NARASARAOPETA ENGINEERING COLLEGE (AUTONOMOUS)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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Batch Number	**BG7**
Team Members	V. Teja Sri (21471A05D3) A. Venkayamma (21471A05D8) K. Eswar Kalyani (21471A0594)
Guide	Sireesha Moturi M.Tech, PHD
Title	**Enhanced Optimized CNN Based Automated Diabetic Retinopathy Detection**
Domain/Technology	DEEP LEARNING
Base Paper Link	https://doi.org/10.1007/s11042-023-16204-0
Dataset Link	https://www.kaggle.com/datasets/arbethi/diabetic-retinopathy-level-detection
Software Requirements	Browser: Any latest browser like Chrome Operating System: Windows 11, 64-bit Operating System or Google Colab
Hardware Requirements	System Type: AMD Ryzen 5 5000 Series Processor RAM: 16 GB Number of cores: 6 Number of Threads: 12
Abstract	Early identification is essential to prevent serious visual impairment in diabetic patients as Diabetic Retinopathy (DR) is the main reason for blindness. In this paper, an optimal Convolutional Neural Network (CNN) model is used to propose an automated approach for categorizing the stages of DR. The pre-trained VGG16 model uses deep feature extraction for the given retinal pictures, which uses scaling and feature selection heuristics by the Grey Wolf Optimizer. Those selected features from GWO belonging to the most relevant features would also give a better boost to the classification performance along with the optimization of both hyperparameters. The proposed model will perform better than the traditional techniques based on the experimental results of the precision, recall, and F1 scores. It has an accuracy of 99.31% on the DR dataset. The inclusion of GWO in CNN, models holds tremendous potential for use in the analysis of medical images and yields Optimized CNN, an efficient technique that is effective in improving healthcare

Signature of the student(s) **Signature of the Guide** **Signature of the project coordinator**