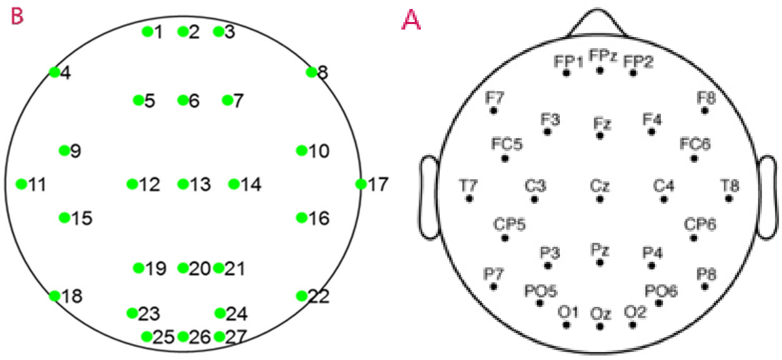

Figure S1. Placement of 27 EEG electrodes. (A) 10-20 system configuration. [18] (B) Numbering of recorded channels.

In our model, we randomly split test data and train data using the Keras function. We then repeated the training procedure 5 times, with the test data set randomly chosen at each iteration. Each time we extracted the last layer's features, giving us the scores of subjects, and enabling us to generate a confusion matrix.

The mean value of accuracy was $\bar{x}_{accuracy} = 99.62\%$, and the mean value of F1 scores was $\bar{x}_{F1score} = 0.995$. When using five-fold cross validation, the standard deviations for accuracy and F1 score are summarized in the Table S1 and were computed as:

$$std = \sqrt{\frac{\sum_{i=1}^{5}(x_i - \bar{x})^2}{n-1}} \qquad n = 5$$

Table S1. Standard deviation of each training

	Standard deviation of Accuracy	Standard deviation of F1 score
Five-fold cross validation	4.24×10^{-3}	4.69×10^{-3}

Here the Monte Carlo approach essentially works as an optimization technique to achieve the minimum validation loss across the training epochs. If the validation loss was deemed excessive, based on the MC-based sampling, then the training was terminated (Keras Early-Stopping). This made the results robust to overfitting.