

Abstract:

Bachelor thesis describes using convolutional neural networks for recognizing symbols from images. First describes this model and shows it's implementation. Then this implementation is used for sample application.

First, model of neural networks is described, then learning of this model (including backpropagation algorithm). Finally, convolutional neural networks are presented with it's advantages for symbol recognition.

Then some existing implementations of neural networks are analyzed, including speed comparison. None of these implementations support convolutional networks, so this model is added to one of them. Then this extension and it's interface (how to use it) is presented.

To show features of this model and to prove functionality of the implementation, sample application is created. This application is available on the web site and runnable using only a web browser.

Keywords: Convolutional neural networks, OCR, Encog