Assist. Prof. Erfan Babaee Tirkolaee   Istanbul, May 31, 2022

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Opinion about

Cand. PhD.Ing. Šárka Křížková, BA

from

University of Hradec Kralove

Faculty of Informatics and Management

Study programme: Systems Engineering and Informatics

Branch of study: Information and Knowledge Management

Supervisor: doc. Ing. Hana Tomášková, Ph.D.

for her Promotion for Doctorate

Name of PhD. Thesis:

> *"Using a fuzzy approach to decision support in sports performance analysis"*

At first glance, I would like to admire the **candidate** and **supervisor** for performing such an interesting   research. As the main accomplishments, I appreciate their efforts on publishing the outputs in several *quality journals* and *prestigious proceedings*.

The topic itself is interesting and can be classified as an important practical problem in the field of **sport management** which addresses human factors. However, most studies have forgotten this important *aspect*. The *professional application* of tables and figures can be regarded as another strength of the dissertation in order to provide an overview of the research for readers.

The candidate could efficiently took advantages of *fuzzy decision support* and *fuzzy inference systems* to develop the decision-making performance analysis based on **optimization**. Moreover, they evaluate and forecast the performance of athletes using **multi-sport modelling**. Investigation of *real data* is the other positive point of the research.

I just suggest the candidate to consider the following remarks in order to add more *quality* to the current work:

✦ The English of the text can be polished. Some examples are given below:

- In Page 3, "…, while the coach **assists** in executing training and achieving..,"
- In Page 5, "… (between one and twelve weeks) **and are** referred to as "short term cycles.""
- In Page 7, "… human expert knowledge such **as** diagnostic.".
- In Table 5.1, "combine approach" > "combined/hybrid/integrated approach"
- In Table 6.1., "Particule Swarn Method" > "Particle Swarm Optimization Algorithm"

✦ Please keep the abstract in a single paragraph. It would be better if the abstract reflected the main achievements of the study, especially numerical ones.

✦ Please consider the application of uppercase/lowercase letters. For example, the first letter of each keyword should be capitalized. Moreover, for the figures/tables/equations (e.g., figure 6.3 > Figure 6.3.).

✦ Please improve the quality of figures; e.g., Figure 4.1. Furthermore, you may explain the components of Figure 4.1. in the text which helps readers go through the main idea directly.

✦ The caption of figures should be given below them. On the other hand, the caption of tables should be above.

✦ Please be consistent about the form of acronyms. Some of them are spelled out using uppercase letters and some with lower case ones. For example, Partial decision tree (PART) and Recurrent Neural Network (RNN). Moreover, within the text I can see some words are abbreviated; e.g., Alg., but I can see the full form as well. Please fix these issues.

✦ Please rename the "Publications" to "References" in the 3rd column of Table 5.1.

✦ Please remove unpleasant page/line breaks (e.g., Page 13).

✦ I think it would be better to replace "Literature" with "Reference" in Page 24 if it is not part of the template.

For future studies, I would like to suggest:

i.   Considering the application of sensitivity analysis for the key parameters,
ii.   Applying other uncertainty handling techniques or variants of fuzzy decision system to be compared with the suggested methodology

Finally, I recommend for defence. Before that, the candidate may consider the above-mentioned remarks though.

With best wishes for *Cand. PhD. Ing. Šárka Křížková, BA*, for her future,

and with kind regards,

ErfanBT

Assist. Prof. Erfan Babaee Tirkolaee