

عنوان مقاله:

Early detection for mild alzheimer's disease with comparison LDA,SVM and Elman methods

محل انتشار:

سومین کنفرانس مهندسی برق و الکترونیک ایران (سال: 1390)

تعداد صفحات اصل مقاله: 6

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خلاصه مقاله:

The initial aim and motivation of this research is planning and providing a system for Diagnosis and identification of Alzheimer patients on light step from the old health individuals. Considering the specifications of EEG 1 and the way of this sickness with different specifications in brain signal, this sickness may be diagnosed within the primary step through an adequate process. First of all, the brain signal has been registered in four state of: closed eye, opened eye, booster and irritation from three Pz.Cz.Fz channels. Seeing the registered protocol, on the booster period, during 1 minute to the signal registration while the patient remembers the images and during the irritation state and considering the audible sample, the responding manner of subject to the voice of aim are investigated: then, other processes within the frame of time and frequency such as indicating statistical specifications correlation, spectral analysis and deduction of different non linear specifications such as liapanov exponent, correlation dimension and anthropy are done by considering the nonlinear and turbulent nature of the brain signals. Then, by using the Genetic Algorithm the optimum specifications were drawn out by using the three claaifier LDA2 ,SVM 3 and Elman. According to the drawn out results, it became clear that among the three channels Pz.Cz.Fz and four states of closed eye.opened eye, booster and irritation, the exactitude Pz channel and the state of irritation are more in comparison with the channels and other states. The accuracy of channel Pz result during remembering and irritation period with the selected specifications of the Genetic Algorithm through linear selector are respectively 65/3% and 68/4% , in Support vector machine method are respectively 72/3% and 76/1/4% and in nervous system the exactitude is respectively 94/3% and 96/2%.

کلمات کلیدی:

Mild alzheimer's disease, EEG, Genetic Algorithm, LDA, SVM, Elman

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