

Hyperparameter Tuning

In this section, hyperparameter tuning was performed on the model to improve its performance.

The techniques employed in tuning the model parameters are;

1. GridSearchCV
2. Optuna (A library designed for tuning deep learning models)

GridSearchCV: This is a systematic approach that evaluates all possible combinations of specified hyperparameters. This method allowed me to explore parameters such as the number of filters, kernel sizes, activation functions, batch size, and learning rates. I ran into some errors with it and it was also computationally expensive.

Optuna: I leveraged **Optuna**, an advanced hyperparameter optimization framework. Optuna employs a Bayesian approach, selecting promising hyperparameter combinations based on prior trials. It significantly reduced computation time while yielding competitive results. I focused on optimizing the learning rate schedules, and optimizer types.

It also took a lot of time to run. In all, hyperparameter tuning for CNNs are computationally expensive.