# Comparing the effectiveness of Hyperband with Successive Halving and Multi-fidelity Bayesian Optimization in Optimizing Hyperparameters for Deep RL algorithms

In recent years, several methods have been proposed to optimize hyperparameters for deep RL algorithms, including **Hyperband, Successive Halving**, and **Multi-fidelity Bayesian Optimization**. However, it is unclear which of these methods is the most effective for optimizing hyperparameters in deep RL algorithms.

Problem statement: - The aim of this study is to compare the effectiveness of Hyperband with Successive Halving, and Multi-fidelity Bayesian Optimization in optimizing hyperparameters for deep RL algorithms.

The study will involve analysis on a set of deep RL algorithms and evaluating the performance of each method. The results will be analyzed using statistical techniques to determine which method is the most effective. The findings of this study will contribute to the development of more efficient and effective methods for hyperparameter optimization in deep RL algorithms, which can lead to better performance and more widespread adoption of RL methods in various applications.

The analysis will involve examining the convergence properties, computational complexity, and robustness of each method. The results of this study will provide a better understanding of the properties and limitations of these hyperparameter optimization methods and help guide the selection of the most appropriate method for a given problem. The findings of this study will contribute to the development of more efficient and effective methods for hyperparameter optimization in deep RL algorithms, which can lead to better performance and more widespread adoption of RL methods in various applications.

Literature Reference: -

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