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Activities Terminal Mar 23 16:09 samara@hitloop: ~/Videos
samara@hitloop: ~/Videos samara@hitloop: ~/Videos samara@hitloop: ~/Videos samara@hitloop: ~/Videos
(base) samara@hitloop: ~/Videos$ python M4_MLOps_Assignment2_Group92.py
2025-03-23 13:50:05.649667: I tensorflow/core/util/port.cc:153] oneDNN custom operations are on. You may see slightly different numerical results due to floating-point round-off errors from different computation orders. To turn them off, set the environment variable 'TF_ENABLE_ONEDNN_OPTS=0'.
2025-03-23 13:50:05.657982: E external/local_xla/xla/stream_executor/cuda/cuda_fft.cc:467] Unable to register cuFFT factory: Attempting to register factory for plugin cuFFT when one has already been registered
WARNING: All log messages before absl::InitializeLog() is called are written to STDERR
E0000 00:00:1742718005.668057 732287 cuda_dnn.cc:8579] Unable to register cuDNN factory: Attempting to register factory for plugin cuDNN when one has already been registered
E0000 00:00:1742718005.671385 732287 cuda_blas.cc:1407] Unable to register cuBLAS factory: Attempting to register factory for plugin cuBLAS when one has already been registered
W0000 00:00:1742718005.679872 732287 computation_placer.cc:177] computation placer already registered. Please check linkage and avoid linking the same target more than once.
W0000 00:00:1742718005.679883 732287 computation_placer.cc:177] computation placer already registered. Please check linkage and avoid linking the same target more than once.
W0000 00:00:1742718005.679885 732287 computation_placer.cc:177] computation placer already registered. Please check linkage and avoid linking the same target more than once.
W0000 00:00:1742718005.679887 732287 computation_placer.cc:177] computation placer already registered. Please check linkage and avoid linking the same target more than once.
2025-03-23 13:50:05.682289: I tensorflow/core/platform/cpu_feature_guard.cc:210] This TensorFlow binary is optimized to use available CPU instructions in performance-critical operations.
To enable the following instructions: AVX2 AVX_VNNI FMA, in other operations, rebuild TensorFlow with the appropriate compiler flags.
Starting initial model training...

