



Supervisor's statement of a final thesis

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Thesis title: Predicting results of e-sports matches with matrix completion methods
Branch / specialization: Knowledge Engineering
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Evaluation criteria

1. Fulfillment of the assignment

- [1] assignment fulfilled
- [2] assignment fulfilled with minor objections
- ▶ **[3] assignment fulfilled with major objections**
- [4] assignment not fulfilled

Important note: As the supervisor, I was unaware of the submission of this thesis and had not read a single paragraph before it was uploaded. Although I made myself available for regular consultation meetings, the last meeting with the student I have in my records took place in April 2023, and I do not consider that I had full supervision over this thesis. The last contact I had with the student was in September 2023 when he responded to an email I sent regarding further consultation, which never materialized. Finally, I would like to note that our student-advisor relationship seemed smooth, which makes the submission without prior notification surprising to me.

After this brief discussion regarding the student's progress in the research of this master's thesis, I will shift the focus to adherence to the topic's objectives, organization, and scientific quality. In my view, the objectives are mostly addressed but with major objections:

In point (1), where the student should perform a literature review on sport and e-sport prediction methods, substantial and important works related to sport prediction were neglected. Only a few works related to the topic were studied. The text lacks flow and fails to discuss similarities and differences that could position the thesis within the state of the art or highlight its scientific contributions. At the end, it also impacts the experimental section, with absence of important baselines models.

Regarding point (2), the acquisition of the dataset was fulfilled by the student, as shown in Chapter 4 of the thesis. However, the description could be improved to provide the reader with a better understanding of certain decisions, such as the rationale behind data

collection and preprocessing. A pivotal concern is the inclusion of figures in the chapter: for instance, while the student cites the reference from which they collected the profile of the player described in Figure 4.1, it is unclear to me whether this image, and its usage, has copyright implications and whether authorization is needed, especially considering GDPR legislation since it involves a photo of a person. The same concern applies to the remaining figures not created by the author of the thesis, as we did not have the opportunity to discuss such issues.

In point (3) of the objectives, the student should design and implement a model based on matrix completion embeddings for predicting outcomes of e-sports. This objective was discussed in Chapter 3. In point (4), the implementation of baselines and comparison with the implemented model is noted. I recognize the student's effort in this realm. However, the organization makes it difficult to fully understand and compare the results. The equality of the conditions of the evaluated methods is unclear. Additionally, better organization of sections is needed, as some methodological aspects are addressed in the experimental section, while the same happens with data information.

Finally, I would like to point out that the main work concludes in section 5.7.4 'Extension of the model.' While the student mentions encountering optimization problems in this regard, which is plausible in practice, this was precisely where our last consultation ended. The next challenge (and an important contribution of this thesis) would be to evaluate a series of aspects that could be related to the problem in order to solve them and provide a broader comparison with the baselines in fair and clear conditions. A list cited at the end of the section demonstrates that the student is aware of these possibilities, but no extensive study was performed to dismiss one important model of evaluation. In my opinion, the experiment and methodology are sound, but the shallow literature review, coupled with the unstructured description of the methods and the absence of the described improvements, leave substantial room for improvement and clear conclusions.

2. Main written part 40/100 (F)

Although the English language used in the thesis is adequate, there is a need for significant improvements in the written content. The student presents several critical claims without proper references, and the graphical representations lack clarity, particularly concerning copyright issues. To enhance the comprehension of the results, it is imperative to improve the organization of the tables and make further discussions.

3. Non-written part, attachments 35/100 (F)

The code lacks comments and markdown formatting in the Jupyter Notebook files, making it challenging to understand and access. Upon review, for instance, the "ideal_date.ipynb" file located within the "model" folder, described by the author in the "readme" file as "model implementation," contains errors. This suggests that it may not be the best fit for the final version of a thesis.

