automated

1-10 of 100 < >

run.name	Actual	Predicted	nPredictions
1b	plane	plane	884
1b	plane	car	10
1b	plane	bird	23



1b	plane	cat	10
1b	plane	deer	13
1b	plane	dog	3
1b	plane	frog	6

```
runs.summary["resnet18_FreezeSGD_Confusion_Matrix_table"]
```

🔍 Merge Tables: Table ▾



☰ Filter

Columns Automated

1-10 of 200 < >

run.name	Actual	Predicted	nPredictions
2b	plane	bird	82
2b	plane	cat	13
2b	plane	deer	46
2b	plane	dog	16
2b	plane	frog	16
2b	plane	horse	23
2b	plane	ship	204
2b	plane	truck	33



runs.summary["resnet18_FreezeAdam_Confusion_Matrix_table"]

🔍 Merge Tables: Table ⌵ ⚙️

☰ Filter

Columns Automated

1-10 of 100 < >

run.name	Actual	Predicted	nPredictions
2b	plane	plane	428
2b	plane	car	40
2b	plane	bird	176
2b	plane	cat	72
2b	plane	deer	42
2b	plane	dog	20
2b	plane	frog	19
2b	plane	horse	10

runs.summary["resnet18_Unfrozen_SGD_Confusion_Matrix_table"]

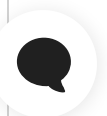
🔍 Merge Tables: Table ⌵ ⚙️

☰ Filter

Columns Automated

91-100 of 100 < >

run name	Actual	Predicted	nPredictions
----------	--------	-----------	--------------



run.name	Actual	Predicted	nPredictions
1a	truck	plane	24
1a	truck	car	56
1a	truck	bird	5
1a	truck	cat	7
1a	truck	deer	0
1a	truck	dog	0
1a	truck	frog	5
1a	truck	horse	9
1a	truck	ship	13

`runs.summary["resnet18_Unfrozen_Adam_Confusion_Matrix_table"]`

🔍 Merge Tables: Table ▾



☰ Filter

Columns Automated

1-10 of 100 < >

run.name	Actual	Predicted	nPredictions
1b	plane	plane	884
1b	plane	car	10



1b	plane	bird	23
1b	plane	cat	10
1b	plane	deer	13
1b	plane	dog	3
1b	plane	frog	6

```
runs.summary["  
resnet18_FreezeSGD_Confusion
```

Filter

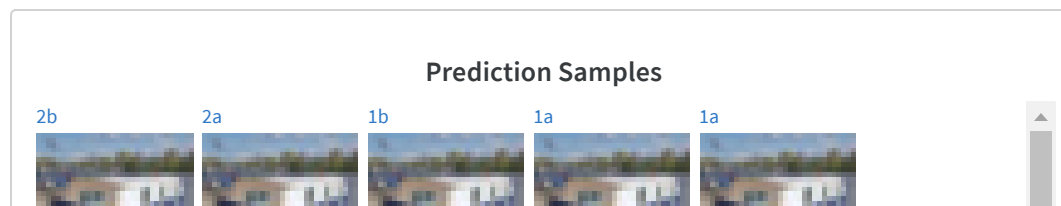
1-10 of 200

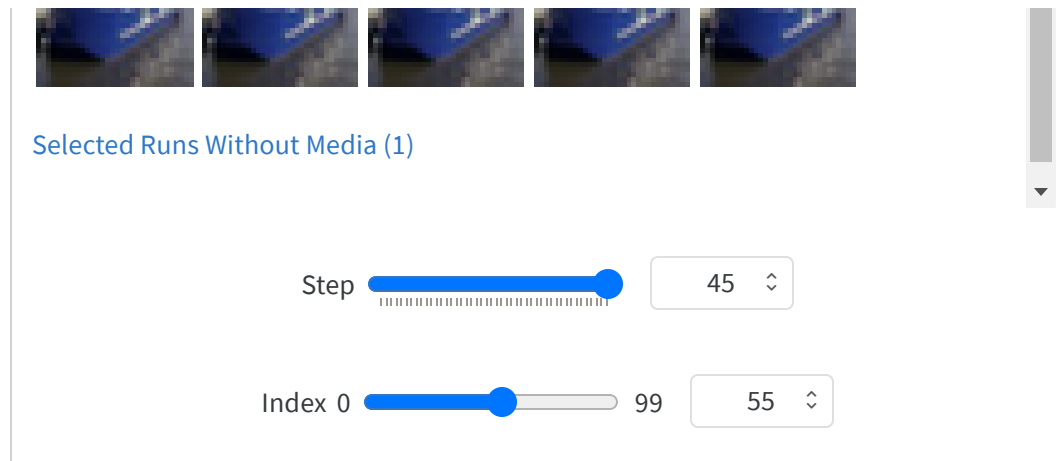
Columns Automated

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run.name	Actual	Pr
2b	plane	pl

► Convergence of Accuracy and Loss





We can observe that training the model completely yields significantly higher results as compared to the freezing of other layers and fine-tuning only the last layer. This is evident as the final layers only get changed during backpropagation and the initial convolution layers are not affected.

In Both cases, frozen and unfrozen, SGD optimizer with learning rate = 0.001, momentum = 0.9, and cross-entropy as the loss function, converges more quickly, ie. in fewer epochs.

Created with ❤️ on Weights & Biases.

<https://wandb.ai/altafahmad/Asg1/reports/Scalable-Data-Mining--VmlldzoxMDM3MTg3>

