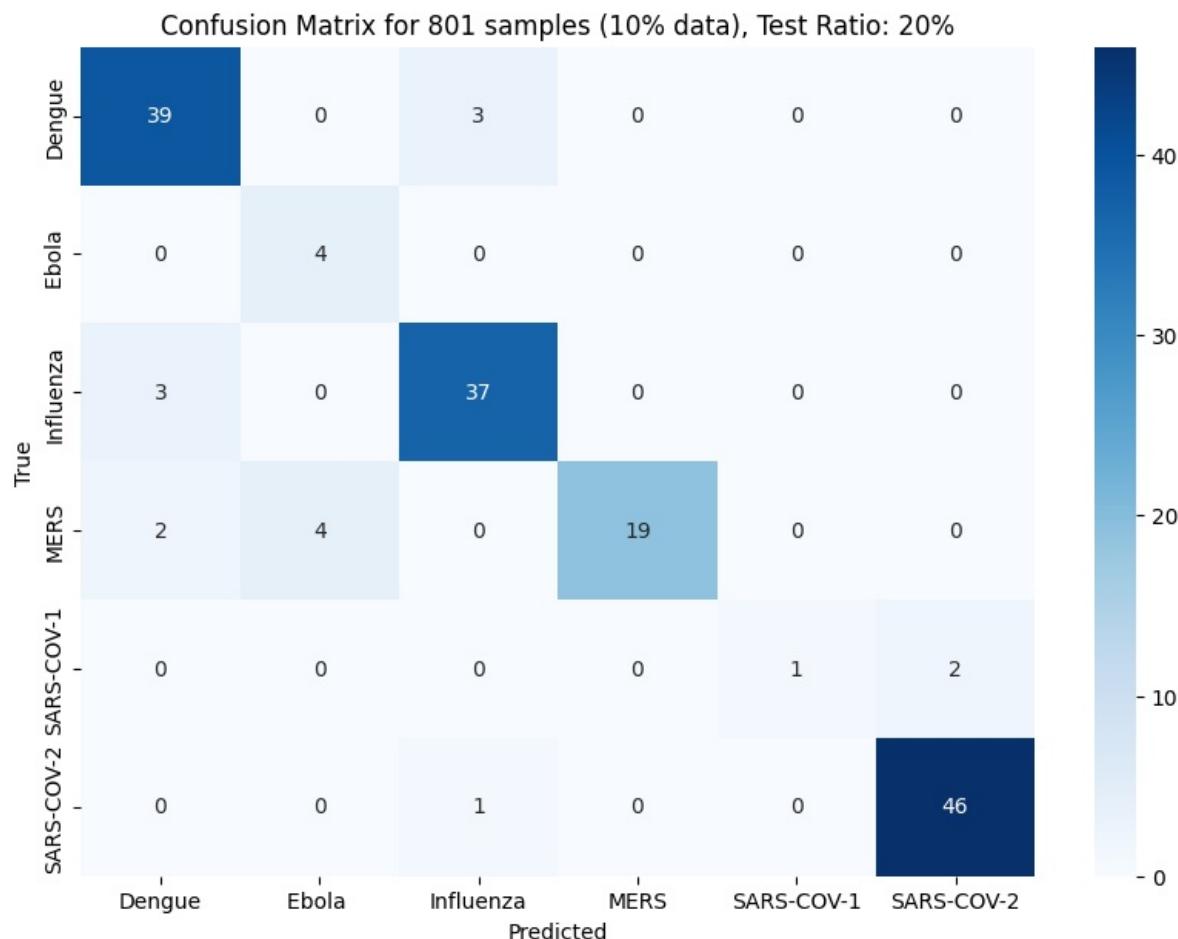


Consolidated Hybrid Model with One-Hot Encoding Evaluation Report

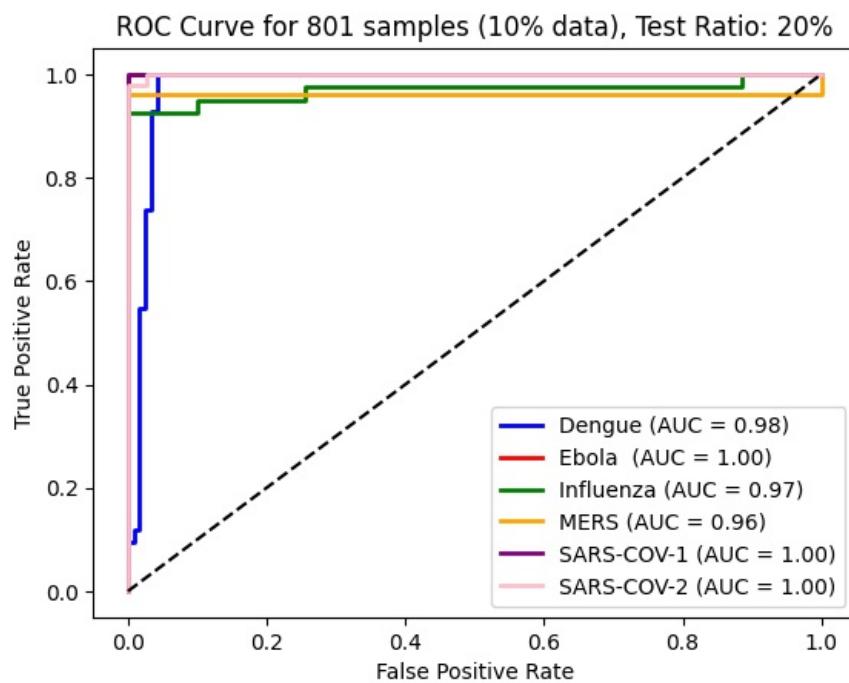
Data Size: 801 samples, Test Ratio: 0.2

- Accuracy: 0.9068
- Precision: 0.8745
- Recall: 0.8209
- F1_score: 0.8032

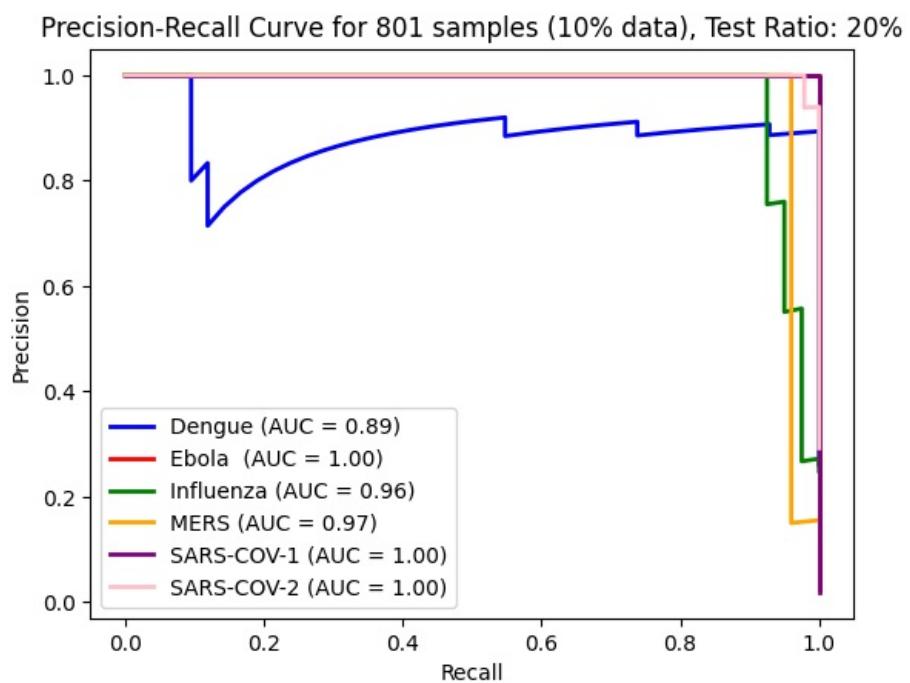
Confusion Matrix for 801 samples (10% data), Test Ratio: 20%



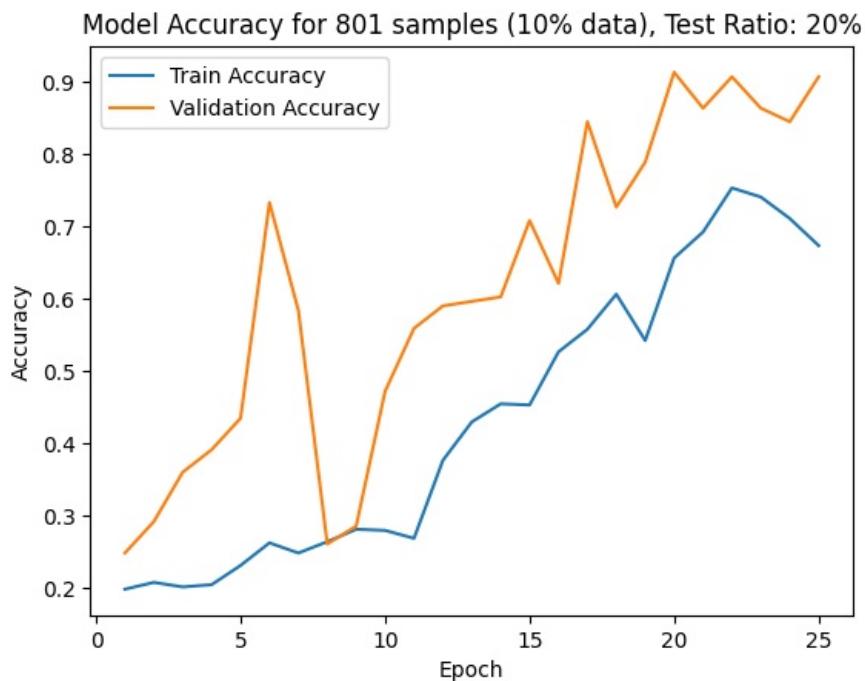
ROC Curve for 801 samples (10% data), Test Ratio: 20%



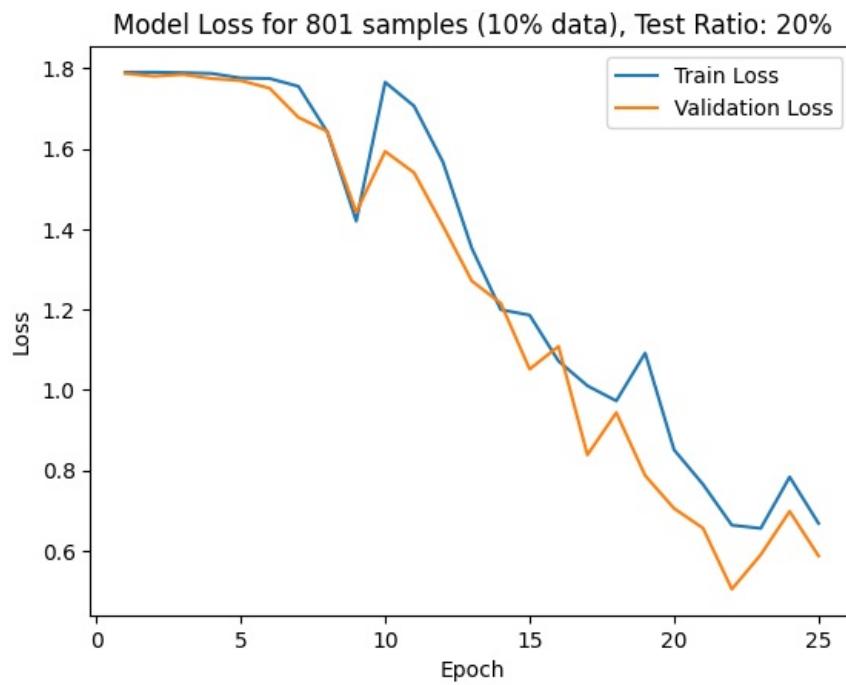
Precision-Recall Curve for 801 samples (10% data), Test Ratio: 20%



Model Accuracy for 801 samples (10% data), Test Ratio: 20%



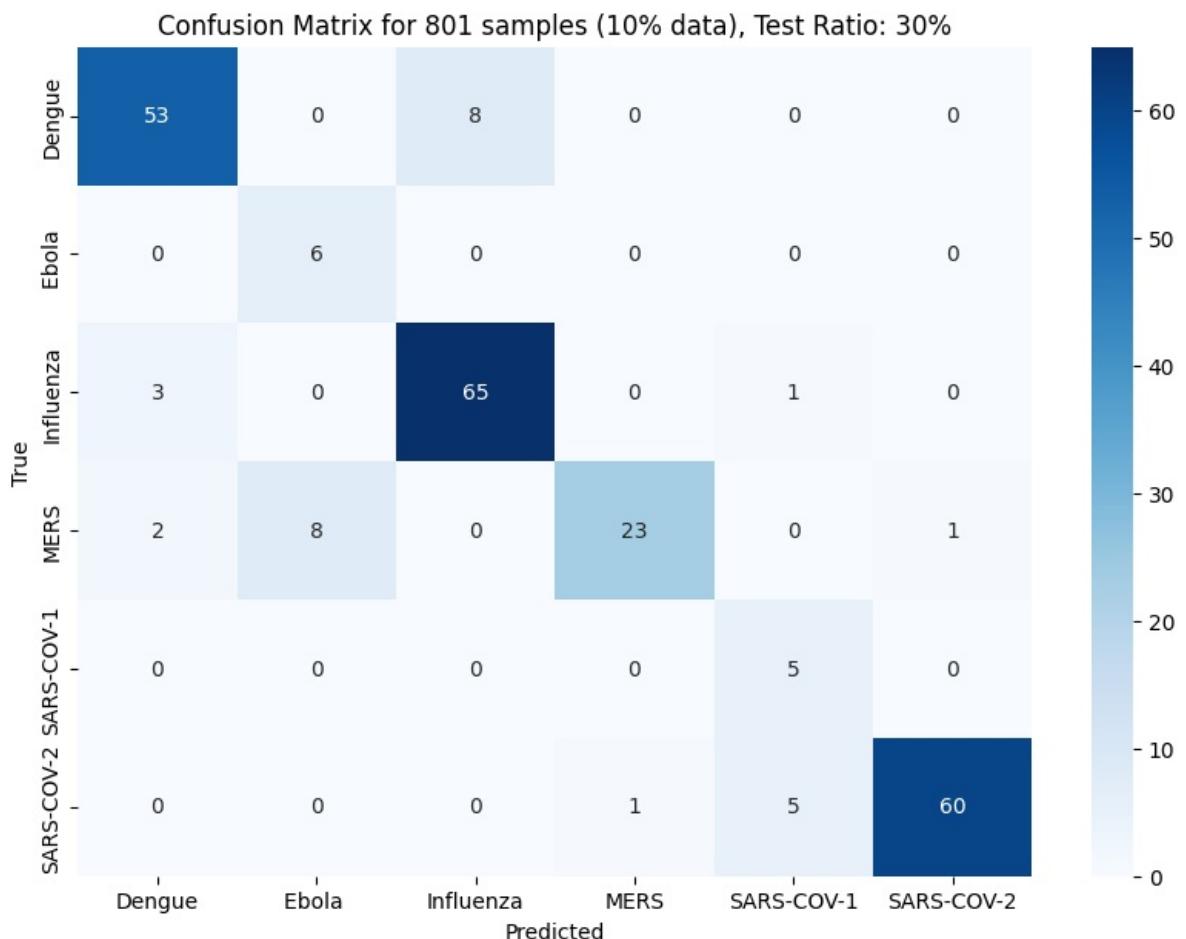
Model Loss for 801 samples (10% data), Test Ratio: 20%



Data Size: 801 samples, Test Ratio: 0.3

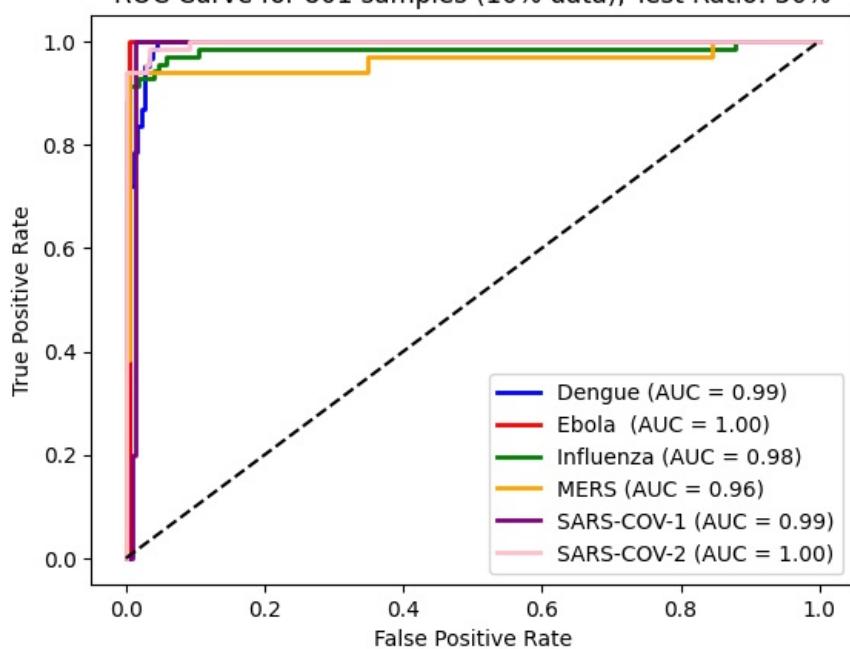
- Accuracy: 0.8797
- Precision: 0.7715
- Recall: 0.8994
- F1_score: 0.7949

Confusion Matrix for 801 samples (10% data), Test Ratio: 30%

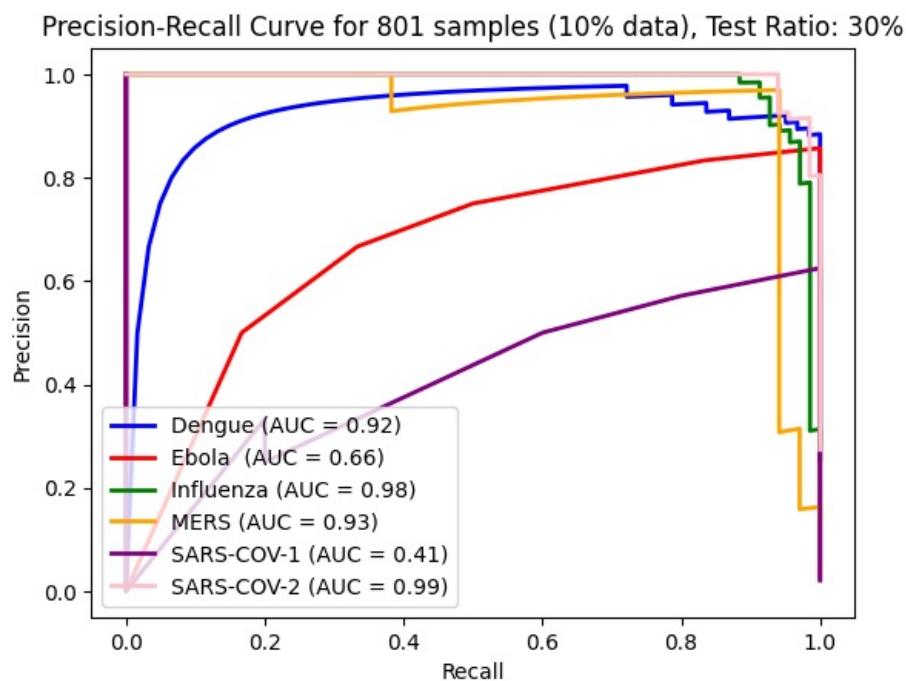


ROC Curve for 801 samples (10% data), Test Ratio: 30%

ROC Curve for 801 samples (10% data), Test Ratio: 30%

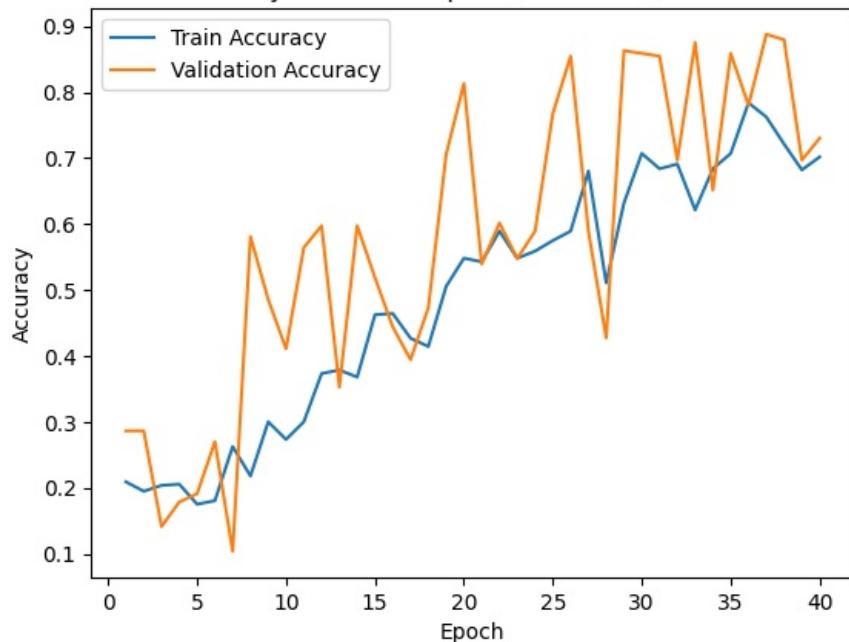


Precision-Recall Curve for 801 samples (10% data), Test Ratio: 30%

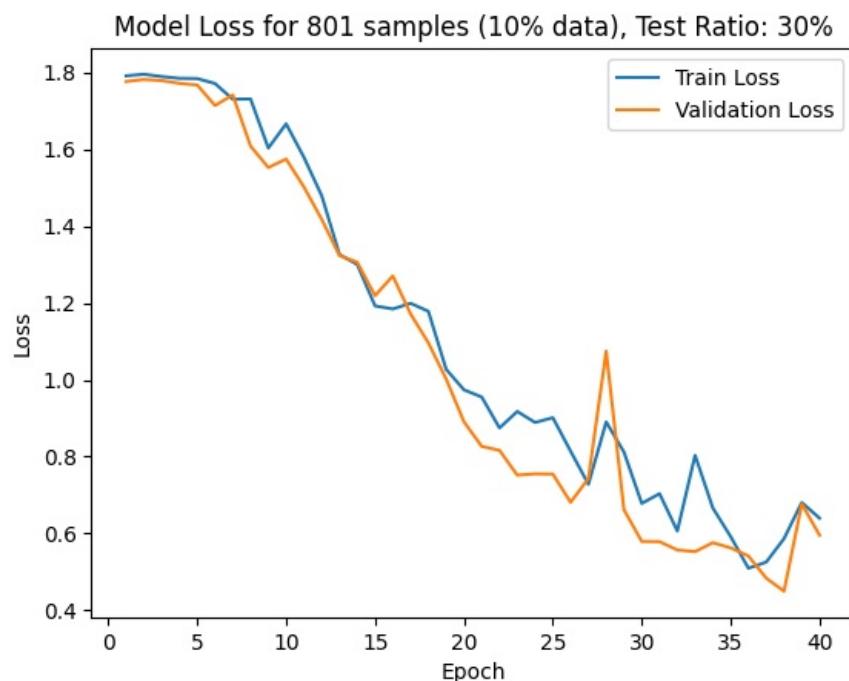


Model Accuracy for 801 samples (10% data), Test Ratio: 30%

Model Accuracy for 801 samples (10% data), Test Ratio: 30%



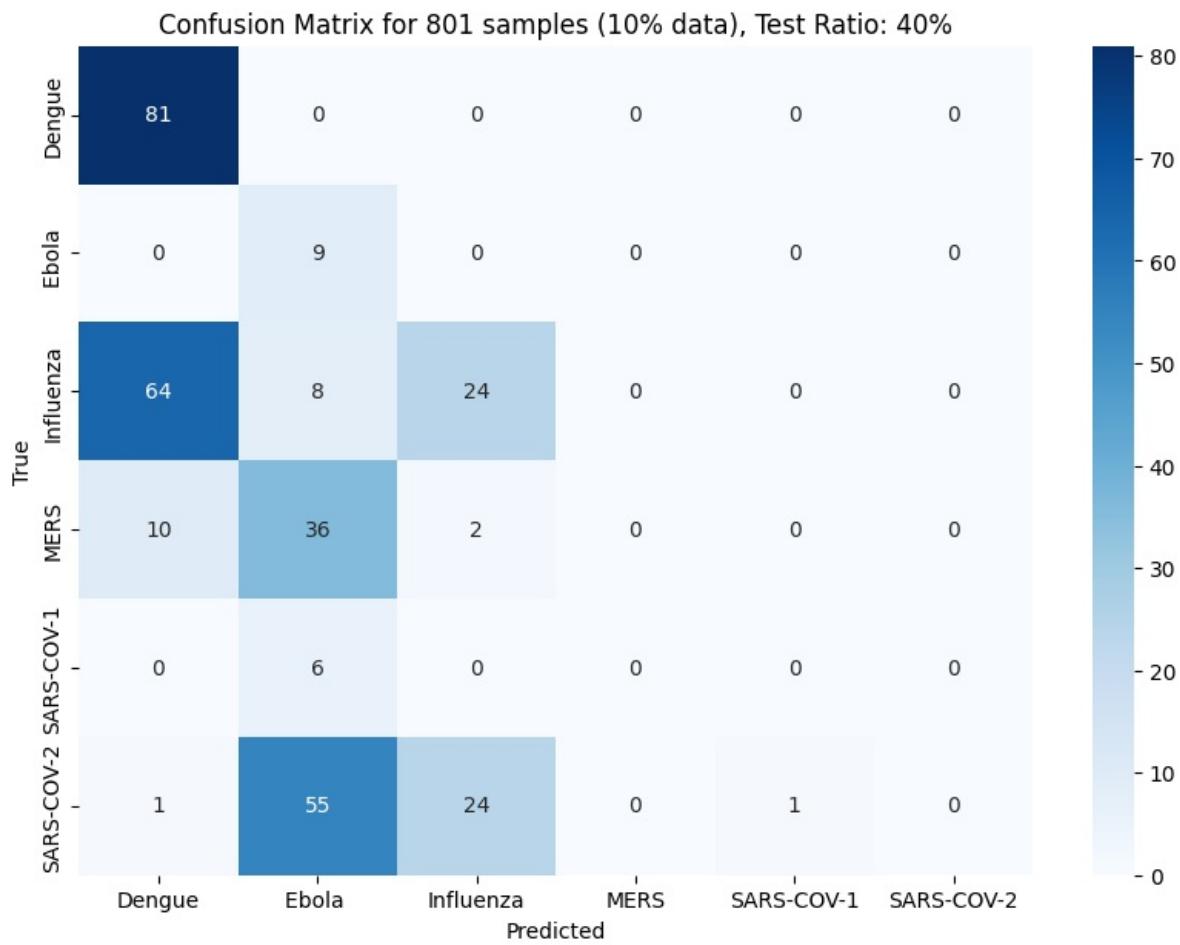
Model Loss for 801 samples (10% data), Test Ratio: 30%



