

<b>Thesis Title</b>	Segmentation of Magnetic Resonance Images Based on Hopfield Neural Network
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## **ABSTRACT**

This thesis presents segmentation of magnetic resonance images based on Hopfield neural network, which is developed from [1]. In the research [1] the segmentation problem is formulated as a minimization of an energy function of the modified Hopfield neural network. The lower energy gives the better segmentation. The network needs a threshold that is determined by users themselves to terminate the updating algorithm.

The thesis presents two contributions to improve the research [1]. First, a network that can work without any threshold is developed. The network use stability of neuron outputs to terminate its updating algorithm. Second, a technique of network size reducing is proposed. The technique is to divide an input image to parts of the image. The proposed network then segments each part. Finally, all result segments are merged together.