

## Intelligent Assistive Methods for Diagnosis of Rheumatoid Arthritis using Histogram Smoothing and Feature Extraction of Bone Images

**Authors :** SP. CHOKKALINGAM, K. KOMATHY

**Abstract :** Abstract- Advances in the field of image processing envisions a new era of evaluation techniques and application of procedures in various different fields. One such field being considered is the biomedical field for prognosis as well as diagnosis of diseases. This plethora of methods though provides a wide range of options to select from, it also proves confusion in selecting the apt process and also in finding which one is more suitable. Our objective is to use a series of techniques on bone scans so as to detect the occurrence of rheumatoid arthritis (RA) accurately as much as possible. Amongst other techniques existing in the field our proposed system tends to be more effective as it depends on new methodologies that have been proved to be better and more consistent than others. Computer aided diagnosis will provide more accuracy and infallible rate of consistency that will help to improve the efficiency of the system. The image first undergoes histogram smoothing and specification, morphing operation, boundary detection by edge following algorithm. Classification of Bone image to find out the Bone Mineral Density (BMD) using mean, median and Standard deviation has been carried out in the paper. Support Vector Machine (SVM) is utilized for the classification of golden ranges and observed ranges. MatLab R2011a is used for morphological operation and estimation of BMD and finally Feature extraction is used to determine the presence of rheumatoid arthritis in a more efficient and effective way. A total of 120 Bone images are considered for feature extraction and final routine assessment is validated through yardstick results.

**Keywords :** Keywords: Rheumatoid arthritis, Computer aided diagnosis, Histogram smoothing, Edge detection.

**Conference Title :** ICEP 2014 : International Conference on Electronic Publications

**Conference Location :** journal city, WASET

**Conference Dates :** November 23-23, 2014