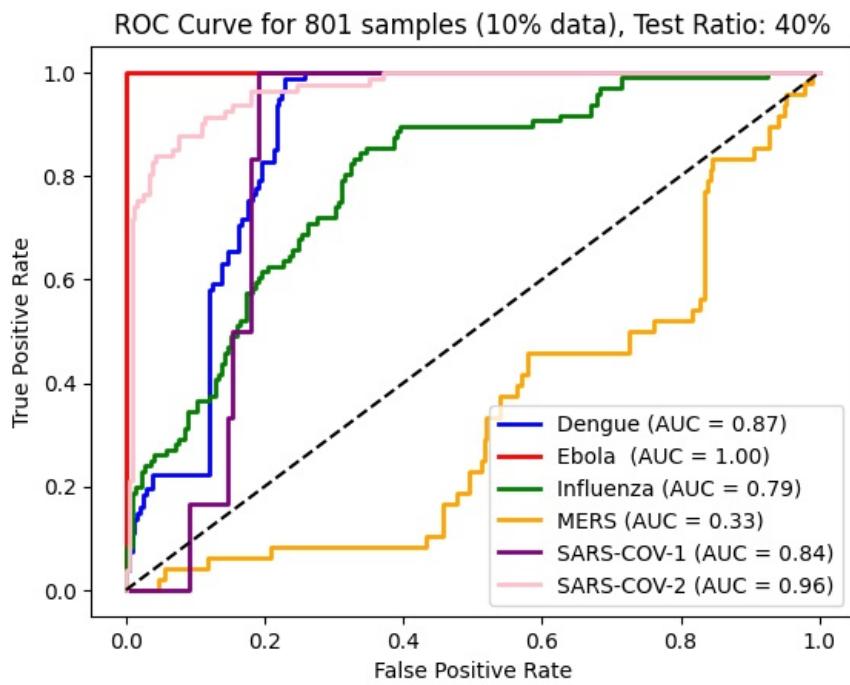
Data Size: 801 samples, Test Ratio: 0.4

- Accuracy: 0.3551
- Precision: 0.1797
- Recall: 0.3750
- F1_score: 0.1931

Confusion Matrix for 801 samples (10% data), Test Ratio: 40%

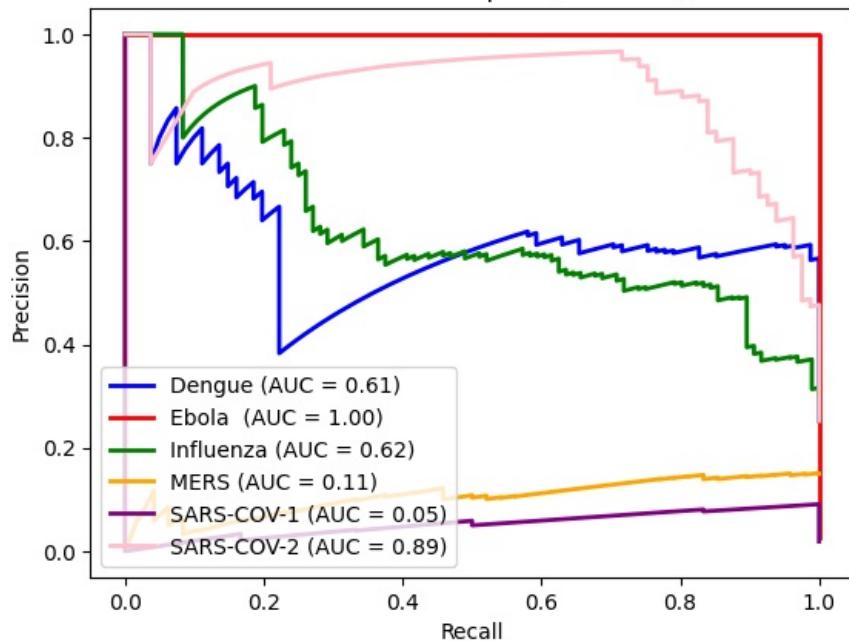


ROC Curve for 801 samples (10% data), Test Ratio: 40%

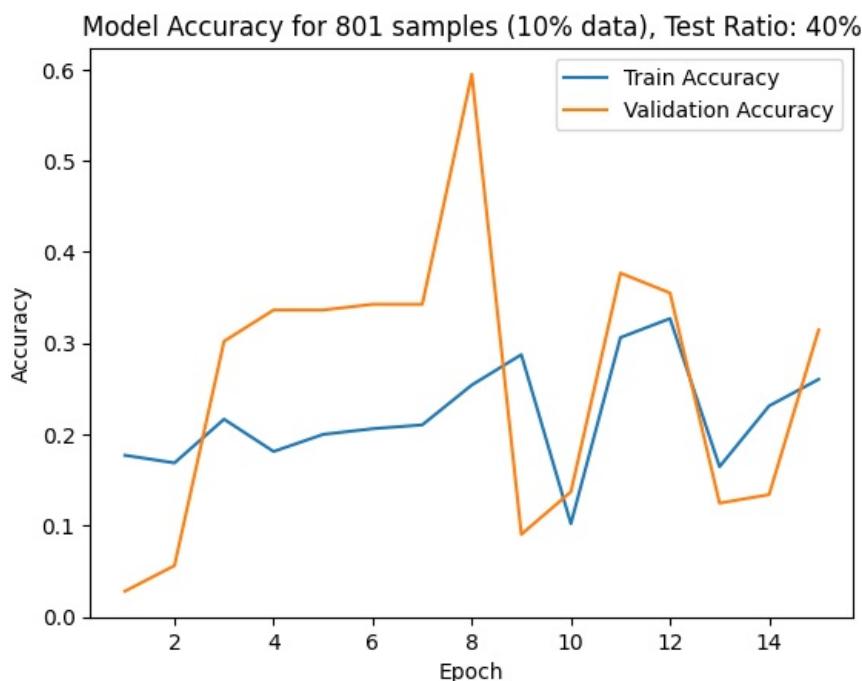


Precision-Recall Curve for 801 samples (10% data), Test Ratio: 40%

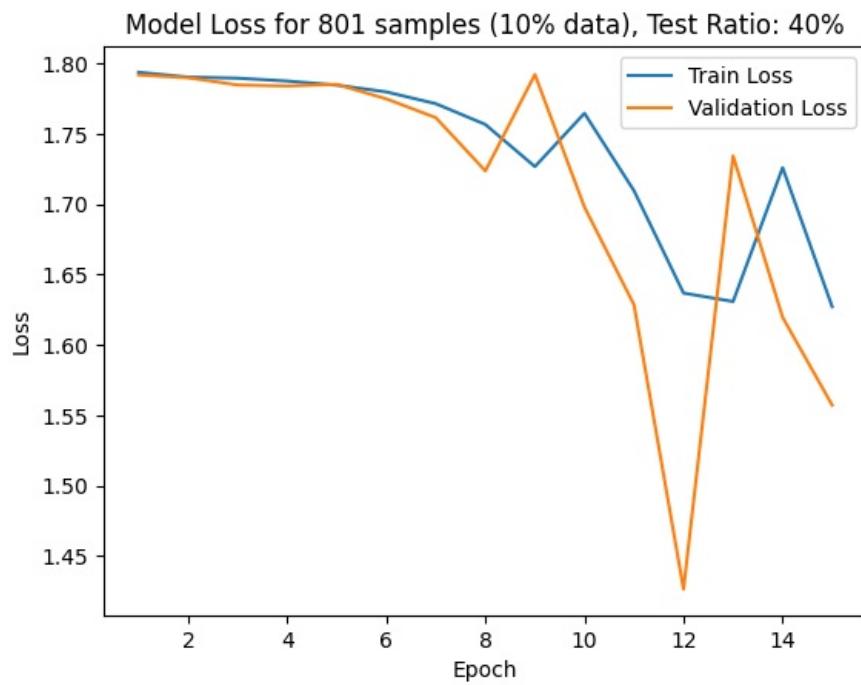
Precision-Recall Curve for 801 samples (10% data), Test Ratio: 40%



Model Accuracy for 801 samples (10% data), Test Ratio: 40%



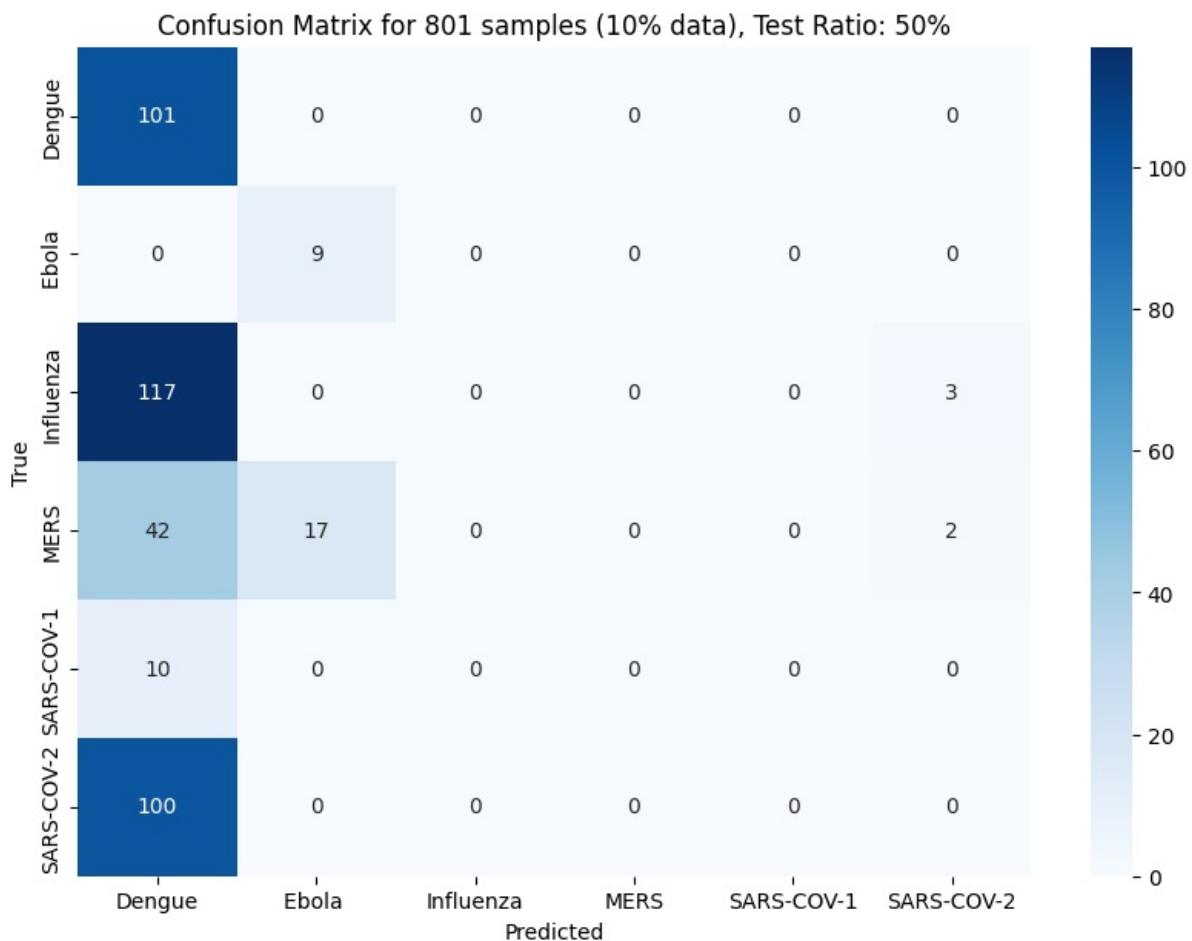
Model Loss for 801 samples (10% data), Test Ratio: 40%



Data Size: 801 samples, Test Ratio: 0.5

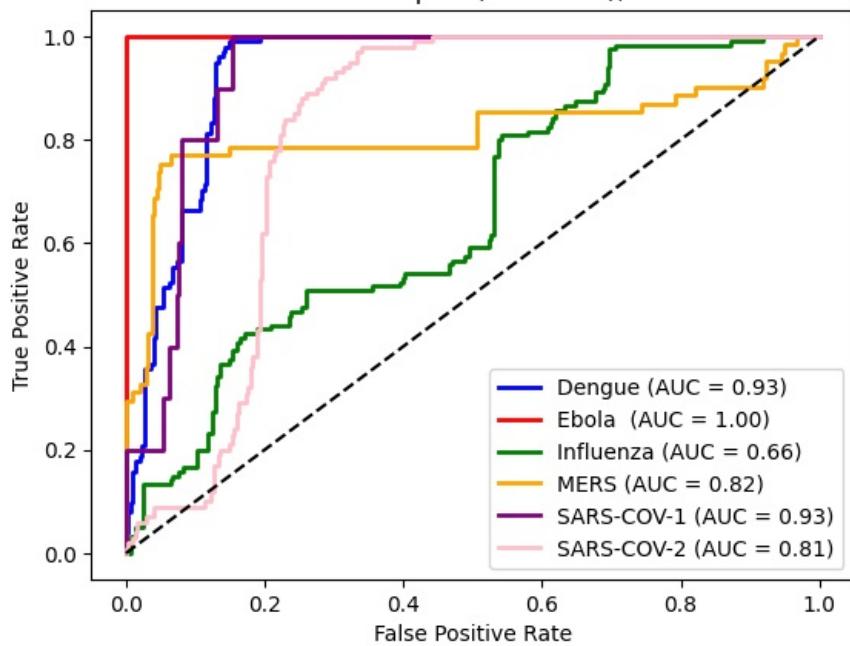
- Accuracy: 0.2743
- Precision: 0.1032
- Recall: 0.3333
- F1_score: 0.1572

Confusion Matrix for 801 samples (10% data), Test Ratio: 50%

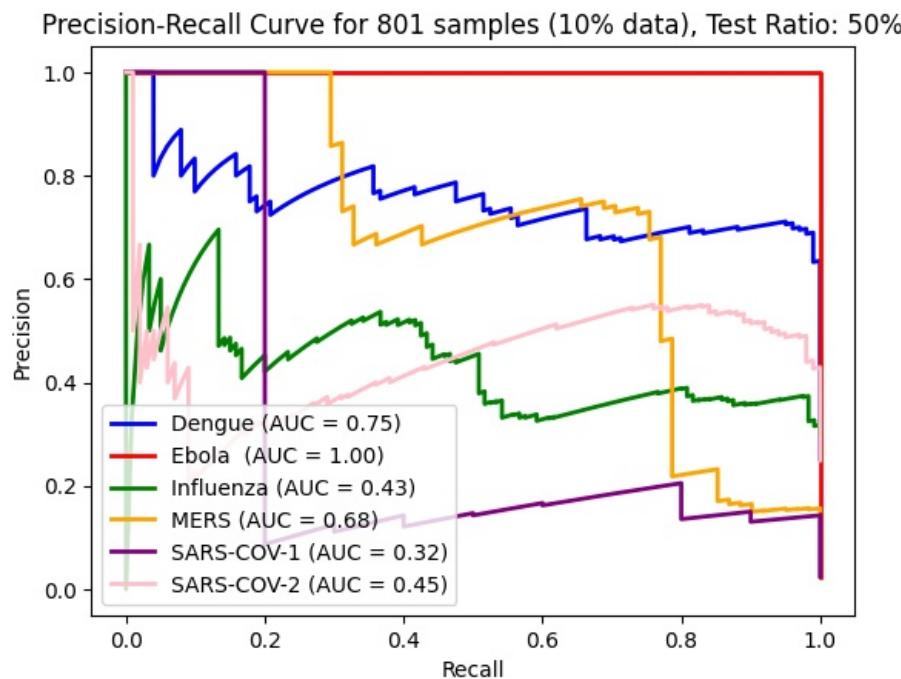


ROC Curve for 801 samples (10% data), Test Ratio: 50%

ROC Curve for 801 samples (10% data), Test Ratio: 50%

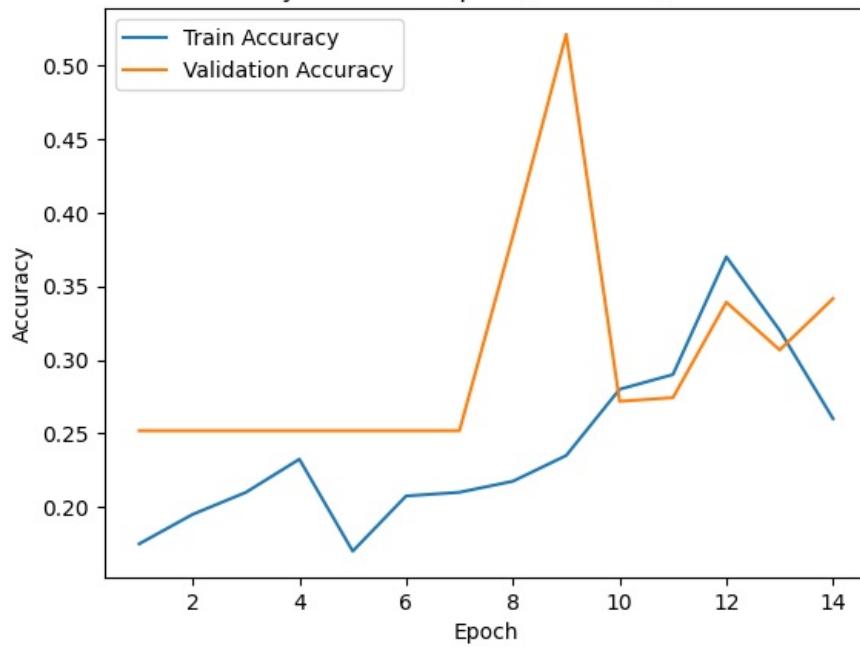


Precision-Recall Curve for 801 samples (10% data), Test Ratio: 50%

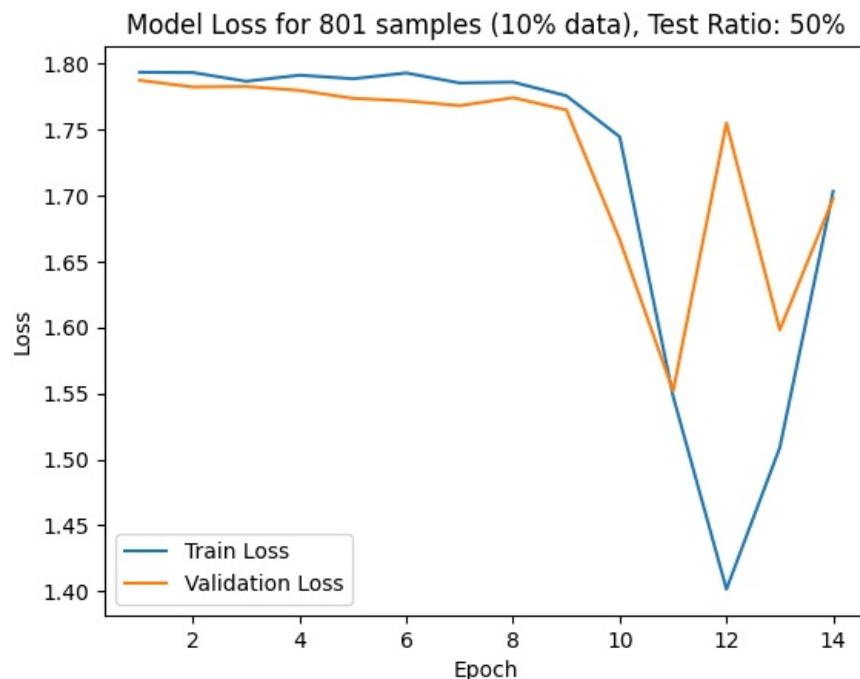


Model Accuracy for 801 samples (10% data), Test Ratio: 50%

Model Accuracy for 801 samples (10% data), Test Ratio: 50%



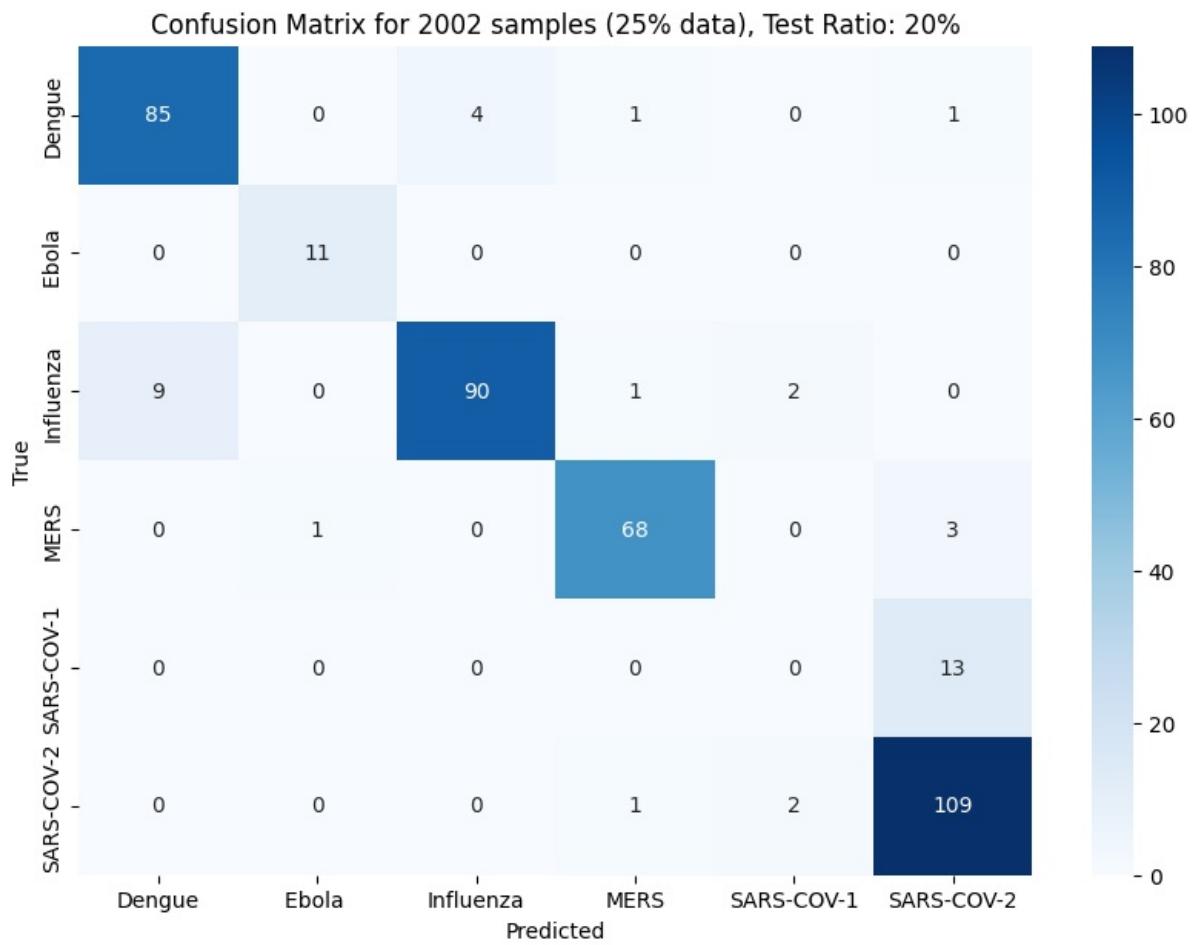
Model Loss for 801 samples (10% data), Test Ratio: 50%



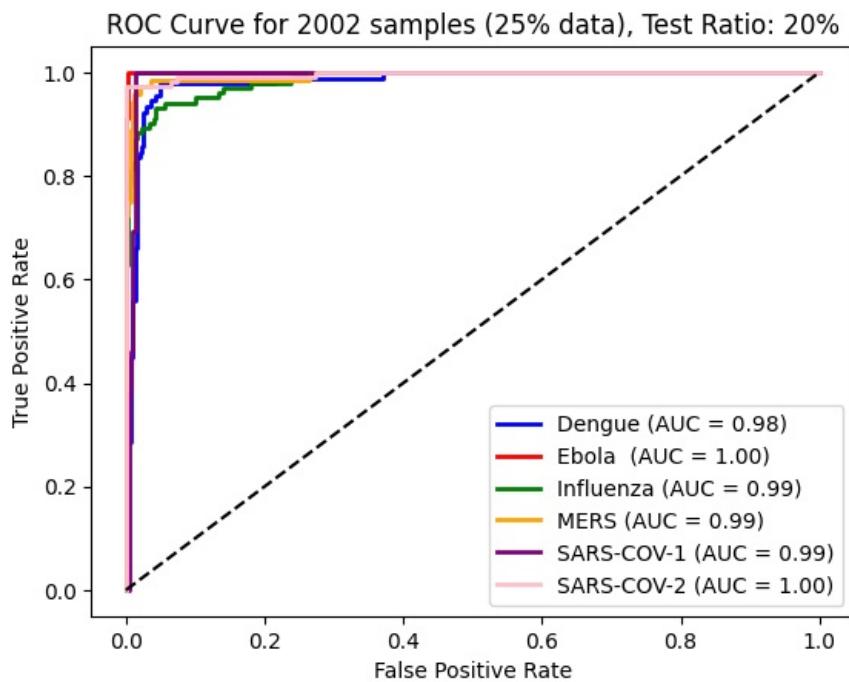
Data Size: 2002 samples, Test Ratio: 0.2

- Accuracy: 0.9052
- Precision: 0.7669
- Recall: 0.7890
- F1_score: 0.7768

Confusion Matrix for 2002 samples (25% data), Test Ratio: 20%

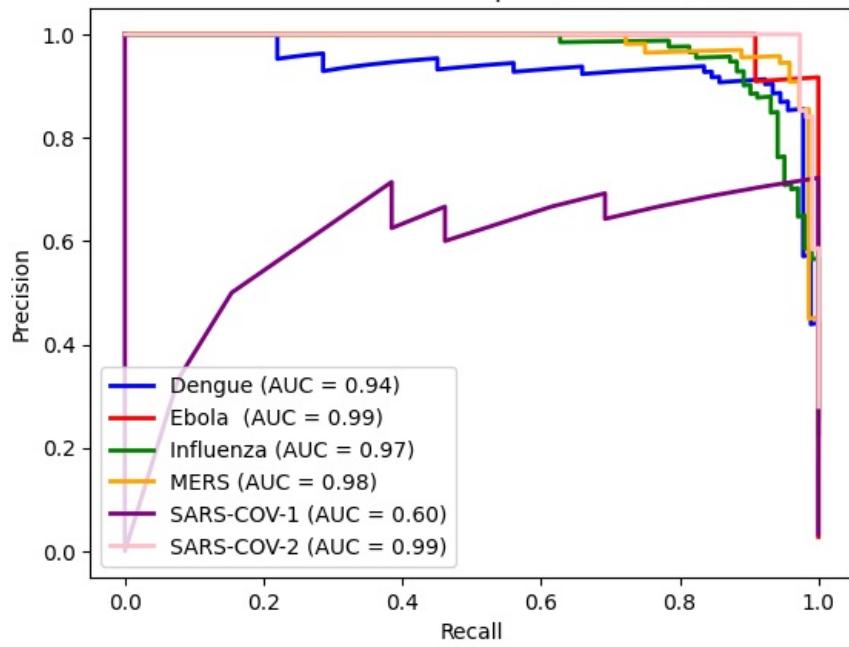


ROC Curve for 2002 samples (25% data), Test Ratio: 20%

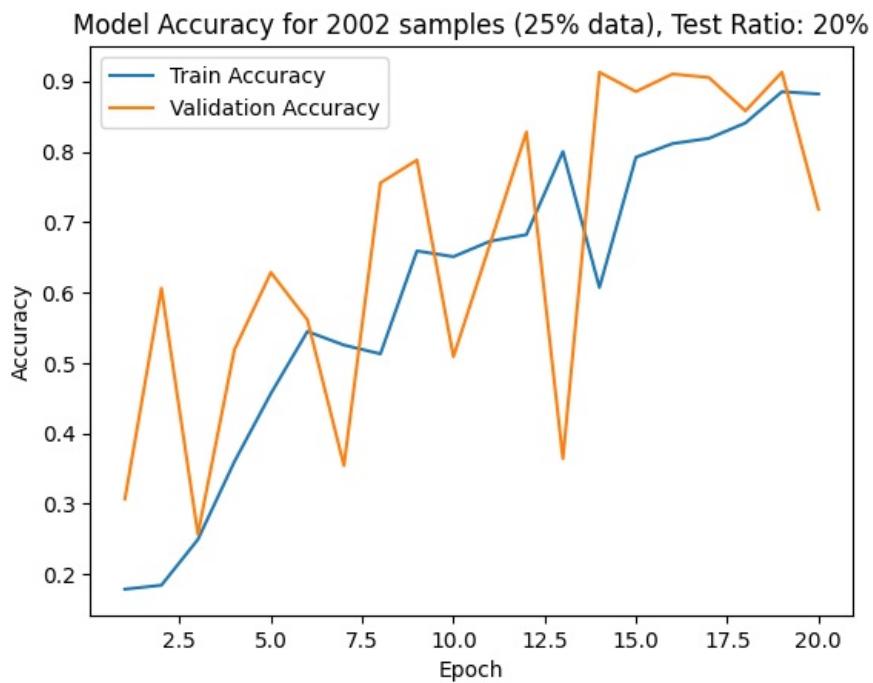


Precision-Recall Curve for 2002 samples (25% data), Test Ratio: 20%

Precision-Recall Curve for 2002 samples (25% data), Test Ratio: 20%

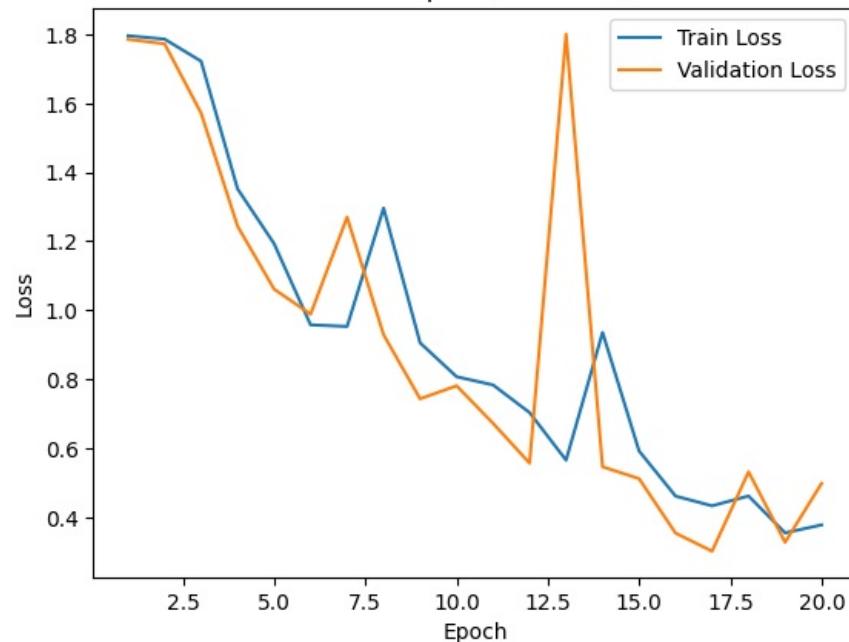


Model Accuracy for 2002 samples (25% data), Test Ratio: 20%



Model Loss for 2002 samples (25% data), Test Ratio: 20%

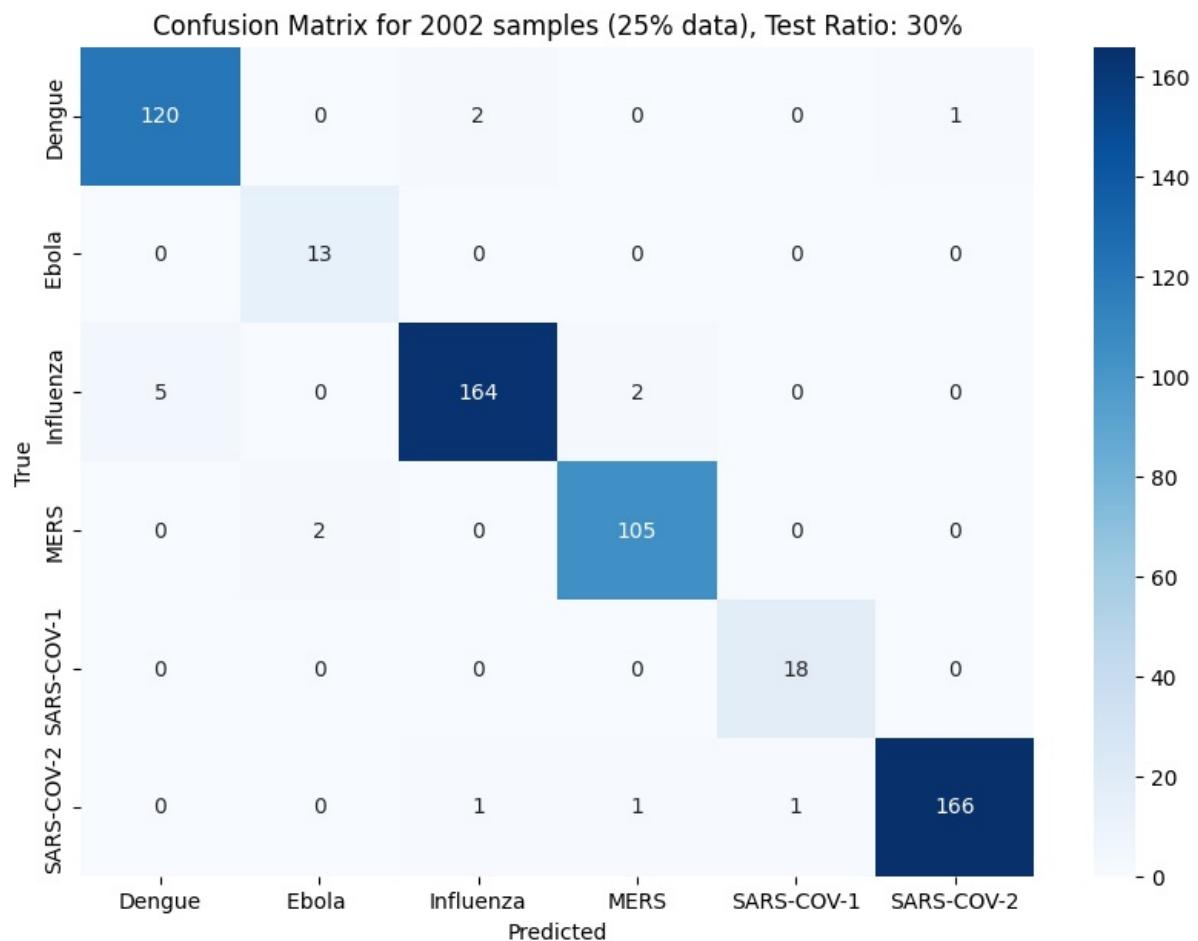
Model Loss for 2002 samples (25% data), Test Ratio: 20%



