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Stroke Rehabilitator

A novel approach for improving stroke rehabilitation process using machine learning and artificial intelligence.

A dissertation by

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Abstract

According to the World Health Organization, 15 million of people are being the victims of stroke, and from that two-thirds required a proper intervention of rehabilitation to enhance their physical, psychological and social intensity. When considering past few years in the clinical sector, a series of rehabilitation processes have conducted with the support of Brain-Computer Interfaces (BCI). But there is a lack of researches, directed towards the enhancement of intervention in neurorehabilitation combined with neuroplasticity. To meet this challenge, a machine learning based novel approach for stroke subjects is presented to the process of neurorehabilitation combined with neuroplasticity.

This study aimed to understand how the neurorehabilitation processes will support to enhance the performances while improving the plasticity in the brain. And also, this research discerns the effectiveness of the proposed approaches on pre-processing stage and classification types. Furthermore, severity of the stroke was assessed by Glascomic scale and recommend suitable therapeutic processes according to the state of art of machine learning.

In the proposed solution data obtained from electroencephalography were taken in to consideration and supervise learning mechanisms combining with the concepts in reinforcement learning were involved to address the research problem. The results of this analysis were satisfied with the primary objectives and able to demonstrate the improvement of neurorehabilitation processes with neuroplasticity while maximizing the level of the cognition. Therefore, proposed systems intend to enhance not only the physical potentiality but also the psychological and social well-being of the patient.

Subject descriptors:

    Computing methodologies

- Artificial intelligence

Computing methodologies

- Machine Learning

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- Data mining

Keywords:

Stroke condition, Electroencephalography, Neuro-rehabilitation, Supervise learning, Machine Learning

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