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MEDICAL PHYSICS FOR PATIENT BENEFIT

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ABSTRACTS

A REVIEW OF OPEN SOURCE CONE BEAM RECONSTRUCTOR (OSCAR) FOR COMPUTERIZED CT IMAGING

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ABSTRACT

The use of Cone-Beam Computed Tomography (CBCT) scanner has become powerful tools for medical imaging techniques. This will allow medical surgeons and radiologist assistants to diagnose patients before any treatment can take place. However, the CBCT concepts require high demand for computer resources to reconstruct three-dimensional (3D) model from two-dimensional (2D) images and there is lack of free, flexible and practical FDK software to perform CBCT reconstruction which has prevented the growth of medical physics researches and also inhibited medical multi institutional research collaboration. Based on this problem, Open Source Cone-Beam Reconstructor (OSCaR) was used to train medical, biomedical engineering students and medical physicists in understanding the concepts of computed tomography scanner. This software requires only a small capacity of computer resources, thus allowing students to practise using their own computer. The software was used to obtain the reconstruction of the skull. By using the cone-beam x-ray tube, 320 projections of the image of the skull were obtained (Matfile). The .mat file was then imported into OSCaR. The software successfully reconstructed 3D results in terms of

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