Multi-sense agent for proactive screening of alcohol addiction

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Addiction is a complex condition, a brain disease that is manifested by compulsive substance use despite harmful consequence(s). People with addiction (severe substance use disorder) have an intense focus on using certain substance(s), such as alcohol, drugs or pornography as seen in recent studies, to the point that it takes over their life. Diagnosis of addiction to any substance is usually done in a reactive manner whereby the person is identified once the external symptoms manifest themselves due to the fact that the vast majority of individuals do not seek treatment for their condition. This can be attributed partly to the failure to diagnose early by primary care physicians, the stigma by the society and self-denial by the potential addict since they choose not to seek help until they hit rock-bottom (Zhang & Ho, 2016) thus aggravating the already unwanted situation. Recently there is a shift to the use of ICT techniques such as mobile devices to detect various health symptoms proactively with researchers developing objective mobile data-driven biomarkers for many healthcare conditions such as depression which is highly related to addiction. Furthermore the development of machine learning decision support systems such as the SimSensei Kiosk which is used alongside qualified psychologists in diagnosis of post-traumatic stress disorder have validated the fact that it is possible to successfully implement autonomous diagnosis systems. The aim of this study is to propose an autonomous agent based on the multi-sense framework that can be used on demand for proactive diagnosis of alcohol addiction.

Keywords: Machine learning; Addiction; Multi-sense framework; Computer vision.