Nat. Volatiles & Essent. Oils, 2022; 9(1): 736-744

NVEO
Natural Volatiles &
Essential Oils

Application Of RBNN Method For Identification Of Thyroid Disease Cases Using Electro Photonic Images

Indrakumar S S[1] , Prof. M S Shashidhara[2]

[2]Research Scholar Dept. of Computer Applications The Oxford College of Engineering, Bangalore-560068,India.

[2]Dept. of Computer Applications The Oxford College of Engineering, Bangalore-560068,India.

Abstract

Many diseases affect human beings, and various methods are used to understand these disease conditions. ElectroPhotonic images also help diagnose disease much earlier, like before physical symptoms appear in the body. Energy fields of Humans, Plants, and Crystals can be measured using Electro photonic imaging. A special camera is used to gather these images, referred to as an EPI camera. This paper gives insight into the detection and classification of Thyroid disease using Electro Photonic Images. Image processing is carried out using the Radial Basis Function to detect and classify Thyroid patients.

Keywords: Kirlian photography, Medical diagnosis, Energy, Aura, Chakras, Thyroid, RBNN

Introduction

According to modern science, the human organism is made of molecules, and these molecules need energy which is provided in the form of food, light, and water. The overall energy in the body creates an energy field. We are learning to measure this energy fields using the Kirlian camera.

When a human being is affected by any disease, it will appear in the form ailment in the body. Since the human body is made of cells, these cells are affected. Energy levels of the human body are captured during this process used to identify the diseases. Images collected from Non-Thyroid and Thyroid. These images are classified using the Radial Basis Function Neural Network method as Non-Thyroid and Thyroid.

1. Energy

We get energy from the universe in some form from Sun, Air, and Water. All living organisms need energy to live. All living organisms require energy from their food intake, along with these energies. The bioenergy field surrounds every human. An electrocardiogram device helps to understand the electrical activity of the Human Heart**,** and Electroencephalogram can be used to measure Brain bioenergy. Various magnetic imaging devices can measure electromagnetic fields around the human body. We have an energy system

made up of different electromagnetic fields known as bioenergy fields. There are two effects of the bioenergy field, one reflecting on the physical body and another influencing our environment. First, the human bioenergy field is affected by the external factors that emit electromagnetic waves. The effect of these waves will be negative. Cells will be affected when this negative energy affects the human body for a long time. This cellular level will show up as physical symptoms.

2. Medical Diagnosis

In standard practice, to diagnose any disease, the doctor begins to understand the patient's conditions by asking questions related to the ailments in patients, then goes thru the history and previous records treatment suggested, then does physical examinations and medical tests if required. Electrophonic images are helpful in finding out the energy levels of the body, which are then used in disease diagnosing. The Kirlian camera can capture Electro photonic images that measure human energy levels. These images also help in analyzing the changes in the subtle energy distribution.

3. Existing Systems

The two most prominent systems which are used for energy analysis are:

1. Energy Emission Analysis or EEA - Peter Mandel’s System
2. Gas Discharge Visualization Technology - Dr. Konstantin Korotkov’s System

Peter Mandel used a high-voltage analog camera in a dark room. Peter Mandel approached new holistic treatments where he believed that troubling conditions originated from the subconscious state. The EEA evaluator collects the patient's overall body-soul-spirit situation, which shows the physical, emotional, or mental state; the therapist will address the issue based on the form.

4. Electro Photonic Imaging

Scientists captured electromagnetic fields from humans and biological objects for more than two centuries. However, the complexity of the equipment used during that time slowed down the progress of the study of the effect. Finally, this phenomena was discovered by a Russian named Kirlian in 1930. They were involved in this study for several decades to study various substances, and they successfully attained more than 30 patents. Hence, the phenomenon is also known as the Kirlian Effect.

There is electrical activity in the human body. Electro photonic imaging devices can be used to measure the electrical activity of the human organism. The pattern created by the high voltage varies when the `subject's body is in a balanced condition. When there is an imbalance in the subject, it creates another pattern. There will be a difference in the patterns generated in normal and abnormal subjects. A Russian named Kirlian discovered these phenomena in 1930. There are practical applications in the area’s of Medicine, Sports, and liquid testing using Electro photonic imaging systems. The EPI system can measure physical and Emotional effects on the human energy field.

