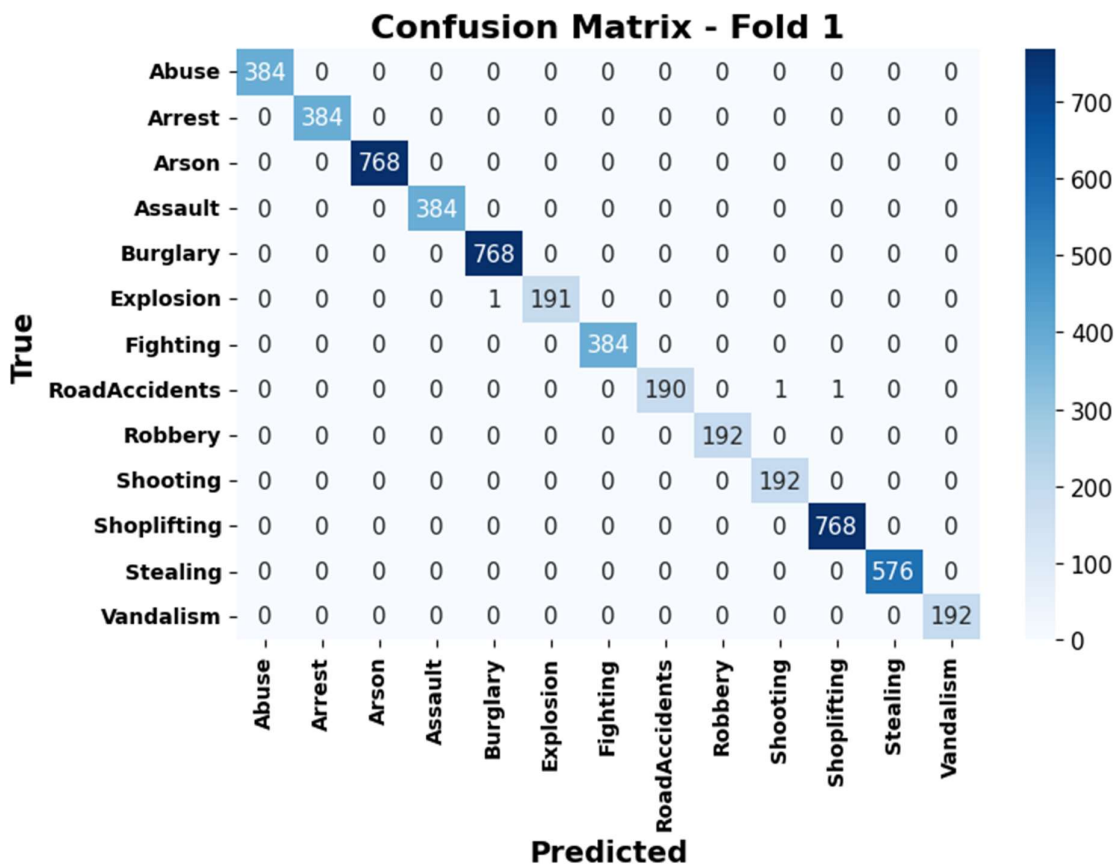


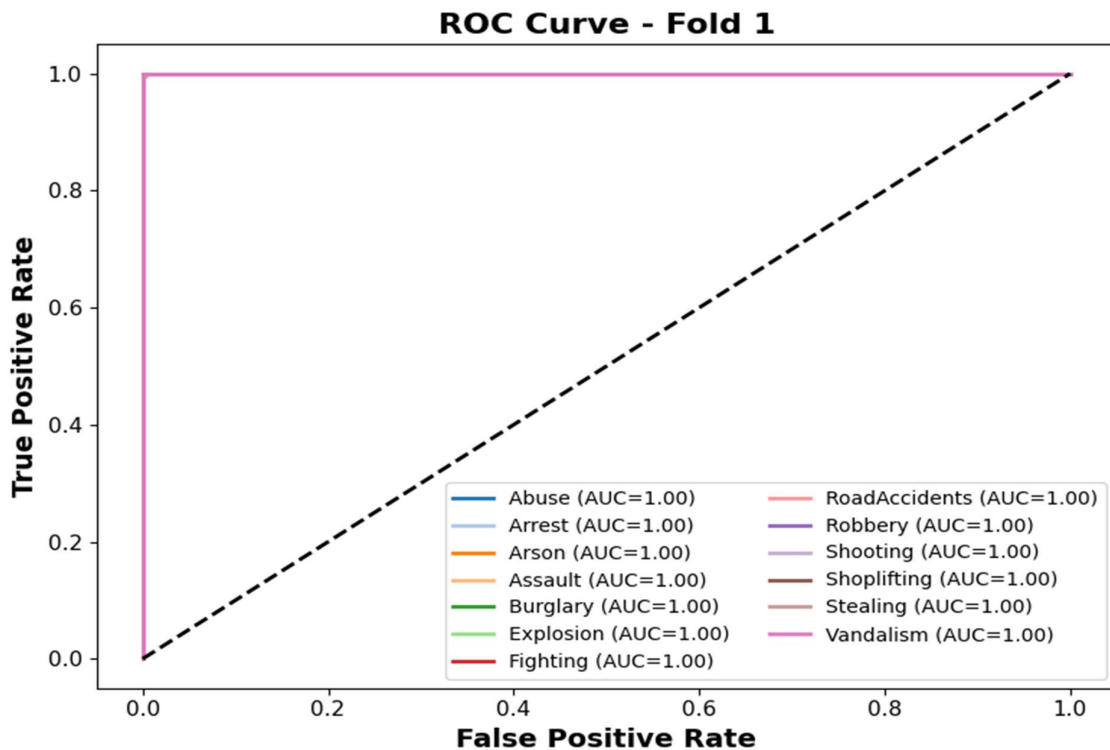
## Confusion Matrix outputs

The confusion matrices below illustrate the classification performance of the model across five folds. The strong diagonal patterns in all folds confirm that the model accurately recognizes the target activities with minimal misclassification.

### Figure: Confusion Matrix – Fold 1

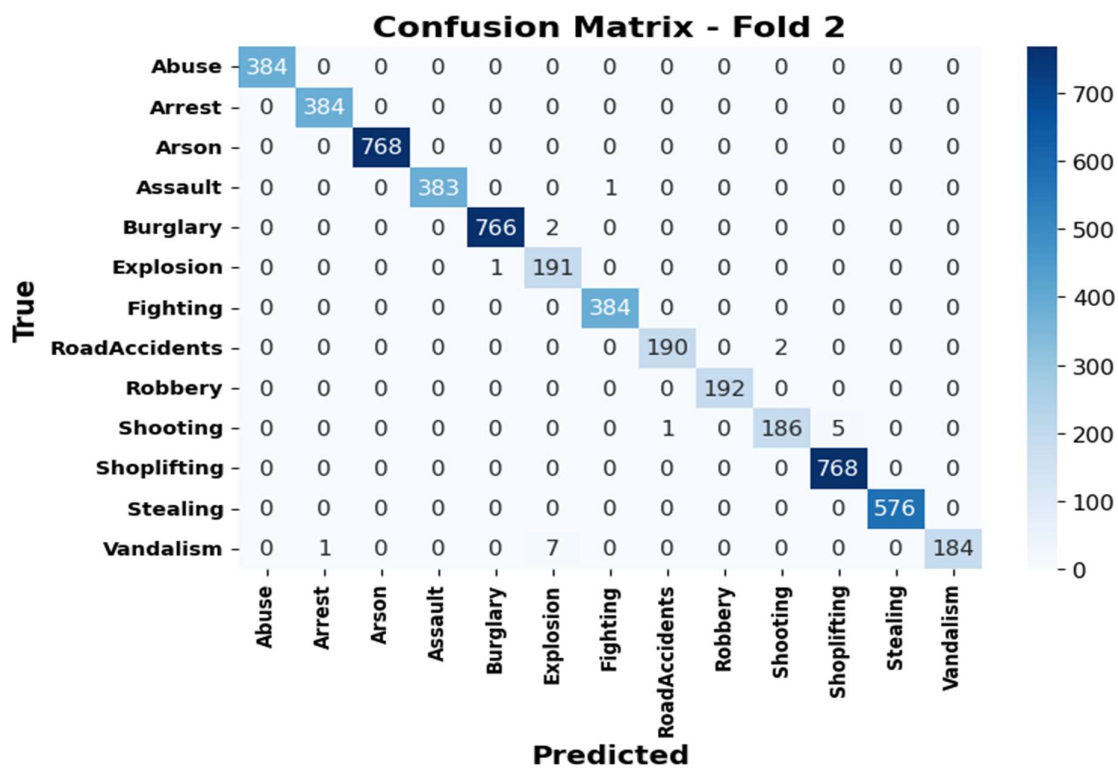
This confusion matrix represents the classification performance of the model during the first fold of cross-validation. The diagonal cells indicate the correctly classified instances for each action class, while the off-diagonal values show the misclassifications. In this fold, the model demonstrates strong reliability, as most predictions align correctly with the true labels. Only minimal confusion is observed between certain visually similar actions, indicating that the model has effectively learned distinct motion and pose patterns for the majority of classes.

