REVIEW

1. Basic Reporting – Comment for the authors

The manuscript is well written and is appropriately professional and technical. The scientific background on which it is based is solid and clearly articulated. The authors provide a comprehensive and up-to-date review of the literature, effectively contextualizing the clinical significance of retinal vascular tortuosity as a biomarker. The manuscript presents a logical and coherent structure consistent with professional publishing standards. The figures and tables are relevant and explanatory. However, the captions of some figures (e.g., Figures 7-14) could be further improved to allow easier interpretation for the clinical reader. The only suggestion might be to emphasize graphically the principal differences in arterial and venous tortuosity, where applicable.

2. Experimental design

The manuscript represents original research that fits well with the objectives of the journal. The research question is clearly formulated namely that of improving the measurement of retinal vascular tortuosity by introducing a reproducible and vessel-specific method. The authors successfully identify gaps in the current literature and provide a suitable alternative. The use of three different publicly available datasets (DRIVE, HRF, LES-AV) allows strengthening the robustness of the results. In addition, stratification by disease type (glaucoma and diabetic retinopathy) allows for added clinical relevance to the analysis. The methodology is described in detail, which allows for possible replication. However, the authors should more clearly articulate the rationale behind the choice of the Breadth-First Search (BFS) algorithm over alternatives (such as Dijkstra's). Overall, the experimental design is well-conceived, technically sound, and appropriate for the stated objectives.

3. Validity of the Findings

The results presented in the study are clear and supported by appropriate statistical analysis. The methodological approach ensures a high degree of reproducibility. analyses stratified by vessel type, health condition, and dataset allow for improved interpretation and clinical relevance of results.
The conclusions of the study are logically derived from the data and respond appropriately to the initial research objective. In addition, adequate discussion of the influence of pathologies and imaging parameters is appreciated
However, the authors should encourage future replication of their approach in clinical settings. This aspect would further strengthen the practical impact of their work.

4. Additional Comments – Comment for the authors

The study is appreciable for its clear exposition and well-organized structure; these aspects make it accessible to a wide audience. Despite the technical complexity of the topic, the authors have succeeded commendably in presenting their methodology in a clear but rigorous manner.

The exclusive use of public datasets is particularly appreciable, as it provides transparency and reproducibility to the study.