Training Model: model_run_1 | Epochs: 10 | Batch Size: 64
/home/samara/anaconda3/lib/python3.11/site-packages/keras/src/layers/convolutional/base_conv.py:107: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a layer. When using Sequential models, prefer using an `Input(shape)` object as the first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2025-03-23 13:50:08.809707: E external/local_xla/xla/stream_executor/cuda/cuda_platform.cc:51] failed call to cuInit: INTERNAL: CUDA error: Failed call to cuInit: CUDA_ERROR_UNKNOWN: unknown error
2025-03-23 13:50:08.809731: I external/local_xla/xla/stream_executor/cuda/cuda_diagnostics.cc:178] verbose logging is disabled. Rerun with verbose logging (usually --v=1 or --vmodule=cuda_diagnostics=1) to get more diagnostic output from this module
2025-03-23 13:50:08.809734: I external/local_xla/xla/stream_executor/cuda/cuda_diagnostics.cc:183] retrieving CUDA diagnostic information for host: hitloop
2025-03-23 13:50:08.809737: I external/local_xla/xla/stream_executor/cuda/cuda_diagnostics.cc:190] hostname: hitloop
2025-03-23 13:50:08.809874: I external/local_xla/xla/stream_executor/cuda/cuda_diagnostics.cc:197] libcuda reported version is: 535.230.2
2025-03-23 13:50:08.809882: I external/local_xla/xla/stream_executor/cuda/cuda_diagnostics.cc:201] kernel reported version is: 535.230.2
2025-03-23 13:50:08.809884: I external/local_xla/xla/stream_executor/cuda/cuda_diagnostics.cc:291] kernel version seems to match DS0: 535.230.2
Epoch 1/10
938/938 — 5s 5ms/step - accuracy: 0.8032 - loss: 0.5680 - val_accuracy: 0.8865 - val_loss: 0.3200
Epoch 2/10
938/938 — 5s 5ms/step - accuracy: 0.8971 - loss: 0.2874 - val_accuracy: 0.8981 - val_loss: 0.2797
Epoch 3/10
938/938 — 5s 5ms/step - accuracy: 0.9117 - loss: 0.2453 - val_accuracy: 0.9032 - val_loss: 0.2645
Epoch 4/10
938/938 — 5s 5ms/step - accuracy: 0.9245 - loss: 0.2080 - val_accuracy: 0.9106 - val_loss: 0.2516
Epoch 5/10
938/938 — 4s 5ms/step - accuracy: 0.9326 - loss: 0.1808 - val_accuracy: 0.9102 - val_loss: 0.2471
Epoch 6/10
938/938 — 4s 5ms/step - accuracy: 0.9432 - loss: 0.1596 - val_accuracy: 0.9131 - val_loss: 0.2573
Epoch 7/10
938/938 — 5s 5ms/step - accuracy: 0.9497 - loss: 0.1386 - val_accuracy: 0.9097 - val_loss: 0.2704
Epoch 8/10
938/938 — 4s 5ms/step - accuracy: 0.9567 - loss: 0.1199 - val_accuracy: 0.9121 - val_loss: 0.2734
Epoch 9/10
938/938 — 5s 5ms/step - accuracy: 0.9611 - loss: 0.1067 - val_accuracy: 0.9142 - val_loss: 0.2671
Epoch 10/10
938/938 — 4s 5ms/step - accuracy: 0.9657 - loss: 0.0944 - val_accuracy: 0.9166 - val_loss: 0.2754
313/313 — 1s 2ms/step
Test Accuracy for model_run_1: 0.9166
Confusion Matrix:
[[892  0 13 16  3  1 70  1  4  0]
 [ 2 983  0 10  3  0  1  0  1  0]
 [ 0  0 983  0  0  0  0  0  0  0]
 [ 0  0  0 983  0  0  0  0  0  0]
 [ 0  0  0  0 983  0  0  0  0  0]
 [ 0  0  0  0  0 983  0  0  0  0]
 [ 0  0  0  0  0  0 983  0  0  0]
 [ 0  0  0  0  0  0  0 983  0  0]
 [ 0  0  0  0  0  0  0  0 983  0]
 [ 0  0  0  0  0  0  0  0  0 983]]
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Epoch 1/20
1875/1875 ————— 8s 4ms/step - accuracy: 0.8146 - loss: 0.5198 - val_accuracy: 0.8882 - val_loss: 0.3027
Epoch 2/20
1875/1875 ————— 8s 4ms/step - accuracy: 0.9062 - loss: 0.2628 - val_accuracy: 0.8980 - val_loss: 0.2800
Epoch 3/20
1875/1875 ————— 7s 4ms/step - accuracy: 0.9204 - loss: 0.2175 - val_accuracy: 0.8990 - val_loss: 0.2763
Epoch 4/20
1875/1875 ————— 7s 4ms/step - accuracy: 0.9326 - loss: 0.1837 - val_accuracy: 0.9124 - val_loss: 0.2465
Epoch 5/20
1875/1875 ————— 7s 4ms/step - accuracy: 0.9442 - loss: 0.1516 - val_accuracy: 0.9059 - val_loss: 0.2722
Epoch 6/20
1875/1875 ————— 7s 4ms/step - accuracy: 0.9505 - loss: 0.1313 - val_accuracy: 0.9103 - val_loss: 0.2726
Epoch 7/20
1875/1875 ————— 8s 4ms/step - accuracy: 0.9589 - loss: 0.1093 - val_accuracy: 0.9159 - val_loss: 0.2671
Epoch 8/20
1875/1875 ————— 8s 4ms/step - accuracy: 0.9667 - loss: 0.0918 - val_accuracy: 0.9140 - val_loss: 0.2897
Epoch 9/20
1875/1875 ————— 8s 4ms/step - accuracy: 0.9727 - loss: 0.0759 - val_accuracy: 0.9094 - val_loss: 0.3372
Epoch 10/20
1875/1875 ————— 7s 4ms/step - accuracy: 0.9754 - loss: 0.0673 - val_accuracy: 0.9167 - val_loss: 0.3143
Epoch 11/20
1875/1875 ————— 7s 4ms/step - accuracy: 0.9811 - loss: 0.0539 - val_accuracy: 0.9187 - val_loss: 0.3341
Epoch 12/20
1875/1875 ————— 8s 4ms/step - accuracy: 0.9847 - loss: 0.0438 - val_accuracy: 0.9142 - val_loss: 0.3951
Epoch 13/20
1875/1875 ————— 8s 4ms/step - accuracy: 0.9852 - loss: 0.0433 - val_accuracy: 0.9131 - val_loss: 0.3932
Epoch 14/20
1875/1875 ————— 8s 4ms/step - accuracy: 0.9897 - loss: 0.0302 - val_accuracy: 0.9017 - val_loss: 0.4768
Epoch 15/20
1875/1875 ————— 7s 4ms/step - accuracy: 0.9893 - loss: 0.0316 - val_accuracy: 0.9116 - val_loss: 0.4577
Epoch 16/20
1875/1875 ————— 8s 4ms/step - accuracy: 0.9901 - loss: 0.0271 - val_accuracy: 0.9157 - val_loss: 0.4489
Epoch 17/20
1875/1875 ————— 8s 4ms/step - accuracy: 0.9926 - loss: 0.0226 - val_accuracy: 0.9151 - val_loss: 0.4590
Epoch 18/20
1875/1875 ————— 8s 4ms/step - accuracy: 0.9949 - loss: 0.0173 - val_accuracy: 0.9147 - val_loss: 0.4971
Epoch 19/20
1875/1875 ————— 7s 4ms/step - accuracy: 0.9935 - loss: 0.0197 - val_accuracy: 0.9131 - val_loss: 0.5485
Epoch 20/20
1875/1875 ————— 8s 4ms/step - accuracy: 0.9941 - loss: 0.0173 - val_accuracy: 0.9136 - val_loss: 0.5196
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Epoch 16/20
1875/1875 8s 4ms/step - accuracy: 0.9901 - loss: 0.0271 - val_accuracy: 0.9157 - val_loss: 0.4489
Epoch 17/20
1875/1875 8s 4ms/step - accuracy: 0.9926 - loss: 0.0226 - val_accuracy: 0.9151 - val_loss: 0.4590
Epoch 18/20
1875/1875 8s 4ms/step - accuracy: 0.9949 - loss: 0.0173 - val_accuracy: 0.9147 - val_loss: 0.4971
Epoch 19/20
1875/1875 7s 4ms/step - accuracy: 0.9935 - loss: 0.0197 - val_accuracy: 0.9131 - val_loss: 0.5485
Epoch 20/20
1875/1875 8s 4ms/step - accuracy: 0.9941 - loss: 0.0173 - val_accuracy: 0.9136 - val_loss: 0.5196
313/313 1s 2ms/step
Test Accuracy for model_run_2: 0.9136
Confusion Matrix:
[[881 0 18 16 5 1 68 0 11 0]
[4 981 0 9 5 0 0 0 1 0]
[23 1 892 6 41 0 35 0 2 0]
[18 2 12 916 25 0 22 0 5 0]
[6 1 66 22 858 0 46 0 1 0]
[1 0 0 0 0 972 0 16 1 10]
[116 2 70 18 64 0 719 0 10 1]
[0 0 0 0 0 7 0 966 1 26]
[3 0 3 6 0 3 2 1 982 0]
[1 0 0 0 0 7 0 23 0 969]]

