Review of: "Determining Affinity of Social Network using Graph Semirings"

Breno Santana Santos

The authors proposed an algorithm to determine the stability/affinity between different social groups contained in complex networks. The main input for the proposed model was the graph itself, as well as it performs Union and Intersection operations, forming semirings on a set of graphs.

So, from a scientific overview, the authors' study is interesting and has many contributions. With regard to the manuscript, it needs further revision and improvement, both textual and structural. Another critical point is the subtle and superficial description of the model's validation aspects.

In addition to these general comments, also contributing to an improvement of this study, the following suggestions are provided:

- The manuscript's text needs a review, because it has few spelling or textual coherence errors.
- It would be interesting to change the Average Vertex Degree symbol (beta in bold) to another Greek letter (different from beta), so as not to get confused with the Beta Index symbol.
- The article does not present a related works section.
- How were users allocated to the pre-determined categories? Randomly? For convenience? It is important to make this clear in the article.
- The proposed approach was apparently validated using an example of a friendship network between Facebook users. Despite the exemplification and mathematical validation, a validation through simulation, benchmarking, controlled experiment or real case study of social networks would be more interesting.
- The structure of validation process could be improved through Wohlin's experimental guidelines. In addition, the way in which this section was explained, it is difficult to understand how the validation was carried out, as well as it is impossible to replicate the study for auditing and reproducibility of results and procedures in other contexts.

    - Wohlin, C., Runeson, P., Höst, M., Ohlsson, M. C., Regnell, B., & Wesslén, A. (2012). Experimentation in software engineering. Springer Science & Business Media.

- The presence of relatively outdated references was noted. If possible, it is recommended to include updated references, whose year of publication is equal to or greater than 2017, combining with/replacing outdated ones.
- Following Open Science principles, it is suggested to include the URL of a public Git repository containing the source code for pre-processing and analysis. In addition, sharing the data collected and processed.