Review of: "Rules Extraction, Diagnoses and Prognosis of Diabetes and its Comorbidities using Deep Learning Analytics with Semantics on Big Data"

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Potential competing interests: No potential competing interests to declare.

Review Report

Title: Rules Extraction, Diagnoses and Prognosis of Diabetes and its Comorbidities Using Deep Learning Analytics with Semantics on Big Data

The topic is interesting and suitable to the current situation where the number of diabetic patients is increasing daily. The authors have put much effort into creating a vast Electronic Health Record. The available frameworks, such as RapidMiner and Orange Framework, were used. However, the authors have not mentioned the novelty of the manuscript. Collecting data and segregating the same to get better results is not sufficient for a technical writeup. I have found lots of unnecessary information throughout the manuscript. The reference section is too weak. The authors must refer to the latest articles instead of old ones. Therefore, I recommend a major revision to improve the quality of the manuscript. The authors must acknowledge the following comments/suggestions based on my review.

Review Comments:

1. Nowhere in the Introduction are citations provided. For a better Journal, references (Citations) are mandatory at appropriate places to justify the content written.
2. As mentioned on Page 4, what is the computational complexity of preprocessing the data? How do you overcome the same? Provide a detailed explanation with **analytics**.
3. Related works should be appropriately organized. Include more recent articles.
4. The authors should focus on what are the major research gaps and how they are overcome in this manuscript with proper justifications.
5. The resolution for Figures 1, 2, and 3 can be improved.
6. The technical representation of the manuscript should be improved; for example, “A feature set is now understood as:”
7. The authors focused on Diabetes or Diabetes Mellitus and other comorbidities. The authors should explain why only 30 other diseases are considered, as mentioned in Figure 1.
8. The organization of the manuscript should be improved. Provide only limited and essential content related to the contributions. Avoid explaining basic definitions and concepts.
9. In Figure 25, the accuracy and runtime metrics are not visible. Improve the resolution for the same.

10. I'm curious to see 52 Figures in a manuscript. However, the authors may revise the necessity of each figure and its relevance to the technical content.
11. As part of the Methodology, the authors have implemented existing techniques only. They should highlight the Novelty throughout the manuscript.
12. The authors should explain how the current work is different from the State-of-the-art.
13. The authors may cite the following articles at appropriate places.

    1. A novel four-step feature selection technique for diabetic retinopathy grading
    2. Fast and robust exudate detection in retinal fundus images using extreme learning machine autoencoders and modified kaze features
    3. Gil-cnn: A novel multipath features for covid-19 detection using ct-scan images
    4. DRFL: Federated Learning in Diabetic Retinopathy Grading Using Fundus Images
    5. Optimal hybrid feature selection technique for diabetic retinopathy grading using fundus images
    6. An efficient microaneurysms detection approach in retinal fundus images
    7. Preliminary diagnosis of COVID-19 based on cough sounds using machine learning algorithms
    8. An Improved Accuracy Rate in Microaneurysms Detection in Retinal Fundus Images Using Non-local Mean Filter
    9. Exudate localization in retinal fundus images using modified speeded up robust features algorithm
    10. Machine learning algorithms for hypertensive retinopathy detection through retinal fundus images
    11. Optic disc segmentation in fundus images using operator splitting approach
    12. Exudate detection with improved u-net using fundus images
    13. Deep learning for diabetic retinopathy detection: Challenges and opportunities
    14. ViT-DR: Vision Transformers in Diabetic Retinopathy Grading Using Fundus Images
    15. Role of Machine and Deep Learning Techniques in Diabetic Retinopathy Detection
    16. AMDNet: Age-related Macular Degeneration diagnosis through retinal Fundus Images using Lightweight Convolutional Neural Network