Summary and Contributions

In their work, the authors explore scaling issues of Neural architecture search (NAS). They give an introduction to the topic of NAS. According to the authors, current scalable NAS methods use proxy-tasks to reduce computational cost. Following this, they introduce two methods, ProxylessNAS and Single-Path NAS, that do not rely on proxy-tasks but are rather designed to use available hardware more efficiently. These two methods are explained formally in great detail and results are shown. Drawbacks, limitations, and future directions of these methods are described briefly.

Strengths

The reviewer positively notes that

- the motivation for the works described was clearly stated,
- the problem setting was introduced comprehensibly,
- denotations are described properly,
- theoretical parts were explained very well,
- qualitative examples of found architectures are shown
- both methods are described in great detail

Weaknesses

The reviewer negatively notes that

- there is a line break in an equation,
- there was some peculiar language and incorrect grammar,
- a discussion is missing, despite being mentioned in the introduction.

Correctness

While the reviewers are not particularly familiar with NAS literature, we are confident that the authors cited properly and that the methods presented are described accurately.

Clarity

The reviewers found the work easy to follow. Good motivation However, we would have found a more extensive introduction and related works section helpful to have some more context before methods are described in detail. Also, a discussion section would have helped to build a better understanding about limitations of Proxyless NAS and Single-Path NAS.

Further Comments

The work is a very good summary of the methods Proxyless NAS and Single-Path NAS. These two methods are described well formally and a good intuition is given, aided by helpful visuals. We are confident that the authors have a deep understanding of NAS and the described methods.

Rating and Confidence

- Overall Score: 7.5
- Confidence: 6