Literature Survey

Problem Statement:

Deep Learning Fundus Image Analysis for Early Detection of Diabetic Retinopathy.

Title	Authors	Description	Advantages
A deep learning system for detecting diabetic retinopathy across the disease spectrum Published on: 28 May 2021	Ling Dei, liang Wu, Chun Cai	To facilitate diabetic screening process, the paper proposes a deep learning model named DeepDR, that can detect early-to-late stages of diabetic retinopathy.	Improved Data sources and network design, Performance of the DeepDR system, External validation, Real-time image quality feedback compared other models.
Diabetic Retinopathy detection through deep learning techniques: A review Published on: 20 June 2020	Wejdan L. Alyoubi, Wafaa M. Shalash, Maysooon F. Abulkhair	The paper reviews and analyses the recent state-of-the-art methods of DR color fundus images detection and classification using deep learning techniques.	The paper has reviewed 33 research papers on DR color fundus image detection and has provided valuable analysis about different methods used.
Deep Learning Approach to Diabetic Retinopathy Detection Published on: 30 November 2020	Borys Tymchenko, Philip Marchenko, Dmitry Spodarets	The paper proposes an automatic deep learning based method for stage detection of diabetic retinopathy by	The paper also proposes a multistage approach to transfer learning which makes use of similar datasets with different

		single photography of the human fundus.	labeling.
Predicting the risk of developing diabetic retinopathy using deep learning Published on: 03 September 2019	Ashish Bora, Siva Balasubramanian, Boris Babenko, Sunny Virmani, Subashini Venugopalan	The paper aims on creating a deep learning system to predict the risk of patients with diabetes developing diabetic retinopathy within 2 years.	Created and validated two versions of DL systems to predict the development of diabetic retinopathy in patients with diabetes who had telertinal diabetic retinopathy screening in a primary care setting.
Artificial intelligence in diabetic retinopathy: A natural step to the future Published on: 13 July 2020	Srikanta Kumar Padhy, Brijesh Takkar, Rohan Chawla, Atul Kumar	The paper discusses the current status of the use of artificial Intelligence in diabetic retinopathy and a few other common retinopathy disorders.	The paper suggests an AI DR tool that can assist the clinician with fundus image analysis, which in turn helps to quickly inform the next steps in the patient's treatment
Deep learning Techniques for Diabetic Retinopathy Classification: A Survey Published on: 07 December 2019	Mohammad Z. Atwany, Abdulwahab H. Sahyoun, Mohammad Yaqub	The paper reviews and analyses state-of-the art deep learning methods in supervised, self-supervised, and vision transformer setups, proposing retinal fundus image classification and detection.	The paper classifies referable, non-referable and proliferative classifications of diabetic retinopathy are reviewed and summarized. The paper also discusses the available retinal fundus datasets for diabetic retinopathy that are used for such as detection, classification, and

			segmentation.
Automated Detection of Diabetic Retinopathy using Deep Learning Published on: 18 May 2018	Carson Lam, Darvin Yi, Margaret Guo, Tony Lindsey	The paper demonstrates the use of convolutional neural networks(CNNs) on color fundus images for the recognition task of diabetic retinopathy staging.	The network model developed here achieved test metric performance comparable to baseline literature results, with validation sensitivity of 95%.
Detection of diabetic retinopathy using deep learning methodology Published on: 02 February 2021	Farheen Siddiqui	The paper considers a deep learning methodology, specifically a densely connected convoluted network DenseNet-169, which is applied for the early detection of diabetic retinopathy.	The proposed model is accomplished through various steps: data collection, preprocessing , augmentation and modeling with 90% accuracy.