Neural Architecture Search using Reinforcement Learning

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1 Description

Neural Architecture Search is a process of automating the architecture design part while addressing a ML problem involving neural networks, specially deep neural networks. Most of the deep learning architectures are handcrafted by team of researchers and engineers and its more of an art. So we would like to explore attempts by Google Brain and others to match that which are more logical. Obviously searching through space of neural network architectures is a hard problem, so we would study search strategies suggested in order to maximize the performance.

2 Plan

1) We would like to study the appraoches suggested. - **Done**
2) Try to implement it on a simple classification problem. - **2nd week of April**
3) Attempt to try it on different datasets other than which are already done and present a heuristic to apply it on some general dataset.- **by final presentation/submission date**

3 Literature Survey

1) Neural Architecture Search Survey - https://arxiv.org/abs/1808.05377
2) Neural Architecture Search by Reinforcement Learning : https://arxiv.org/pdf/1611.01578.pdf
3) Neural Architecture Search (NAS)- The Future of Deep Learning : https://towardsdatascience.com/neural-architecture-search-nas-the-future-of-deep-learning-c99356351136
4) Efficient Neural Architecture Search via Parameter sharing - https://arxiv.org/pdf/1802.03268.pdf
5) Auto ML : https://www.automl.org/automl/literature-on-neural-architecture-search/