Feasibility of BMI improvement applying a Stroop effect

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Abstract*— The author considers that applying a Stroop effect to the extracting method of the event related potential (ERP) by presenting the characters as a visual stimulus contributes to the development of the reactive brain machine interface. In order to investigate the influence of the Stroop effect on the brain wave, one of the two Chinese characters "red" and "blue" is turned into red or blue periodically and these characters are taken as the visual stimuli. The subject counts silently every time when the Chinese character as the targeted stimulus is presented on the display. As a result, when the test data was of the subject A, the percentages of correct answers were 86.0% and 83.0% for the cases in which the character "blue" printed in red and the character "red" printed in blue were presented on the display as the targeted stimuli. On the other hand, the percentages of correct answers were obtained as 79.0% and 69.0% for the cases in which the character "red" printed in red and the character "blue" printed in blue were as the targeted stimuli.

Keywords— EEG, ERP, Stroop effect, SVM, Chinese character

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