Each finger connected to one of the human body organ, like Right Thumb Finger connected to the Right eye, Left Little Finger to the Left part of the Heart, Right Thumb Finger to the Right eye, and Right Ring Finger to the Thyroid gland.

Fig: ElectroPhotonic Imaging Devices

5. Thyroid

The thyroid gland is an endocrine gland. It contains two lobes connected. Isthmus is connecting bridge between these two lobes. The thyroid gland location is at the front of the neck of the human body. The thyroid gland secretes three hormones triiodothyronine, thyroxine, and a peptide hormone, calcitonin. These hormones affect the metabolic rate, also growth, and development. Thyroid-stimulating hormone-regulated the secretion of these two hormones. Hypothalamus produces the stimulating thyroid hormone.

There are various conditions of the Thyroid depending on the functional level of this gland. Goiter is one condition that has a state of swelling, which is due to iodine deficiency. The next one is due to the cause of Grave's disease known as Hyperthyroidism. The autoimmune disease causes another condition referred to as Hypothyroidism. Even a type of cancer occurs to this gland known as Thyroid cancer which is curable by surgery or radiation. Thyroiditis is another condition caused by a viral infection. Finally, another condition named Thyroid occurs due to Hyperthyroidism with excess hormone release, which causes severe illness.

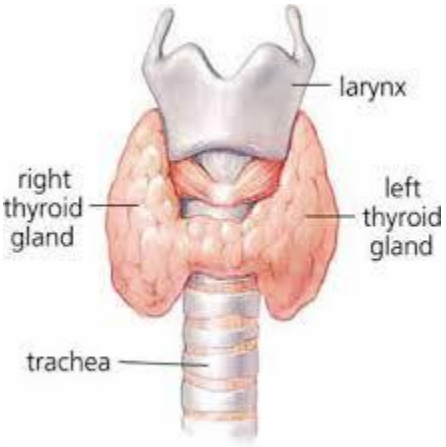


Fig: Thyroid Gland

6. Radial Basis Function Neural Networks

The radial basis function is the most broadly used and best fit for image classification. RBF is simple in architecture. The training process is faster. Also, the learning algorithm corresponds to the solution of a linear regression problem. RBF requires the determination of the number and position, which is the main drawback of this algorithm. Centers are randomly selected from the training data, and in unsupervised

methods, clustering algorithms are adopted like k-means. Center initialization in the traditional approach is more sensitive in RBF.

RBF network is an artificial neural network with input and output layers. Another layer Hidden layer carries hidden neurons and activation functions. For an input signal from the input layer corresponding input, a vector is generated by the hidden layer, and the network generates the corresponding signal.

Nodes in the hidden layer perform the radial basis transformation function.- to get final values. The output layer performs the linear combination of the outputs of the hidden layer. Classification is performed in the output layer. With respect to Training times, Multi-layer Perceptron Classification takes more time than RBNN.

Algorithm

- K- number of hidden neurons
- RBNN centers are set using a K-means clustering algorithm.
- Calculate Sigma
- Calculate actions of Radial Basis Function
- Train the output using

A Radial basis function focuses on distance from its center. Absolute values are used. Absolute values are those without their associated sign; the absolute value of -4 is 4.
A typical Gaussian function is defined as

$$f(x) = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{(x-\mu)^2}{2\sigma^2}}$$

7. Model Building

After collecting the images using the EPI device, the next stage is to train images and build a model to predict thyroid disease. We have used Matlab for coding to train images and build the model

8. Training & Testing

Each image is read in Matlab and stored in the Matlab database. Training of both normal and Thyroid images was carried out. Once training is completed, testing is carried out for some samples.

We successfully collected 510 Normal and 520 Thyroid sample Electrophotonic images from different sources during the image collection.

80% of images were used for training, and 20% were used for testing

Inclusion Criteria

Subjects will be included for the current research based on the following criteria
Age: 25 to 50 years.
Healthy volunteers, both male and female volunteers. People who are taking Allopathy Medicine
People who are taking Ayurvedic Medicine, People who are taking Homeopathic Medicine
People who are practicing Yoga and meditation.