Data Size: 2002 samples, Test Ratio: 0.3

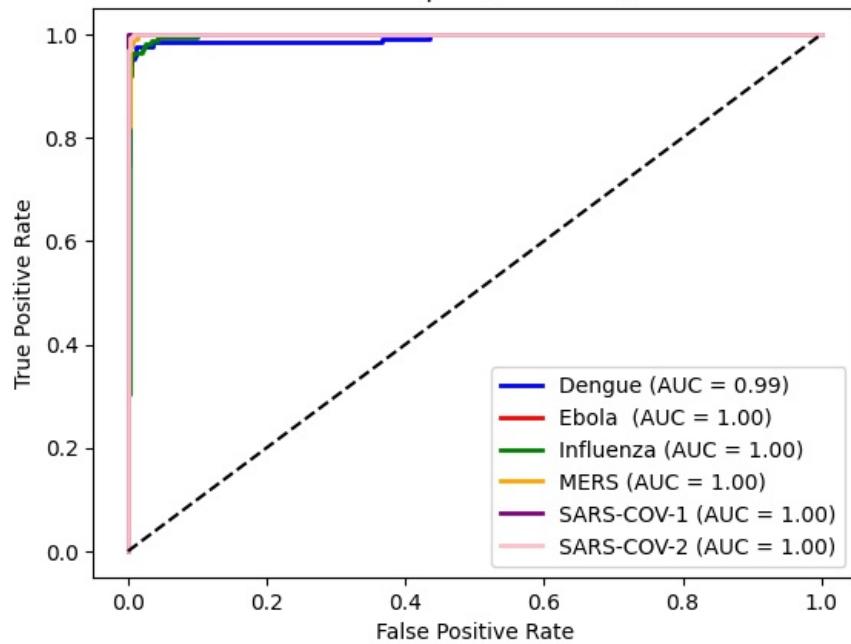
- Accuracy: 0.9750
- Precision: 0.9537
- Recall: 0.9830
- F1_score: 0.9674

Confusion Matrix for 2002 samples (25% data), Test Ratio: 30%

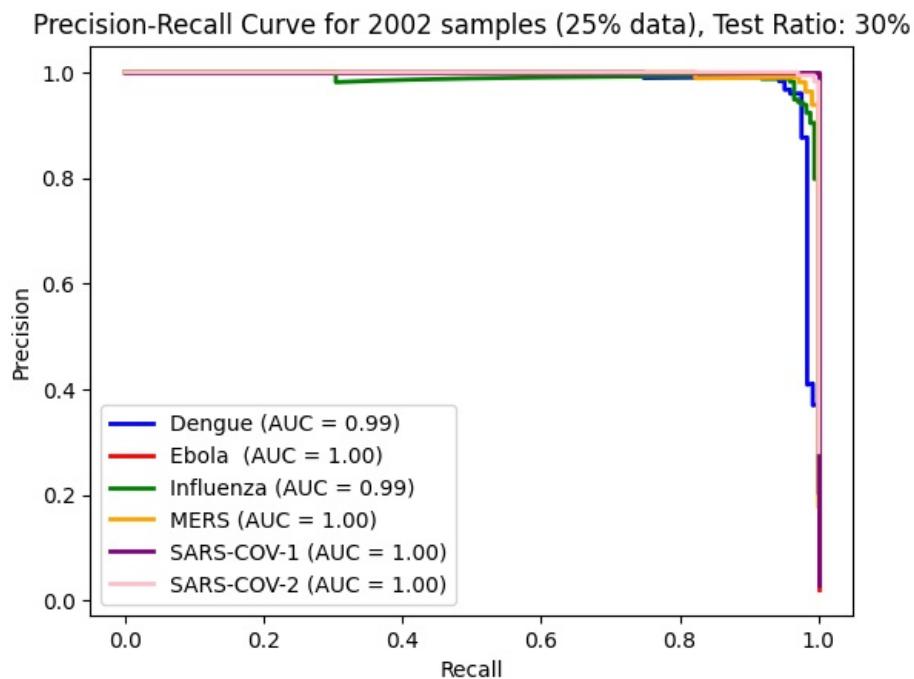


ROC Curve for 2002 samples (25% data), Test Ratio: 30%

ROC Curve for 2002 samples (25% data), Test Ratio: 30%

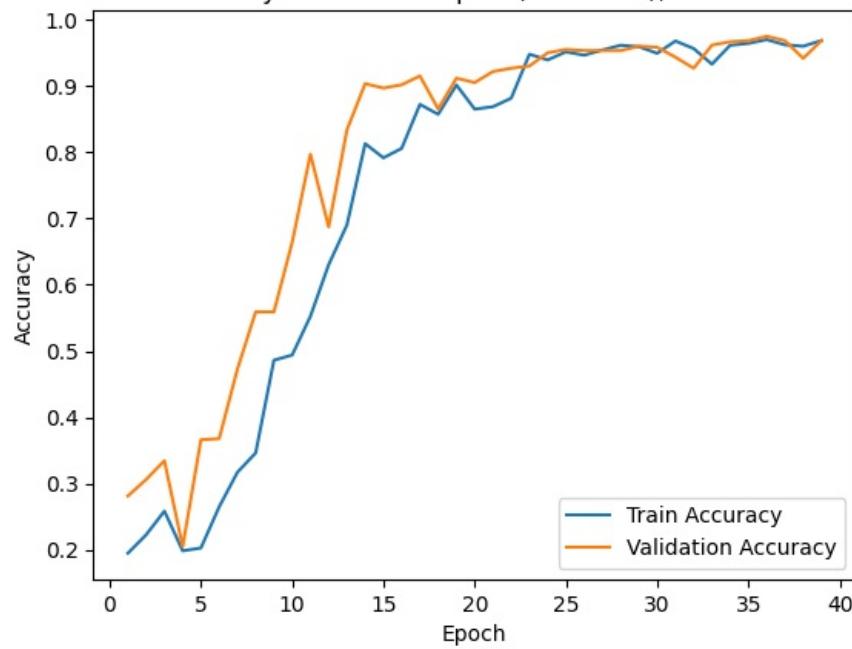


Precision-Recall Curve for 2002 samples (25% data), Test Ratio: 30%

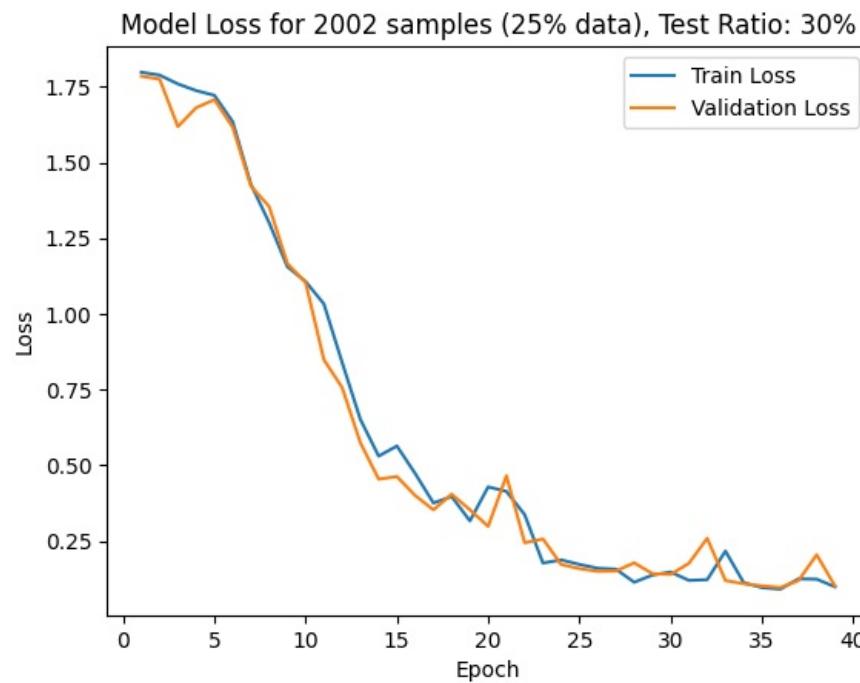


Model Accuracy for 2002 samples (25% data), Test Ratio: 30%

Model Accuracy for 2002 samples (25% data), Test Ratio: 30%



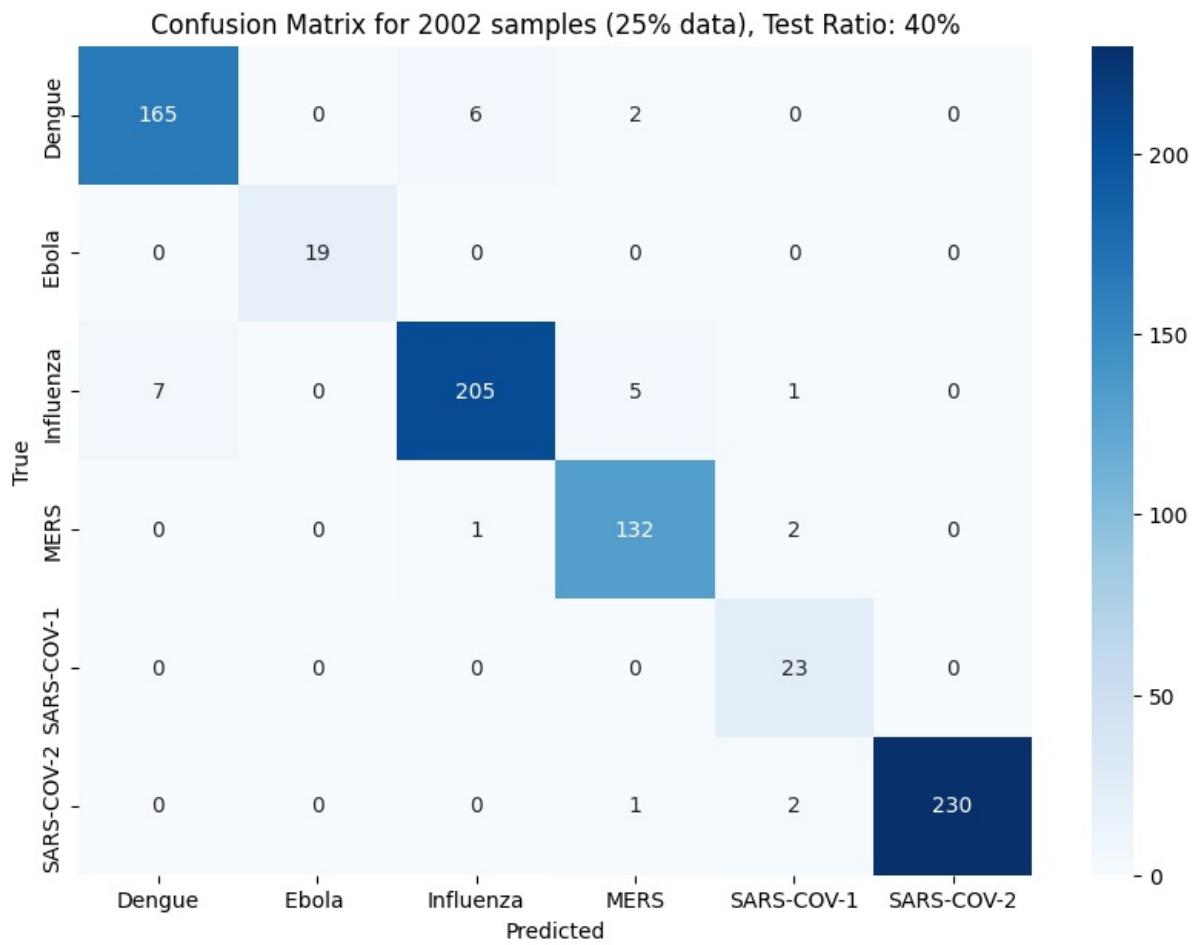
Model Loss for 2002 samples (25% data), Test Ratio: 30%



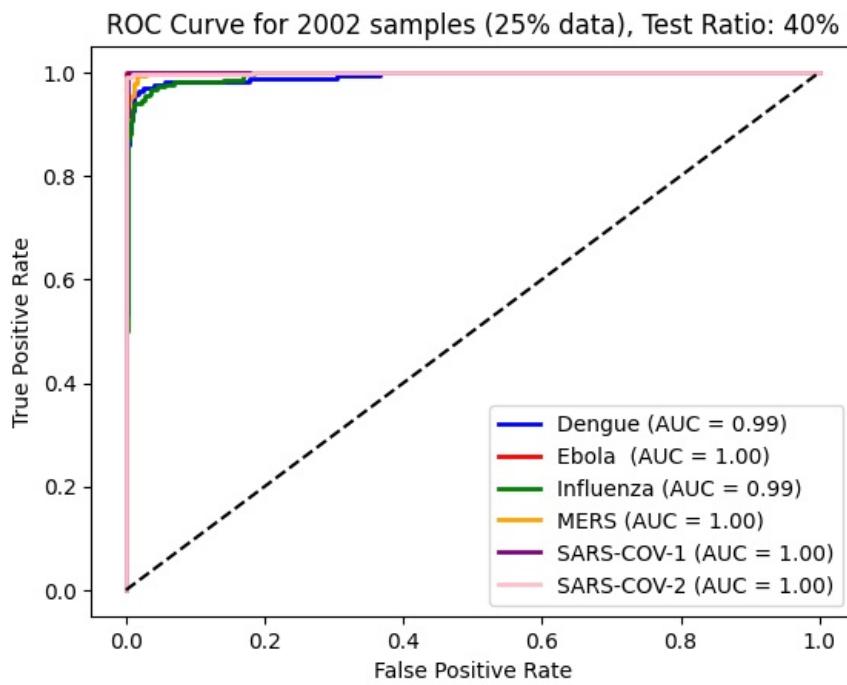
Data Size: 2002 samples, Test Ratio: 0.4

- Accuracy: 0.9663
- Precision: 0.9484
- Recall: 0.9765
- F1_score: 0.9609

Confusion Matrix for 2002 samples (25% data), Test Ratio: 40%

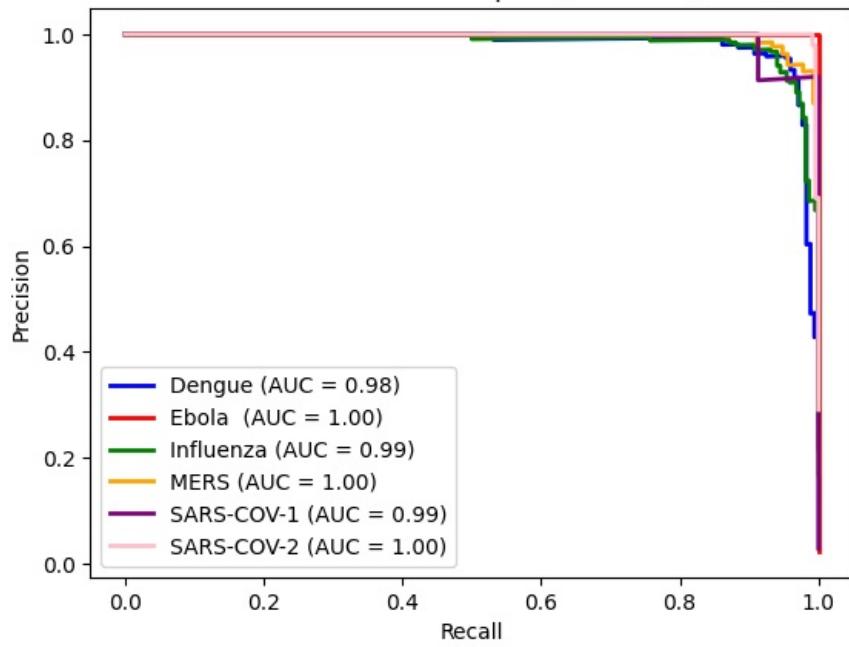


ROC Curve for 2002 samples (25% data), Test Ratio: 40%

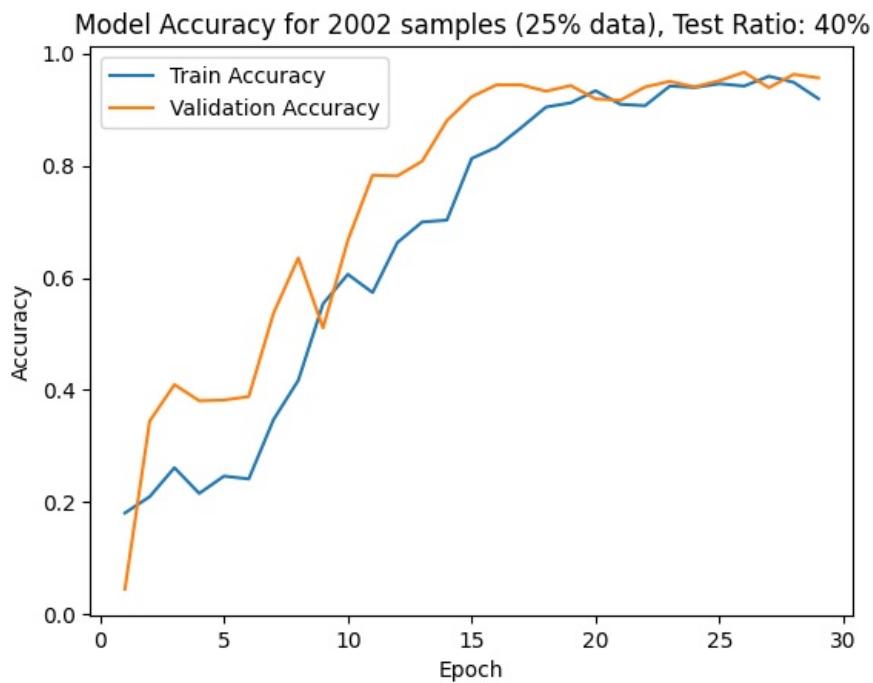


Precision-Recall Curve for 2002 samples (25% data), Test Ratio: 40%

Precision-Recall Curve for 2002 samples (25% data), Test Ratio: 40%

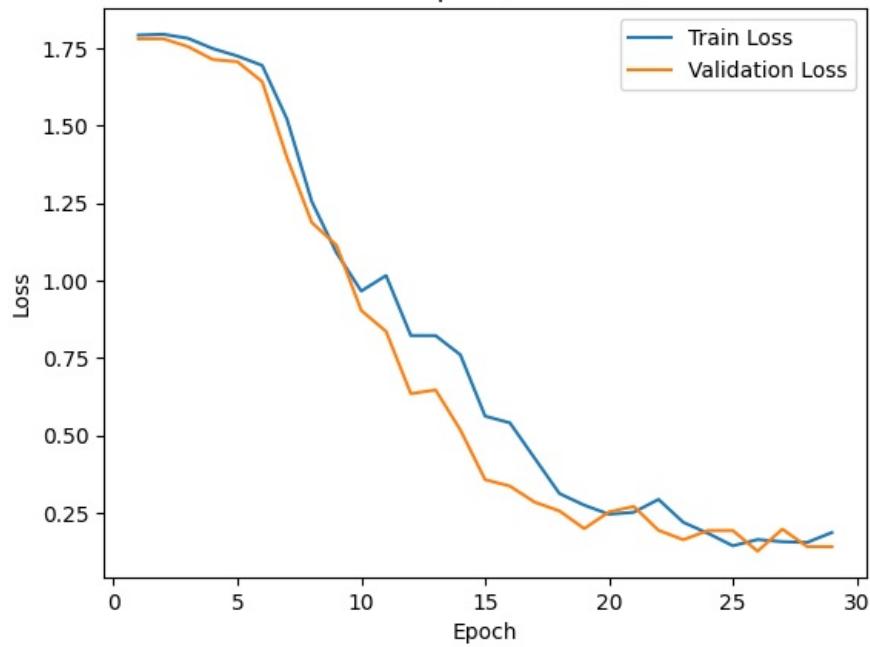


Model Accuracy for 2002 samples (25% data), Test Ratio: 40%



Model Loss for 2002 samples (25% data), Test Ratio: 40%

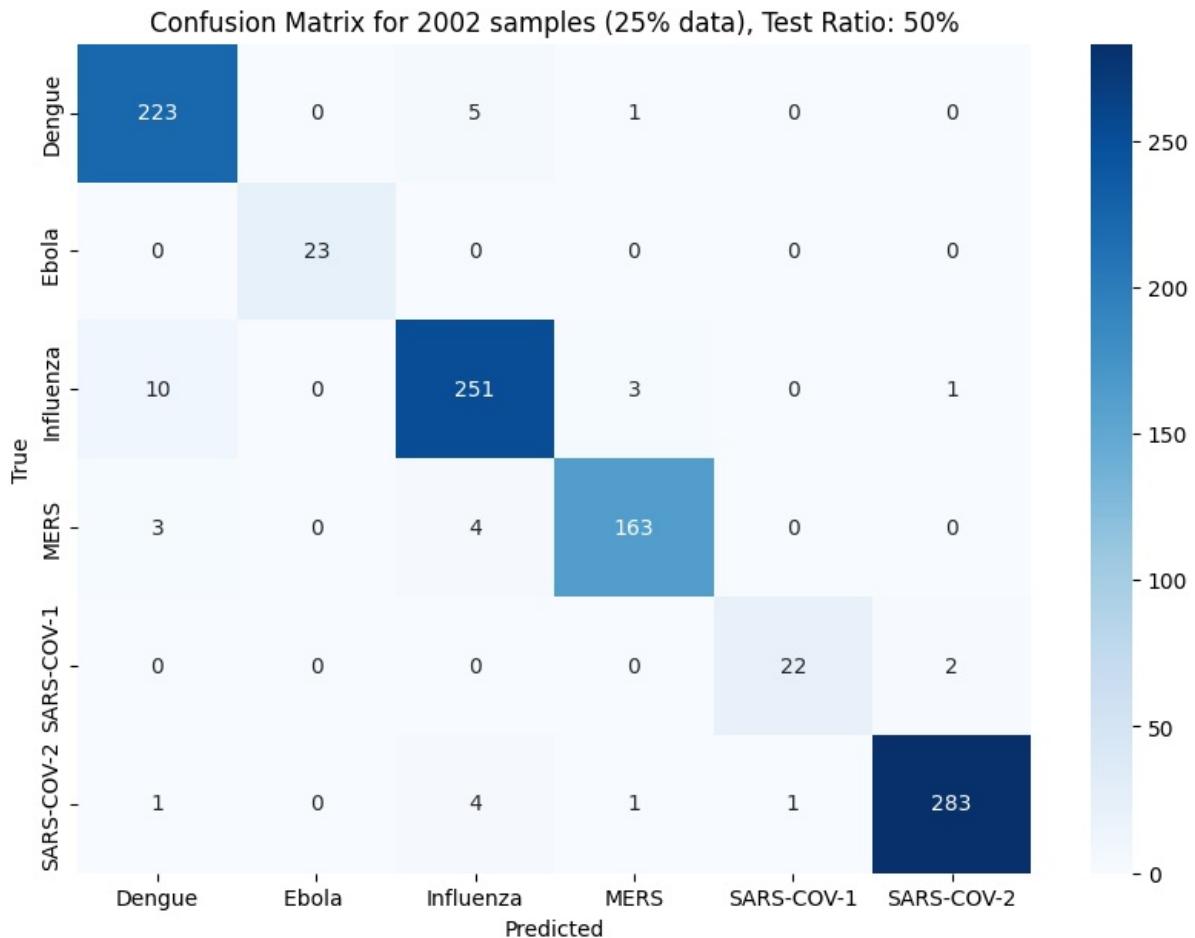
Model Loss for 2002 samples (25% data), Test Ratio: 40%



Data Size: 2002 samples, Test Ratio: 0.5

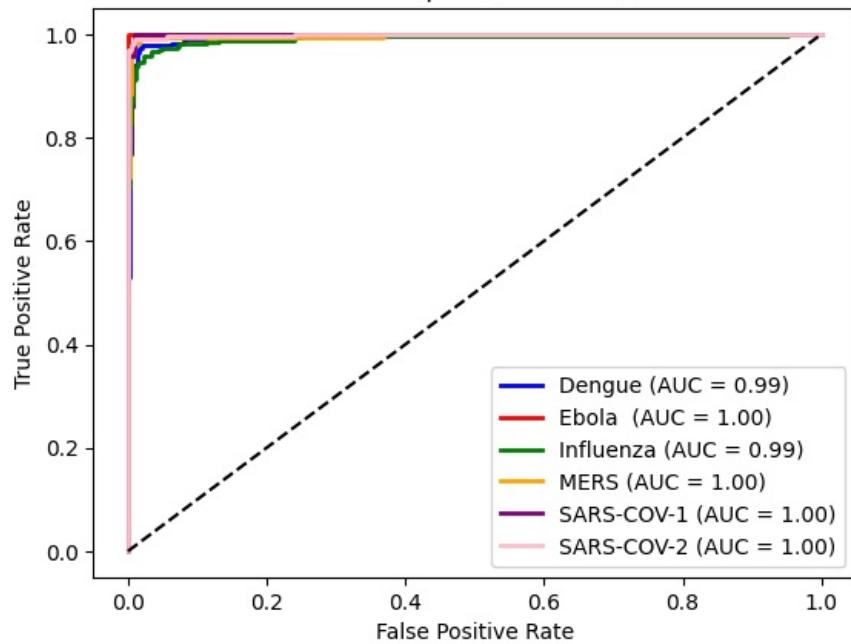
- Accuracy: 0.9640
- Precision: 0.9680
- Recall: 0.9621
- F1_score: 0.9649

