



A BACKPROPAGATION NEURAL NETWORK APPROACH FOR OTTOMAN CHARACTER RECOGNITION

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ABSTRACT—The Ottoman Empire established in 1299 and continued 6 centuries covering an area of about 5.6 million squared km. The Empire left a large collection of valuable archives interesting to historians from all over the world. Investigation and understanding these documents will shed light on the history of the world. In order to achieve access of the considered information by worldwide scientists, it is essential to translate Ottoman characters into Latin alphabet. Thus, we aimed to recognize the Ottoman characters using Artificial Neural Network (ANN) and compared it with Support Vector Machine (SVM) approaches. We used printed type of Ottoman scripts in image acquisition. Pre-processing such as normalization and edge detection were implemented. Multilayer perceptions of ANN were trained using the backpropagation learning algorithm. As a result of our research, we are able to classify the Ottoman characters with 85.5% classification accuracy using the proposed recognition system.

Key Words: Artificial neural network, Backpropagation, Ottoman script, Cellular neural network edge detector, Character recognition