



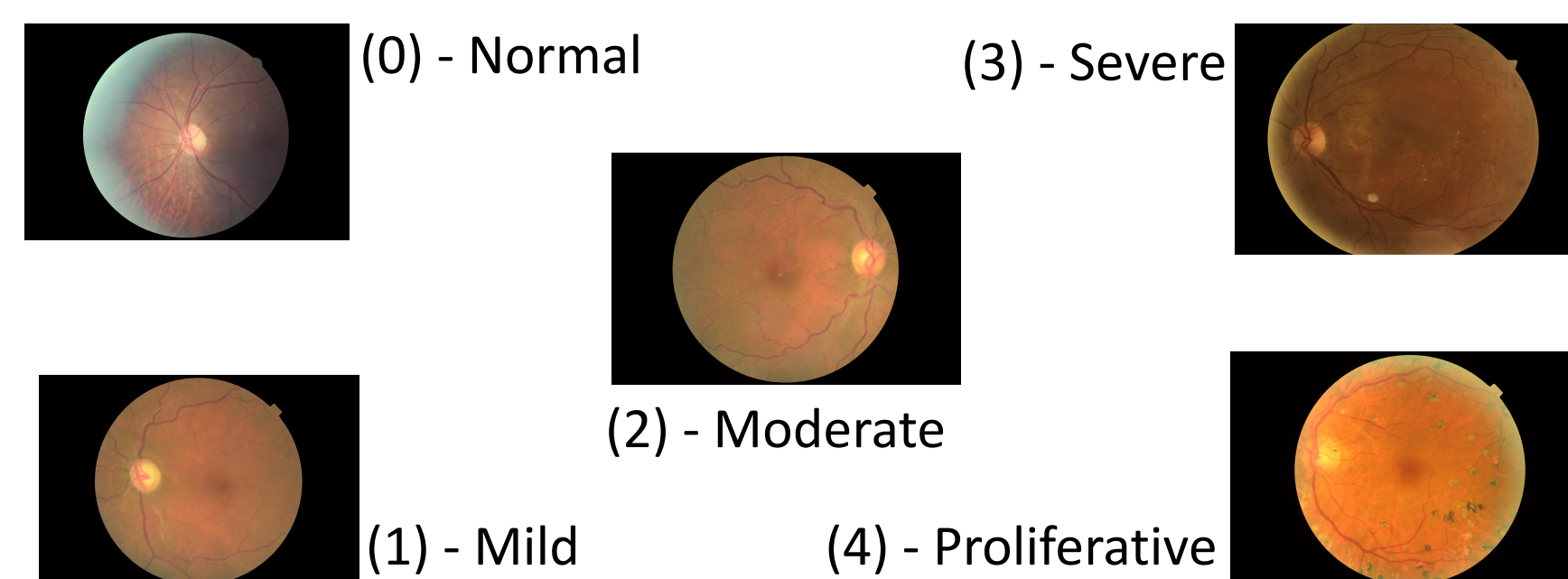
DRISC: Diabetic Retinopathy Identification and Severity Classification

