Abstract

In the past decade, many studies focused on communication systems that translate brain activities into commands for a computer or other devices that called brain computer interface (BCI). In this study, we present a BCI system that achieves high classification accuracy with Neural Network (NN), Fisher Linear Discriminant Analysis (FLDA) and Bayesian Linear Discriminant Analysis (BLDA) for both disabled and able-bodies subjects. The system is based on the P300 evoked potential and is tested with four able-bodied and five severely disabled subjects. The effect of different electrode configurations on accuracy of machine learning Algorithms is tested and effect of other factors on classification accuracy in P300-based systems are discussed.

References

- H. Cecotti, A. Graser, "Convolutional neural network for P300 detection with application to brain- computer interfaces," IEEE Transaction on Pattern Analysis and
A Comparison among Classification Accuracy of Neural Network, FLDA and BLDA in P300-based BCI System

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Index Terms

Computer Science  Signal Processing

Keywords

Classification  Event Related Potential  P300 Evoked Potential  Neural Network  Bayesian’s Linear Discriminant Analysis.