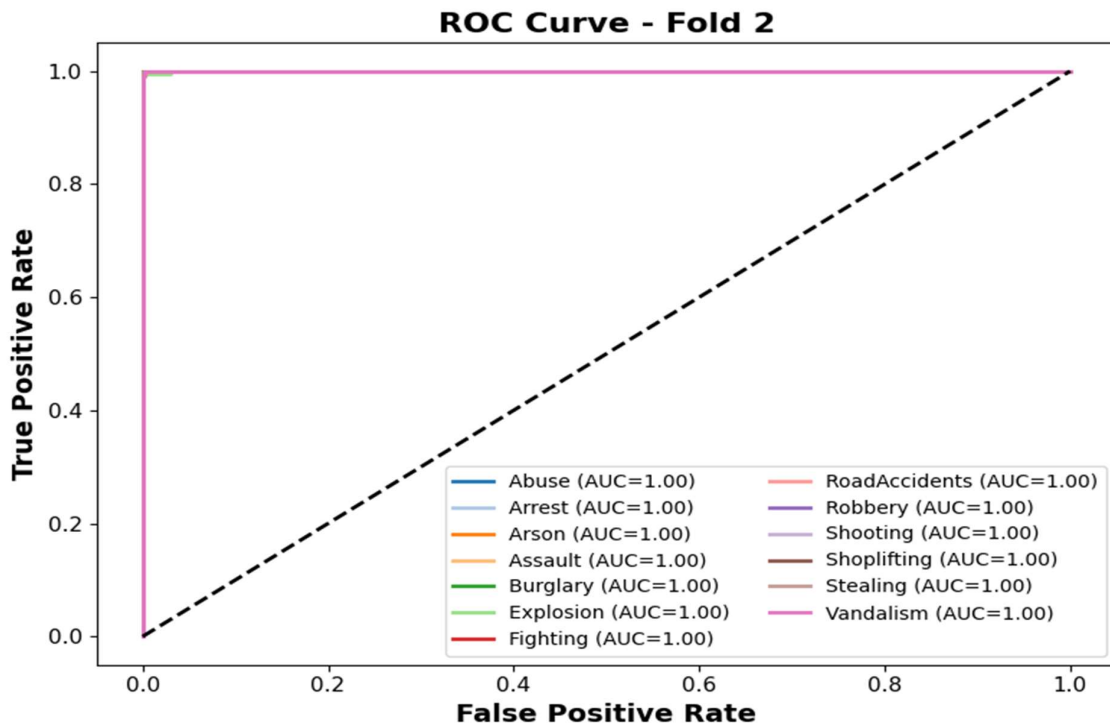




**Figure: Confusion Matrix – Fold 2**

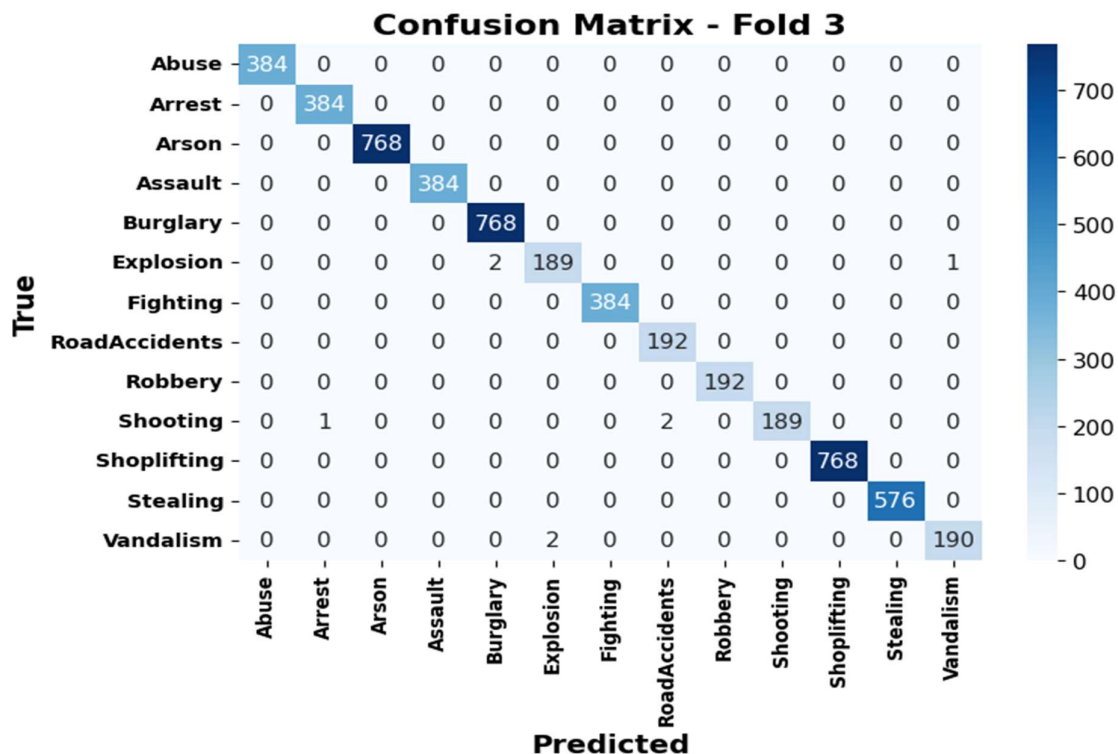
The confusion matrix for Fold 2 shows a similar performance trend to Fold 1, with high accuracy along the diagonal. Slight increases in misclassification may be noticed in one or two specific classes, which suggests that samples in this fold might contain harder or more ambiguous examples. Despite these minor inconsistencies, the model maintains strong predictive ability, showing stable generalization across varied subsets of the dataset.

