**PERMONCE COMPARISON OF DIFFERENT MOLECULAR DATA IN THE IDENTIFICATION OF DIABETIC RETINOPATHY**

# ANNOTATED BIBLIOGRAPHY

IN PARTIAL FULFILMENT OF THE REQUIREMENTS OF THE DEGREE OF BACHELOR OF THE SCIENCE OF ENGINEERING

**Submitted by:**

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**ARTICLE 01**

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**2019/E/011**

(1)Kamble, Vaibhav V., and Rajendra D., “Automated diabetic retinopathy detection using radial basis function”, Procedia Computer Science, vol.167, no. , pp. 799-808, 2020. Available: 10.1016/j.procs.2020.03.429.

(2) This paper automatically detected retinal image as Non DR or DR based on radial basis function (RBF) neural network classifier. (3) This paper prior diabetic retinopathy system using RBF which includes image dataset in order to the extract feature set, and at last feature classification to detect retinal funds image as DR or Non DR. (4) RBF Classifier utilization to recognized red lesion in retinal images. (5) This paper is used one of the method was RBF and feature extraction. Here on extracting Ophthalmic/clinic feature like exudate, blood vessels, and microaneurysms. And DIARETDB0 and DIARETDB datasets were used. This will be used for our research. (6) But, here mainly used in retinal image. We will mainly targeted molecular data identification. (7) The system was tested using two datasets, DIARETDB0 and DIARETDB, and achieved a sensitivity of 0.83 and 0.94, respectively, with low specificities. The researcher suggest incorporating a multiple classifier system (MCS) to improve the accuracy of the system in the future. (8) This research based retinal image on RBF method. Our research is based on molecular data in the identification of DR. Here take blood vessels identification blood vessels have most of the molecular data and suggest incorporating a MCS for better performance.

**ARTICLE 02**

(1)Das, D., Biswas, S.K. and Bandyopadhyay, S., “A critical review on diagnosis of diabetic retinopathy using machine learning and deep learning”, *Multimedia Tools and Applications*, vol.*81* (18), no., pp.25613-25655, 2022. Available: 10.1007/s11042-022-12642-4.

(2)This article is one of the review. DR is caused by irregular blood flow and leakage in retinal blood vessels, and automated detection systems using deep learning methods are proposed for early detection, as traditional machine learning methods are not suitable for analyzing large and complex image data. (3) The authors discuss the different machine learning and deep learning techniques that have been used for DR diagnosis, as well as the performance of these techniques. (4) This paper focuses on the use of machine learning and deep learning for the diagnosis of DR. The paper does not discuss the use of these techniques for other aspects of DR management, such as treatment and prognosis. (5) This paper is useful for researchers and clinicians who are interested in using ML and DL for the diagnosis of DR. (6) One limitation of this paper is that it is limited to the use of ML and DL for the diagnosis of DR. (7) ML and DL have the potential to improve the diagnosis of DR. These techniques have been shown to be more accurate than traditional methods of DR diagnosis, such as fundus photography. (8) The paper also discusses challenges such as data acquisition, preprocessing, and model constraints. This discussions and challenges are used for our research.

**ARTICLE 03**

(1)Gupta, S., Thakur, S. and Gupta, A., “Optimized hybrid machine learning approach for smartphone based diabetic retinopathy detection”, *Multimedia Tools and Applications*, vol.*81* (10), pp.14475-14501, 2022. Available: 10.1007/s11042-022-12103-y.

(2)This paper smartphones can be used as portable retinal imaging devices for DR screening, especially in rural areas with limited access to equipment and expertise. (3) The aim of this was to develop an optimized hybrid machine learning approach for smartphone-based DR detection. (4) The scope was developed and evaluated using a dataset of fundus images from patients with DR. (5) This paper has the potential to be used to detect DR in its early stages in low-resource settings. This could help to prevent blindness in people with DR. (6) The paper was developed and evaluated using a small dataset of fundus images. Further studies are needed to evaluate the paper using a large dataset of fundus images. (7) The optimized hybrid machine learning approach developed in this study is a promising tool for smartphone-based DR detection. Further studies are needed to evaluate the research in a larger clinical setting. (8) This research effectiveness of a machine learning approach for smartphone-based DR detection. This is an important finding, as it could lead to the development of new diagnostic and treatment strategies for DR.

**ARTICLE 04**

(1)Nomura, A., Noguchi, M., Kometani, M., Furukawa, K. and Yoneda, T., “Artificial intelligence in current diabetes management and prediction”, *Current Diabetes Reports*, vol.*21*(12), pp.61, 2021. Available: 10.1007/s11892-021-01423-2.

(2)Artificial Intelligence (AI) has the potential to improve diabetes care by automating tasks, providing personalized recommendations, and predicting future outcomes. (3) The authors conducted a literature review of AI applications in diabetes management and prediction. (4) The paper covers a wide range of AI applications in diabetes management and prediction. Such as, automated retinal screening, clinical decision support, predictive population risk stratification, and patient self-management tools. (5) This paper provides a comprehensive overview of the current state of AI in diabetes care. (6) The paper limited AI and ML based medical devices and prediction models regarding diabetes. (7) The paper emphasizes the accuracy of AI, specifically ML and DL, in predicting vast amounts of data. Although the FDA has approved AI based medical devices for diabetes, traditional statistical techniques remain superior in predicting disease onset. (8) The authors found that AI-based models were able to outperform traditional methods for detecting DR, AI could be a valuable tool for early diagnosis and treatment of this condition.

**ARTICLE 05**

(1)Miotto, R., Wang, F., Wang, S., Jiang, X., & Dudley, J. T., Deep learning for healthcare: review, opportunities and challenges, Briefings in bioinformatics, vol.19(6), pp.1236-1246, 2018. Available: 19/6/1236/3800524

(2) Deep learning is a powerful machine learning technique that has been shown to be effective in a variety of healthcare applications, including disease diagnosis, prognosis, and treatment planning. (3)This paper review the current state of DL in healthcare, discuss the opportunities and challenges of this technology, and provide recommendations for future research. (4)The paper covers a wide range of topics related to DL in healthcare, such as the use of DL for disease diagnosis, the use of DL for prognosis, the use of DL for treatment planning, the challenges of using DL in healthcare and the ethical considerations of using DL in healthcare. (5)This paper is a valuable resource for researchers and clinicians who are interested in learning more about the potential of DL in healthcare. (6)The field of DL is rapidly evolving, and there have been many advances in this area since this paper was published. (7)The authors conclude that DL has the potential to revolutionize healthcare. However, they also caution that there are a number of challenges that need to be addressed before this technology can be fully realized. (8)The authors discuss the potential of DL to improve the accuracy of disease diagnosis, and they identify a number of challenges that need to be addressed before this technology can be realized. The work of author provides a valuable foundation for future research on the use of DL for disease diagnosis.