

Abstract

Patient is exposed to the X-ray radiation during the CT scan. It is harmful to the human body so it is in the best interest to try to expose the patient to the X-ray radiation for as short amount of time as possible. Even slight movement during the procedure influences the final result of the CT scan. Often the patient must undergo two or more scans before the doctor is able to come to a conclusion from the CT scan and diagnose the patient.

This bachelor thesis will inquire into the affects of patient body movement to the final CTCB scan. In addition it outlines a technique that could increase the sharpness of the CT scan using an X-ray contrast object which would be face-mounted. The final CTCB scan could be distributed to a separate layers and then integrated back together after calibration using the Feldkamp algorithm. This process would result in a higher fidelity CTCB scan.

Patient exposure to the X-ray could be fundamentally reduced by using this calibration process. In that case patient would only need to take the CTCB scan once and even if he would moved we could easily calibrate the scan and diagnose the patient.