Training Model: model_run_3 | Epochs: 30 | Batch Size: 128
/home/samara/anaconda3/lib/python3.11/site-packages/keras/src/layers/convolutional/base_conv.py:107: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a layer. When using Sequential models, prefer using an `Input(shape)` object as the first layer in the model instead.
super().__init__(activity_regularizer=activity_regularizer, **kwargs)
Epoch 1/30
469/469 3s 6ms/step - accuracy: 0.7839 - loss: 0.6468 - val_accuracy: 0.8750 - val_loss: 0.3560
Epoch 2/30
469/469 3s 6ms/step - accuracy: 0.8895 - loss: 0.3110 - val_accuracy: 0.8786 - val_loss: 0.3257
Epoch 3/30
469/469 3s 6ms/step - accuracy: 0.9067 - loss: 0.2631 - val_accuracy: 0.8984 - val_loss: 0.2757
Epoch 4/30
469/469 3s 7ms/step - accuracy: 0.9151 - loss: 0.2341 - val_accuracy: 0.9033 - val_loss: 0.2642
Epoch 5/30
469/469 3s 6ms/step - accuracy: 0.9251 - loss: 0.2076 - val_accuracy: 0.9043 - val_loss: 0.2674
Epoch 6/30
469/469 3s 7ms/step - accuracy: 0.9322 - loss: 0.1841 - val_accuracy: 0.9106 - val_loss: 0.2521
Epoch 7/30
469/469 3s 6ms/step - accuracy: 0.9392 - loss: 0.1650 - val_accuracy: 0.9102 - val_loss: 0.2566
Epoch 8/30
469/469 3s 6ms/step - accuracy: 0.9475 - loss: 0.1470 - val_accuracy: 0.9137 - val_loss: 0.2445
Epoch 9/30
469/469 3s 7ms/step - accuracy: 0.9508 - loss: 0.1365 - val_accuracy: 0.9150 - val_loss: 0.2451
Epoch 10/30
469/469 3s 7ms/step - accuracy: 0.9577 - loss: 0.1193 - val_accuracy: 0.9118 - val_loss: 0.2652
Epoch 11/30
469/469 3s 7ms/step - accuracy: 0.9617 - loss: 0.1092 - val_accuracy: 0.9172 - val_loss: 0.2542
Epoch 12/30
469/469 3s 7ms/step - accuracy: 0.9634 - loss: 0.0995 - val_accuracy: 0.9199 - val_loss: 0.2669
Epoch 13/30
469/469 3s 6ms/step - accuracy: 0.9686 - loss: 0.0896 - val_accuracy: 0.9165 - val_loss: 0.2684
Epoch 14/30