CS229
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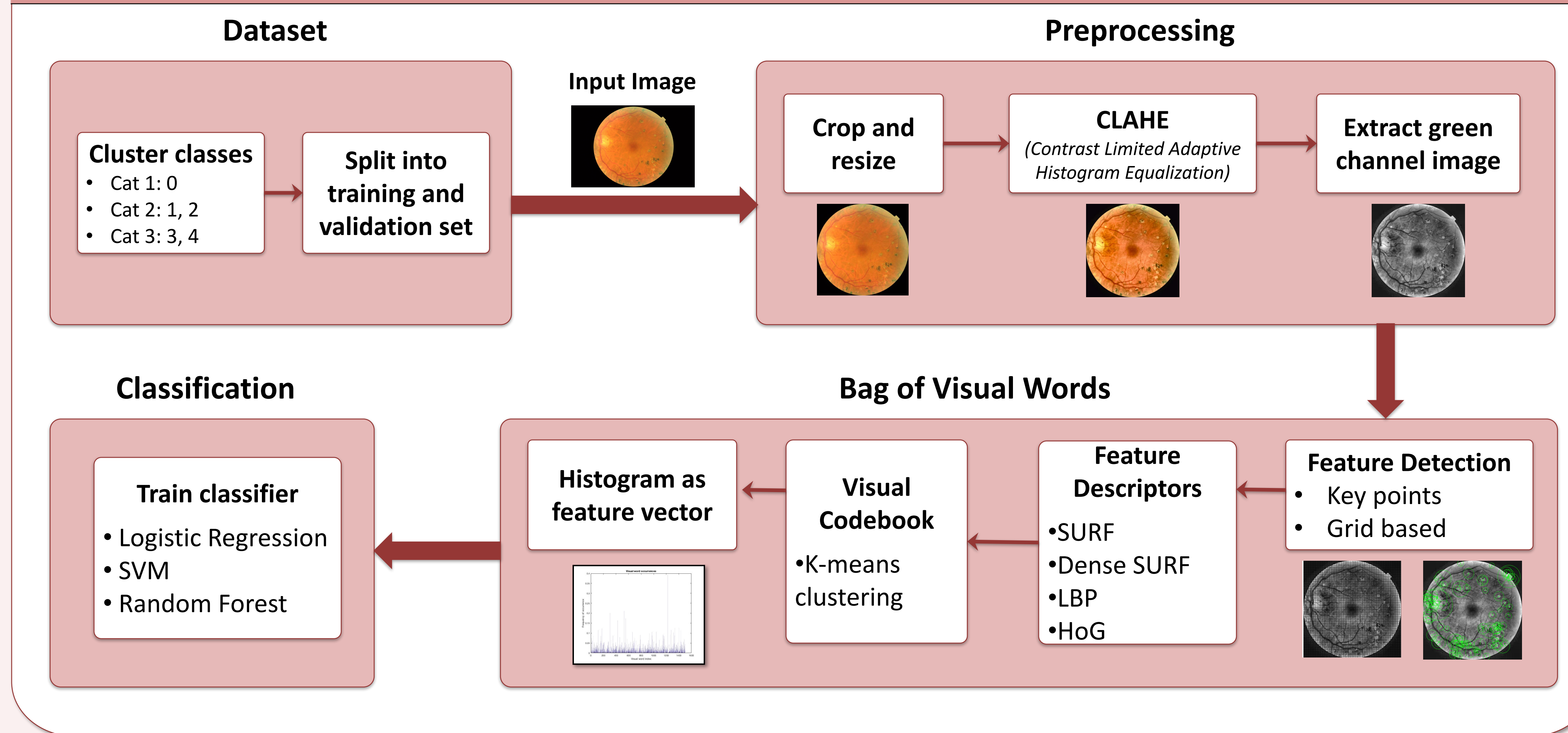
OVERVIEW

- Diabetic Retinopathy causes visual impairment in **75 people everyday**
- Early detection** can lead to timely treatment and prevention
- Objective:** Automate the manual process of diagnosis
- Dataset:** Kaggle dataset - 5 classes, 200 images each

