

Capstone Pitch

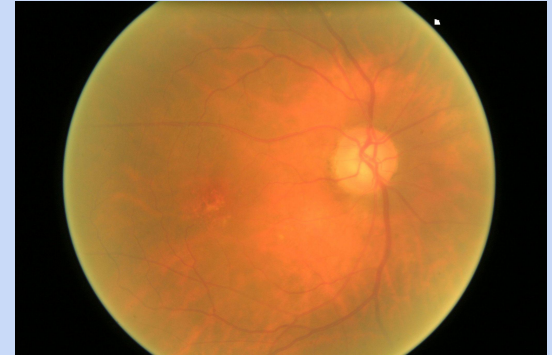
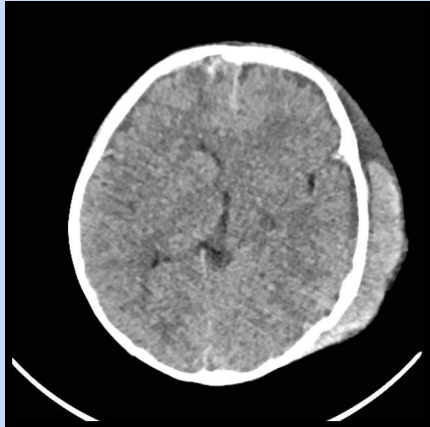
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Ideas

1. Covid-19 chest CT classification (computer vision)
2. Brain CT stroke classification (computer vision)
3. Glaucoma detection (computer vision)





Covid-19 chest CT classification

Problem: We are just starting to see the beginnings of mid-to- long-term impact on population health after Sars-Cov-2 infection. One impact is lung damage. Lung damage can be commonly seen on chest CTs of people previously infected with Covid, including those that were asymptomatic. A community hospital with in-house CT scanner but no full-time radiologist wish to have a ML model to help her doctors quickly diagnose possible (past or ongoing) COVID-19 via chest CTs and help staff's decision-making. This model should classify images into COVID-19, NON-COVID-Normal, and Pathological-NON-COVID.

Data: 353MB · 1875 images + labels

Unbalanced data



Brain CT stroke classification

Problem: Intracranial haemorrhage (bleeding in the brain, a type of stroke) is a medical emergency, requiring rapid diagnosis and early intervention. When a patient presents with a possible stroke, medical images are taken and reviewed by highly trained specialists to look for the presence, location and type of hemorrhage. The process is complicated and often time consuming - minutes that the patient cannot spare. Training a model that can detect and diagnose stroke based on CT images will cut those minutes, giving the patient more chance of a successful intervention. Multiclass problem based on images and labels provided (site, yes/no bleed, yes/no fracture)

Data: 100MB · 5000 images · 82 patients

Unbalanced data

Glaucoma detection

Problem: Glaucoma is one of the leading silent causes to permanent blindness. People at risk are above 50 years old and know a family member with glaucoma. Because we are an aging population with many eyes that can be screened, we can build a ML model that can help doctors quickly filter healthy eye scans from the abnormal ones, so that they can focus their time and resources spent on people with abnormal funduscopy scans. Binary classification (yes/no)

Data: 421MB · 482 negative, 168 positive images