

~~Generally speaking, the essay is on the right direction. I liked the way you shaped it. But I have some feedback that can improve the essay.~~

Introduction: You are focus on the case of social networks which is okay. But from a reader point of view, I believe the introduction could be more elevated if you remark the significance of the topic for several applications including social networks, recommender systems (e.g. Netflix, books) etc.

Please make sure that Figures and Algorithms are actually discussed in the main text. For example, I found, for instance, Figure 1 appears in page 2 but in the main text is not described the purpose of why it is there.

Likewise, please make sure that all clarifications are well-articulated. A simple example is: Fig 2 whilst the illustration is nice. Is it mentioned somewhere the clarification for H_1 , H_d ? Also, you pointed out the weights in the caption, however, there is not such notation included in the figure (that is in the orange arrows passing through the next neurons).

Section 1.1 Summary: It can be named 'Essay Outline'. When referring to a particular section, I suggest doing it by Number instead of Name. Example: Section 2 explores the fundamental...

Also, I would be great to have few lines with the achievements in the essay. For example, to highlight the fact that the essay is actually given better insights on the DeepWalk approach from a mathematical point of view, which is lacking in the main paper.

Deep Drawbacks section is a strong section of the essay. It will be greatly benefit of you give a re-read this section and highlight the main ideas such as the reader has a better sense of the thoughts presented in this section. Also, the section title could benefit of a change for example in the direction of: DeepWalk Drawbacks and Opportunities

I did not find major flaws in the essay. But I suggest to go through the essay again and make sure that all notations are clarified.

General Comments:

-- It would be good to indent paragraphs

-- Please check the Section title. For example, 'Preliminary Notion' could be 'Preliminaries'.

-- There are several statements that will be great if they are supported by references. An example: at page 3 “This is called a relational classification problem”.