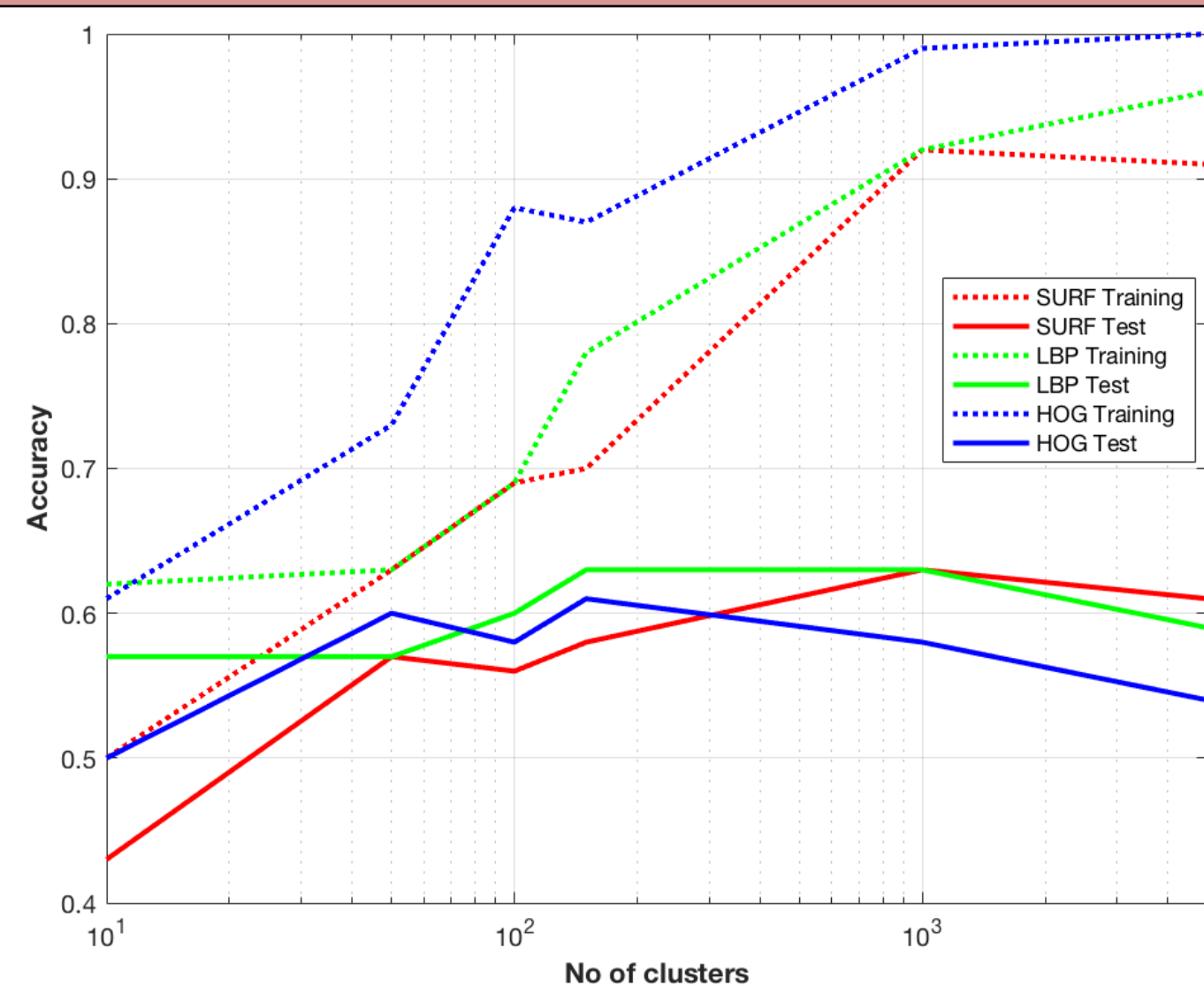


- Features:** SURF (Speeded Up Robust Features), HoG (Histogram of Gradients), LBP (Local Binary Pattern)
- Models:** Bag of Words model with classifiers: Logistic Regression, SVM, Random Forest

APPROACH



RESULTS



Performance of SURF, LBP and HBP with SVM

		Predicted		
		Cat 1	Cat 2	Cat 3
Known	Cat 1	0.62	0.38	0.12
	Cat 2	0.38	0.48	0.14
	Cat 3	0	0.03	0.97

Vocabulary size: 100; Features: Dense SURF ; Model: SVM

Model	Train Accuracy	Test Accuracy
Log Reg	0.85	0.68
Random Forest	0.90	0.73
SVM	0.83	0.72

Vocabulary size: 100; Features: Dense SURF

FUTURE WORK

- More robust feature engineering and selection
- Scope of improved preprocessing using morphological operations
- Train ensemble of classifiers for better learning
- Explore deep learning as end-to-end pipeline of feature extraction and classification