Exclusion Criteria

People having any acute or chronic diseases, People with missing fingers or cut in fingers
Females during menstruation or pregnancy

Normal Images	500
Thyroid Images	520
Total Images	1020

Normal Samples	50
Thyroid samples	52
Total Samples	102
Male Samples	15
Female Samples	87

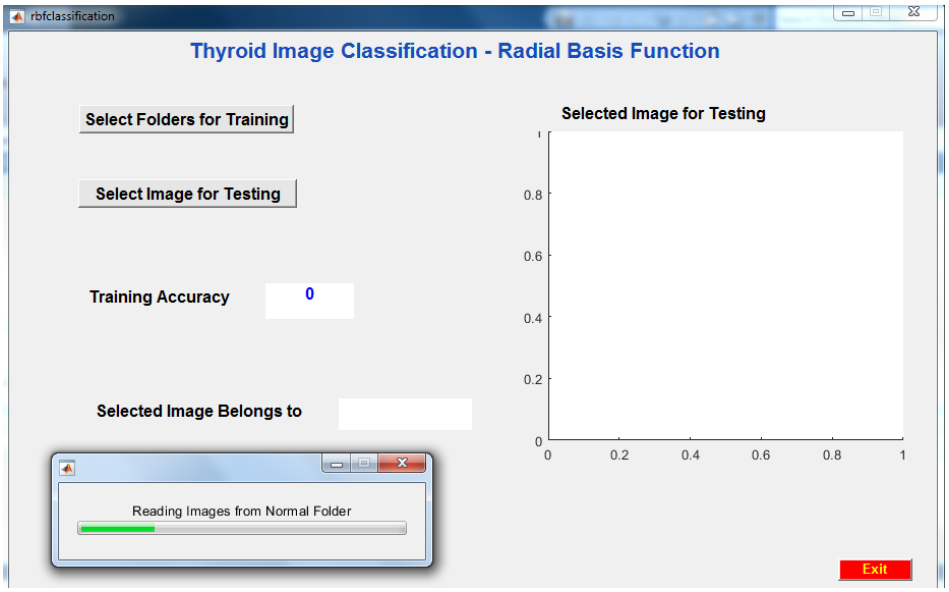


Fig: Reading images from the folder

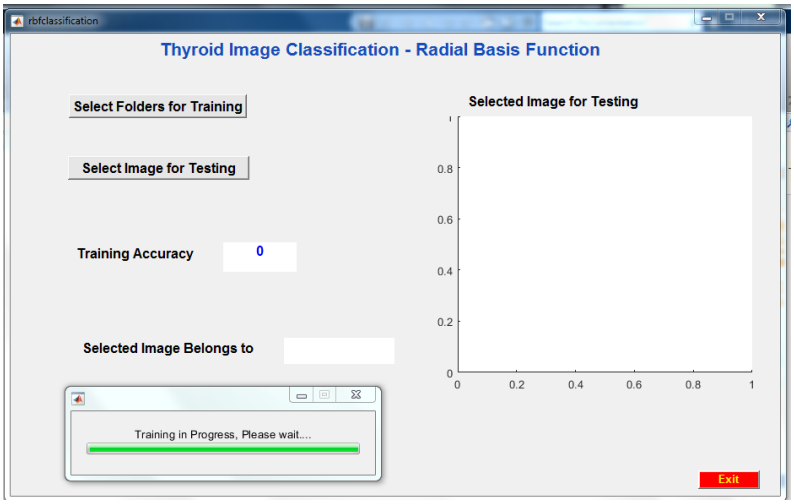


Fig: Training images

9. Results

Thyroid disease prediction is made using the Radial Basis Function algorithm with function. Five hundred sample images of Normal and Thyroid images in each category were used for training. Model is built, which is used to predict other samples. Learning rate set to .01 No of inputs as image size of 285*370 and output as single either Normal or Thyroid. The Training Accuracy rate is 95.5%.