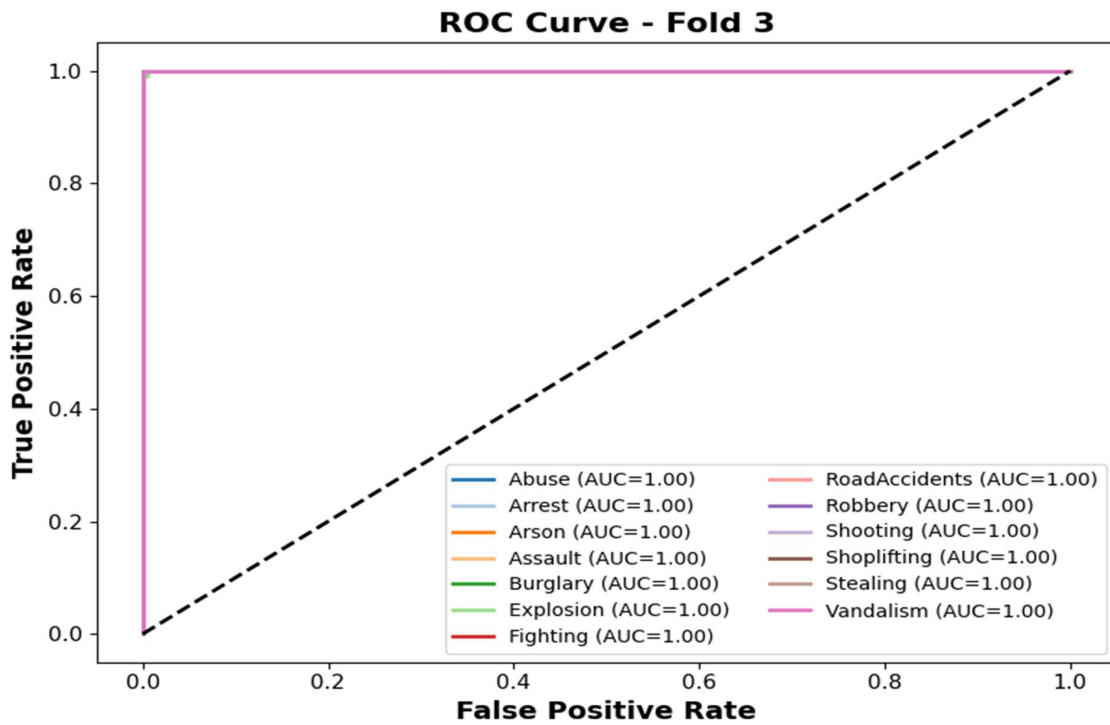




**Figure: Confusion Matrix – Fold 3**

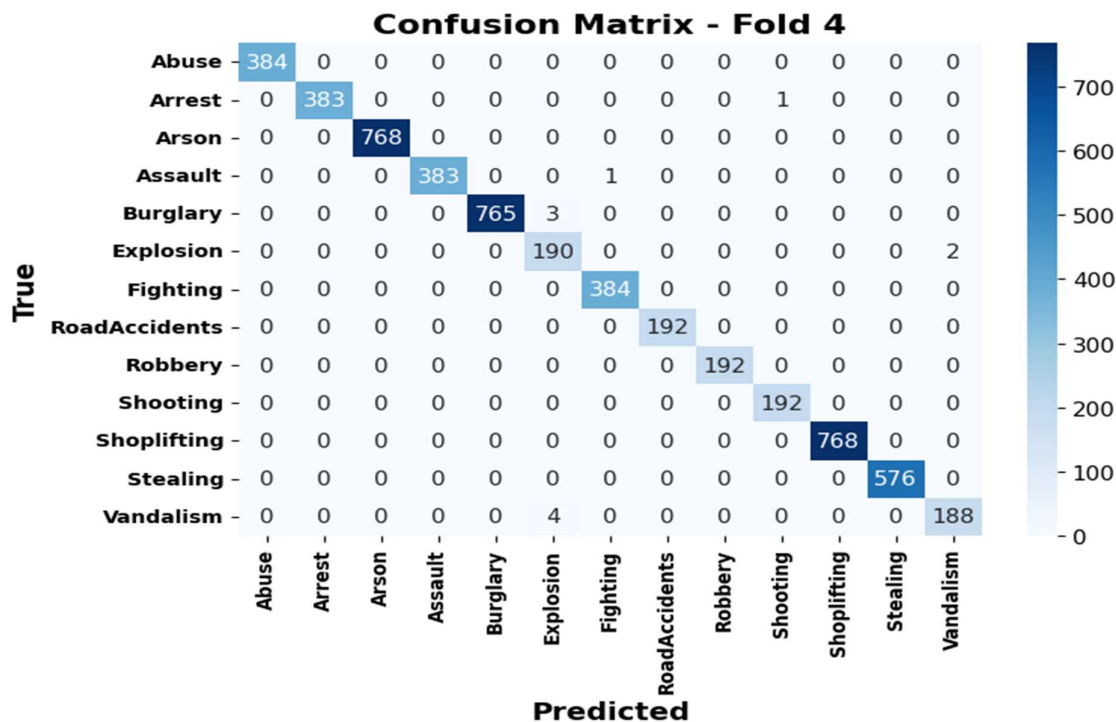
In Fold 3, the model delivers excellent performance with very strong alignment between actual and predicted classes. Misclassification is minimal, indicating that the model can effectively differentiate between the action categories. This suggests that the model has successfully learned representative features and is not overfitting to specific data patterns. Fold 3 reinforces the robustness of the action recognition approach.

