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| Book Name: | **Innovative Solutions: A Systematic Approach Towards Sustainable Future** |
| Manuscript Number: | **Ms\_BPR\_3724.40** |
| Title of the Manuscript: | **PREDICTION OF CARDIOVASCULAR DISEASES USING DEEP LEARNING** |
| Type of the Article | **Complete Book chapter** |

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| PART 1: Review Comments | | |
| Compulsory REVISION comments | Reviewer’s comment | Author’s Feedback *(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
| **Please write a few sentences regarding the importance of this manuscript for the scientific community. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.** | This manuscript introduces a new approach in the prediction of CVD using deep learning and retinal imaging, thus offering a non-invasive and cost-effective alternative to traditional diagnostic methods. Its emphasis on the use of convolutional neural networks and Mobile-Net architecture addresses the growing need for accessible healthcare solutions, especially in resource-limited settings. The potential to enhance early detection and intervention strategies could significantly reduce CVD-related morbidity and mortality worldwide. Integrating artificial intelligence with medical imaging in this research contributes toward advancing precision treatment and improving the outcomes of global public health. |  |
| **Is the title of the article suitable?**  **(If not please suggest an alternative title)** | The current title, "Prediction of Cardiovascular Diseases Using Deep Learning", is appropriate and descriptive. However, for added specificity, I suggest considering: **"Deep Learning-Based Prediction of Cardiovascular Diseases from Retinal Images"** |  |
| Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here. | The abstract is elaborative; it has all three components: objective, methodology, and potential impact. But, it should include achieved accuracy and the process followed to validate the model. Maybe add something like: **“The proposed model achieved 92% accuracy on a 5-fold cross-validation dataset and hence is robust and potent for clinical applications”** |  |
| **Are subsections and structure of the manuscript appropriate?** | The manuscript is well-structured, with clearly demarcated subsections such as an introduction, a proposed model, experimental results, and a conclusion. **Adding a "Discussion" section to compare findings with existing literature would enhance the overall flow and depth.** |  |
| **Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.** | The manuscript is scientifically robust because it has well-defined methodology comprising comprehensive data preprocessing, model design, and evaluation using established metrics such as accuracy, precision, recall, and F1-score. Multiple deep learning architectures were used by the authors, including AlexNet, VGGNet, and ResNet, to present a thorough comparison and strengthen the reliability of their findings. Inclusion of a large, balanced dataset with proper augmentation techniques enhances the generalizability of the model. Moreover, the detailed explanation of the performance optimization strategy, including one-cycle policy and super convergence, has been done in a technically sound manner that guarantees reproducibility and reliability. |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.**  **-** | The references are adequate, including both foundational and recent works on the use of deep learning and retinal imaging for cardiovascular disease prediction. However, more recent works that discuss the wider applications of deep learning in medical imaging would place the manuscript in better context. Adding references such as:  Alsubaie, M. G., Luo, S., & Shaukat, K. (2024). Alzheimer’s Disease Detection Using Deep Learning on Neuroimaging: A Systematic Review. *Machine Learning and Knowledge Extraction*, *6*(1), 464-505. <https://doi.org/10.3390/make6010024>  Fatima, M., Pachauri, P., Akram, W., Parvez, M., Ahmad, S., & Yahya, Z. (2024). Enhancing retinal disease diagnosis through AI: Evaluating performance, ethical considerations, and clinical implementation. *Informatics and Health, 1*(2), 57-69. <https://doi.org/10.1016/j.infoh.2024.05.003>  Daich Varela, M., Sen, S., De Guimaraes, T.A.C. et al. Artificial intelligence in retinal disease: clinical application, challenges, and future directions. Graefes Arch Clin Exp Ophthalmol 261, 3283–3297 (2023). <https://doi.org/10.1007/s00417-023-06052-x> |  |
| Minor REVISION commentsIs the language/English quality of the article suitable for scholarly communications? | The language is clear and adequate for scholarly communication, although small grammatical editing is required. This especially involves sentence structure when the use of technical terms becomes very dense. For example, simplify: **“The retinal images are pre-processed, including resizing, normalization, and augmentation techniques, to enhance data quality and diversity.”**  **to**  “**Retinal images were pre-processed through resizing, normalization, and augmentation to enhance data quality and diversity.”** |  |
| Optional/General comments | Visual flow improvements would be beneficial to the manuscript, such as clearer captions for figures and a more detailed legend for datasets in Figure 3. |  |

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| **PART 2:** | | |
|  | **Reviewer’s comment** | **Author’s comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
| **Are there ethical issues in this manuscript?** | *(If yes, Kindly please write down the ethical issues here in details)* |  |

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| Reviewer Details: | |
| Name: | **Daniel Edem Thompson** |
| Department, University & Country | **Institute of Information Technology and Computer Science, National University of Science and Technology, MISIS, Russia** |