4. Evaluation of results, publication outputs and awards 50/100 (E)

From an academic perspective, the topic is innovative, and I believe there is potential for publication in related venues after revisions. Additionally, from a practical standpoint,

once the experimental section is thoroughly consolidated, the model could be applied to predict outcomes in e-sports, offering tangible real-world applications. I would like to highlight that the (positive) choice of focusing on the domain of e-sports for this work was made by the student. This field is relatively less explored in the existing literature, which adds to its potential significance for publication.

5. Activity of the student

- [1] excellent activity
- [2] very good activity
- [3] average activity
- [4] weaker, but still sufficient activity
- [5] insufficient activity

At the beginning of the process, the student's activities were satisfactory. However, due to external factors unrelated to the research, the student became unreliable in attending consultations and was often unprepared. A extended periods of complete absence was also observed. Finally, the thesis was submitted without the advisor's reading or approval, resulting in major concerns.

6. Self-reliance of the student

- [1] excellent self-reliance
- [2] very good self-reliance
- [3] average self-reliance
- [4] weaker, but still sufficient self-reliance
- [5] insufficient self-reliance

While I recognize the student's strengths, it is essential to note that in this specific case, supervision would have been necessary to ensure the adequacy of their work and its fulfillment of the requirements. His decision to independently pursue the final part of the research appears insufficient in yielding the desired outcome.

The overall evaluation

40 /100 (F)

For the reasons exposed above, recognizing the merit of the student's work, I believe that the aforementioned improvements are necessary to achieve the minimal requirements of a master's thesis. Moreover, the licensing of the figures, as well as organizing the work in a scientific manner with proper literature reviews and references for several claims made throughout the paper, are necessary before approval.

If such important flaws were not present, the experiments executed so far could lead to a grade of "E". However, it seems imperative to me to fix the problems presented in the written part to better adhere to the requirements expected of a master's level work.

Instructions

Fulfillment of the assignment

Assess whether the submitted FT defines the objectives sufficiently and in line with the assignment; whether the objectives are formulated correctly and fulfilled sufficiently. In the comment, specify the points of the assignment that have not been met, assess the severity, impact, and, if appropriate, also the cause of the deficiencies. If the assignment differs substantially from the standards for the FT or if the student has developed the FT beyond the assignment, describe the way it got reflected on the quality of the assignment's fulfilment and the way it affected your final evaluation.

Main written part

Evaluate whether the extent of the FT is adequate to its content and scope: are all the parts of the FT contentful and necessary? Next, consider whether the submitted FT is actually correct – are there factual errors or inaccuracies?

Evaluate the logical structure of the FT, the thematic flow between chapters and whether the text is comprehensible to the reader. Assess whether the formal notations in the FT are used correctly. Assess the typographic and language aspects of the FT, follow the Dean's Directive No. 52/2021, Art. 3.

Evaluate whether the relevant sources are properly used, quoted and cited. Verify that all quotes are properly distinguished from the results achieved in the FT, thus, that the citation ethics has not been violated and that the citations are complete and in accordance with citation practices and standards. Finally, evaluate whether the software and other copyrighted works have been used in accordance with their license terms.

Non-written part, attachments

Depending on the nature of the FT, comment on the non-written part of the thesis. For example: SW work – the overall quality of the program. Is the technology used (from the development to deployment) suitable and adequate? HW – functional sample. Evaluate the technology and tools used. Research and experimental work – repeatability of the experiment.

Evaluation of results, publication outputs and awards

Depending on the nature of the thesis, estimate whether the thesis results could be deployed in practice; alternatively, evaluate whether the results of the FT extend the already published/known results or whether they bring in completely new findings.

Activity of the student

From your experience with the course of the work on the thesis and its outcome, review the student's activity while working on the thesis, his/her punctuality when meeting the deadlines and whether he/she consulted you as he/she went along and also, whether he/she was well prepared for these consultations.

Self-reliance of the student

From your experience with the course of the work on the thesis and its outcome, assess the student's ability to develop independent creative work.

The overall evaluation

Summarize which of the aspects of the FT affected your grading process the most. The overall grade does not need to be an arithmetic mean (or other value) calculated from the evaluation in the previous criteria. Generally, a well-fulfilled assignment is assessed by grade A.