

Applicant

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Project Title

Deep learning for simulation of cognitive and quality of life trajectories in aging

Project Summary

The prevalence of common age-related mental illnesses and associated social and fiscal costs are on the rise; over 560,000 Canadians currently live with dementia due to Alzheimer's disease at a cost of \$10.4 billion. Despite the magnitude of this problem, clinicians do not have tools to predict an adult's risk for late life declines in cognitive capacity or social function. Further, in the early stages of such decline, no tools exist to provide accurate prognoses. Research aiming to predict risk and prognosis has conventionally focused on one or two data types, such as neuroimaging, genetics, clinical assessments, or lifestyle factors. We propose to use machine learning algorithms to combine multi-disciplinary data types available in the CLSA cohort to A) identify hidden groups of study participants who may share cognitive trajectories, and B) develop a predictive model as a tool for understanding a given individual's risk for late-life decline in cognition and social function.

Keywords

Deep learning, Clinical subgrouping, Data integration