

Deep Learning with Evolutionary Algorithms

The presentation discusses the application of evolutionary algorithms to deep learning. It shortly introduces the topic of deep learning, before discussing common approaches to training “deep” neural networks. It then compares these training algorithms with Evolutionary Algorithms as a means of powerful, large-scale minimization applied to neural networks and identifies fields of opportunity as well as difficulties. compared to standard algorithms. The presentation is based on experiences made with the Geneva (Grid-enabled evolutionary algorithms) toolkit. Geneva implements Evolutionary Algorithms, Swarm Algorithms, Simulated Annealing and Gradient Descents with configurable backends ranging from GPGPU to large scale HPC clusters.

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