Confusion Matrix for 2002 samples (25% data), Test Ratio: 50%

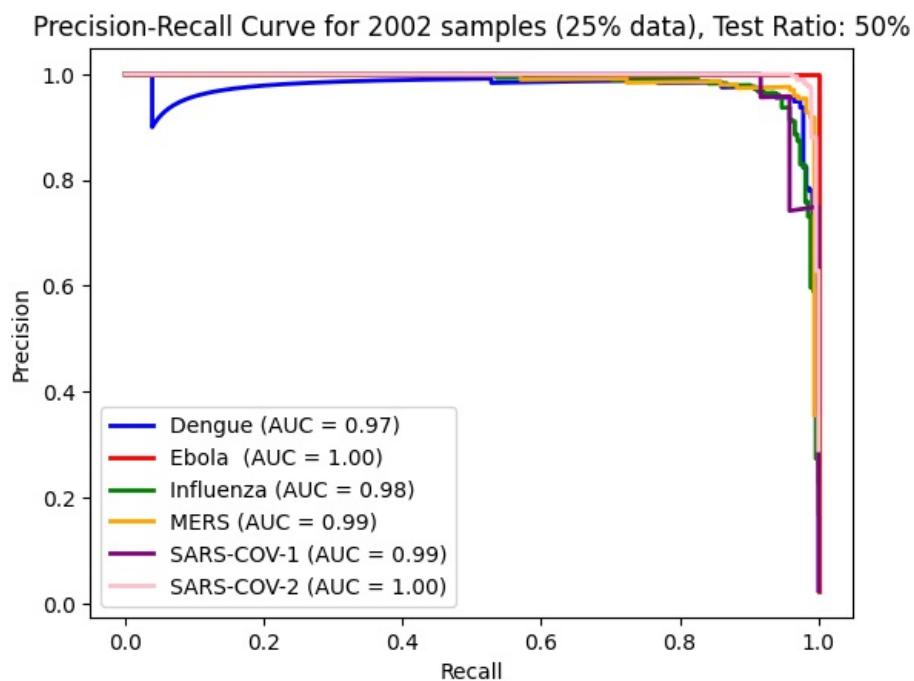


ROC Curve for 2002 samples (25% data), Test Ratio: 50%

ROC Curve for 2002 samples (25% data), Test Ratio: 50%

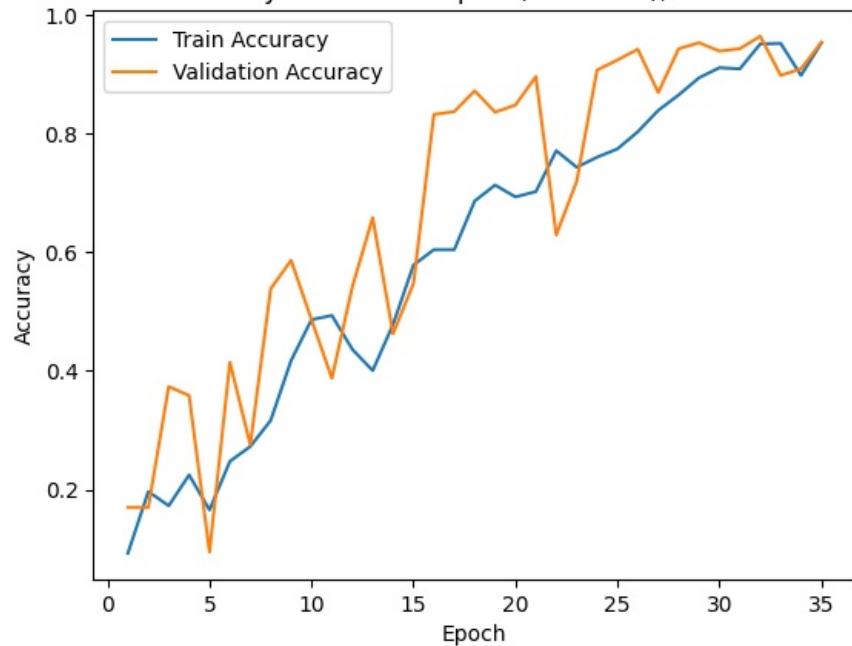


Precision-Recall Curve for 2002 samples (25% data), Test Ratio: 50%

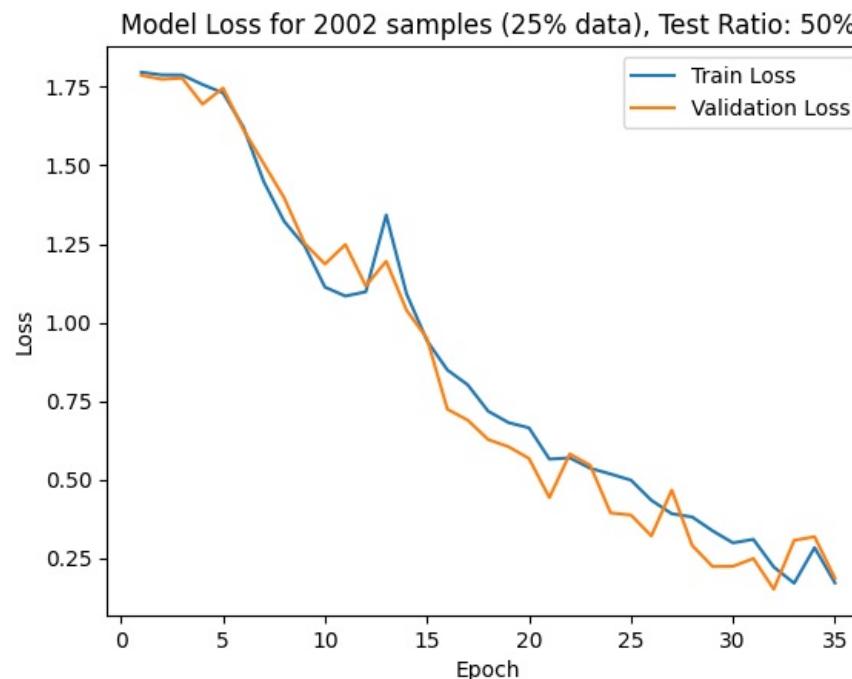


Model Accuracy for 2002 samples (25% data), Test Ratio: 50%

Model Accuracy for 2002 samples (25% data), Test Ratio: 50%



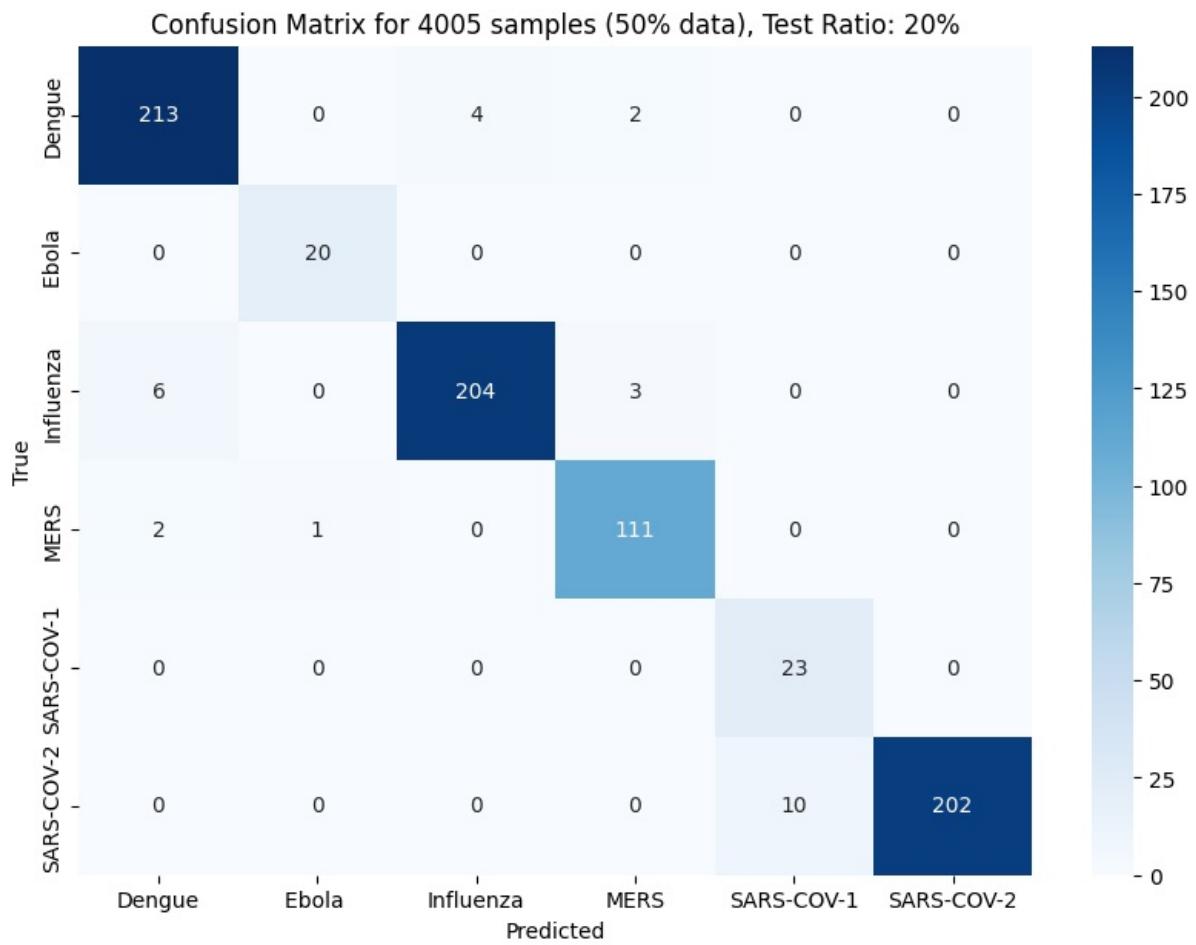
Model Loss for 2002 samples (25% data), Test Ratio: 50%



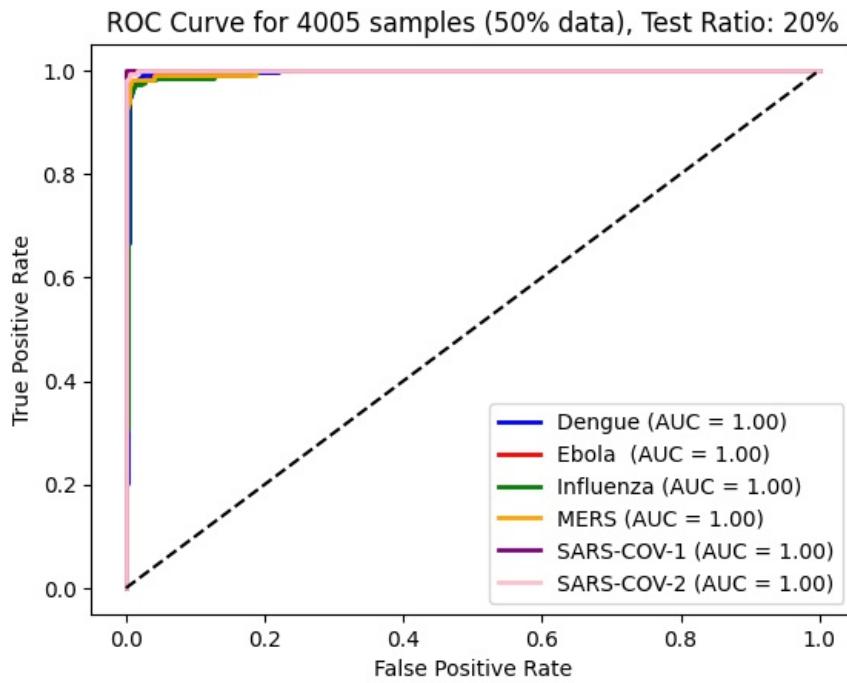
Data Size: 4005 samples, Test Ratio: 0.2

- Accuracy: 0.9650
- Precision: 0.9251
- Recall: 0.9761
- F1_score: 0.9459

Confusion Matrix for 4005 samples (50% data), Test Ratio: 20%

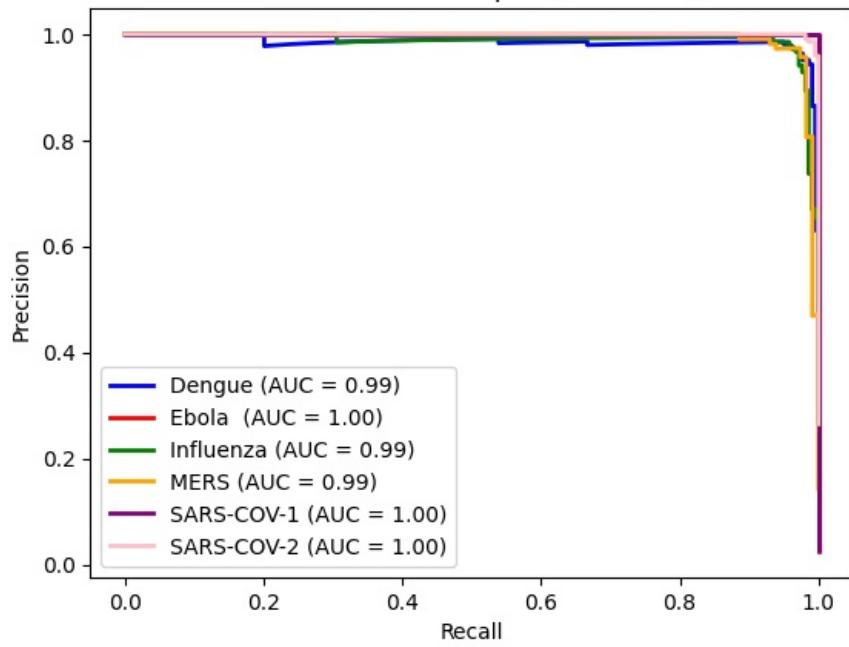


ROC Curve for 4005 samples (50% data), Test Ratio: 20%

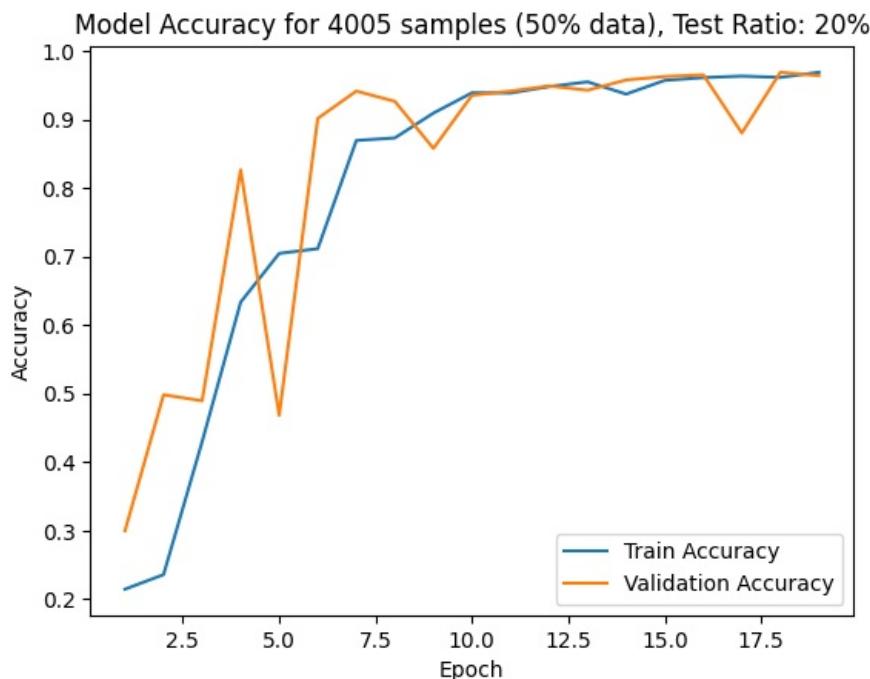


Precision-Recall Curve for 4005 samples (50% data), Test Ratio: 20%

Precision-Recall Curve for 4005 samples (50% data), Test Ratio: 20%

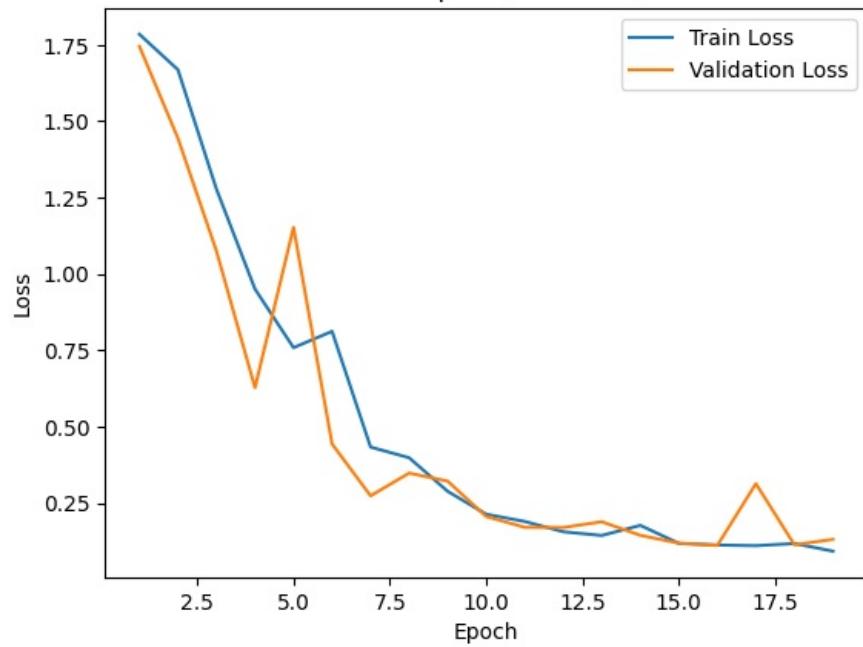


Model Accuracy for 4005 samples (50% data), Test Ratio: 20%



Model Loss for 4005 samples (50% data), Test Ratio: 20%

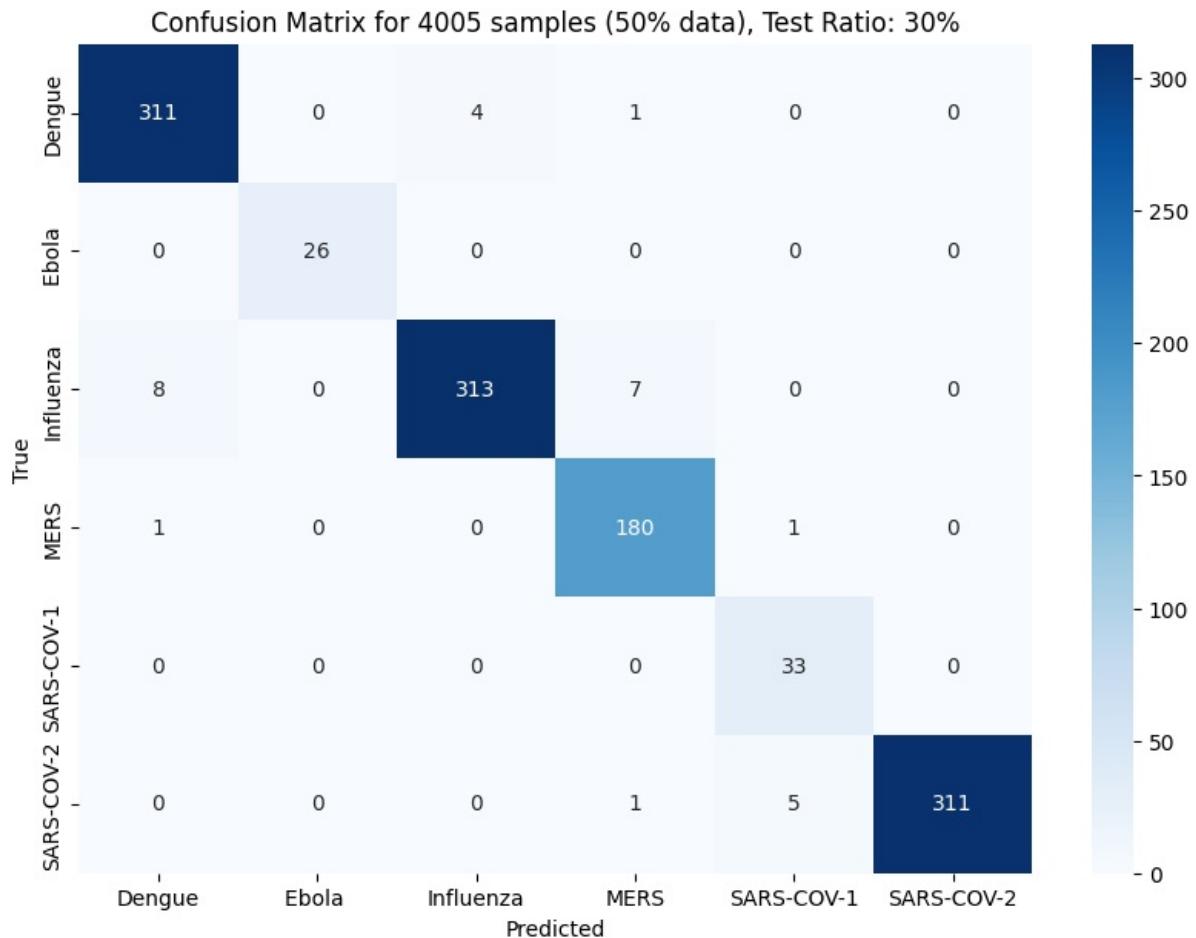
Model Loss for 4005 samples (50% data), Test Ratio: 20%



Data Size: 4005 samples, Test Ratio: 0.3

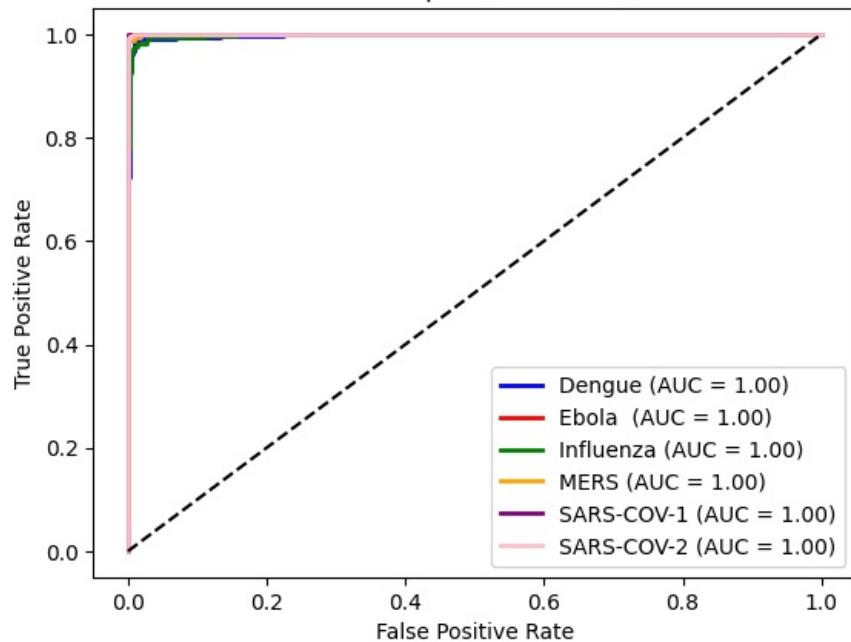
- Accuracy: 0.9767
- Precision: 0.9596
- Recall: 0.9848
- F1_score: 0.9710