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Epoch 26/30
469/469 3s 7ms/step - accuracy: 0.9949 - loss: 0.0173 - val_accuracy: 0.9133 - val_loss: 0.4470
Epoch 27/30
469/469 3s 7ms/step - accuracy: 0.9935 - loss: 0.0199 - val_accuracy: 0.9154 - val_loss: 0.4498
Epoch 28/30
469/469 3s 7ms/step - accuracy: 0.9935 - loss: 0.0202 - val_accuracy: 0.9109 - val_loss: 0.4581
Epoch 29/30
469/469 3s 7ms/step - accuracy: 0.9941 - loss: 0.0181 - val_accuracy: 0.9162 - val_loss: 0.4549
Epoch 30/30
469/469 3s 7ms/step - accuracy: 0.9963 - loss: 0.0127 - val_accuracy: 0.9151 - val_loss: 0.4975
313/313 1s 2ms/step
Test Accuracy for model_run_3: 0.9151
Confusion Matrix:
[[915 0 18 13 4 2 42 0 6 0]
[2 983 1 13 0 0 0 0 1 0]
[21 1 875 9 55 0 38 0 0 1]
[22 4 7 951 7 0 9 0 0 0]
[5 1 52 45 869 0 26 0 2 0]
[2 0 0 1 0 977 0 13 0 7]
[169 0 62 29 69 0 666 0 5 0]
[0 0 0 0 0 6 0 976 1 17]
[5 1 5 6 0 2 5 2 973 1]
[0 0 0 0 0 6 1 27 0 966]]

Training Model: model_run_4 | Epochs: 20 | Batch Size: 64
/home/samara/anaconda3/lib/python3.11/site-packages/keras/src/layers/convolutional/base_conv.py:107: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a layer. When using Sequential models, prefer using an `Input(shape)` object as the first layer in the model instead.
super().__init__(activity_regularizer=activity_regularizer, **kwargs)
Epoch 1/20
938/938 5s 5ms/step - accuracy: 0.8017 - loss: 0.5735 - val_accuracy: 0.8861 - val_loss: 0.3264
Epoch 2/20
938/938 5s 5ms/step - accuracy: 0.9002 - loss: 0.2805 - val_accuracy: 0.8966 - val_loss: 0.2815
Epoch 3/20
938/938 5s 5ms/step - accuracy: 0.9137 - loss: 0.2374 - val_accuracy: 0.9023 - val_loss: 0.2684
Epoch 4/20
938/938 5s 5ms/step - accuracy: 0.9226 - loss: 0.2100 - val_accuracy: 0.9088 - val_loss: 0.2547
Epoch 5/20
938/938 5s 5ms/step - accuracy: 0.9332 - loss: 0.1802 - val_accuracy: 0.9096 - val_loss: 0.2541
Epoch 6/20
938/938 5s 5ms/step - accuracy: 0.9408 - loss: 0.1615 - val_accuracy: 0.9149 - val_loss: 0.2519
Epoch 7/20
938/938 5s 5ms/step - accuracy: 0.9475 - loss: 0.1437 - val_accuracy: 0.9168 - val_loss: 0.2540
Epoch 8/20
938/938 5s 5ms/step - accuracy: 0.9530 - loss: 0.1264 - val_accuracy: 0.9162 - val_loss: 0.2548
Epoch 9/20
938/938 5s 5ms/step - accuracy: 0.9614 - loss: 0.1057 - val_accuracy: 0.9201 - val_loss: 0.2511
Epoch 10/20
938/938 5s 5ms/step - accuracy: 0.9665 - loss: 0.0934 - val_accuracy: 0.9182 - val_loss: 0.2643
Epoch 11/20
938/938 4s 5ms/step - accuracy: 0.9734 - loss: 0.0779 - val_accuracy: 0.9197 - val_loss: 0.2806
Epoch 12/20
938/938 5s 5ms/step - accuracy: 0.9736 - loss: 0.0720 - val_accuracy: 0.9195 - val_loss: 0.2971
Epoch 13/20
938/938 5s 5ms/step - accuracy: 0.9788 - loss: 0.0594 - val_accuracy: 0.9196 - val_loss: 0.3034

