

Handwriting Velocity Modeling by Artificial Neural Networks

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Abstract : The handwriting is a physical demonstration of a complex cognitive process learnt by man since his childhood. People with disabilities or suffering from various neurological diseases are facing so many difficulties resulting from problems located at the muscle stimuli (EMG) or signals from the brain (EEG) and which arise at the stage of writing. The handwriting velocity of the same writer or different writers varies according to different criteria: age, attitude, mood, writing surface, etc. Therefore, it is interesting to reconstruct an experimental basis records taking, as primary reference, the writing speed for different writers which would allow studying the global system during handwriting process. This paper deals with a new approach of the handwriting system modeling based on the velocity criterion through the concepts of artificial neural networks, precisely the Radial Basis Functions (RBF) neural networks. The obtained simulation results show a satisfactory agreement between responses of the developed neural model and the experimental data for various letters and forms then the efficiency of the proposed approaches.

Keywords : Electro Myo Graphic (EMG) signals, experimental approach, handwriting process, Radial Basis Functions (RBF) neural networks, velocity modeling

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