Confusion Matrix for 4005 samples (50% data), Test Ratio: 30%

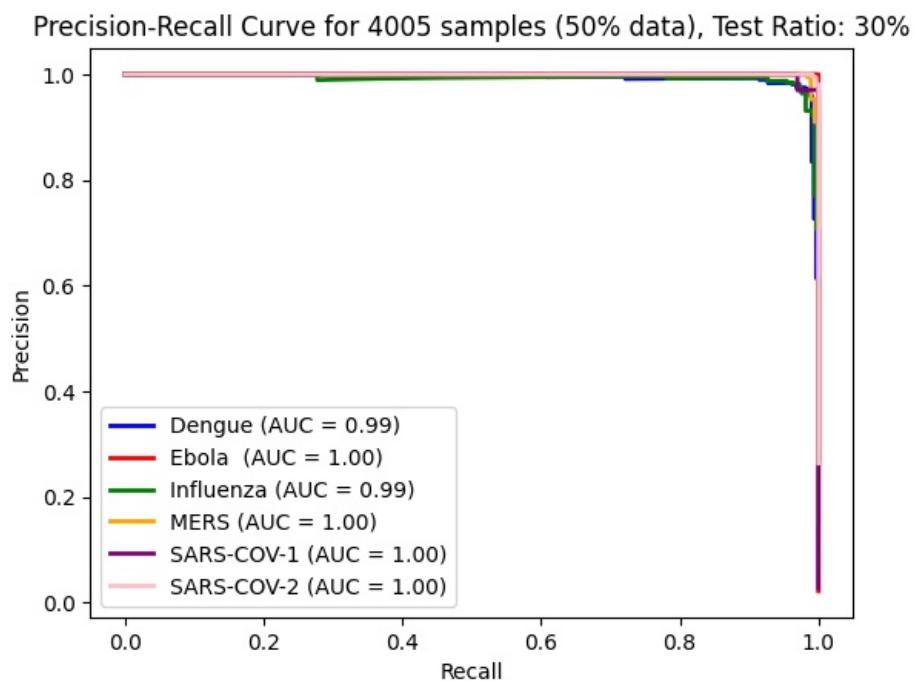


ROC Curve for 4005 samples (50% data), Test Ratio: 30%

ROC Curve for 4005 samples (50% data), Test Ratio: 30%

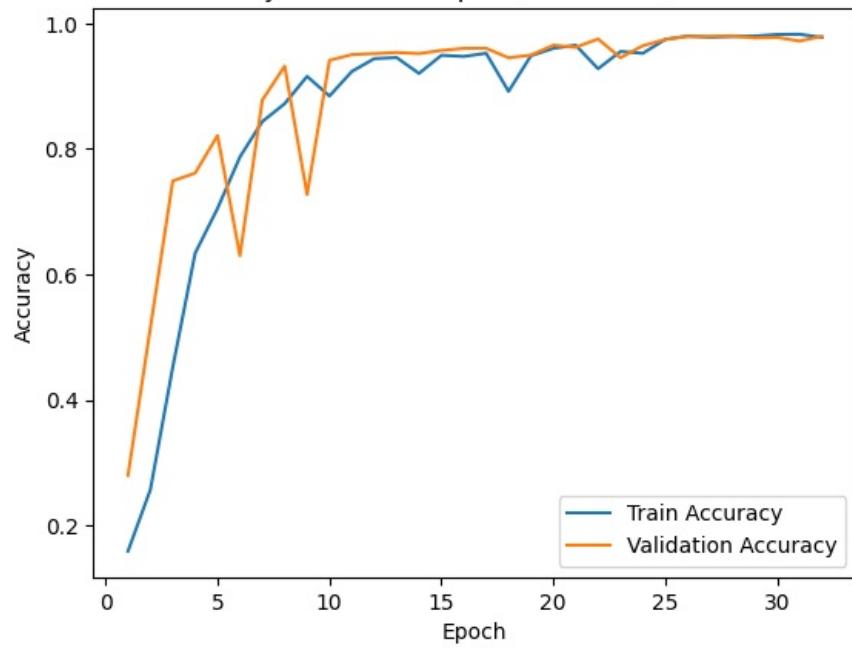


Precision-Recall Curve for 4005 samples (50% data), Test Ratio: 30%

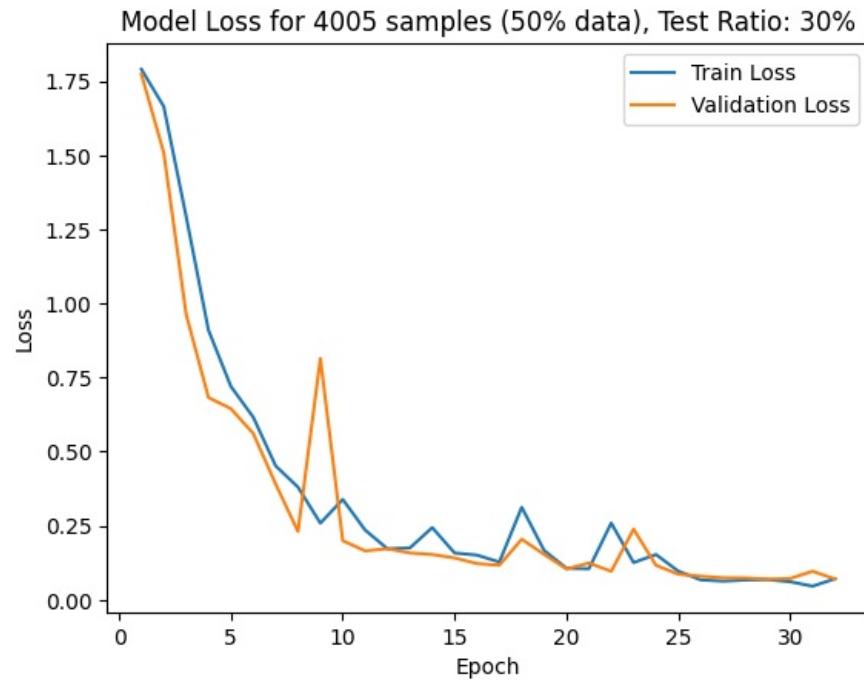


Model Accuracy for 4005 samples (50% data), Test Ratio: 30%

Model Accuracy for 4005 samples (50% data), Test Ratio: 30%



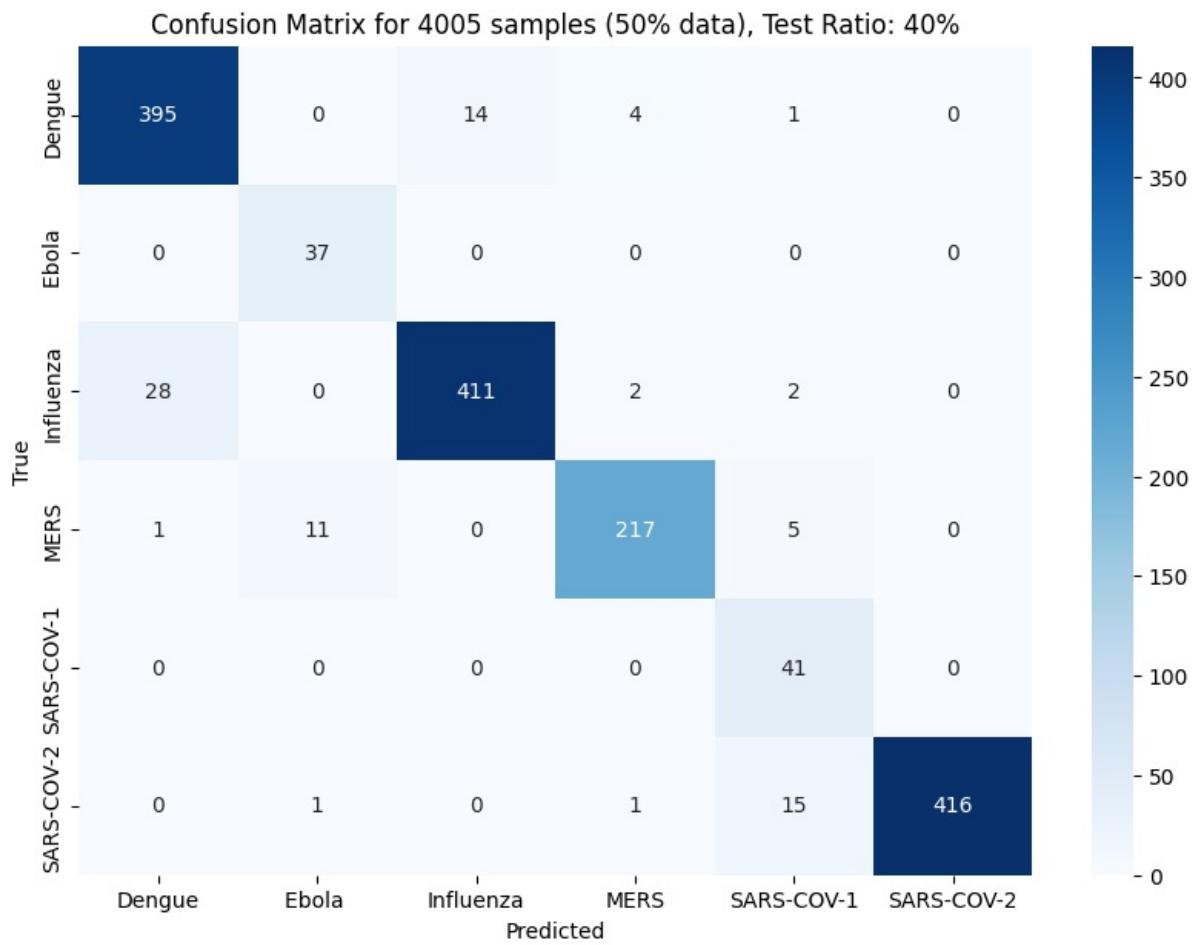
Model Loss for 4005 samples (50% data), Test Ratio: 30%



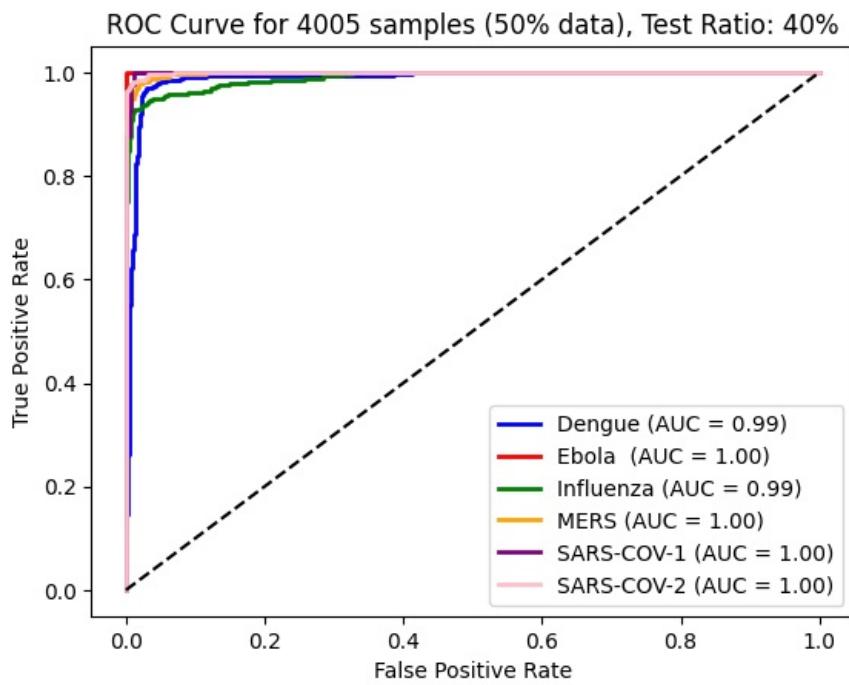
Data Size: 4005 samples, Test Ratio: 0.4

- Accuracy: 0.9469
- Precision: 0.8772
- Recall: 0.9617
- F1_score: 0.9098

Confusion Matrix for 4005 samples (50% data), Test Ratio: 40%

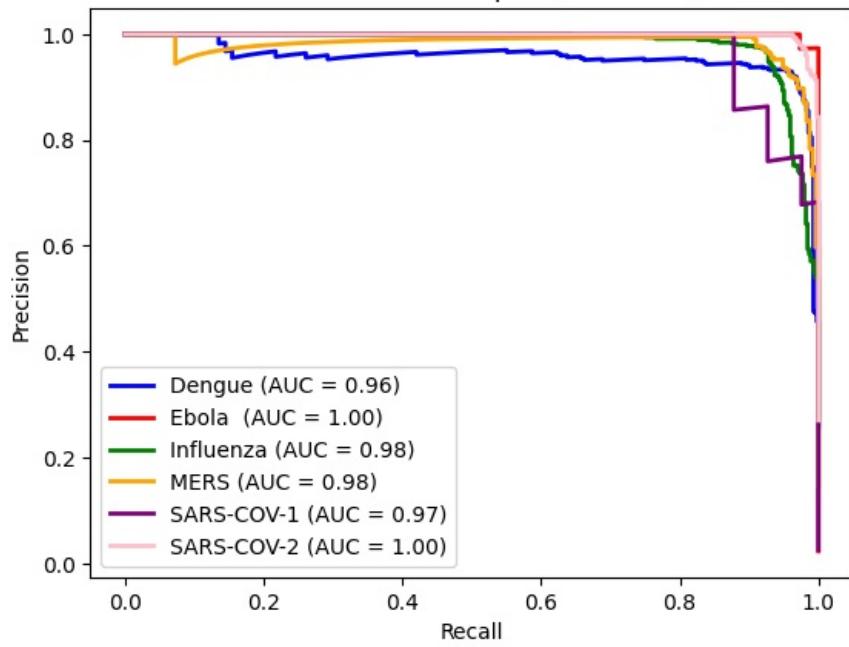


ROC Curve for 4005 samples (50% data), Test Ratio: 40%

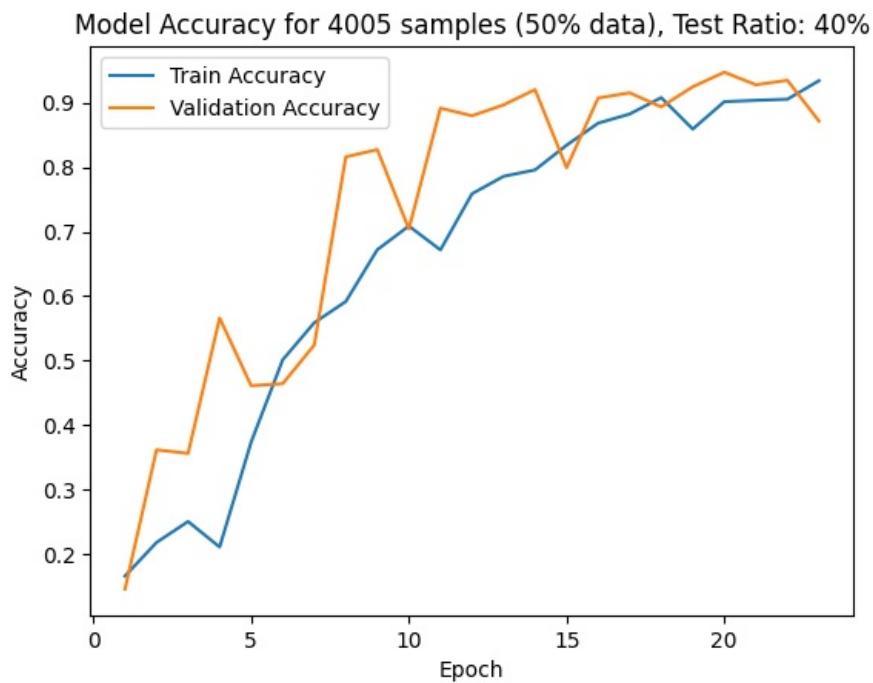


Precision-Recall Curve for 4005 samples (50% data), Test Ratio: 40%

Precision-Recall Curve for 4005 samples (50% data), Test Ratio: 40%

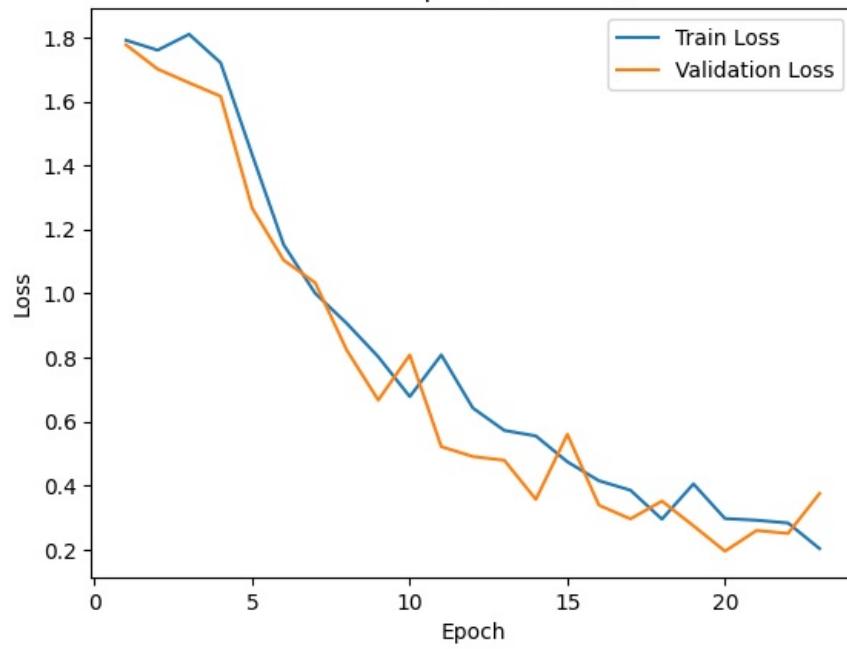


Model Accuracy for 4005 samples (50% data), Test Ratio: 40%



Model Loss for 4005 samples (50% data), Test Ratio: 40%

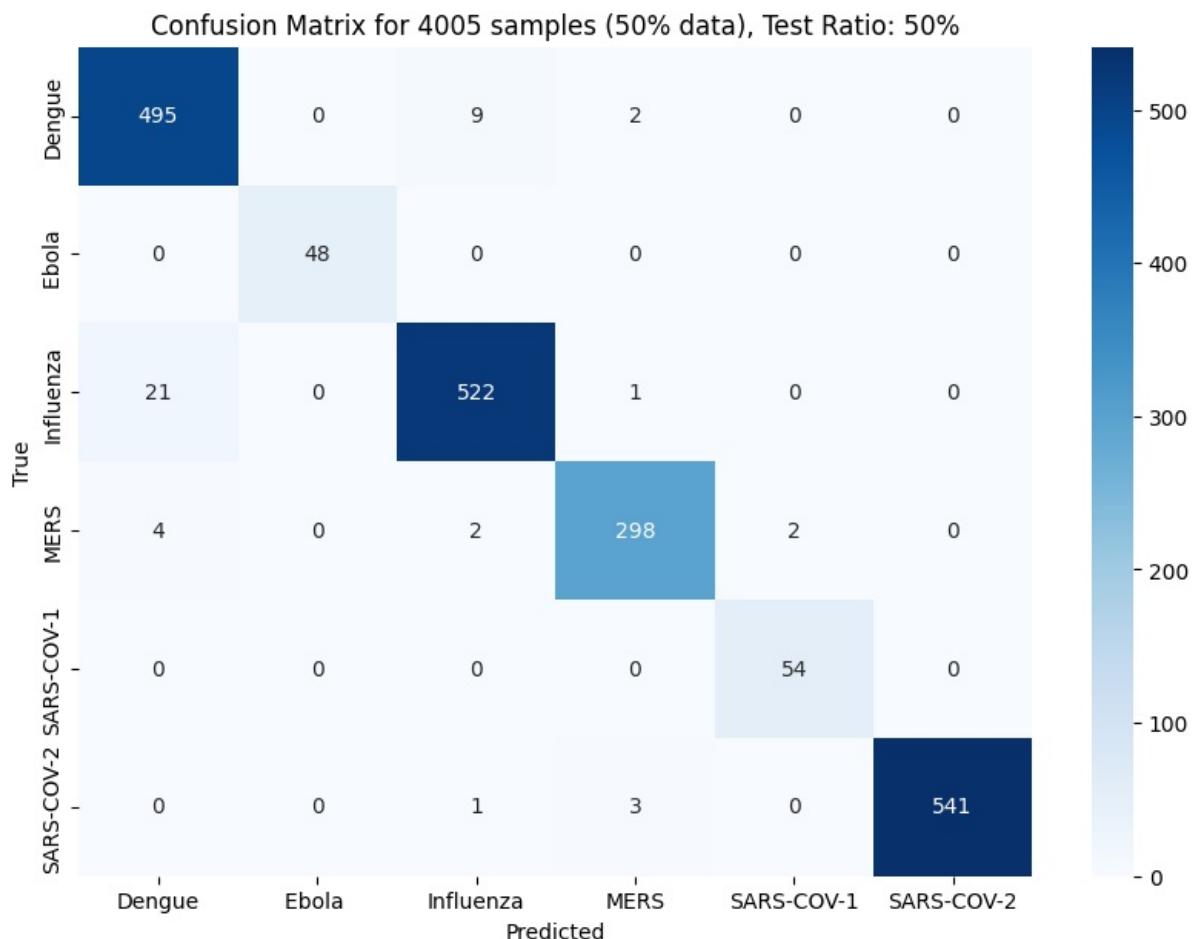
Model Loss for 4005 samples (50% data), Test Ratio: 40%



Data Size: 4005 samples, Test Ratio: 0.5

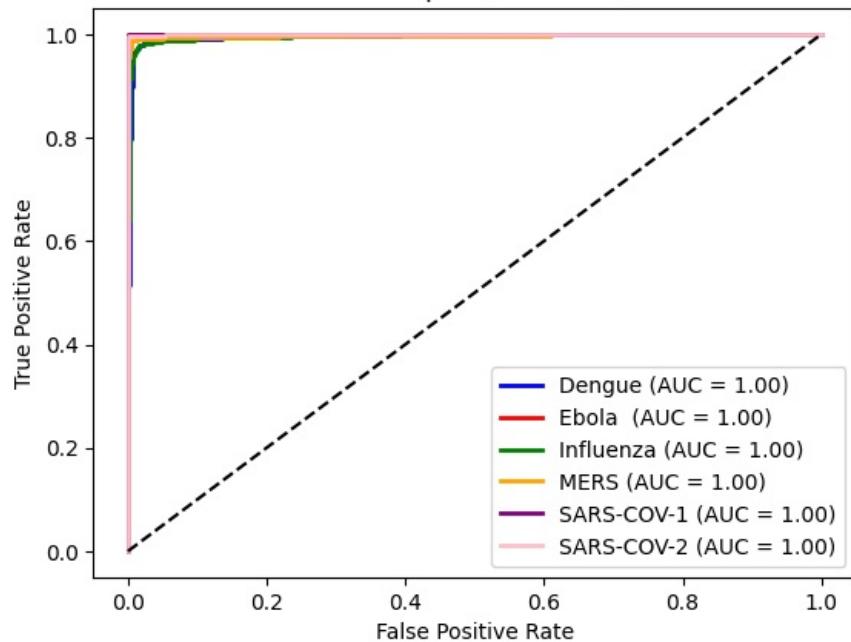
- Accuracy: 0.9775
- Precision: 0.9790
- Recall: 0.9841
- F1_score: 0.9814

Confusion Matrix for 4005 samples (50% data), Test Ratio: 50%

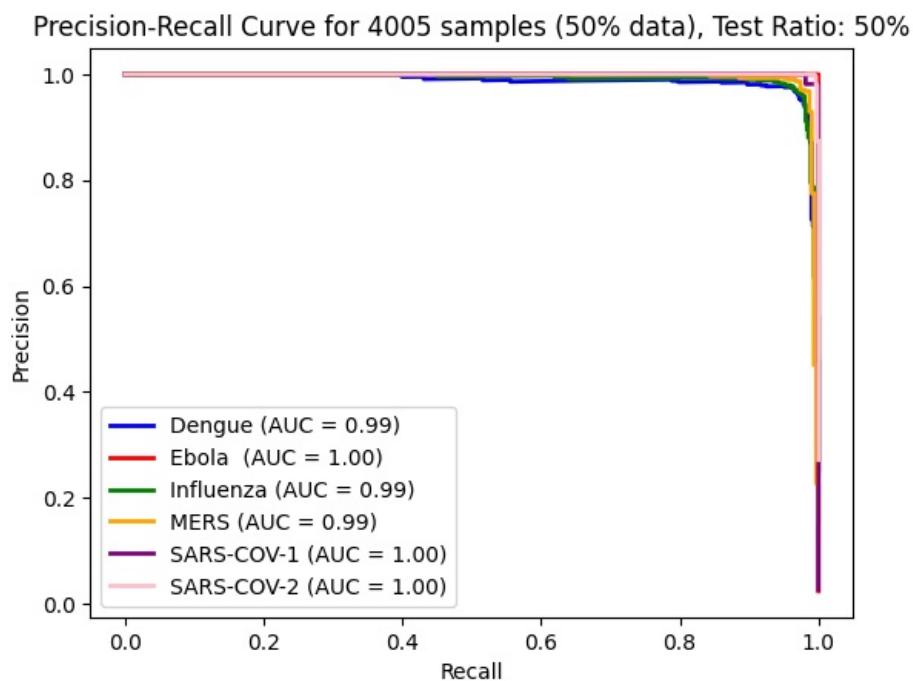


ROC Curve for 4005 samples (50% data), Test Ratio: 50%

ROC Curve for 4005 samples (50% data), Test Ratio: 50%

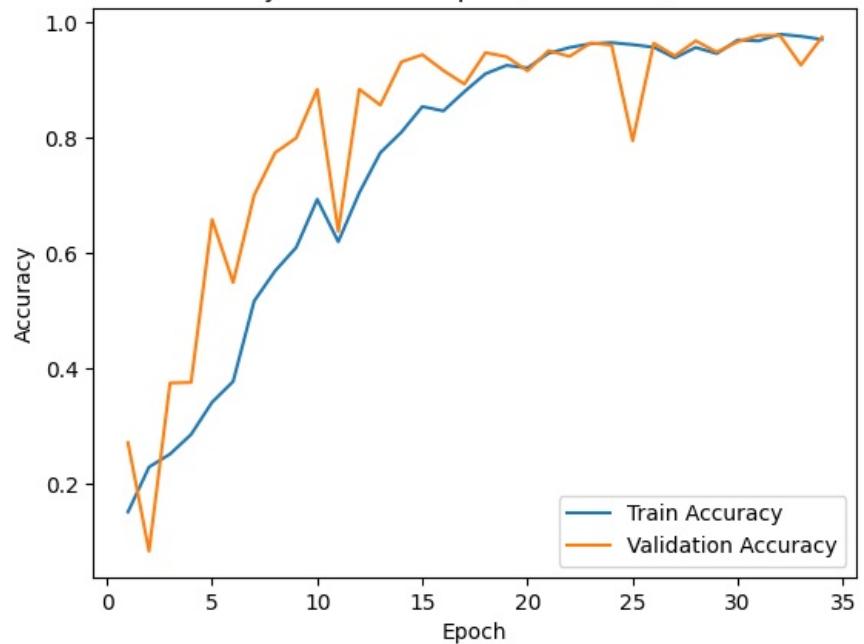


Precision-Recall Curve for 4005 samples (50% data), Test Ratio: 50%

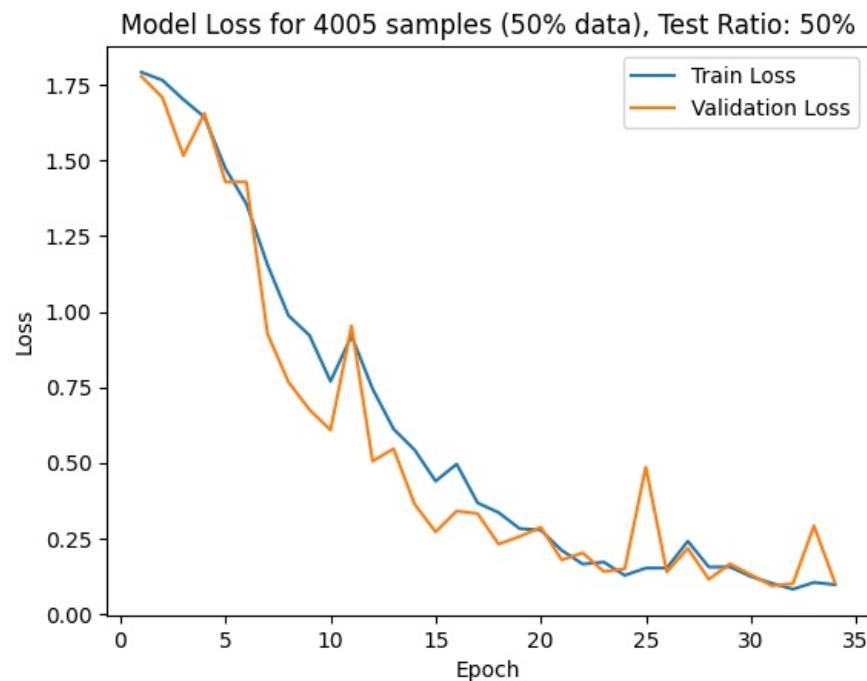


Model Accuracy for 4005 samples (50% data), Test Ratio: 50%

Model Accuracy for 4005 samples (50% data), Test Ratio: 50%



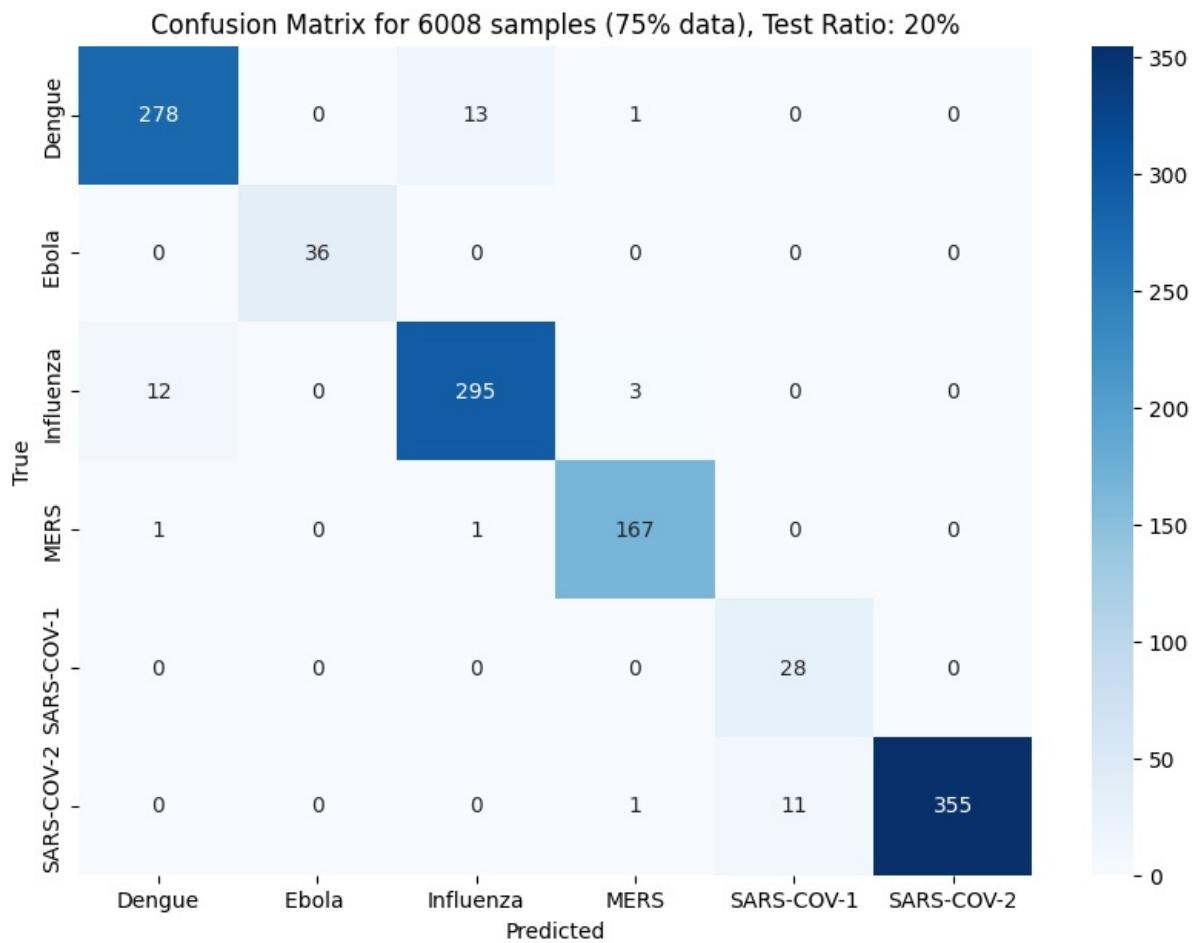
Model Loss for 4005 samples (50% data), Test Ratio: 50%



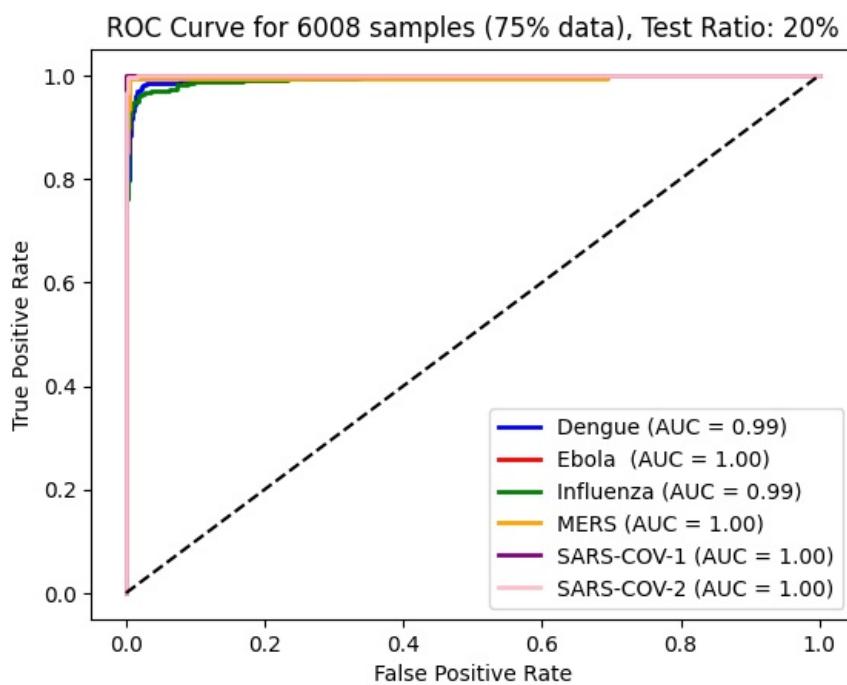
Data Size: 6008 samples, Test Ratio: 0.2

