

Diabetic Retinopathy Detection

We are given a large set of high-resolution retina images. A left and right field is provided for every subject. A clinician has rated the presence of diabetic retinopathy in each training image on a scale from 0 to 4, where 0 indicates no diabetic retinopathy detected and 4 indicates proliferative diabetic retinopathy detected. Our task is to create a system able to assign a score to new test images based on this scale. The table below outlines the techniques we plan to implement and compare.

Pre-Processing	Feature Extraction	Classification	Performance
Rescaling	CNN	SVM	ROC
Augmentation *	Deep CNN	k-NN	AUC
Colour Normalisation	Inception Architecture	Linear Regression	Specificity
Inversion	Dropout	Random Forest	Sensitivity
Sampling	Pooling	Gradient Boosting	Accuracy
<u>Use of Open CV</u>	L2 Reg		Network Analysis
	Weight Initialisation		
	Batch Normalisation		
	Activation Functions Leaky Relu		
	SGD, Nesterov Momentum		
	Output?		
	<u>Use of Keras,</u> <u>Theano</u>		

* Padding, rotation, shift and noise

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