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Epoch 15/20
938/938 5s 5ms/step - accuracy: 0.9840 - loss: 0.0456 - val_accuracy: 0.9205 - val_loss: 0.3197
Epoch 16/20
938/938 5s 5ms/step - accuracy: 0.9871 - loss: 0.0386 - val_accuracy: 0.9187 - val_loss: 0.3419
Epoch 17/20
938/938 5s 5ms/step - accuracy: 0.9885 - loss: 0.0339 - val_accuracy: 0.9121 - val_loss: 0.3831
Epoch 18/20
938/938 5s 5ms/step - accuracy: 0.9890 - loss: 0.0306 - val_accuracy: 0.9165 - val_loss: 0.3587
Epoch 19/20
938/938 5s 5ms/step - accuracy: 0.9911 - loss: 0.0265 - val_accuracy: 0.9168 - val_loss: 0.4007
Epoch 20/20
938/938 4s 5ms/step - accuracy: 0.9918 - loss: 0.0246 - val_accuracy: 0.9142 - val_loss: 0.4512
313/313 1s 2ms/step
Test Accuracy for model_run_4: 0.9142
Confusion Matrix:
[[864 0 22 13 5 1 92 0 3 0]
 [ 5 979 1 8 5 0 1 0 1 0]
 [ 13 0 888 6 39 0 53 0 1 0]
 [ 34 2 16 900 21 0 26 0 1 0]
 [ 0 1 77 24 845 0 52 0 1 0]
 [ 0 0 0 0 0 984 0 3 1 12]
 [ 93 0 62 16 40 0 785 0 4 0]
 [ 0 0 0 0 0 20 0 942 0 38]
 [ 3 0 5 5 0 2 5 0 980 0]
 [ 0 0 0 0 0 5 1 18 1 975]]

