

This bachelor thesis focuses on finding suitable methods and algorithms for text segmentation and character recognition using artificial neural networks. Firstly, the thesis covers basic principles of artificial neuron and artificial neural networks, structure of convolutional neural networks and mainly backpropagation algorithm and stochastic Levenberg-Marquardt algorithm. Then the thesis describes image processing and image segmentation to single symbols using graph algorithms. This thesis also includes implementation of these methods and algorithms in an application which converts digital mathematical expressions to vector format.