Herlina Pitasari, 2010. Deteksi Tumor Otak Hasil Rekaman *Magnetic Resonance Imaging* (MRI) berbasis Jaringan Syaraf *Learning Vector Quantization* (LVQ). Skripsi ini dibawah bimbingan Auli Damayanti, S.Si, M.Si dan Drs. Edi Winarko, Departemen Matematika, Fakultas Sains dan Teknologi, Universitas Airlangga.

ABSTRAK

Tujuan dari penulisan skripsi ini adalah mendeteksi tumor otak hasil rekaman MRI berbasis jaringan syaraf *Learning Vector Quantization* (LVQ). Hal ini dikarenakan untuk mengidentifikasi ada tidaknya tumor, para dokter melakukan secara manual. Jaringan syaraf dapat digunakan dalam mendeteksi tumor otak dari citra hasil rekaman MRI. Metode yang digunakan dalam jaringan syaraf adalah metode *Learning Vector Quantization* (LVQ). Pelatihan data suatu jaringan syaraf tiruan bertujuan untuk mencari nilai bobot optimal. Sebelum pelatihan data terlebih dahulu dilakukan proses pengolahan citra untuk mendapatkan pola tumor otak. Proses pengolahan citra meliputi beberapa tahapan, yaitu *greyscale, thresholding, histogram equalization,* dan segmentasi. Program yang digunakan adalah *Visual Basic 6.0*.

Data yang digunakan untuk *training* data adalah 6 data normal dan 6 data tumor otak. Sedangkan, data yang digunakan untuk *testing* data adalah 10 data normal dan 10 data tumor otak.

Setelah dilakukan pelatihan, diperoleh bobot optimal dengan *epoh*=19 dan *alpha*=0.4. Dengan bobot optimal tersebut, uji validasi terhadap 20 data *testing* mencapai keberhasilan sebesar 80 %.

Kata Kunci : *Tumor Otak, Pengolahan Citra, Jaringan Syaraf, Learning Vector Quantization (LVQ)*

Herlina Pitasari, 2010. Detection of Brain Tumor Magnetic Resonance Imaging (MRI) based on the Neural Network of Learning Vector Quantization (LVQ). This *Skripsi* is under advised by Auli Damayanti, S.Si, M.Si and Drs. Edi Winarko, Department of Mathematics, Faculty of Sains and Technology, Airlangga University.

ABSTRACT

The aim of the writing of this *Skripsi* is to detect the brain tumor produced by the MRI being based on the neural network of Learning Vector Quantization (LVQ). This is caused by the way to identify tumor, doctors examine manually. The neural network could be used to detect the brain tumor from the image of MRI. Method that is used in the neural network being the Learning Vector Quantization method (LVQ). The purpose of training data by neural network is to look for the optimal value of the weight. Before training data is carried out by the process of the image processing to get the pattern of the brain tumor. The image processing include several steps, that is greyscale, thresholding, histogram equalization, and segmentation. The program that is used Visual Basic 6.0.

The data that is used to training of data 6 normal data and 6 data of the brain tumor. Whereas, the data that is used for the testing of data is 10 normal data and 10 data of the brain tumor.

After training, is obtained the optimal weight with epoh=19 and alpha=0.4. With this optimal weight, the validation test of 20 testing data is achieved the success of 80 %.

Key Words : Brain Tumor,Image Processing, Neural Network, Learning Vector Quantization (LVQ)