Training Model: model_run_5 | Epochs: 30 | Batch Size: 32
/home/samara/anaconda3/lib/python3.11/site-packages/keras/src/layers/convolutional/base_conv.py:107: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a layer. When using Sequential models, prefer using an `Input(shape)` object as the first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
Epoch 1/30
1875/1875 8s 4ms/step - accuracy: 0.8134 - loss: 0.5249 - val_accuracy: 0.8828 - val_loss: 0.3260
Epoch 2/30
1875/1875 8s 4ms/step - accuracy: 0.8991 - loss: 0.2773 - val_accuracy: 0.8990 - val_loss: 0.2796
Epoch 3/30
1875/1875 8s 4ms/step - accuracy: 0.9183 - loss: 0.2231 - val_accuracy: 0.8973 - val_loss: 0.2729
Epoch 4/30
1875/1875 8s 4ms/step - accuracy: 0.9330 - loss: 0.1867 - val_accuracy: 0.9074 - val_loss: 0.2655
Epoch 5/30
1875/1875 7s 4ms/step - accuracy: 0.9437 - loss: 0.1545 - val_accuracy: 0.9149 - val_loss: 0.2526
Epoch 6/30
1875/1875 8s 4ms/step - accuracy: 0.9524 - loss: 0.1310 - val_accuracy: 0.9129 - val_loss: 0.2574
Epoch 7/30
1875/1875 8s 4ms/step - accuracy: 0.9585 - loss: 0.1124 - val_accuracy: 0.9135 - val_loss: 0.2610
Epoch 8/30
1875/1875 7s 4ms/step - accuracy: 0.9672 - loss: 0.0923 - val_accuracy: 0.9121 - val_loss: 0.2975
Epoch 9/30
1875/1875 8s 4ms/step - accuracy: 0.9719 - loss: 0.0782 - val_accuracy: 0.9158 - val_loss: 0.2988
Epoch 10/30
1875/1875 8s 4ms/step - accuracy: 0.9764 - loss: 0.0670 - val_accuracy: 0.9138 - val_loss: 0.3195
Epoch 11/30
1875/1875 8s 4ms/step - accuracy: 0.9794 - loss: 0.0583 - val_accuracy: 0.9170 - val_loss: 0.3249
Epoch 12/30
1875/1875 8s 4ms/step - accuracy: 0.9822 - loss: 0.0482 - val_accuracy: 0.9136 - val_loss: 0.3838
Epoch 13/30
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1875/18758s 4ms/step - accuracy: 0.9822 - loss: 0.0482 - val_accuracy: 0.9136 - val_loss: 0.3838
Epoch 13/30
1875/18757s 4ms/step - accuracy: 0.9852 - loss: 0.0422 - val_accuracy: 0.9164 - val_loss: 0.3786
Epoch 14/30
1875/18758s 4ms/step - accuracy: 0.9872 - loss: 0.0380 - val_accuracy: 0.9141 - val_loss: 0.4194
Epoch 15/30
1875/18758s 4ms/step - accuracy: 0.9893 - loss: 0.0314 - val_accuracy: 0.9132 - val_loss: 0.4315
Epoch 16/30
1875/18758s 4ms/step - accuracy: 0.9910 - loss: 0.0255 - val_accuracy: 0.9133 - val_loss: 0.4684
Epoch 17/30
1875/18758s 4ms/step - accuracy: 0.9915 - loss: 0.0248 - val_accuracy: 0.9130 - val_loss: 0.4696
Epoch 18/30
1875/18758s 4ms/step - accuracy: 0.9935 - loss: 0.0201 - val_accuracy: 0.9109 - val_loss: 0.5068
Epoch 19/30
1875/18758s 4ms/step - accuracy: 0.9939 - loss: 0.0187 - val_accuracy: 0.9111 - val_loss: 0.5407
Epoch 20/30
1875/18758s 4ms/step - accuracy: 0.9918 - loss: 0.0249 - val_accuracy: 0.9163 - val_loss: 0.5325
Epoch 21/30
1875/18758s 4ms/step - accuracy: 0.9953 - loss: 0.0143 - val_accuracy: 0.9130 - val_loss: 0.5556
Epoch 22/30
1875/18758s 4ms/step - accuracy: 0.9948 - loss: 0.0153 - val_accuracy: 0.9111 - val_loss: 0.5826
Epoch 23/30
1875/18758s 4ms/step - accuracy: 0.9955 - loss: 0.0137 - val_accuracy: 0.9121 - val_loss: 0.5744
Epoch 24/30
1875/18758s 4ms/step - accuracy: 0.9948 - loss: 0.0171 - val_accuracy: 0.9064 - val_loss: 0.6283
Epoch 25/30
1875/18757s 4ms/step - accuracy: 0.9948 - loss: 0.0172 - val_accuracy: 0.9122 - val_loss: 0.6078
Epoch 26/30
1875/18757s 4ms/step - accuracy: 0.9965 - loss: 0.0101 - val_accuracy: 0.9163 - val_loss: 0.6716
Epoch 27/30
1875/18758s 4ms/step - accuracy: 0.9954 - loss: 0.0140 - val_accuracy: 0.9146 - val_loss: 0.6234
Epoch 28/30
1875/18758s 4ms/step - accuracy: 0.9957 - loss: 0.0133 - val_accuracy: 0.9158 - val_loss: 0.6242
Epoch 29/30
1875/18758s 5ms/step - accuracy: 0.9975 - loss: 0.0086 - val_accuracy: 0.9102 - val_loss: 0.6431
Epoch 30/30
1875/18758s 4ms/step - accuracy: 0.9967 - loss: 0.0101 - val_accuracy: 0.9093 - val_loss: 0.6929
313/3131s 2ms/step
Test Accuracy for model_run_5: 0.9093
Confusion Matrix:
[[825 0 38 15 4 2 108 1 6 1]
[0 981 3 12 1 0 2 0 1 0]
[10 1 878 5 42 0 64 0 0 0]
[9 3 25 905 31 0 26 0 1 0]
[1 1 77 14 823 0 82 0 2 0]
[0 0 0 0 0 979 0 8 1 12]
[79 1 54 20 41 0 795 0 9 1]
[0 0 0 0 0 12 0 957 1 30]
[2 1 6 2 2 4 2 0 980 1]
[1 0 0 0 0 8 0 21 0 970]]

Best model saved as: best_model.pkl with Accuracy: 0.9166

Loading best model and checking for drift with original and synthetic data...

