

# Final project peer review (Neural architecture search for tabular DNN)

## Final Report:

### **Problem statement, main idea, comparison with relevant methods.**

The problem posed in the text of the article is clear. The main idea is also clear.

Also in this article I really liked the chapter “NAS schemes”. This section explains quite clearly the various NAS methods, clearly shows us how they differ and traces the evolution of methods over time and why this evolution occurred.

### **Some comments on clarity, specifying parts which were not clear.**

#### 1.Problem statement.

Please use full names before abbreviations the first time they are mentioned (e.g., "artificial neural networks (ANNs)" before using "ANNs").

#### 2.Differentiable NAS

Thanks to the authors for the brevity and accessibility of the explanation. Tip to the authors: it may be useful to give an example or a brief explanation of the benefits of differentiability.

#### 4.Tabular Architecture

After reading this section, everything is clear to me except one thing: why the authors chose mlp-ResNet blocks as the search space. It might be worth adding some clarification.

#### 5.Tabular datasets

It is clear from the text what datasets the authors use. The authors also wrote: “We decided to keep validation the same as in the tabular paper”, but no more details about what validation was in those datasets are given. Perhaps they should add a little more details about validation in that paper.

## 7.2 Search space

I didn't understand what the authors meant to say: "Later performed better - most likely because of the less complicated structure and some connections being already dropped."

### **Recommendations on format, styling and grammar:**

The style is good and I liked it, however I advise authors to avoid wording such as "I don't think we should go for the "pruned" random subgraph". It is better to write in impersonal sentences.

### **Repo quality:**

The repository is relatively well-organized. Repo includes configuration files and a Docker setup for reproducibility. Instructions include downloading datasets, building Docker containers, and running experiments. Initial setup instructions are provided.

Some advices:

- The README lacks detailed descriptions and usage examples. Authors can add usage examples.
- I would add brief results obtained during the project.

All in all, I liked the repository.

### **Reproducibility:**

I ran all the experiments presented in the repository. Unfortunately, my computer does not have a GPU, so I could not build a Docker container to run the experiments. Therefore, I configured the environment myself in Google Collab, which has access to the GPU. There are 4 experiments in the repository. I managed to run 3 of the 4 experiments. Experiment number 3 did not start and crashed with the error:

```
python3: can't open file '/content/table_nas/tabnas/run_asr_cell.py': [Errno 2] No such file or directory
```

For some reason, the authors did not provide the run\_asr\_cell.py script in their repository.

All the remaining experiments I was able to run. After running the code, the results obtained were as described in the report. In my opinion, the results are relevant.