Differentiable architecture search. First project status report Review

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1. Problem statement

This project[1] is dedicated to the one the most prominent methods of the Neural architecture search - DARTS (Liu et al., 2018).

The goal of this project is to implement DARTS method and evaluate the learned model.

The project objective include the choice of the appropriate convolutional architecture and a resonable search space, implementations of one-level and bi-level optimization and evaluations of the learned architecture on a dataset of a small size (CIFAR10, MNIST).

The project statement is well-described.

2. The main idea of the project

In the report well described the main idea of the project. The main aspects of the DARTS algorithm: search space, continuous relaxation and optimization, approximate architecture gradient.

The search space is described in the subsection 2.1, the continuous relaxation and optimization is described in the subsection 2.2, approximate architecture gradient is described in subsection 2.3.

3. A comparison with relevant methods is present

NAS mostly vary in the three components: search space, search strategy and performance estimation strategy. A comparison with relevant methods in terms of these three components is present in the section 3 of the Project report - Literature Review.

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[1]https://github.com/VoronkovaDasha/project_darts/blob/main/DARTS_project.pdf

4. Overall report performance

Each part of the report is described clearly and all the necessary for understanding information is provided. Nothing is missing or left uncovered.

Styling, quality and structure of the report are done well.

Overall report performance of the Project report is excellent.

References

Liu, H., Simonyan, K., and Yang, Y. Darts: Differentiable architecture search. *arXiv preprint arXiv:1806.09055*, 2018.