Activities

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127.0.0.1:80

127.0.0.1:5000/#/experiments/695082901439436626?searchFilter=&orderByKey=attributes.start_time&orderByAsc=false&startTime=ALL&lifecycleFilter=Active&modelVersionFilter=All+Runs&datasetsFilter=W10%3D

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Default

fashion_mnist_drift_detection_task

fashion_mnist_drift_detection_task

Provide Feedback

Add Description

Share

RunsEvaluationExperimentalTraces

metrics.rmse < 1 and params.model = "tree"

Time created

State: Active

Datasets

Sort: Created

Columns

Group by

New run

	Run Name	Created	Dataset	Duration	Source	Models
	Retraining_Alter_Drift	2 hours ago	-	15.0s	M4_ML...	-
	Drift_Detection_Artificial	2 hours ago	-	4ms	M4_ML...	-
	Drift_Detection_Original	2 hours ago	-	3ms	M4_ML...	-
	model_run_5	2 hours ago	-	4.0min	M4_ML...	-
	model_run_4	2 hours ago	-	1.6min	M4_ML...	-
	model_run_3	2 hours ago	-	1.6min	M4_ML...	-
	model_run_2	2 hours ago	-	2.6min	M4_ML...	-
	model_run_1	2 hours ago	-	48.2s	M4_ML...	-

Show more columns (12 total)

8 matching runs

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127.0.0.1:5000/#/experiments/695082901439436626/runs/6e5e529399e644198a06388cfe357e95

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model_run_1

OverviewModel metricsSystem metricsTracesArtifacts

Description

No description

Details

Created at	03/23/2025, 01:50:07 PM
Created by	samara
Experiment ID	695082901439436626
Status	Finished
Run ID	6e5e529399e644198a06388cfe357e95
Duration	48.2s
Datasets used	—
Tags	Add tags
Source	M4_MLOps_Assignment2_Group92.py
Logged models	—
Registered models	—
Registered prompts	—

Parameters (2)

Search parameters

Parameter	Value
batch_size	64
epochs	10

Metrics (4)

Search metrics

Metric	Value
recall	0.9166
accuracy	0.9166
f1_score	0.916611250709106
precision	0.9171038433616341

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127.0.0.1:5000/#/experiments/695082901439436626/runs/6e5e529399e644198a06388cfe357e95/model-metrics

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fashion_mnist_drift_detection_task

model_run_1

Overview

Model metrics

System metrics

Traces

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Search metric charts

Auto-refresh

Model metrics (4)

Add chart


accuracy



0.92

model_run_1


f1_score



0.92

model_run_1


precision



0.92

model_run_1

recall



0.92

model_run_1

Add section

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127.0.0.1:80

127.0.0.1:5000/#/experiments/695082901439436626/runs/9f3756e14a6a4e53a52e5eec30f710b5

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fashion_mnist_drift_detection_task

model_run_2

OverviewModel metricsSystem metricsTracesArtifacts

Description

No description

Details

Created at	03/23/2025, 01:50:55 PM
Created by	samara
Experiment ID	695082901439436626
Status	Finished
Run ID	9f3756e14a6a4e53a52e5eec30f710b5
Duration	2.6min
Datasets used	—
Tags	Add tags
Source	M4_MLOps_Assignment2_Group92.py
Logged models	—
Registered models	—
Registered prompts	—

Parameters (2)

Search parameters

Parameter	Value
batch_size	32
epochs	20

Metrics (4)

Search metrics

Metric	Value
recall	0.9136
accuracy	0.9136
f1_score	0.9130662623626933
precision	0.9133244139893585

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127.0.0.1:5000/#/experiments/695082901439436626/runs/9f3756e14a6a4e53a52e5eec30f710b5/model-metrics

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model_run_2

OverviewModel metricsSystem metricsTracesArtifacts

Search metric charts

Auto-refresh

Model metrics (4)

+

+

+

+

accuracy

0.91

f1_score

0.91

precision

0.91

recall

0.91

+

Add section

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127.0.0.1:5000/#/experiments/695082901439436626/runs/16ad104e762348879a2a5ac4e246dd0b

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model_run_3

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Overview

Model metrics

System metrics

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Artifacts

Description

No description

Details

Created at	03/23/2025, 01:53:29 PM
Created by	samara
Experiment ID	695082901439436626
Status	Finished
Run ID	16ad104e762348879a2a5ac4e246dd0b
Duration	1.6min
Datasets used	—
Tags	Add tags
Source	M4_MLOps_Assignment2_Group92.py
Logged models	—
Registered models	—
Registered prompts	—

Parameters (2)

