Abstract

Osteoarthritis is a disease found in the world, including in Indonesia. The purpose of this study was to detect the disease Osteoarthritis using Self Organizing mapping (SOM), and to know the procedure of artificial intelligence on the methods of Self Organizing Mapping (SOM). In this system, there are several stages to preserve to detect disease Osteoarthritis using Self Organizing maps is the result of photographic images ronsen Ossa manus normal and sick with the resolution (150 × 200 pixels) do the repair phase contrast, the Grayscale, thresholding process, Histogram of process , and do the last process, where the process of doing training (Training) and testing on images that have kept the shape data (.text). the conclusion is the result of testing by using a data image, where 42 of data have 12 Normal image data and image data 30 sick. On the results of the process of training data there are 8 X-ray image revealed normal right and 19 data x-ray image of pain expressed is correct. Then the accuracy on the process of training was 96.42%, and in the process of testing normal true image 4 obtained revealed Normal, 9 data pain stated true pain and 1 data imagery hurts stated incorrectly, then the accuracy gained from the results of testing are 92.8%.
References

1. Bethesda, “Handout on Health,” Osteoarthritis, 2013.
2. P. R. Soeroso S, Isbagio H, Kalim H, Broto R, Osteoarthritis Dan Buku Ajar Ilmu Penyakit Dalam, IV. Jakarta: Fakultas Kedokteran Universitas Indonesia: Fakultas Kedokteran Universitas Indonesia. p.1195-1201, 2006.
3. E. P. . Suhartono, “Teknik radiografi tulang ekstremitas atas,” EGC, 2004.
4. D. T. Felson, Principles of Internal Medicine, 7th ed. New York: McGraw-Hill Companies, 2008.
5. Rinaldi Munir, Pengolahan CITRA DIGITAL dengan Pendekatan Algoritrik. Bandung: Bandung, 2004.
6. U. Ahmad, Pengolahan Citra Digital dan Teknik Pemrogramannya. Yogyakarta, 2005.
7. Candra Noor Santi, “Mengubah Citra Berwarna Menjadi Gray-Scale dan Citra biner,” Teknol. Inf. Din., vol. 16, pp. 14–19, 2011.
8. A. Hery Purnomo, M., Muntasa, Konsep Pengolahan Citra Digital dan Ekstraksi Fitur. Yogyakarta, 2010.
9. V. Bação, F., dan Lobo, Introduction to Kohonen’s Self-Organizing Maps. Universidade Nova de Lisboa, Portugal.: Instituto Superior de Estatistica E Gestao de Informacao, 2010.
10. Pratiwi, D., and Ariwibowo, A.B., Dengue Haemorrhagic Fever (DHF) Severity Detection by Using Neural Network Technique based on Human Blood Components, International Journal of Mechanical and Mechatronics Engineering (IJMME - IJENS), Vol. 17 No, 3, Pp: 64-71, ISSN (Online) : 2077-124X, 2017.
11. Syaifudin, and Pratiwi, D., Security Handwritten Documents using Inner Product, Lecture Notes in Electrical Engineering, Vol. 365, ISBN (Online) : 978-981-287-988-2, Springer - Singapore, 2016

Index Terms

Computer Science 
Artificial Intelligence

Keywords

Osteoarthritis, Ossa manus, Grayscale, Thresholding, and Self Organizing Maps.