

Peer Review

Review of: "An Information Geometry Approach to Analyzing Topic Evolution in Scientific Networks: From Physics to International Relations"

Jean-Charles Lamirel¹

1. University of Strasbourg, Strasbourg, France

This paper is presenting a method for analyzing topic evolution in scientific networks.

The main principle is to use classical information theoretical metrics for that purpose.

The test of the method is achieved on a dataset on physics-related topics.

The paper has several weaknesses, even if there is some obvious effort to present a methodology:

1. The obtained results, as well as the exploited input data, are unclear and not globally presented (some punctual results are only presented).
2. There is no human validation of the said results (if ever some precise results could be highlighted, which is not clear enough).
3. The methodology itself is quite unclear. What exactly represents a concept or knowledge network, and how can such a network be apprehended and visualized before managing to detect changes? What is the difference between a concept and a topic (in the sense of the topics that could be extracted by the use of a topic modeling method and that could represent stable and general topics)? In general, metadata are not prone to represent topics, especially if these metadata are based only on keywords. So, a keyword-based methodology is not really prone to highlight topic change because it is too low-level an approach.
4. There is no comparison with the numerous methods that have been already proposed for that purpose, as well as no convincing state-of-the-art in this paper. All existing approaches for detecting evolution are by far not based on topology.

So, the paper must be entirely rewritten in order to cope with scientific standards and provide answers to all the missing points that are mentioned above.

The originality of the approach is also disputable because information theoretic measures have been used for a long time ago, and the proposal does not seem to bring any novelty on that point too.

Declarations

Potential competing interests: No potential competing interests to declare.