Search parameters

Parameter	Value
batch_size	128
epochs	30

Metrics (4)

Search metrics

Metric	Value
recall	0.9151
accuracy	0.9151
f1_score	0.9138318684657559
precision	0.9157011953506595

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127.0.0.1:5000/#/experiments/695082901439436626/runs/16ad104e762348879a2a5ac4e246dd0b/model-metrics

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model_run_3

Overview

Model metrics

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Search metric charts


Auto-refresh

Model metrics (4)

+

Add chart


accuracy



0.92

model_run_3


f1_score



0.91

model_run_3

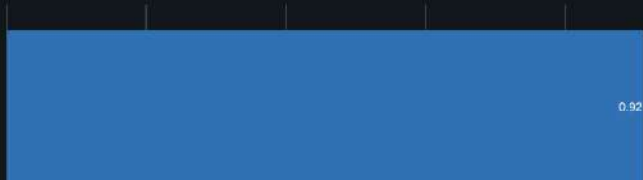
precision



0.92

model_run_3

recall



0.92

model_run_3

+

Add section

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127.0.0.1:5000/#/experiments/695082901439436626/runs/4bf264ad94334a609b4269c6094c49cc

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model_run_4

OverviewModel metricsSystem metricsTracesArtifacts

Description

No description

Details

Created at	03/23/2025, 01:55:03 PM
Created by	samara
Experiment ID	695082901439436626
Status	Finished
Run ID	4bf264ad94334a609b4269c6094c49cc
Duration	1.6min
Datasets used	—
Tags	Add tags
Source	M4_MLOps_Assignment2_Group92.py
Logged models	—
Registered models	—
Registered prompts	—

Parameters (2)

Search parameters

Parameter	Value
batch_size	64
epochs	20

Metrics (4)

Search metrics

Metric	Value
recall	0.9142
accuracy	0.9142
f1_score	0.9144971732787449
precision	0.915262633111919

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127.0.0.1:5000/#/experiments/695082901439436626/runs/4bf264ad94334a609b4269c6094c49cc/model-metrics

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model_run_4

Overview

Model metrics

System metrics

Traces

Artifacts


Search metric charts

Auto-refresh

Model metrics (4)

Add chart

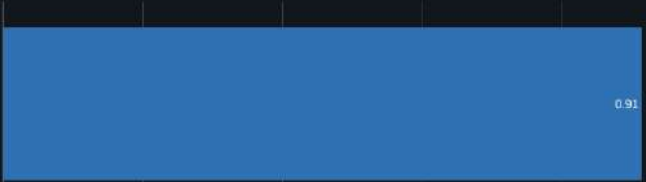
accuracy



0.91

model_run_4


f1_score



0.91

model_run_4


precision



0.92

model_run_4

recall



0.91

model_run_4

Add section

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127.0.0.1:5000/#/experiments/695082901439436626/runs/b982e2dda9774c4c97e1e5cff6a1a651

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model_run_5

OverviewModel metricsSystem metricsTracesArtifacts

Description

No description

Details

Created at

03/23/2025, 01:56:38 PM

Created by

samara

Experiment ID

695082901439436626

Status

Finished

Run ID

b982e2dda9774c4c97e1e5cff6a1a651

Duration

4.0min

Datasets used

Tags

Add tags

Source

M4_MLOps_Assignment2_Group92.py

Logged models

Registered models

Registered prompts

Parameters (2)

Search parameters

ParameterValue

batch_size32

epochs30

Metrics (4)

Search metrics

MetricValue

recall0.9093

accuracy0.9093

f1_score0.9097992336215888

precision0.9112242166891751

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127.0.0.1:80

127.0.0.1:5000/#/experiments/695082901439436626/runs/b982e2dda9774c4c97e1e5cff6a1a651/model-metrics

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model_run_5

OverviewModel metricsSystem metricsTracesArtifacts


Search metric charts

Auto-refresh

Model metrics (4)

Add chart


accuracy



0.91

model_run_5

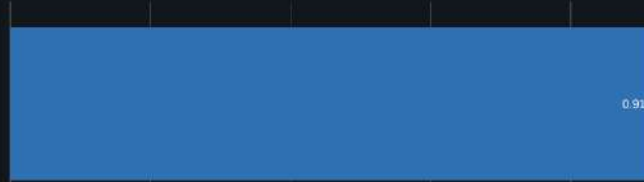
f1_score



0.91

model_run_5


precision



0.91

model_run_5

recall



0.91

model_run_5

Add section