clsa élcv
Canadian Longitudinal Study on Aging
Étude longitudinale canadienne sur le vieillissement

CLSA Approved Project

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Project Title
Retinal imaging to identify biomarkers that correlate with Alzheimer's disease using a transfer learning approach

Project Summary
Alzheimer's disease (AD), a slowly evolving neurodegenerative disorder characterized by cognitive impairment, is the most common cause of dementia (>50% of all cases), with no cure available at this time. Aβ plaque and tau tracers for Positron Emission Tomography (PET) imaging are now available to confirm in vivo their presence, which dramatically increases the probability of AD, but the price and requirements (radioactive agents) of PET does not make it an acceptable way to identify asymptomatic AD patients when it comes to imaging thousands of subjects. We developed an AD screening method based on hyperspectral imaging of the retina but have limited data for its validation. The main objective of this study is to use a deep learning approach to identify biomarkers in retinal images that strongly correlate with cognitive scores according to metadata acquired by CLSA and then do transfer learning to our hyperspectral dataset to identify AD subjects.

Keywords
Alzheimer, Retina, Multi-spectral, Biomarkers, Correlation