Opposition Review for Vangjush Komini's essay

By

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The three paper's chosen by Vangjush are:

- [1] Deep Evidential Regression.
- [3] Uncertainty Estimation Using a Single Deep Deterministic Neural Network.
- [2] Depth uncertainty in neural networks.

The essay talks about Uncertainty estimation using neural networks. It is a very relevant and important topic since neural networks are unanimously used in almost all machine learning methods. The quantification of uncertainty of the data and the models is crucial for model reliability and hence its adaptation in important applications.

Vangjush did a great job in terms of topic selection. The papers are recent and the presentation is well-structured to tell the story of uncertainty estimation. Furthermore, the presenter did a decent job in boiling down the theoretical concepts into easier constructs that are easy to follow.

An improvement on the presented material could have been a comparison among individual papers that are selected. While, the methodology and the experiments were thoroughly discussed, the comparison among each of the papers would have further enriched the presentation.

Vangjush also demonstrated his understanding on the topic during the discussion section, where he was able to explain some answers clearly to the audience.

References

[1] Alexander Amini et al. "Deep evidential regression". In: *arXiv preprint arXiv:1910.02600* (2019).

[2] Javier Antorán, James Urquhart Allingham, and José Miguel Hernández-Lobato. "Depth uncertainty in neural networks". In: *arXiv preprint arXiv:2006.08437* (2020).

[3] Joost Van Amersfoort et al. "Uncertainty estimation using a single deep deterministic neural network". In: *International Conference on Machine Learning*. PMLR. 2020, pp. 9690–9700.