Report

Supervision of the Master Thesis „ Comparative Study of Fuzzy Logic, Artificial Neural Network, and Neuro-Fuzzy System in Medical Diagnosis – An Approach towards a Medical Expert System"

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The paper begins by showing the necessity of supporting technology in medical care. It also looks at what preliminary work and concrete applications of algorithms have been used in diagnostics. In particular, the need for good medical care and diagnostics in sub-Saharan Africa is shown. Thus, the work also contributes to a global understanding of health care. The focus on three major disease patterns is necessary and well chosen, but it remains unclear why these were chosen and not, for example, breast cancer. The identification of research questions and hypotheses is well chosen.

The reference to existing literature is comprehensible and gives a good overview. It is not described why the diagnostic systems mentioned are developed in MATLAB instead of conducting a literature review of previous studies on medical diagnosis, but you can read it between the lines. The latter is cited in Chapter 2 and five studies on the relevant topic are cited. This gives a good but very brief overview.

Chapter 3 describes material and methods. The methodological procedure is described, e.g. where the data come from or which attributes are used. However, it is unclear how the evaluation should be carried out methodologically. Many repetitions of the individual techniques could be reduced.

In chapter 4 Results, the evaluation metrics are given. These are reproduced for the individual techniques and diseases. Similar to chapter 3, many repetitions could be reduced and summarised. This would make the work even clearer.

The elaborated and developed results are discussed. Here, not only the own results of the MATLAB code are discussed, but also compared with results from the literature. A more in-depth discussion of one's own MATLAB results compared with the literature results, especially with regard to the differences, would be desirable. The reflection on the questions mentioned at the beginning is mentioned again and again, but is not immediately recognisable. Unfortunately, the topic of Explainable AI is not addressed more in the discussion.

Finally, the paper is well summarised and the reader gets a quick overview of what the paper is about, what insights have been gained and what further work needs to be done.

Grade: 1.7

Evaluation Master's Thesis

DEGGENDORF INSTITUTE OF TECHNOLOGY DIT

Name	**Harvey Ngoe Kolle**
Course	**Master AI and Data Science**
Module/Lecture	**Master Thesis**
Examiner	**Prof. Dr.-Ing. Thomas Spittler**

Hygiene criteria	**met / not met**	**comment**
Topic dealt with congruently with task	met	
Scope of work within the specifications	met	
Citation according to one style	met	
Other formatting according to specifications	met	
Independent work no plagiarism	met	

Evaluation critera	**Weighting**	**Grade**	**Result**	
1. Introduction, State of the Art	**15%**	**1,3**	**0,20**	refer to evaluation
2. Material and Methods	**10%**	**2,3**	**0,23**	refer to evaluation
3. Results	**10%**	**2,0**	**0,20**	refer to evaluation
4. Discussion	**20%**	**2,3**	**0,46**	refer to evaluation
5. Technical Development	**20%**	**1,7**	**0,34**	refer to evaluation
6. Summarize	**5%**	**1,3**	**0,07**	refer to evaluation
7. Formal Design	**10%**			
Table of contents and bibliography, if applicable further lists and appendices	50%	1,0	0,50	
Citation	50%	1,0	0,50	
SUBTOTOAL	100%	1,00		
8. Written Explanation	**10%**			
Layout, writing tables and graphics	50%	1,7	0,85	not always giving a reference to figures in text
Language	50%	1,3	0,65	some type errors
SUBTOTOAL	100%	1,50		
TOTAL	100%		1,74	
Calculation of the grade	**1,7**			
FINAL GRADE	**1,7**			

if necessary, further remarks:

07.02.2023

Date, signature