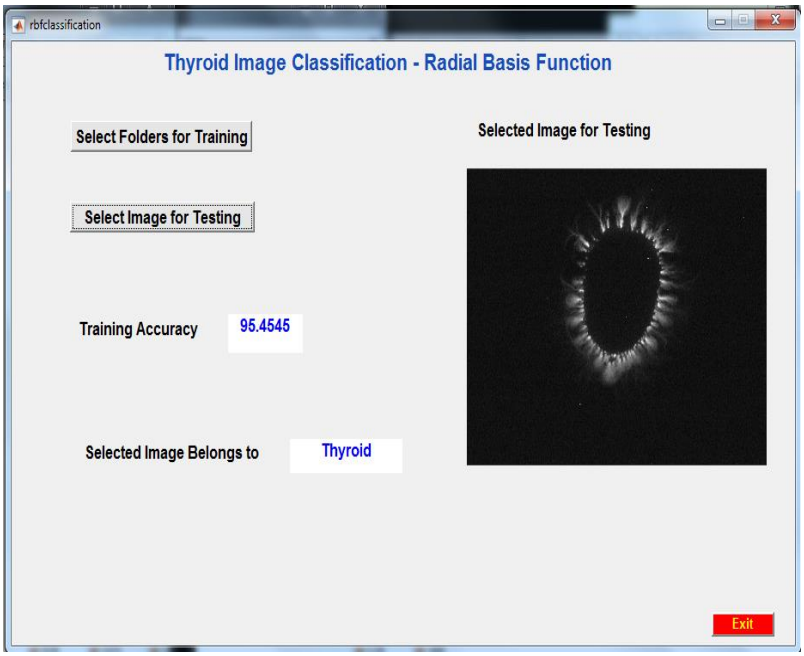
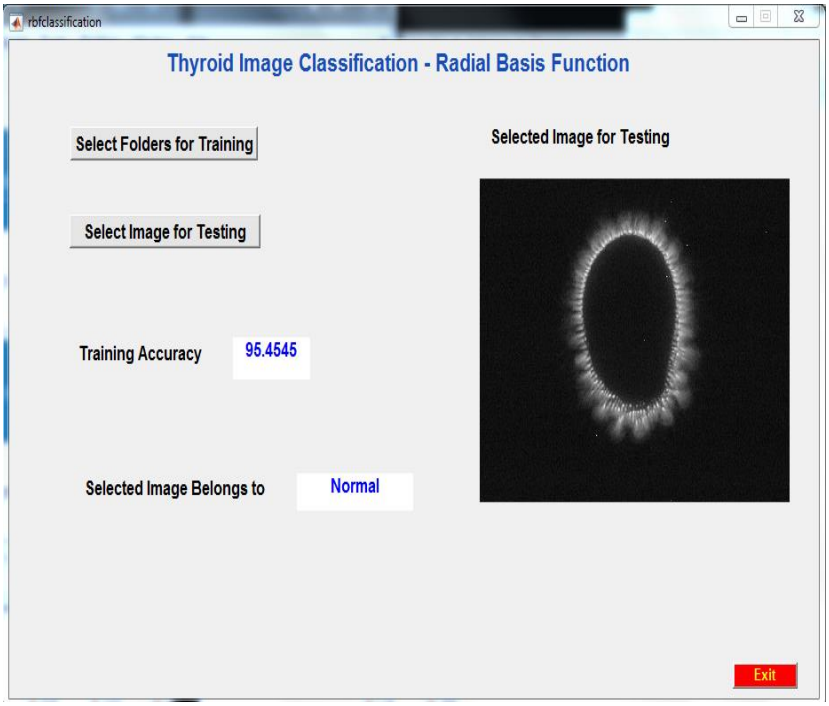


