Extraction Clinical And Pathological Data With Particle Swarm Optimization Method And Cancer Diagnosis Using Artificial Neural Networks

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Abstract Nowadays, breast cancer is one of the prevalent causes of death that compared to other cancers, is one of the main death reasons among women. Breast cancer has led to one of the most dangerous cancers among women around the world. Early diagnosis of breast cancer is a vital factor in decreasing the death rate caused by this cancer. Since public hospitals do not have necessary facilities for cancer diagnosis, detection in long term period increases the danger of this cancer. Therefore, computer diagnosis of breast cancer to decrease the diagnosis time and as well as death rates has been used. Many of researchers have attempted to use machine learning algorithms to find the rebirth capability rate of cancer in human and animals. In this thesis, relying on this reason that effective factors in cancer diagnosis depend on area and time and that this effectiveness can change the diagnosis factors, a two-stage method has been proposed that first, using Particle Swarm Optimization (PSO) algorithm, effective factors in cancer diagnosis were extracted clinical and pathological datasets and then, using artificial neural network, diagnoses cancer by the extracted information. According to dynamic medical information as well as effective local and temporal information in cancer diagnosis, adding one stage of effective feature extraction before the classification can improve the results. The proposed method has appropriate output and can be used in real world. Also, this method has avoided heavy processes on images and other time consuming processes and by using the applied technique, improved the accuracy and time.

Keywords : breast cancer, Particle Swarm Optimization (PSO) algorithm, neural

networks

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