J Nucl Med Radiat Ther 2017, 8:4 (suppl)
DOI: 10.4172/2155-9619-C1-012

Satellite image classification using genetic algorithm trained radial basis function neural network, application to the detection of flooded areas

Akansha Singh
The NorthCap University, India

Classifying remote sensing images is a tedious and complex task as it involves a number of factors to be considered. Designing an efficient classification method is influenced by the user's needs, the spatial resolution of the remotely sensed data, compatibility with previous work, available image-processing and classification algorithms and time constraints. Also the classification system should be informative, exhaustive and separable. Remote sensing image classification is applied to various areas like urban planning, disaster management, vegetation monitoring and forest cover monitoring. One of the most significant areas is monitoring of natural disasters. Natural disasters are serious events which end up from earth's natural processes. The occurrence of natural disasters in the recent years has increased greatly. The major disasters include tsunamis, floods, volcanic eruptions, earthquakes etc. Floods are one of the most frequent and devastating natural hazards that occur worldwide. Flood occurs due to excessive rainfall in a short duration of time and consequent high river discharge causes large amount of damage. An image classification method based on GA trained RBFNN for remotely sensed images are proposed. The proposed method uses RBFNN to find the optimal centres for different land cover classes. Radial basis function network provides a way to handle the large amount of data present in remote sensing images. The efficiency of RBFNN is greatly influenced by the initial seed selection and training used. Thus to enhance the efficiency of RBFNN spectral indices and training based on GA is used in this work. GA has proved to be one of the most powerful optimization tools in a large space and hence work effectively in finding cluster centres for image classification. The training of RBFNN with GA gives a powerful and efficient method for remote sensing image classification. Landsat 8 OLI images of south China area are classified using the proposed method. The method is applied to detect the flooded area near Dongting Lake in South China.

akanshasing@gmail.com

Evaluation of off-axis and peripheral dose in LINAC using various detectors

G Bharanidharan[1], P Aruna[1], P Thamilkumar[2], R R Rai[2] and **S Ganesan[1]**
[1]Anna University, India
[2]Dr. Rai Memorial Cancer Institute, India

In radiation therapy, measurement of off-axis and peripheral dose is a tedious task. The dose distribution along the beam central axis give only part of the information required for an accurate dose description inside the patient. Dose distributions in 2-D and 3-D are determined with central axis data in conjunction with off-axis dose profiles. Combining a central axis dose distribution with off-axis data results in volume dose matrix that provides 2-D and 3-D information on dose distribution. The peripheral dose (PD) (dose outside the field edges), is also one of the important parameters when anatomical structures with very low dose tolerances are involved. Hence, knowledge of peripheral dose at distances larger than a few centimeters outside the primary beam is essential from radiation protection point of view. The peripheral radiation dose (PD) may induce cataract formation, affect gonadal function and the fertility. The PD can also be responsible for exposure to the foetus in pregnant woman and dose to breast and other tissues for which radiation induced carcinogenesis may be concerned. Hence the current study evaluates the credentials of detectors viz., MOSFET, ionization chamber, radiographic and radio chromic films for measuring the off axis and peripheral dose.

ganesanbharani@gmail.com