

# Exploring Curriculum Learning in Neural Networks

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## Abstract

Curriculum learning is an approach where models are trained on samples in a meaningful order, typically from easy to hard. This paper explores how curriculum strategies affect convergence speed and generalization in deep learning.

## 1 Introduction

Deep learning models are typically trained with randomly ordered samples. However, humans and animals learn more effectively when examples are presented in a meaningful sequence. This motivates the idea of curriculum learning.

## 2 Related Work

[1] introduced curriculum learning as a formal training paradigm. Several follow-up studies have investigated automatic curriculum generation and self-paced learning.

## 3 Methodology

We propose a curriculum scheduler that ranks training samples based on uncertainty. The curriculum is dynamically updated every epoch based on model predictions.

## 4 Experiments

We evaluate on MNIST, CIFAR-10, and a synthetic toy dataset. Metrics include convergence speed, final accuracy, and robustness to noise.

## 5 Conclusion

Curriculum learning improves convergence and generalization across multiple datasets. Future work includes curriculum design for reinforcement learning tasks.

## References

- [1] Yoshua Bengio, Jérôme Louradour, Ronan Collobert, and Jason Weston. Curriculum learning. *Proceedings of the 26th annual international conference on machine learning*, 2009.