A Recognition Method of Ancient Yi Script Based on Deep Learning

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Abstract : Yi is an ethnic group mainly living in mainland China, with its own spoken and written language systems, after development of thousands of years. Ancient Yi is one of the six ancient languages in the world, which keeps a record of the history of the Yi people and offers documents valuable for research into human civilization. Recognition of the characters in ancient Yi helps to transform the documents into an electronic form, making their storage and spreading convenient. Due to historical and regional limitations, research on recognition of ancient characters is still inadequate. Thus, deep learning technology was applied to the recognition of such characters. Five models were developed on the basis of the four-layer convolutional neural network (CNN). Alpha-Beta divergence was taken as a penalty term to re-encode output neurons of the five models. Two fully connected layers fulfilled the compression of the features. Finally, at the softmax layer, the orthographic features of ancient Yi characters were re-evaluated, their probability distributions were obtained, and characters with features of the highest probability were recognized. Tests conducted show that the method has achieved higher precision compared with the traditional CNN model for handwriting recognition of the ancient Yi.

Keywords : recognition, CNN, Yi character, divergence

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