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International Conference on Information Systems and Computer Networks (ISCON 2025) : Submission (223) has been created.
1 message

Microsoft CMT <noreply@msr-cmt.org>   14 April 2025 at 23:39
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Hello,

The following submission has been created.

Track Name: Artificial Intelligence, Machine Learning and Information Retrieval

Paper ID: 223

Paper Title: Hyperparameter Optimization Using Various Optimizers

Abstract:
Hyperparameter optimization plays a crucial role in enhancing the performance of machine learning models by fine-tuning parameters. In this study, we evaluate the performance of four widely-used optimization algorithms—Adam, RMSprop, SGD, and Adagrad—on the MNIST handwritten digits classification task using a Convolutional Neural Network (CNN). Grid search was employed to systematically explore combinations of hyperparameters, including learning rate, batch size, number of dense layers, and neurons per layer.
The results highlight the impact of each optimizer's characteristics on training efficiency, accuracy, and loss. Adam demonstrated the best overall performance with the highest accuracy and fastest convergence, while RMSprop closely followed. In contrast, SGD and Adagrad required longer training times but showed competitive performance under specific configurations. This comparative analysis provides insights into the optimal choice of optimizers and hyperparameters for similar classification tasks.
The findings emphasize the significance of a structured hyperparameter tuning process in achieving superior model performance and contribute to the ongoing exploration of optimization techniques in machine learning.

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Secondary Subject Areas: Not Entered

Submission Files:
    HPO_Research_Paper.pdf (299 Kb, Mon, 14 Apr 2025 18:08:50 GMT)

Submission Questions Response: Not Entered

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