Authentication System by Human Brainwaves Using Machine Learning and Artificial Intelligence (Conference Paper)

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Abstract

Authentication and authorization are an indispensable piece of security in computer-based frameworks. As an option for biometrics, electroencephalography (EEG) authentication (authorization) presents focal points contrasted with other biological qualities. Brainwaves are difficult to reproduce, and diverse mental undertakings produce various brainwaves. This examination researches the parts of execution and time-invariance of the EEG-based confirmation. Two arrangements of trials are done to record EEG of various people. We actualize the utilization of artificial intelligence (AI), for example, support vector machine (SVM) and deep neural network (DNN) to characterize EEG of subjects. The correlation between EEG highlights, anodes position, and a mental errand is made. We accomplish more than 90% order exactness utilizing three kinds of highlights from four electrodes. Information from prior meetings is utilized as AI preparing information and information from later meeting are grouped. We discovered that characterization precision diminishes after some time, and inactive undertakings perform in a way that is better than dynamic errands. © 2021, The Author(s), under exclusive license to Springer Nature Switzerland AG.

Author keywords

Biometric authentication; Deep neural network; DNN; EEG; Electroencephalography; Human brainwave authentication; Keras Neural Network; KNN; Machine learning authentication; Support vector machine; SVM

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