

Peer Review

Review of: "The Evolving Landscape of Neuroscience"

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This paper presents a cluster analysis of the domain of Neuroscience and tries to draw some conclusions on the structure of the domain in that way.

The idea is interesting despite there being no novelty in the proposed techniques and many weaknesses in the paper and results presentation.

The problems of this paper are manifold:

There is no state of the art on cluster analysis despite there being a bunch of methods to do that that are not necessarily relying on graph-based data. There are plenty of approaches for cluster analysis performing well. Some are based on different topic modelling techniques, and others on a combination of classical clustering and novel cluster labelling approaches.....

The paper has no state-of-the-art at all on existing methods and, furthermore, no justification for the use of a graph-based method. This is really problematic.

The exploitation of the Leiden algorithm (a graph-based method) leads to an uncontrollable number of topics with no proof that this number is optimal to describe adequately the studied area. In general, approaches that produce more than 50 generic clusters are not exploitable for a suitable domain analysis. If more clusters are produced, they must be at least organized hierarchically.

What are the general findings of this paper?

There is no synthetic view of the results in the form of a topic graph with an accurate level of generality that could help to understand what has been really obtained.

There is no validation of the obtained results by an expert in the domain, but just pointwise discussion on some specific highlighted topics along with their interaction.

The structure of the paper is very confusing, presenting the techniques used in its second part. They should be presented first, justified, and compared with the state-of-the-art, and data and obtained results should come later. Other approaches that have already produced accurate cluster analysis in other domains must also be presented. Figures are not presented in a proper place in the paper, and some figures on data statistics are useless. Moreover, figures related to clustering results are unreadable.

To summarize, this paper looks more like a personal discussion of the authors to themselves than some work that would aim to present research results to external readers.

The paper must be completely rethought and restructured.

Declarations

Potential competing interests: No potential competing interests to declare.