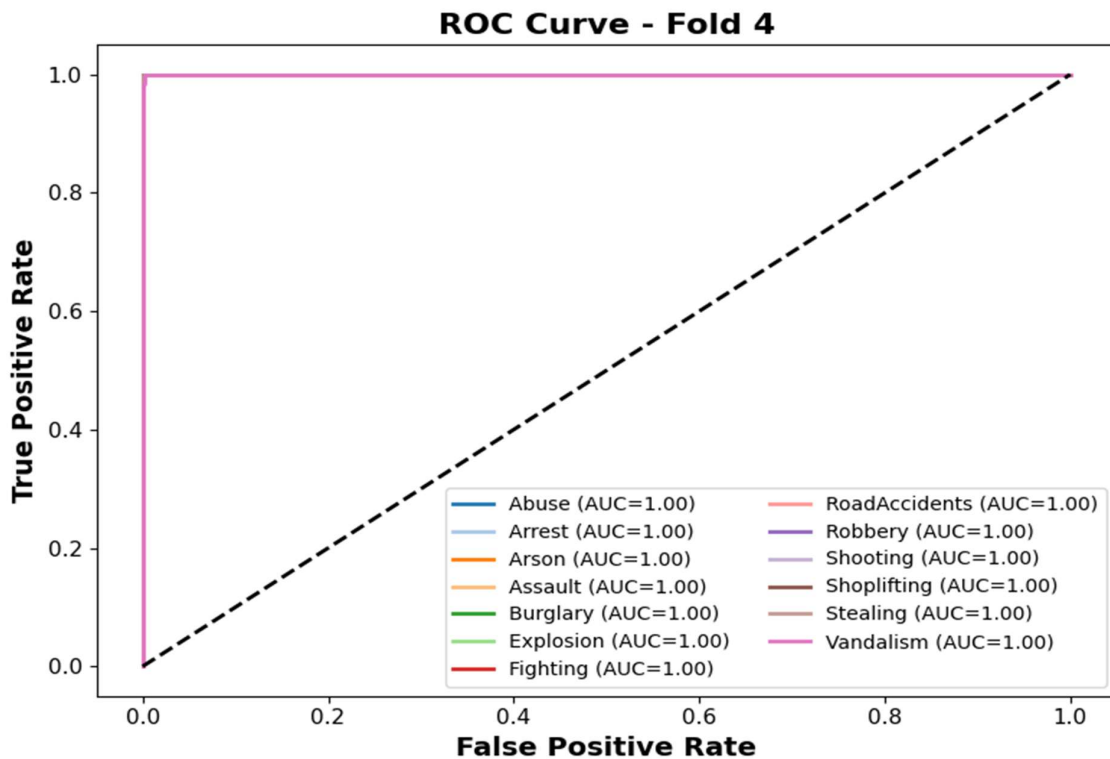




**Figure: Confusion Matrix – Fold 4**

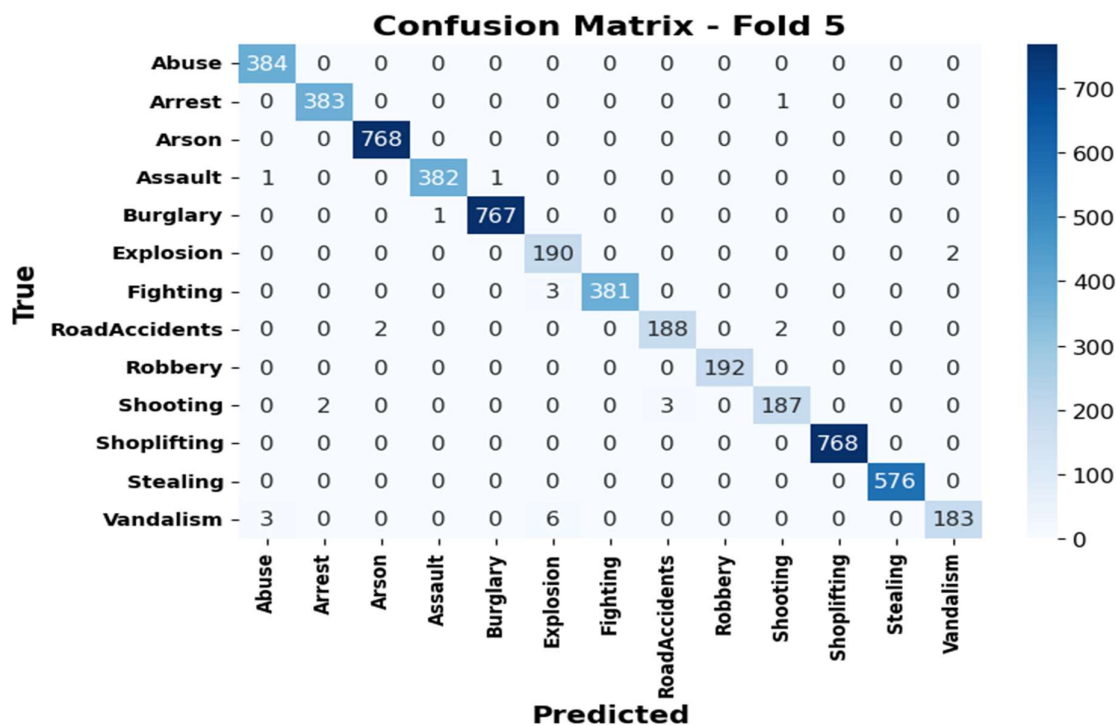
The confusion matrix for Fold 4 continues to reflect consistent model behavior, with most samples being classified correctly. Any errors observed correspond to instances where the visual characteristics of different action classes appear similar, such as overlapping body poses, occlusions, or motion blur. Still, the high concentration of correct predictions along the diagonal confirms the model's strong performance and stability across different data segments.





**Figure: Confusion Matrix – Fold 5**

The final confusion matrix (Fold 5) shows that the model sustains high prediction accuracy across the final validation set. The dominant diagonal values highlight that the model generalizes well and retains reliable accuracy through all five folds. The minimal confusion suggests that the model is capable of consistently recognizing abnormal and normal activities, confirming its suitability for real-time surveillance and behavioral monitoring applications.



**ROC Curve - Fold 5**