Fig: Test Result of Thyroid image



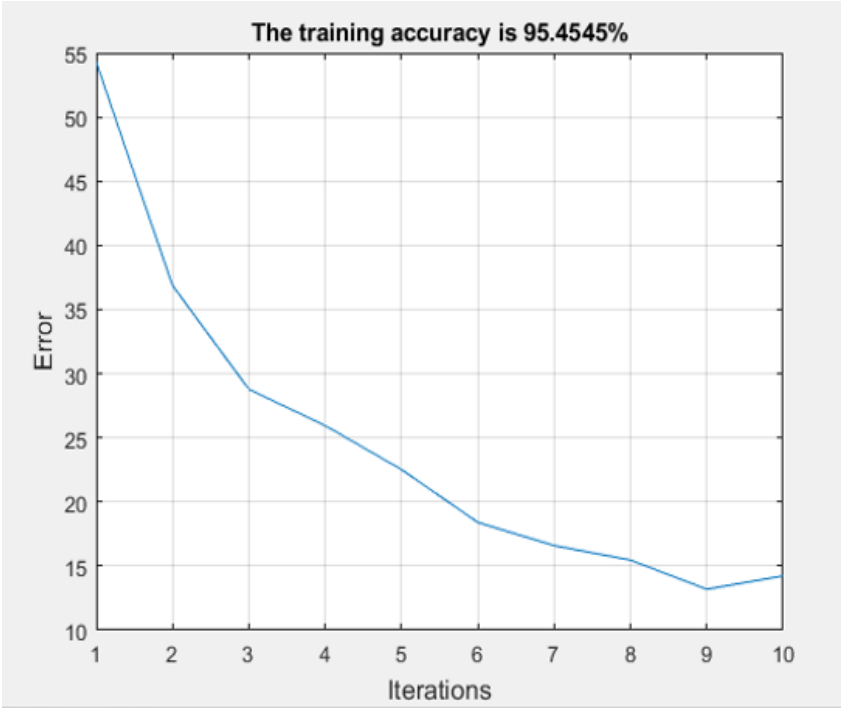


Fig: Training Accuracy

10. Conclusion

Electrophotonic images can be used to predict thyroid disease. These images also reveal the current conditions of the organs. Therefore, these images are used to diagnose thyroid disease. Collected images

can also be classified using the Radial Basis Function model. After training images, the training rate achieved 95.5%.

A confusion matrix was used to evaluate the performance of the classification model. Various measures listed below can be calculated to assess the performance of the classification model. In addition, the following parameters from the confusion matrix are helpful to compare results.

Measure	Value
Sensitivity [B / (B+C)]	0.955
Specificity SPC [E/ (D + E)]	0.955
Precision PPV [B / (B + D)]	0.955
Negative Predictive Value NPV [E / (E+ D)]	0.955
False Positive Rate FPR [D / (D + E)]	0.045
False Discovery Rate FDR [D/ (D + E)]	0.045
False Negative Rate FNR [C / (C + B)	0.045
Accuracy ACC [(B + E) / (P + N)]	0.955
F1 Score [2TP / (2B + D + C)]	0.955

Table 3: Confusion matrix measures-RBNN Method

11. References

[1] K.G.Korotkov, ''Measuring Energy Fields'', Saint Petersburg, 1999.

[2] Rosenfield, A.C. Kak, Digital Picture Processing, vol. 1 & 2, Acad. Press, NY, 1982.

[3] Rosalyn L. Bruyere, Wheels of Light (New York: Simon and Schuster, 1989),

[4] Caroline Myss, Anatomy of the Spirit (New York: Random House, Inc., 1996),

[5] Michael Tierra, Lesley Tierra, “Chinese traditional herbal medicine - Diagnosis \& treatment,” vol. 1, pp. 195, 1998.

[6] R. Rajesh, M.R. Kaimal, K. Srinivasan, “A Note on Medical Image Analysis and Visualization using Matlab,” ICGST International Journal on Graphics Vision and Image Processing, Special Issue on Medical Image Processing, pp. 352-355, 2006.

[7] Xanadu C. Halkias, Petros Maragos, “Analysis of Kirlian Images: Feature Extraction and Segmentation'', Proc. of ICSP, 2004.

[8] K.G.Korotkov, “Aura and Consciousness - Book'', 2nd Ed, Saint Petersburg, 1999.

[9] Sushrutha S, Hegde M, Nagendra H.R., et al. “Comparative study of Influence of Yajña and Yogāsana on stress level as Measured by Electron Photonic Imaging (EPI) Technique.” International Journal of Science and Research (IJSR). 2014;3(8):1402–1406.

[10] Sushrutha S, Madappa K, Nagendra H.R. “Effect of bhaishajya maha yajna on human energy field and environment.” International Journal of Innovative Research in Science & Engineering. 2015.

[11] Narajanan R. Understanding diabetes from the perspective of electro–photonic imaging (bio–well) and proposing yoga therapy for reversing Type–2 diabetes. In: Proceedings of International Scientific Congress on Bioelectrography. St Petersburg; 2017:36.

[12] Naranjan R. EPI readings of type II diabetes. In: Proceedings of International Scientific Congress on Bioelectrography. St Petersburg; 2018:16–23

[13] Kuldeep K Kushwah, et.al."Effect of Yoga based techniques on stress and health indices using electro photonic imaging technique in managers"

[14] Romesh Kumar Bhat, "Diabetes mellitus type 2 and yoga: Electro photonic imaging perspective," International Journal Yoga. 2017.