- Accuracy: 0.9642
- Precision: 0.9331
- Recall: 0.9765
- F1_score: 0.9509

Confusion Matrix for 6008 samples (75% data), Test Ratio: 20%

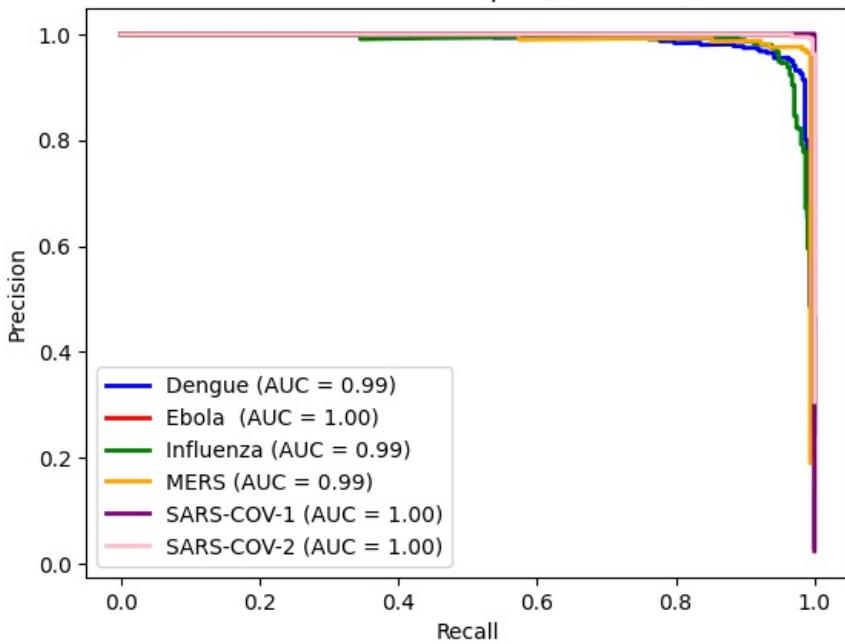


ROC Curve for 6008 samples (75% data), Test Ratio: 20%

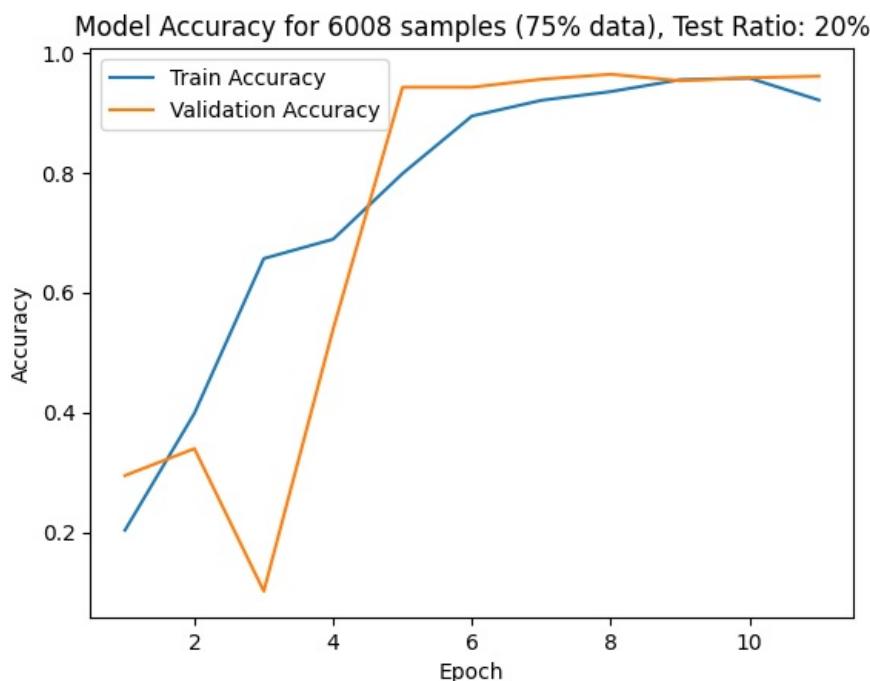


Precision-Recall Curve for 6008 samples (75% data), Test Ratio: 20%

Precision-Recall Curve for 6008 samples (75% data), Test Ratio: 20%

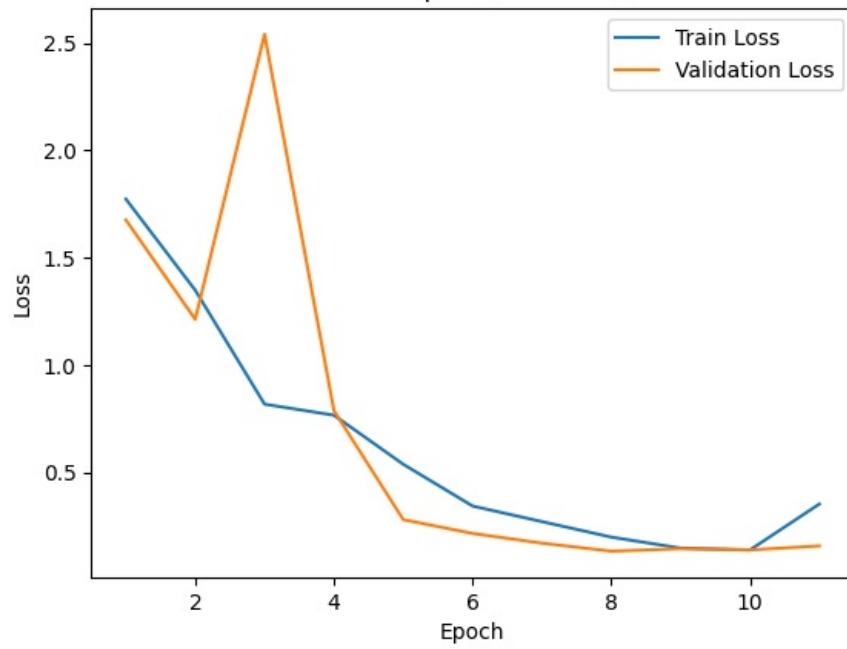


Model Accuracy for 6008 samples (75% data), Test Ratio: 20%



Model Loss for 6008 samples (75% data), Test Ratio: 20%

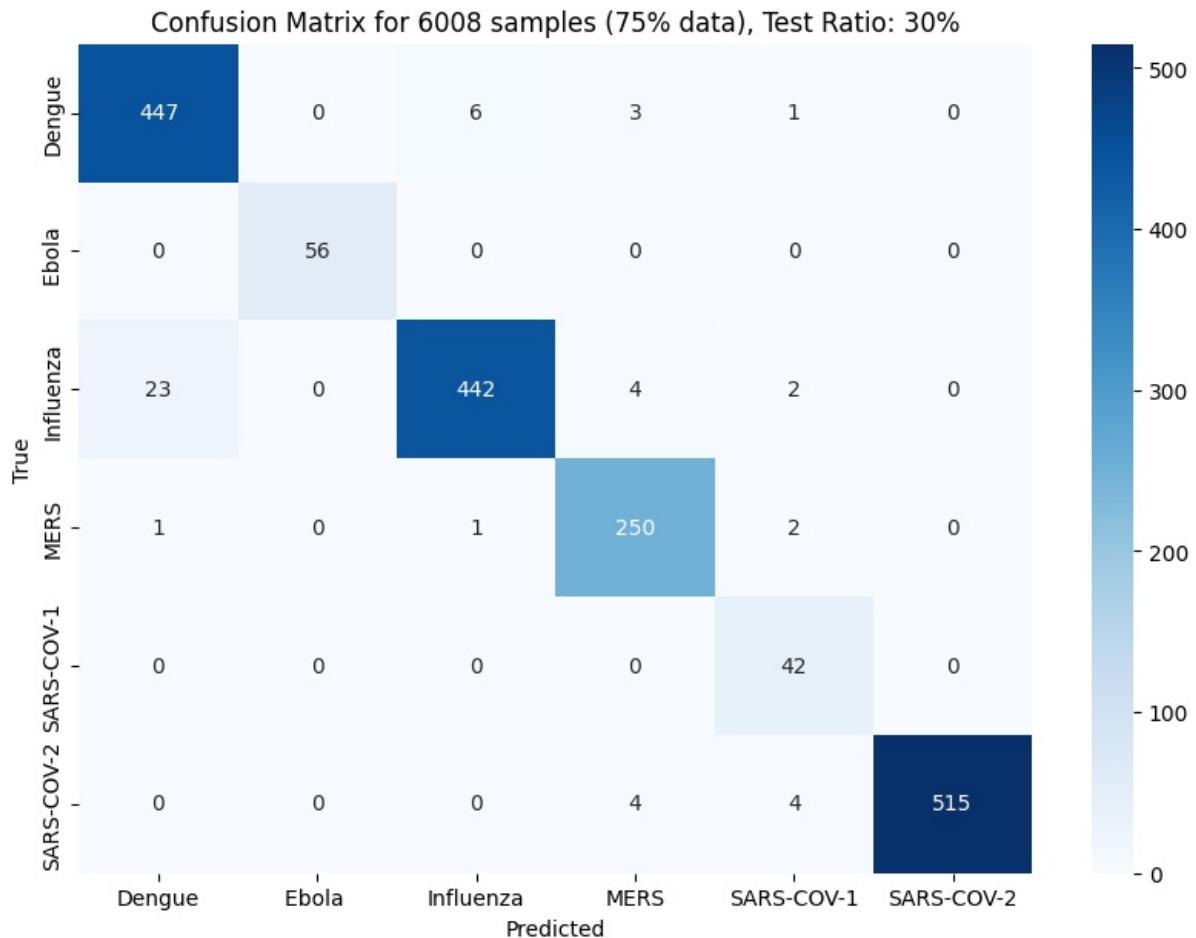
Model Loss for 6008 samples (75% data), Test Ratio: 20%



Data Size: 6008 samples, Test Ratio: 0.3

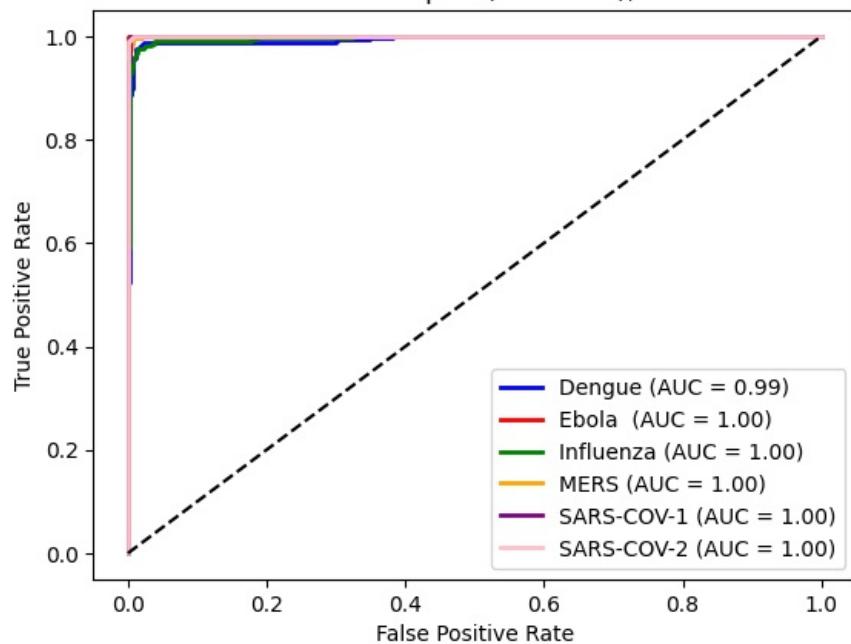
- Accuracy: 0.9717
- Precision: 0.9525
- Recall: 0.9809
- F1_score: 0.9651

Confusion Matrix for 6008 samples (75% data), Test Ratio: 30%

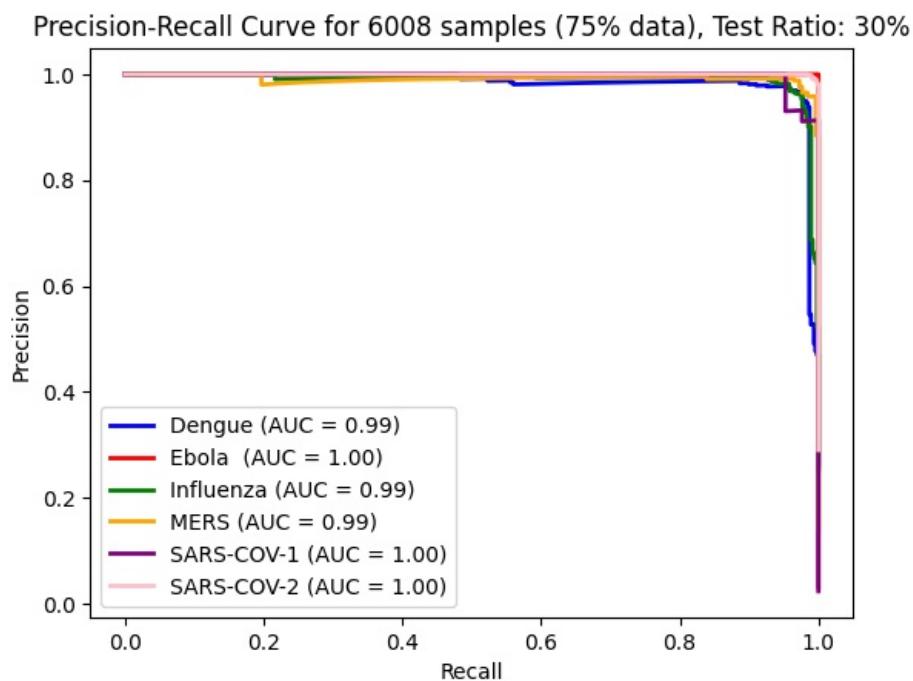


ROC Curve for 6008 samples (75% data), Test Ratio: 30%

ROC Curve for 6008 samples (75% data), Test Ratio: 30%

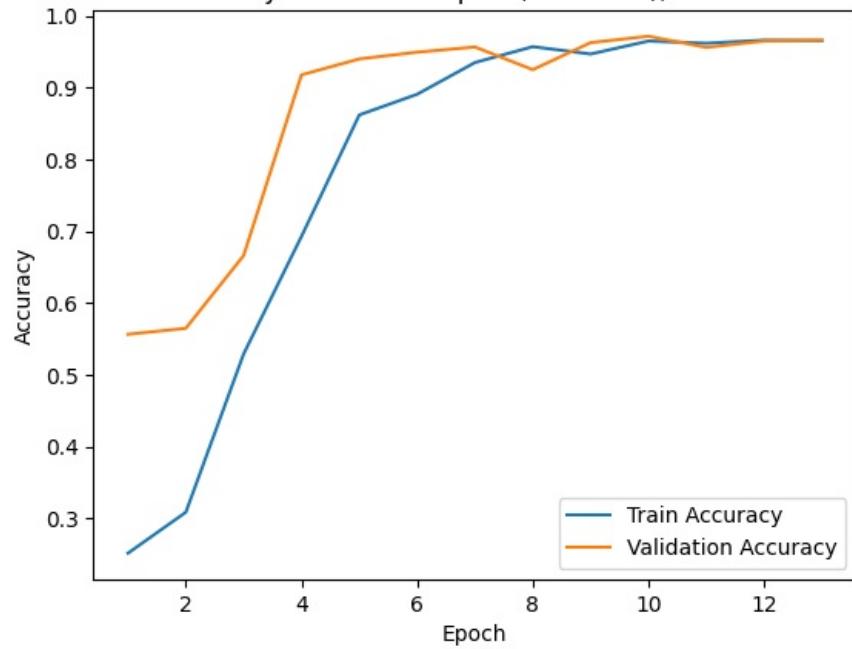


Precision-Recall Curve for 6008 samples (75% data), Test Ratio: 30%

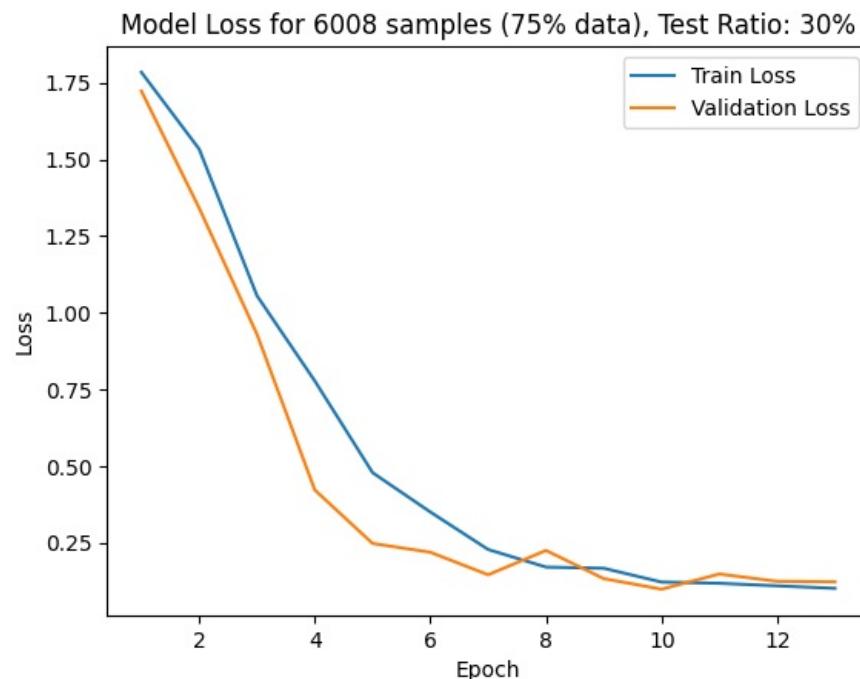


Model Accuracy for 6008 samples (75% data), Test Ratio: 30%

Model Accuracy for 6008 samples (75% data), Test Ratio: 30%



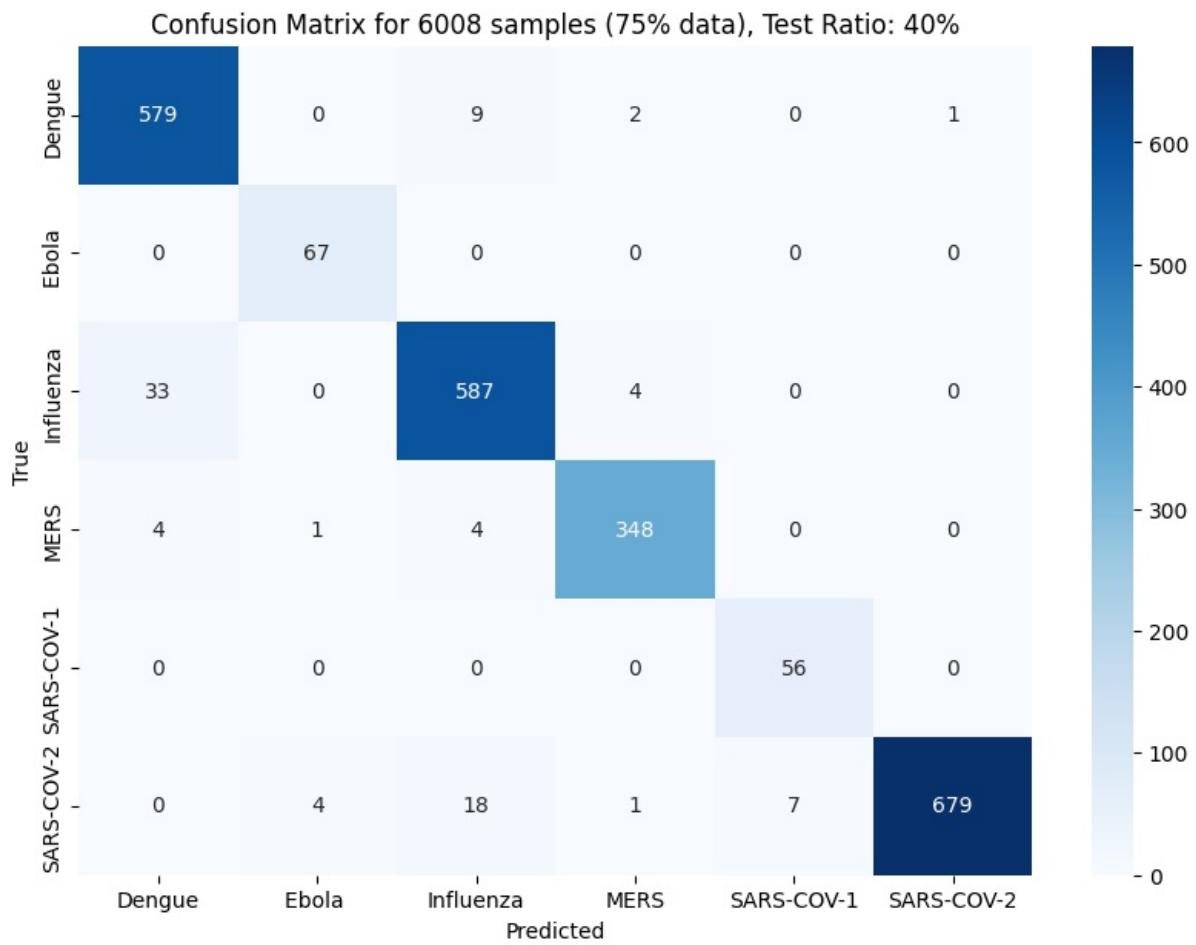
Model Loss for 6008 samples (75% data), Test Ratio: 30%



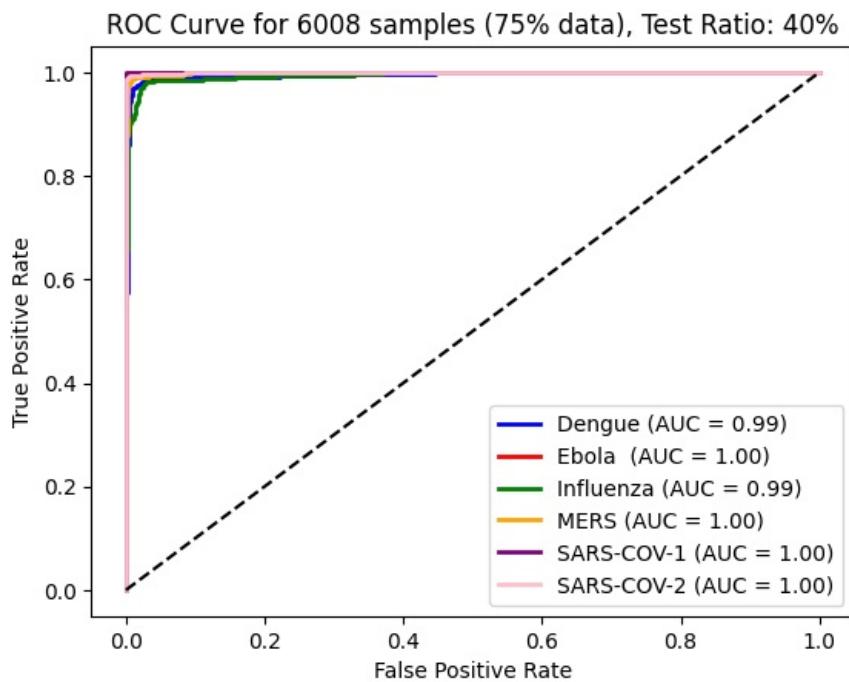
Data Size: 6008 samples, Test Ratio: 0.4

