PENCARIAN POLA DATA AUDIO DALAM INTERVAL TERTENTU MENGGUNAKAN JARINGAN SYARAF TIRUAN REKUREN

Mushthofa, Prapto Tri Supriyo, Agus Buono

ABSTRACT

This research is aimed at investigating the possibility of using artificial neural networks for the problem of sound pattern search and retrieval. In this paper, we propose a new method for searching sound pattern that can be further developed to produce a high performance algorithm for sound pattern searching. The artificial neural network architecture used in this research is the recurrent neural network, also known as the Elman neural network, which is known to have a capability in recognizing pattern in time (temporal pattern). In addition, this paper also describes the pre-processing method for the purpose of sound pattern searching. The experiments conducted in this research is divided into two main categories: those which investigate the performance of the method proposed in the problem of searching sound pattern in an interval, and those which investigate the performance of the method proposed in the problem of searching sound pattern on a database of sounds. In each of the experiment, the effects of the number of hidden unit used and the length of the sound pattern towards the performance of the method are also analyzed. For the experiments in the first category, the best performance recorded was 100% recall for the length of the sound pattern:5, 10 and 20 seconds, using 30 units on the hidden layer. The average performance level for this category was 74.44%. For the second category, the best result of 56% recall was obtained for the length of the sound pattern 5 seconds using 30 units on the hidden layer. The average performance for this category was 43.56%.