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Framework utilizing machine learning to facilitate gait analysis as an indicator of Vascular Dementia

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Vascular dementia (VD), the second most common type of dementia, affects approximately 13.9 per cent of people over the age of 71 in the United States alone. 26% of individuals develop VD after being diagnosed with congestive heart failure. Memory and cognition are increasingly affected as dementia progresses. However, these are not the first symptoms to appear in some types of dementia. Alterations in gait and executive functioning have been associated with Vascular Cognitive Impairment (VCI). Research findings suggest that gait may be one of the earliest affected systems during onset of VCI, immediately following a vascular episode. The diagnosis tools

currently utilized for VD are focused on memory impairment, which is only observed in later stages of VD. Hence we are proposing a framework that isolates gait and executive functioning analysis by applying machine learning to predict VD before cognition is affected, so pharmacological treatments can be used to postpone the onset of cognitive impairment. Over a period of time, we hope to be able to develop prediction algorithms that will not only identify but also predict vascular dementia.

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