

Project Proposal

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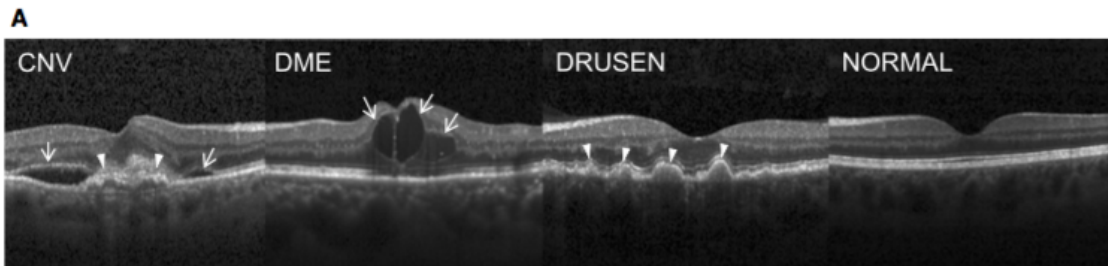
1 Topic

Our project is to discover three kind of retinopathy from retinal OCT images (optical coherence tomography). Our task is a classification task. Together with normal retinal OCT images there are 4 classes:

- CNV (Choroidal neovascularization): Abnormal blood vessels that grow beneath the retina in the macular area, which is one of the most common forms of age-related macular degeneration (AMD).
- DME (Diabetic macular edema): A common form of diabetic retinopathy, characterized by fluid accumulation in the macula, which can lead to vision loss.
- DRUSEN: Small yellow deposits that form under the retina, which are an early pathological feature of age-related macular degeneration.
- NORMAL: A normal retinal OCT image without any abnormal features such as CNV, DME, or DRUSEN.

2 Input and Outputs

The input is 512*496 grayscale images and the output is a label (CNV, DME, DRUSEN or NORMAL). We are using the Retinal OCT Images (optical coherence tomography) dataset[1] on Kaggle.



3 Architecture Draft

We are going to use Convolutional Neural Network to do the image classification task and improving the model by methods like adding Attention mechanism.

References

- [1] Daniel Kermany, Kang Zhang, and Michael Goldbaum. Labeled optical coherence tomography (oct) and chest x-ray images for classification. Mendeley Data, 2018.