CIFAR-10 Image Classification with BoVW and CNN

This application implements image classification on the CIFAR-10 dataset using:

- Bag of Visual Words (BoVW) model with SVM classifier
- Deep Learning approach with ResNet-18 CNN
- Data augmentation techniques

Follow the tasks step by step using the dropdown menu.

Select a task to run:

Task 6.3: Train CNN with Augmentation ⌄

Run Task

Task 6.3: Train CNN with Augmentation

Number of epochs

5

1   20
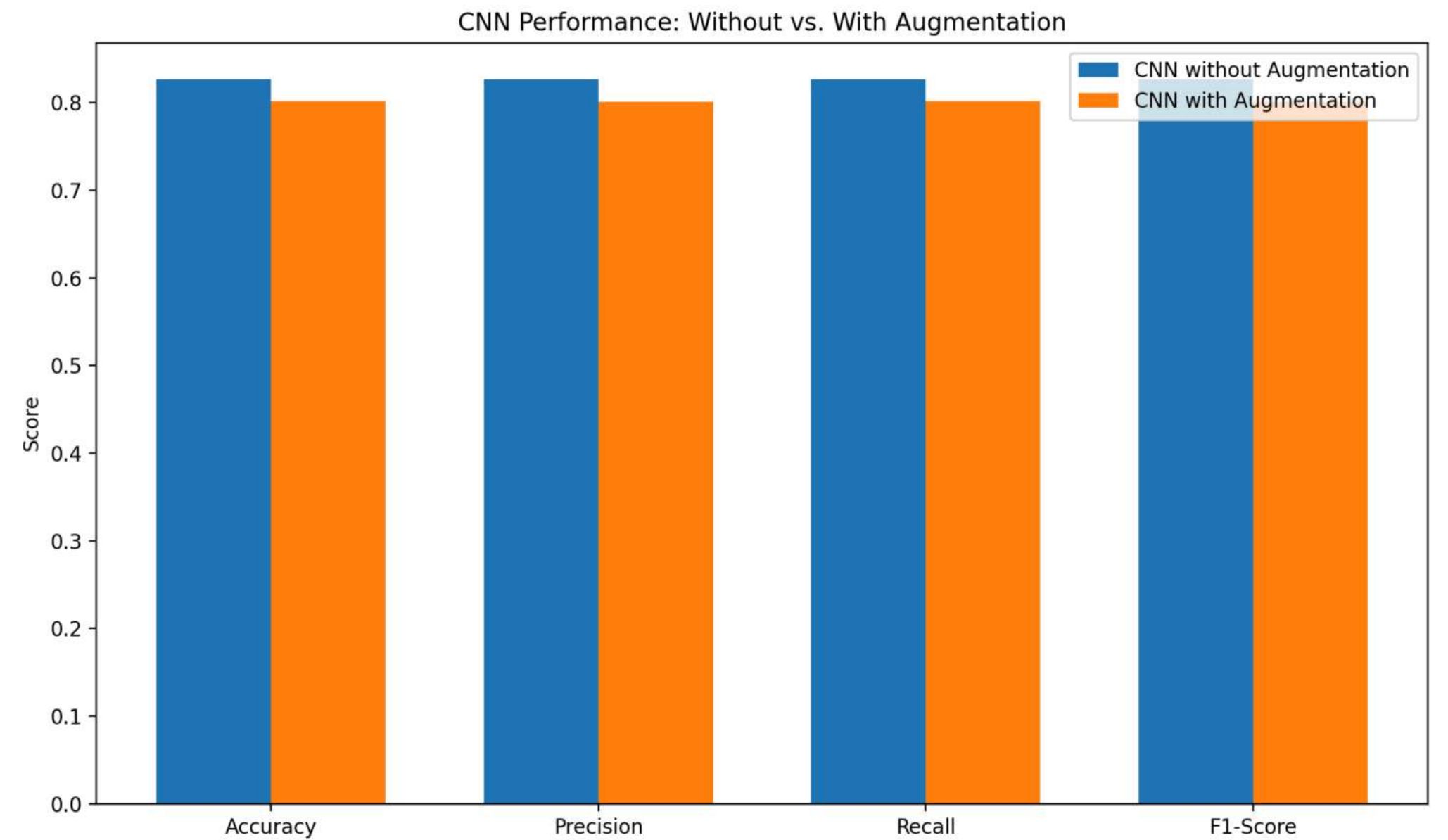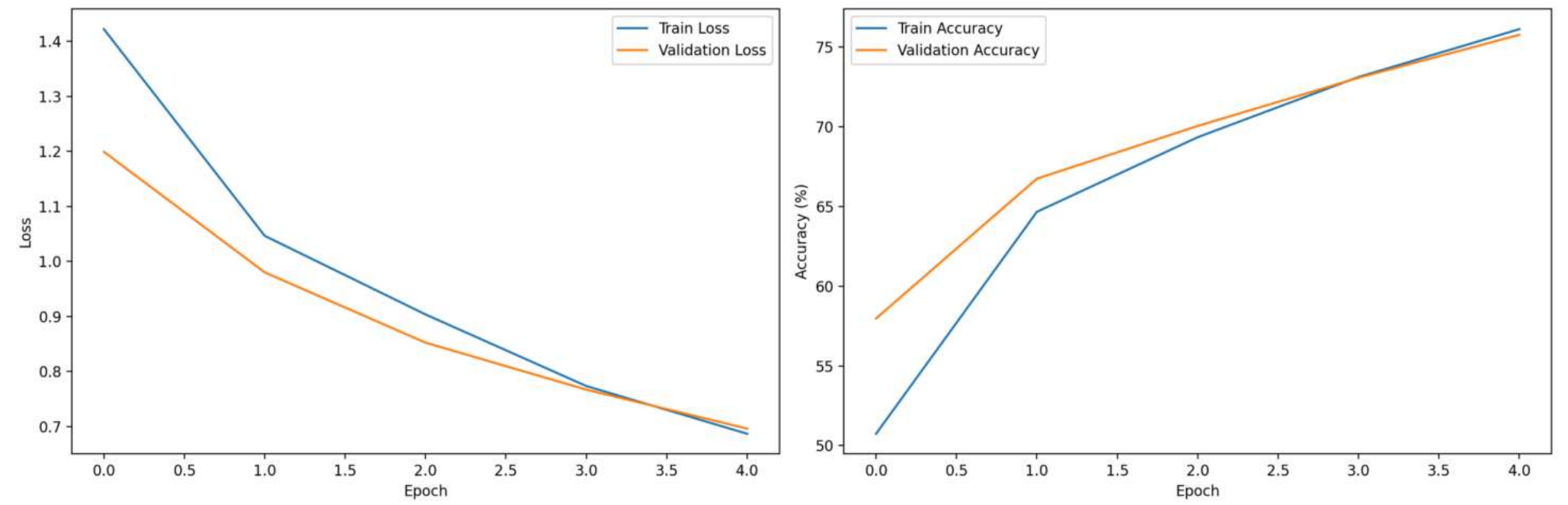
Batch size

128 ⌄

Learning rate

0.010

0.001   0.100

☐ Force retraining (ignore saved model)

CNN Classification Results with Augmentation

Accuracy: 0.8019

Precision: 0.8014

Recall: 0.8019

F1-Score: 0.8009

CNN Performance: Without vs. With Augmentation

Improvement with Data Augmentation

Accuracy: -3.07%

Precision: -3.11%

Recall: -3.07%

F1_score: -3.10%

CNN classifier with augmentation training/loading completed!