- Accuracy: 0.9634
- Precision: 0.9480
- Recall: 0.9755
- F1_score: 0.9608

Confusion Matrix for 6008 samples (75% data), Test Ratio: 40%

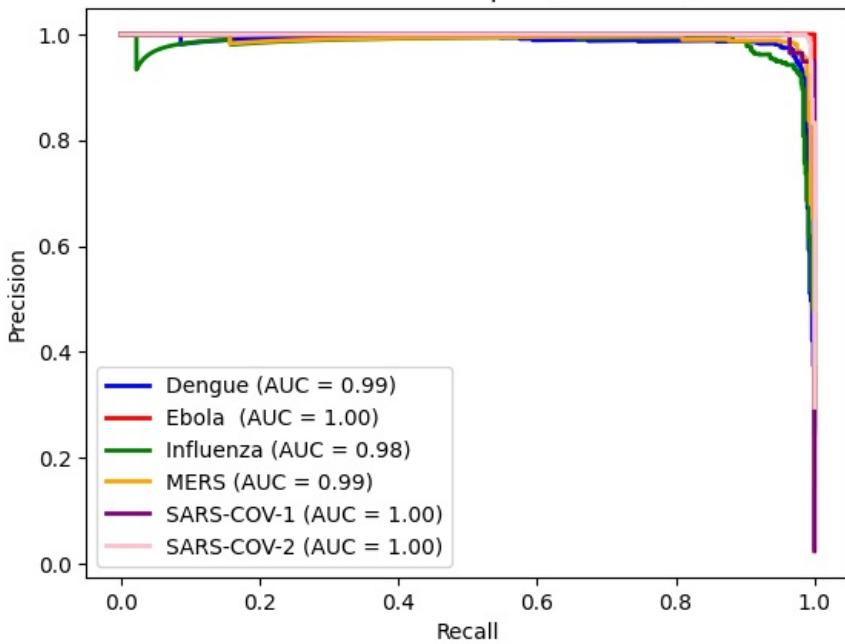


ROC Curve for 6008 samples (75% data), Test Ratio: 40%

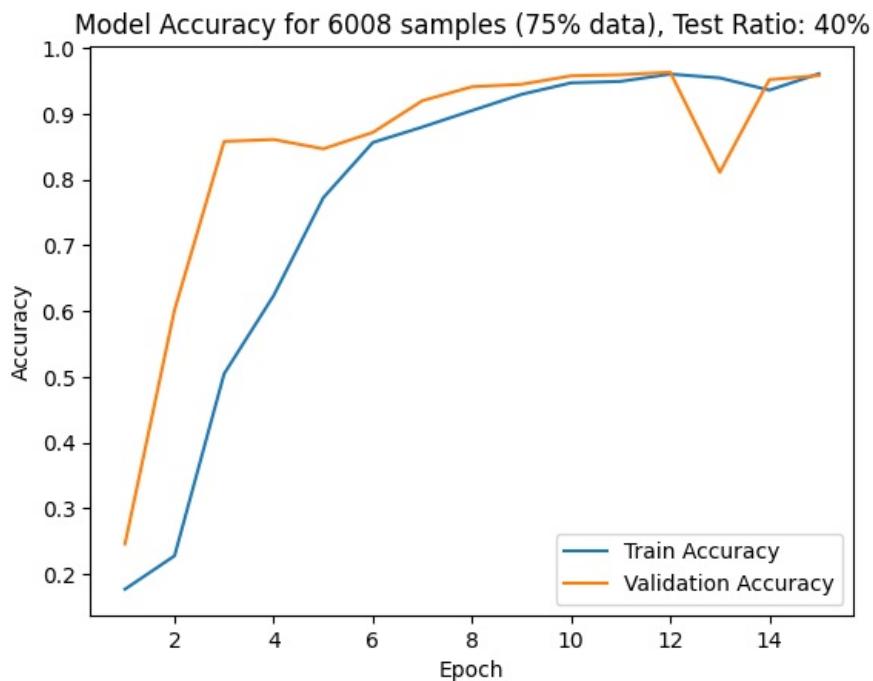


Precision-Recall Curve for 6008 samples (75% data), Test Ratio: 40%

Precision-Recall Curve for 6008 samples (75% data), Test Ratio: 40%

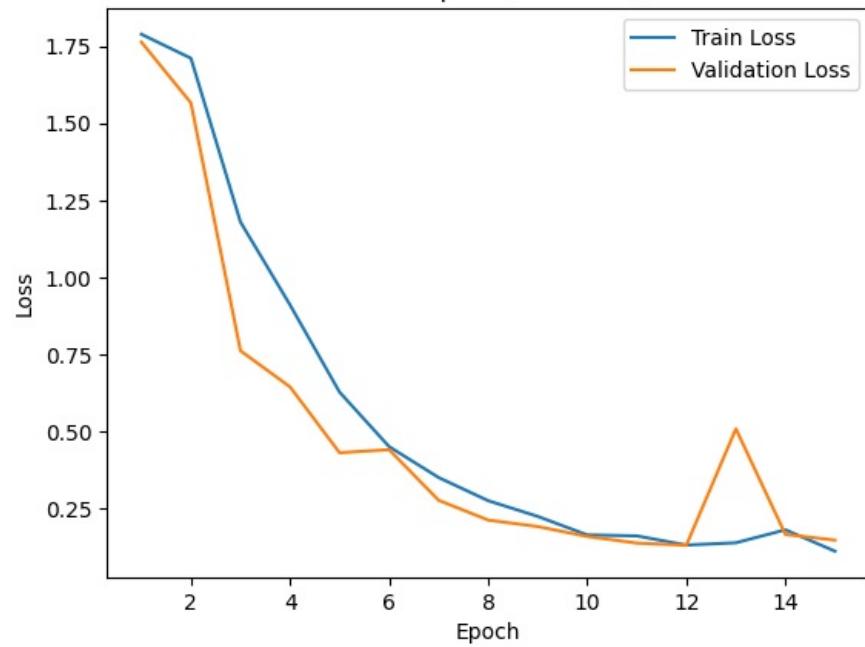


Model Accuracy for 6008 samples (75% data), Test Ratio: 40%



Model Loss for 6008 samples (75% data), Test Ratio: 40%

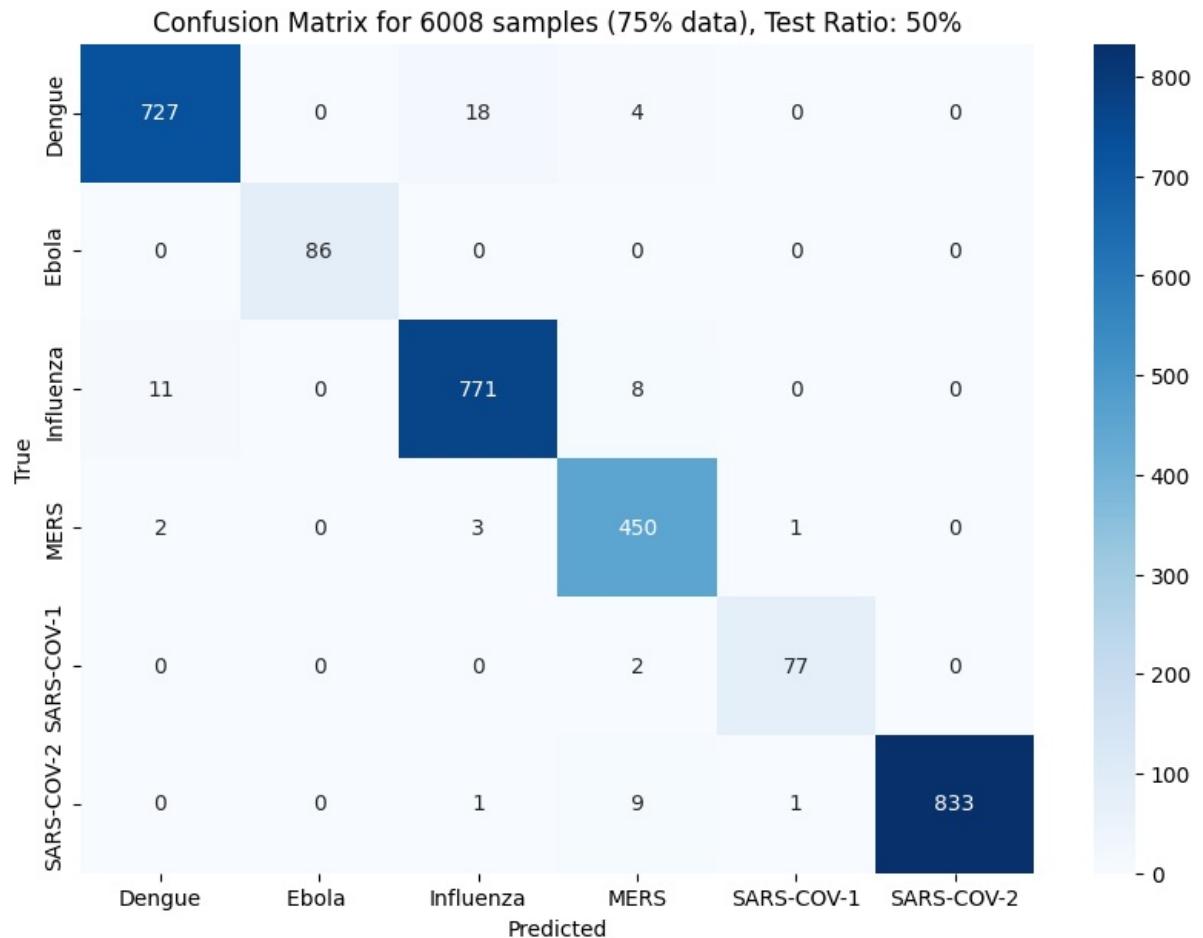
Model Loss for 6008 samples (75% data), Test Ratio: 40%



Data Size: 6008 samples, Test Ratio: 0.5

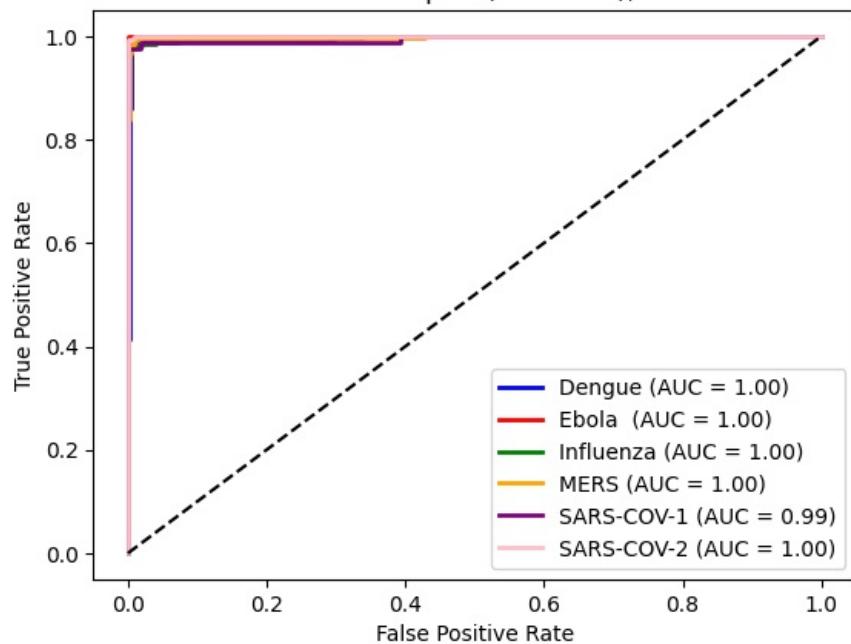
- Accuracy: 0.9800
- Precision: 0.9801
- Recall: 0.9825
- F1_score: 0.9813

Confusion Matrix for 6008 samples (75% data), Test Ratio: 50%

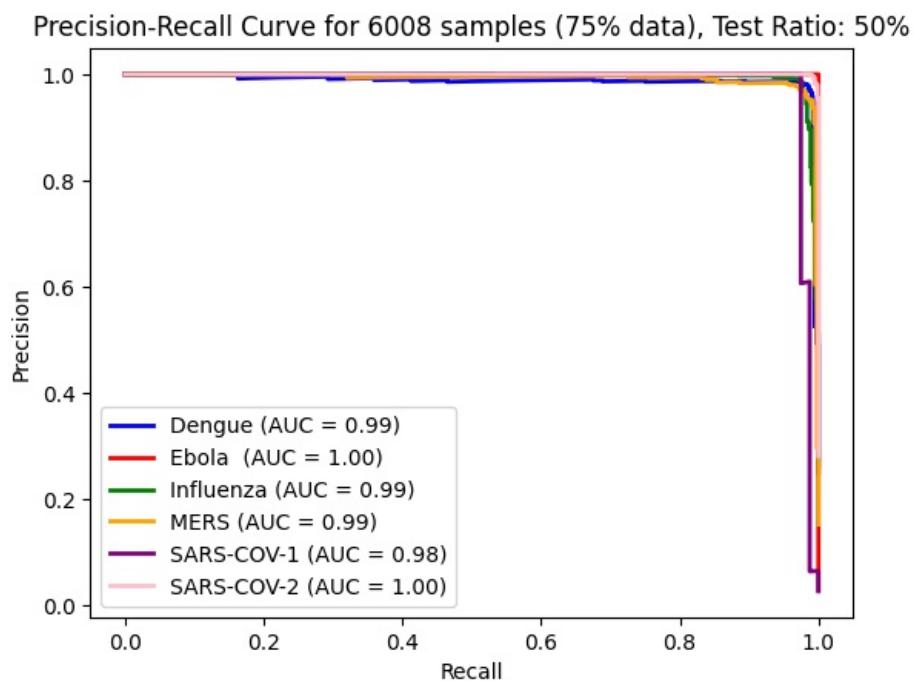


ROC Curve for 6008 samples (75% data), Test Ratio: 50%

ROC Curve for 6008 samples (75% data), Test Ratio: 50%

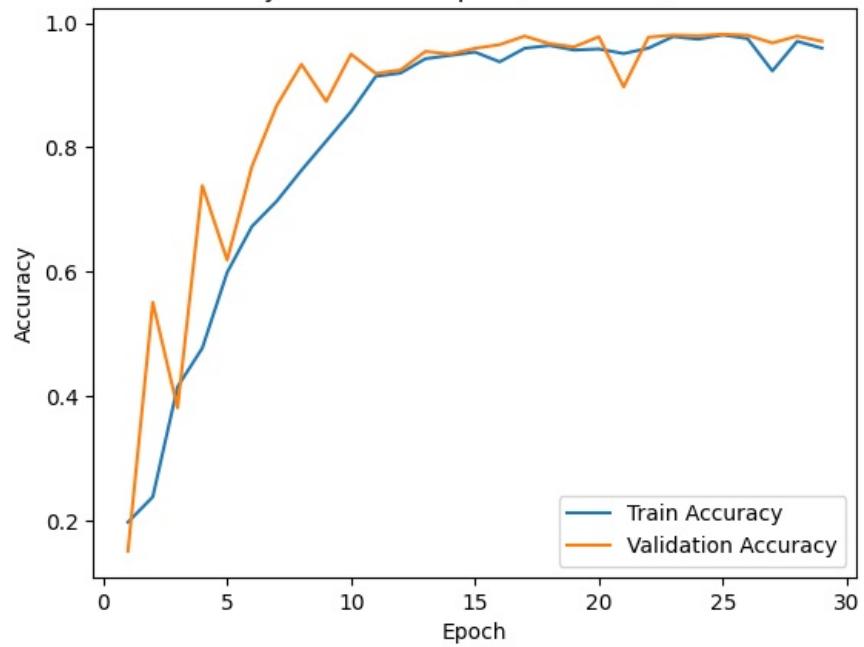


Precision-Recall Curve for 6008 samples (75% data), Test Ratio: 50%

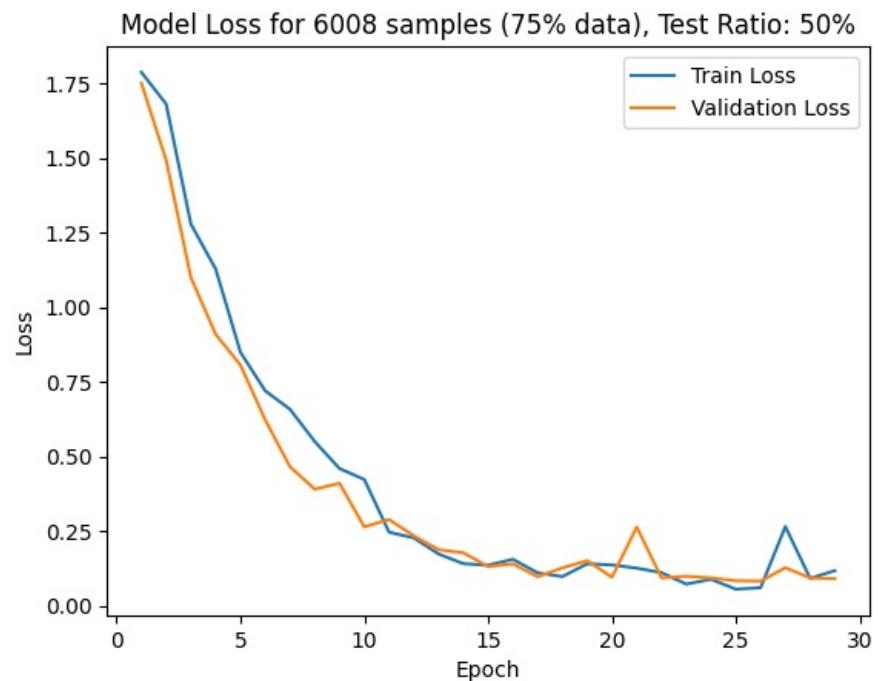


Model Accuracy for 6008 samples (75% data), Test Ratio: 50%

Model Accuracy for 6008 samples (75% data), Test Ratio: 50%



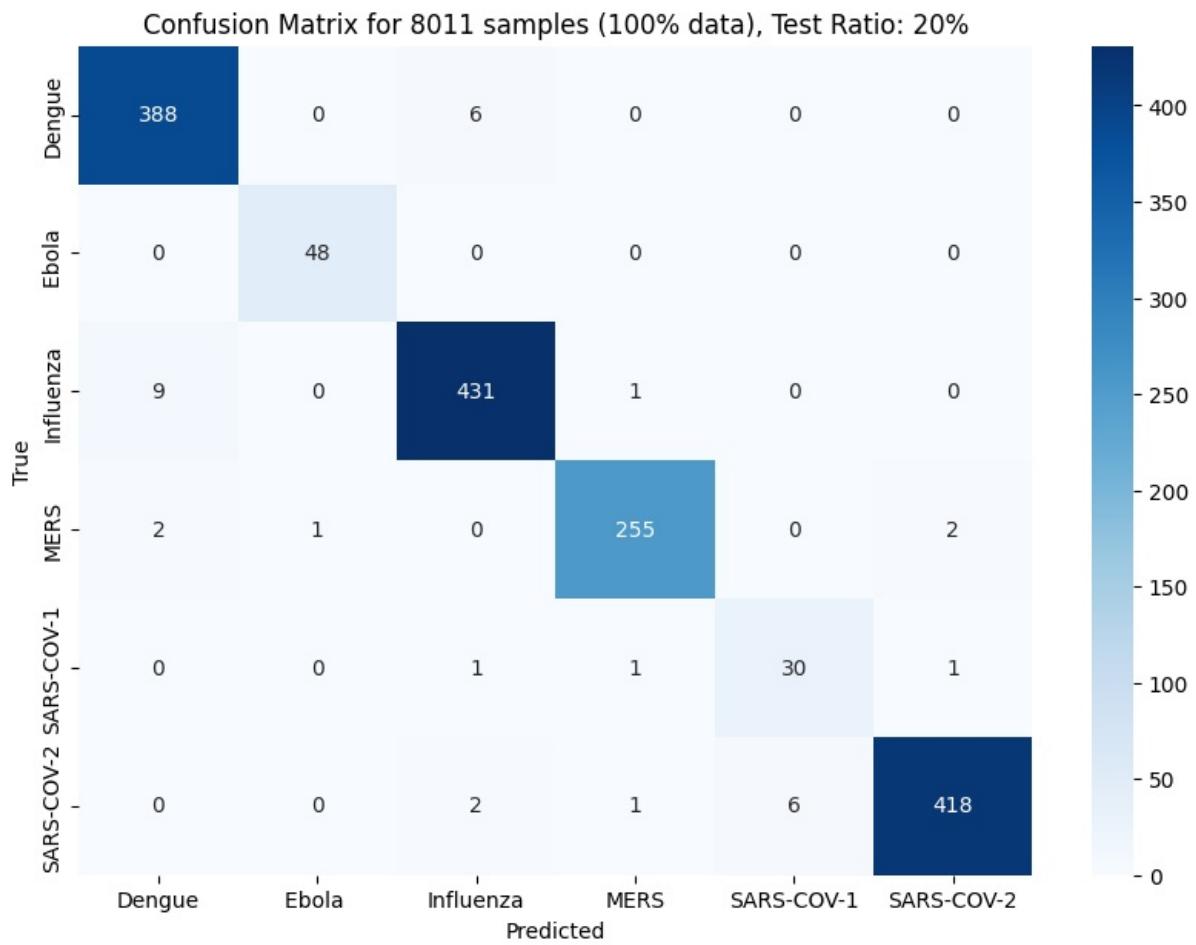
Model Loss for 6008 samples (75% data), Test Ratio: 50%



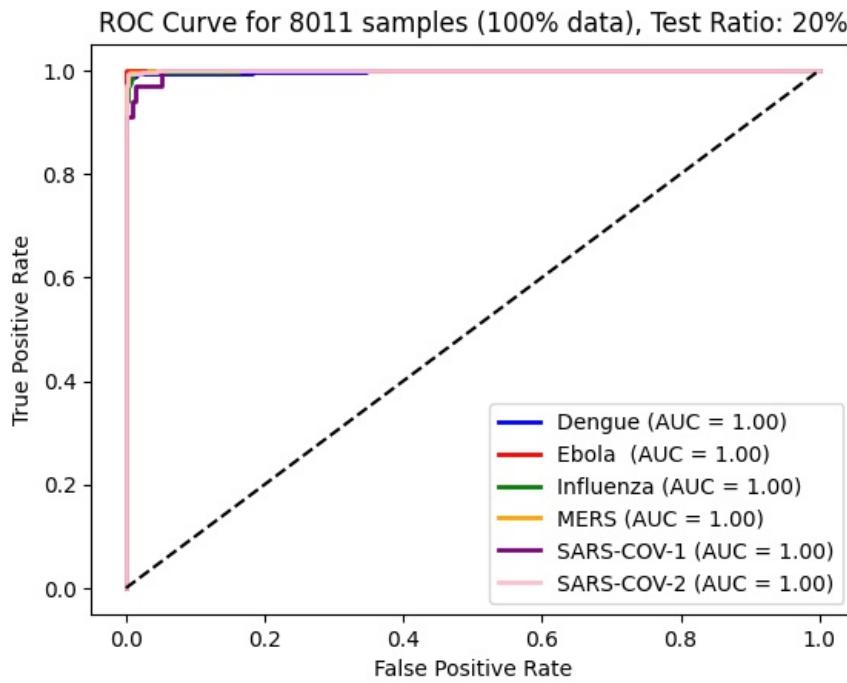
Data Size: 8011 samples, Test Ratio: 0.2

- Accuracy: 0.9794
- Precision: 0.9577
- Recall: 0.9718
- F1_score: 0.9644

Confusion Matrix for 8011 samples (100% data), Test Ratio: 20%

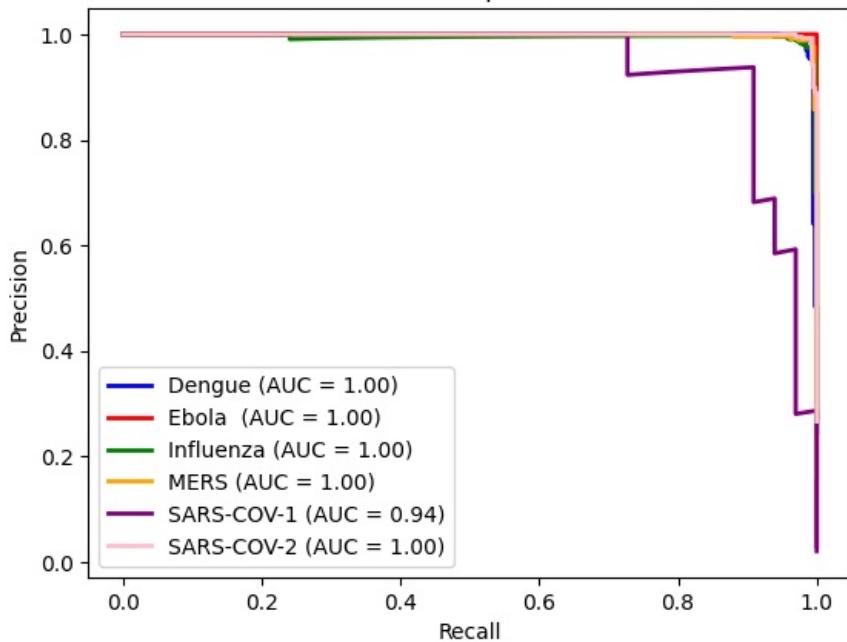


ROC Curve for 8011 samples (100% data), Test Ratio: 20%

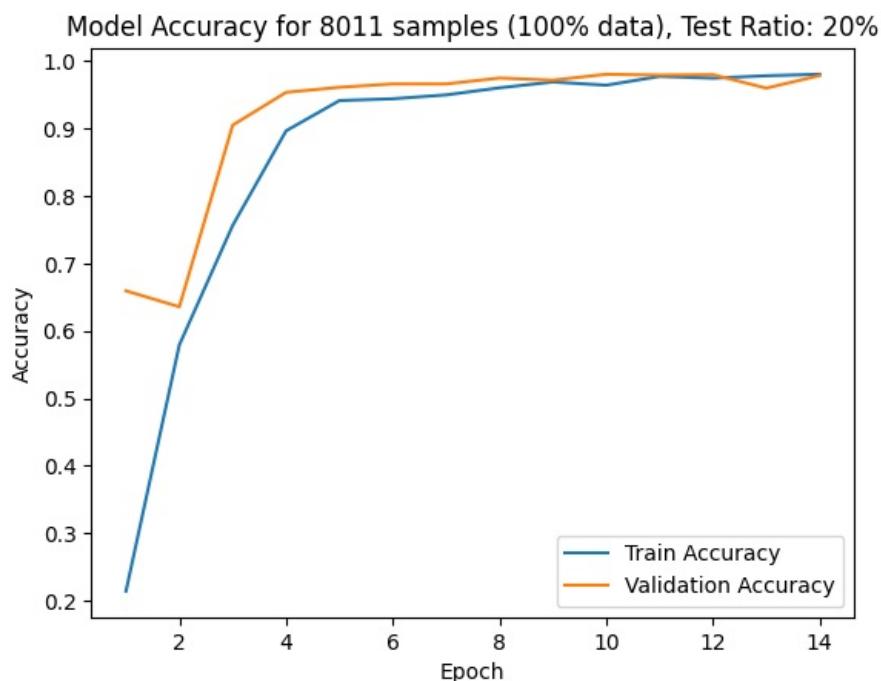


Precision-Recall Curve for 8011 samples (100% data), Test Ratio: 20%

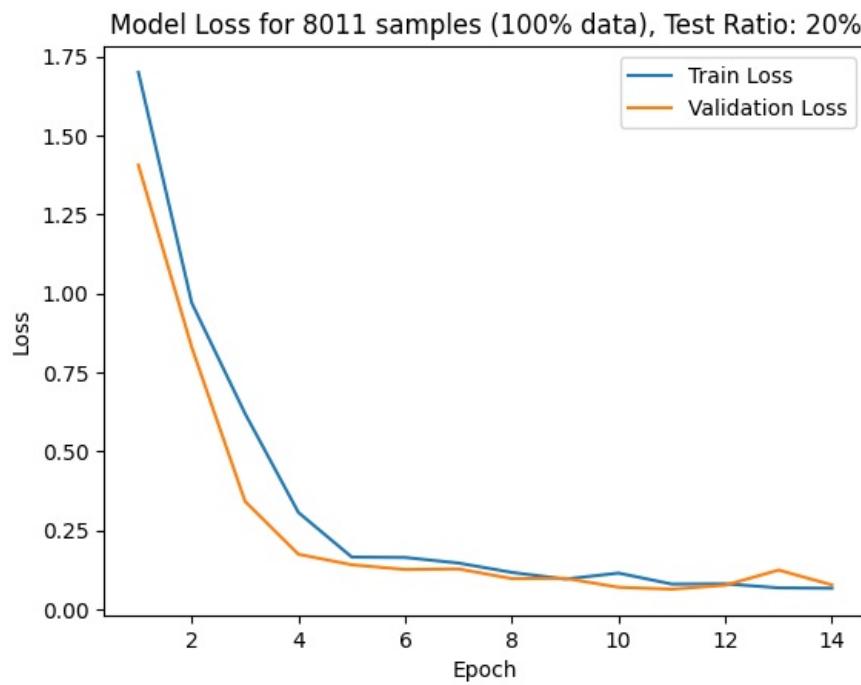
Precision-Recall Curve for 8011 samples (100% data), Test Ratio: 20%



Model Accuracy for 8011 samples (100% data), Test Ratio: 20%



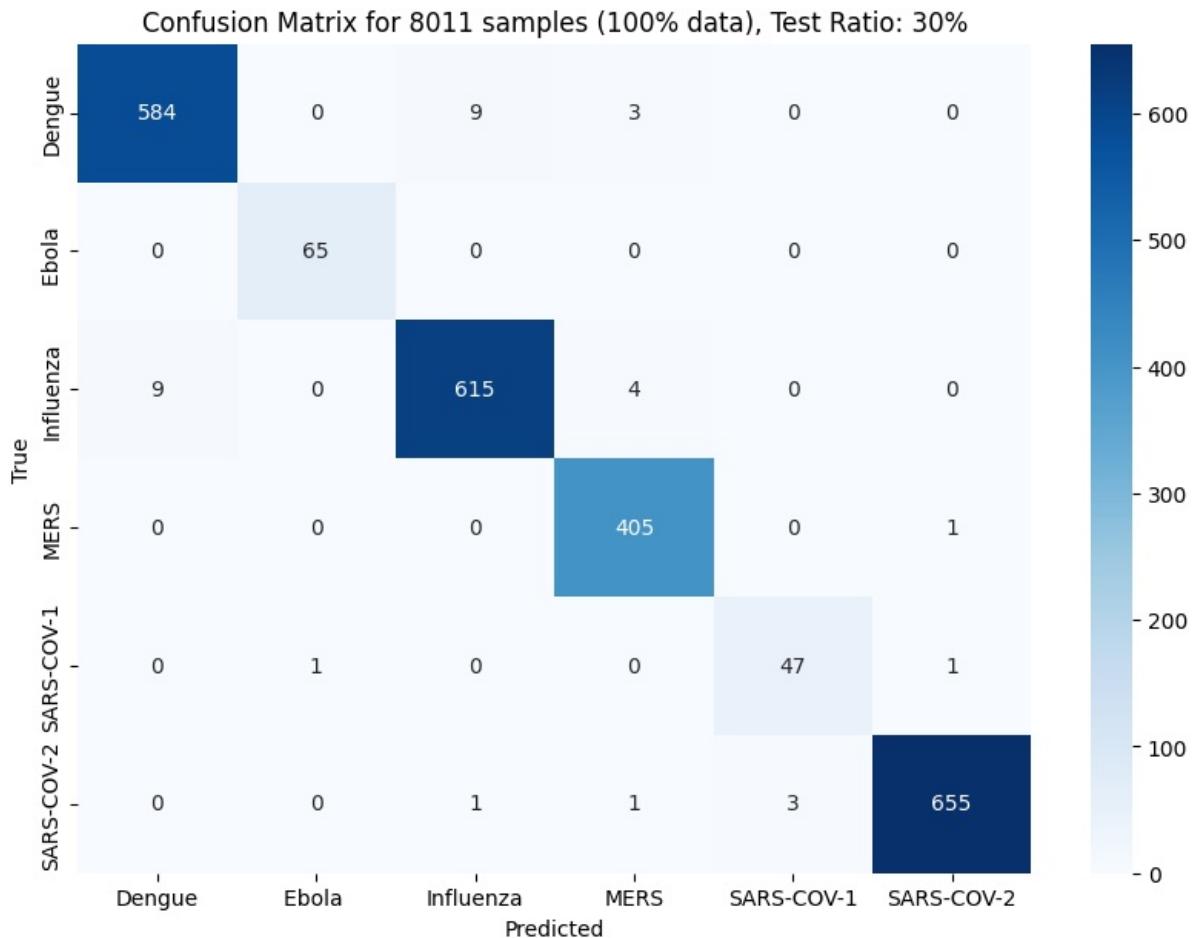
Model Loss for 8011 samples (100% data), Test Ratio: 20%



