



# **SRI RAMACHANDRA**

**INSTITUTE OF HIGHER EDUCATION AND RESEARCH**

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**SRI RAMACHANDRA ENGINEERING AND TECHNOLOGY**

## **AUTOMATED SCREENING FOR DETECTION AND ASSESSMENT OF GLAUCOMA PROGRESSION USING FUNDUS IMAGES**

### **Guided by**

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# TEAM MEMBERS

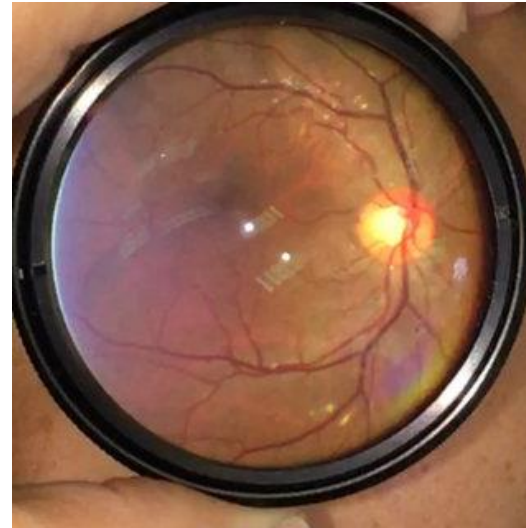
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# GLAUCOMA

- Glaucoma is a group of eye diseases that can cause vision loss and blindness by damaging the optic nerve in the eye usually due to excessively high intraocular pressure (IOP)



Fundus camera



Smartphone camera

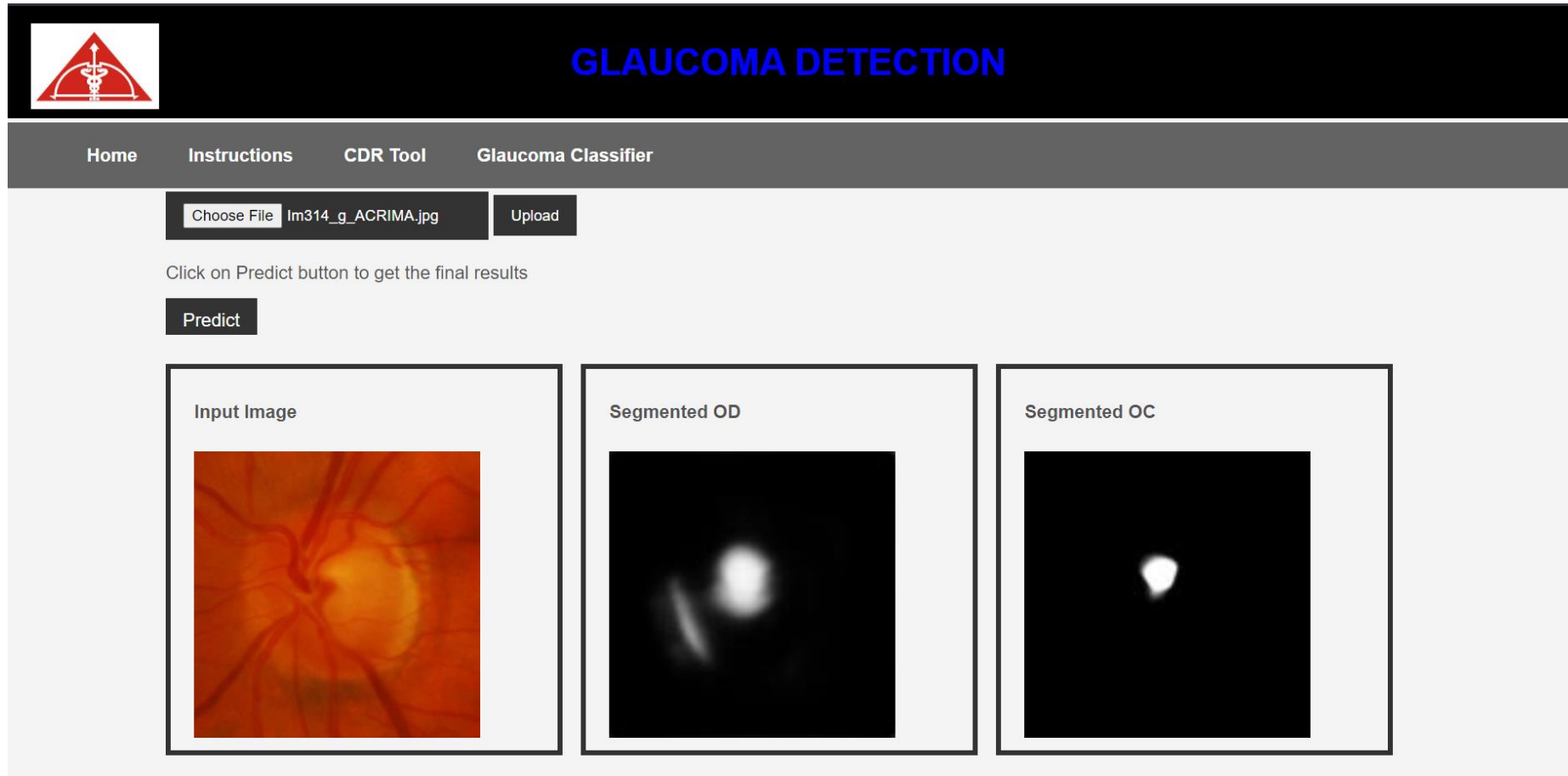
# CUP DISC EXTRACTION

- The dataset with 101 images : 50 training and 51 testing images is annotated with Optic Disc (OD), Optic Cup (OC) boundaries and Cup to disc Ratio (CDR) Values.
- UNET model is trained with mask of OD, OC of the fundus image annotated and it gives
  - Accuracy - 89%
  - Jacquard score (IOU) - 0.81

# GLAUCOMA CLASSIFIER

- The dataset with around 1200 images of the posterior pole of the Messidor database with a 45 degree field of view is used for training
- The RESNET model weights is used for modelling with 80:20 train test ratio and achieved
  - Accuracy – 94 %
  - Precision – 0.98
  - Recall – 0.86

# WEB APP LOOKUP



View the demo here - <https://youtu.be/0Ms8UnM8JYI>

# FUTURE WORKS

- We aim to assess the progression of glaucoma using Cup to disc ratio by segmenting cup and the optic disk from fundus images.
- Also to implement segmentation of optic nerves and classify based on the Optic Nerve thickness
- We are also working on segmentation & Classification of Smart Phone Fundus images which is Simple and a Inexpensive Technique

THANK YOU