Project Title: AI video analysis to identify CTE and dementia symptoms

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Project Description:

Symptoms associated with Alzheimer's disease and related dementias (ADRD) are insidious in that they take a long period of time to emerge and can involve emotional, physical functional, behavioral, personality, and cognitive changes. Changes in cognitive function can emerge over decades during which time symptoms are emerging due to cortical changes. Across all neurodegenerative conditions, symptoms are insidious and may be similar between diseases. Additionally, patients schedule appointments at times where they believe they will be well enough to perform, making symptomatology difficult to identify without an informant report. The telehealth boom sparked by COVID-19 reveals how much medical information can be conveyed by the subject's video feed, opening the door to computational methods that reduce such feeds to streams of phenotypic variables measuring the subject's cognitive and emotional states. The goal of this proposal is to build an algorithm to analyze features from video-based real-time data capture to identify individuals with emotional, vocal, and linguistic symptoms consistent with neurodegenerative disease in videos of NFL players and WTC responders.