Data Size: 8011 samples, Test Ratio: 0.3

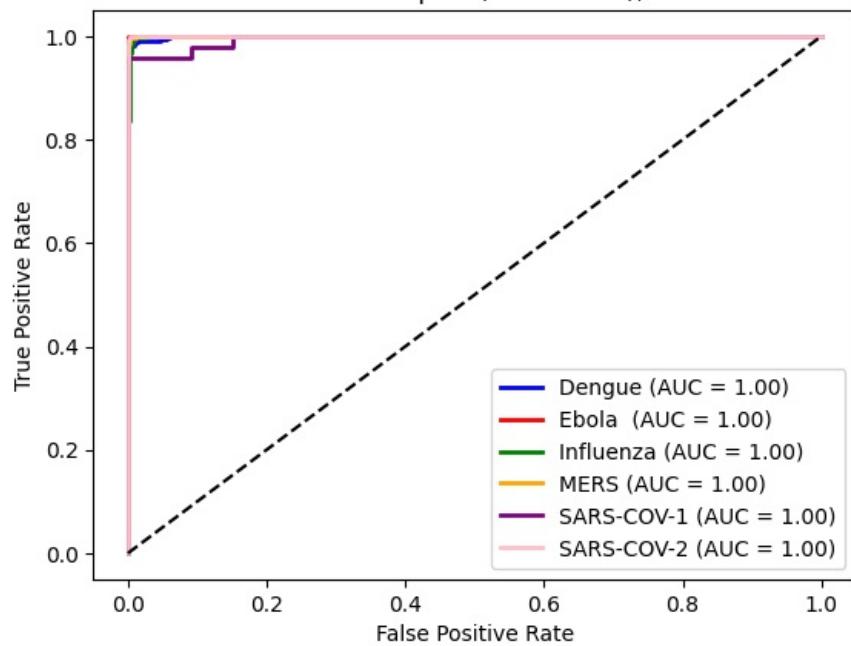
- Accuracy: 0.9863
- Precision: 0.9785
- Recall: 0.9847
- F1_score: 0.9816

Confusion Matrix for 8011 samples (100% data), Test Ratio: 30%

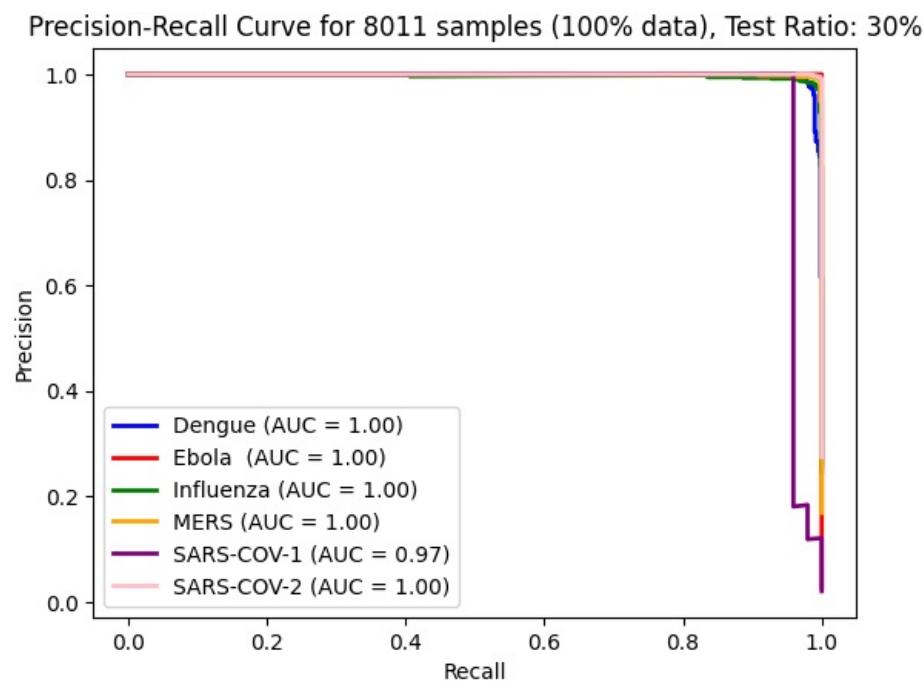


ROC Curve for 8011 samples (100% data), Test Ratio: 30%

ROC Curve for 8011 samples (100% data), Test Ratio: 30%

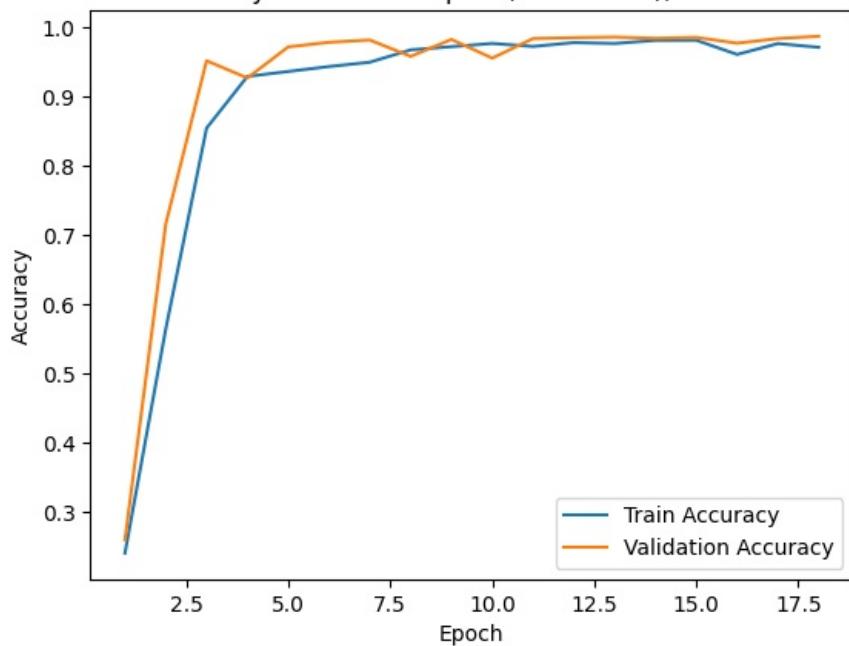


Precision-Recall Curve for 8011 samples (100% data), Test Ratio: 30%

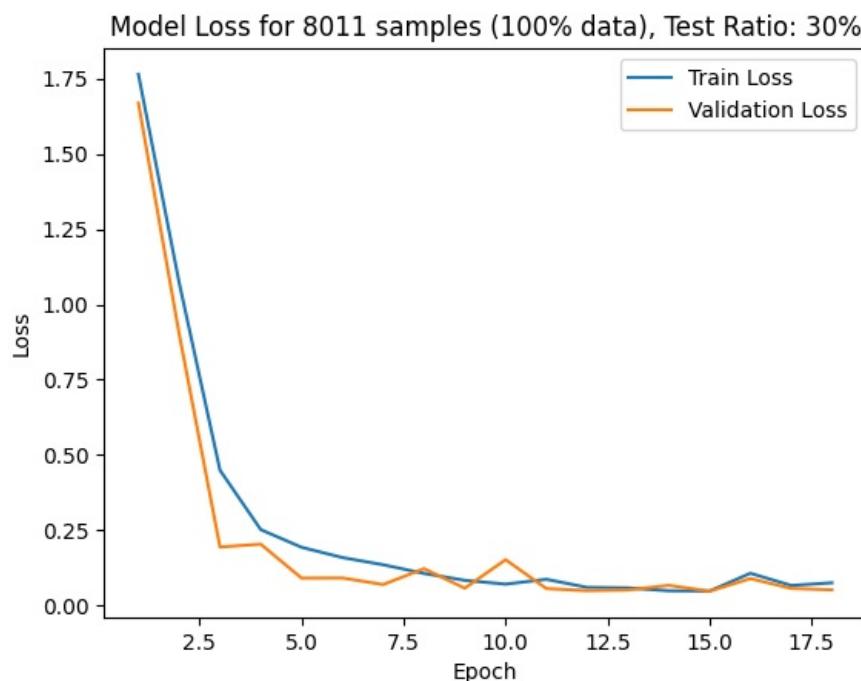


Model Accuracy for 8011 samples (100% data), Test Ratio: 30%

Model Accuracy for 8011 samples (100% data), Test Ratio: 30%



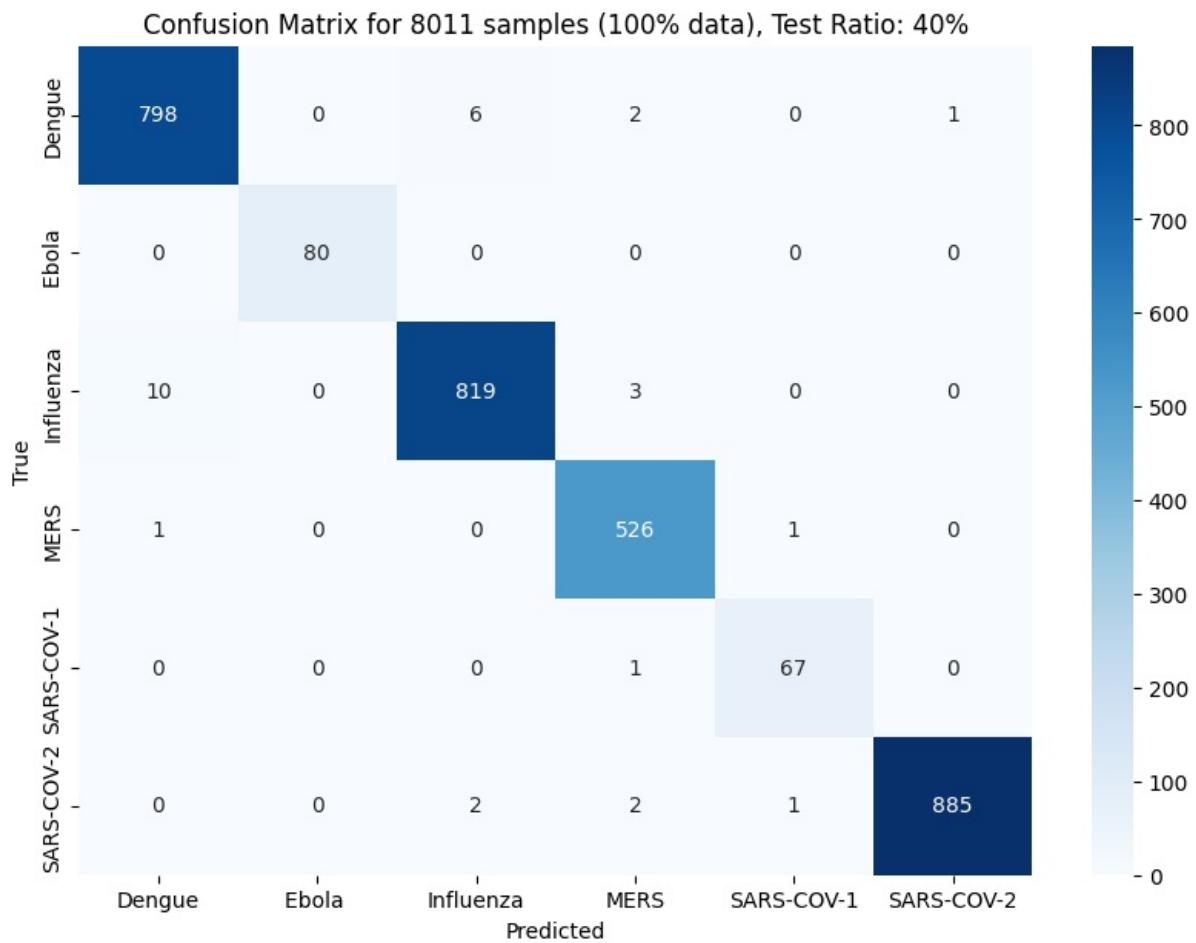
Model Loss for 8011 samples (100% data), Test Ratio: 30%



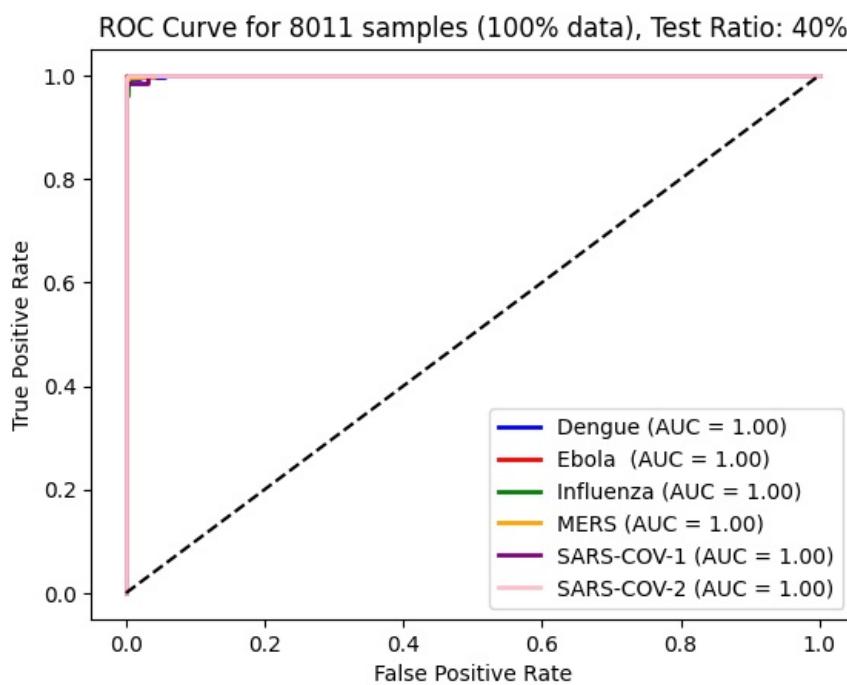
Data Size: 8011 samples, Test Ratio: 0.4

- Accuracy: 0.9906
- Precision: 0.9886
- Recall: 0.9915
- F1_score: 0.9900

Confusion Matrix for 8011 samples (100% data), Test Ratio: 40%

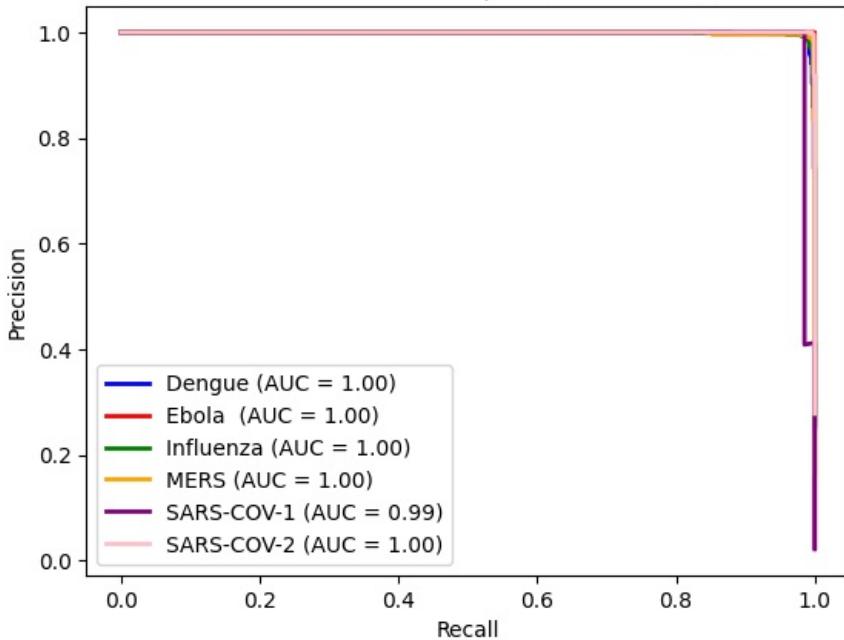


ROC Curve for 8011 samples (100% data), Test Ratio: 40%

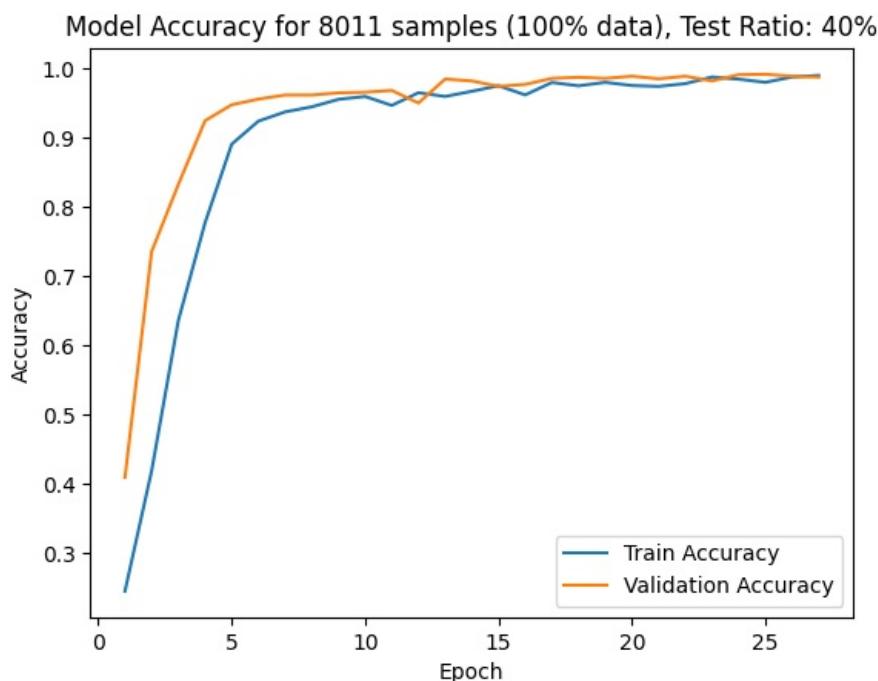


Precision-Recall Curve for 8011 samples (100% data), Test Ratio: 40%

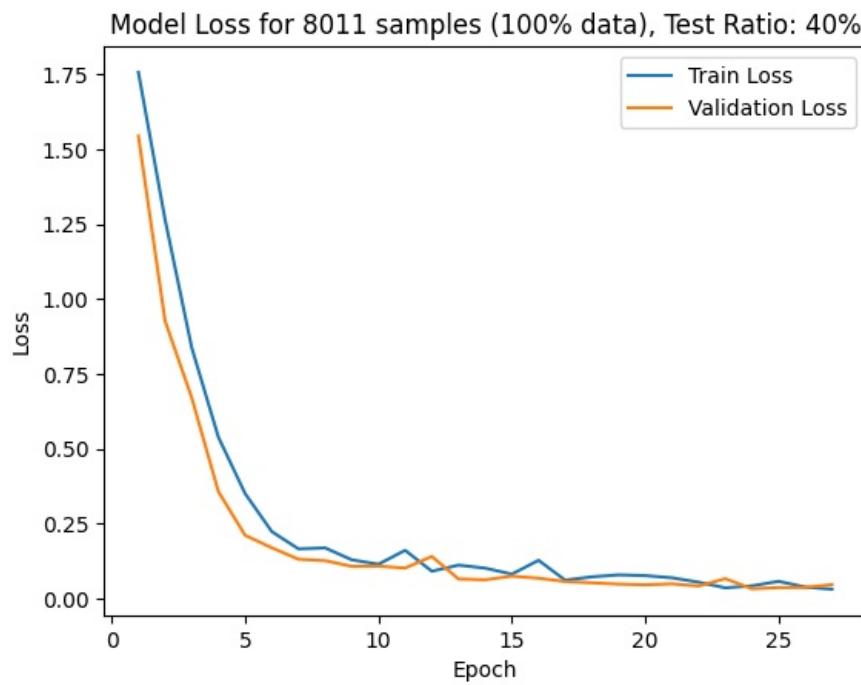
Precision-Recall Curve for 8011 samples (100% data), Test Ratio: 40%



Model Accuracy for 8011 samples (100% data), Test Ratio: 40%



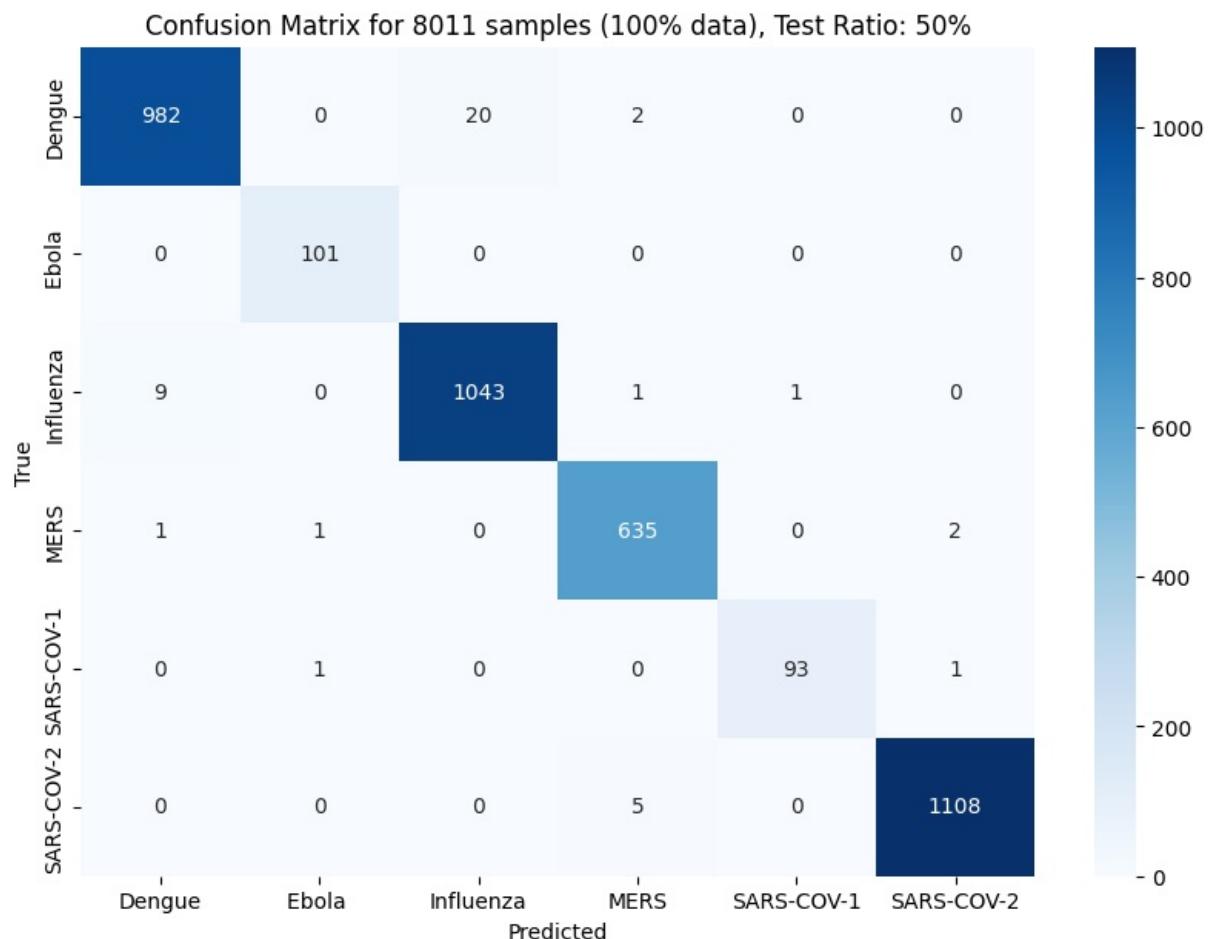
Model Loss for 8011 samples (100% data), Test Ratio: 40%



Data Size: 8011 samples, Test Ratio: 0.5

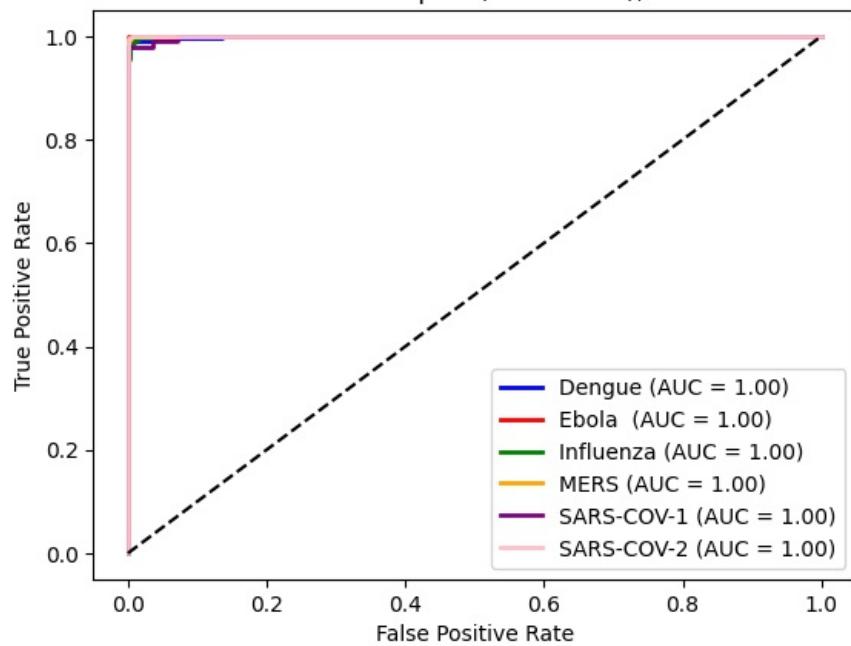
- Accuracy: 0.9890
- Precision: 0.9877
- Recall: 0.9893
- F1_score: 0.9884

Confusion Matrix for 8011 samples (100% data), Test Ratio: 50%

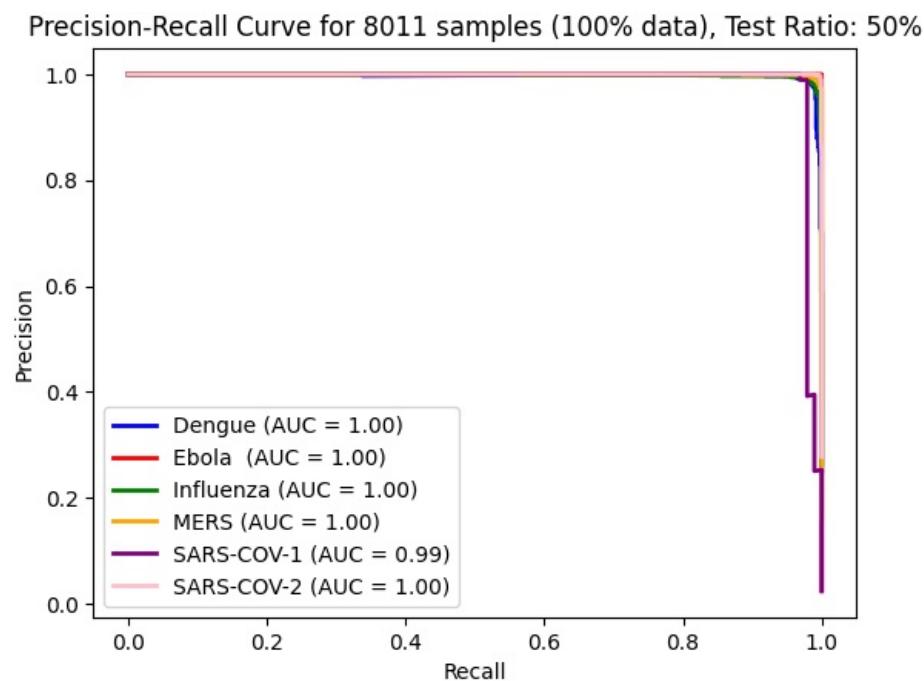


ROC Curve for 8011 samples (100% data), Test Ratio: 50%

ROC Curve for 8011 samples (100% data), Test Ratio: 50%

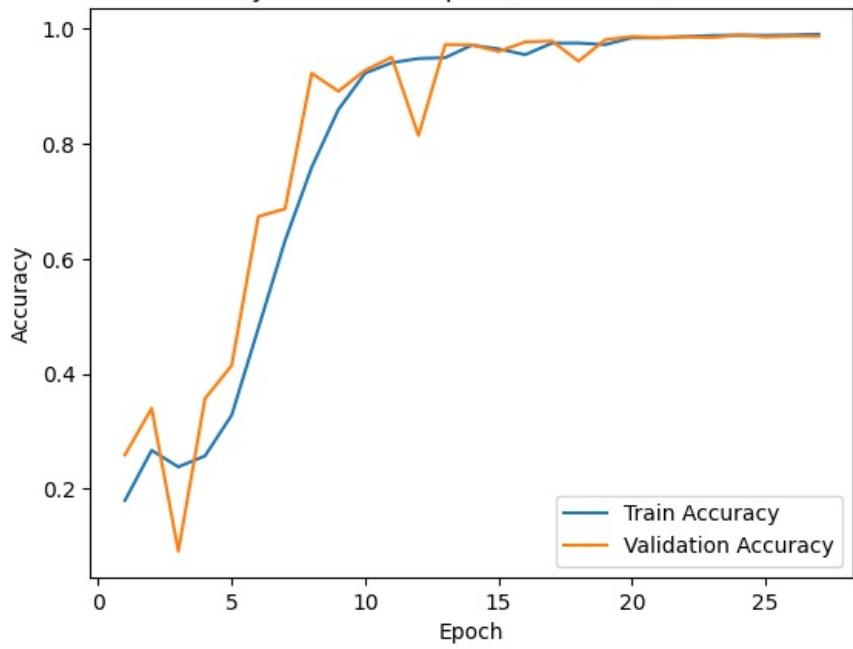


Precision-Recall Curve for 8011 samples (100% data), Test Ratio: 50%



Model Accuracy for 8011 samples (100% data), Test Ratio: 50%

Model Accuracy for 8011 samples (100% data), Test Ratio: 50%



Model Loss for 8011 samples (100% data), Test Ratio: 50%

