

**[Invited] Literature survey of wireless BCI system in diagnosing Alzheimer's disease**

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**Abstract**

Recently, in almost every country, the proportion of people aged over 65 years is growing faster than any other age group because of longer life expectancy. As the elderly population rising sharply, the number of senior citizens suffering from illnesses is increasing. These facts are recognized as a serious issue to society. It is important to detect and prevent Alzheimer's disease (AD) early because there is no surefire way to cure until now. However, it is difficult to see patients of AD on their own as diagnosis of AD is difficult without consulting a doctor. The Electroencephalogram signals (EEG) of patients of AD or depression are different those of general people. The recently paper outlines opportunities of computational approaches for diagnosing AD based on EEG. Also, we could diagnose state of depression through EEG signals. Based on the advantage of our skill on brain computer interface (BCI), it is possible to make the wireless brain computer interface system (BCIs) that can self-diagnosis the AD or depression. Wireless BCIs is easy in processing systems and EEG signal acquisition to provide portable, wearable, and capable of monitoring user's EEG signals via wireless transmission protocol. If we make a wireless BCIs to diagnose AD, then the user should wear it continuously for a long time. Users wear wireless BCIs consisted of dry electrodes that do not require conductive gel or glues for installation process of electrodes. Users can always monitor EEG signals using a smart phone anywhere. When wireless BCIs detects to specific EEG signals involved in the AD or depression, it make a warning call to inform user risk of AD or depression. This wireless BCIs enables elderly people himself or their caretaker to detect the AD or depression early so they will have the proper treatment.