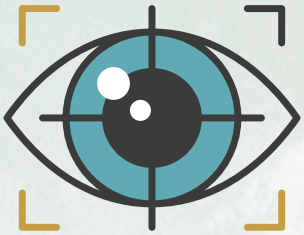
README



Project Name:

Glaucoma Detection on Enhanced Retinal Images Based Deep Learning

Description

Glaucoma is a leading cause of permanent blindness worldwide. This project aims to tackle this issue by proposing an automatic glaucoma detection system using Deep Learning. The system enhances retinal images using a U-Net architecture with a pre-trained Residual Neural Network (ResNet34) as an encoder for segmentation, and an EfficientNetB0 pre-trained model for classification.

📚 Dependencies

The project uses several Python libraries. Install them using the following commands in your Google Colaboratory notebook:

```python
!pip install tensorflow==2.12
!pip install keras==2.12
!pip install -U segmentation-models
!pip install efficientnet
!pip install gradio opencv-python
```

🗃️ Datasets

The project uses the ORIGA, HRF, RIM-ONE DL, and REFUGE datasets. Extract the provided Zip file to access the datasets and upload them to your Google Drive.

💻 Environment Setup

Mount your Google Drive in the Google Colaboratory notebook:

```
from google.colab import drive
drive.mount('/content/drive')
```

📖 Project Structure

The project is organized into multiple Jupyter notebooks, each explaining a specific part of the project. Open each notebook from your Google Drive in Google Colab, copy the code, and paste it into a new notebook. Each notebook contains comments within the code that explain what specific parts of the code are doing.

🚀 Running the Code

After copying the code and setting the dataset paths, you can run the code in the new notebooks.