

# A Comparative Study of Analytical, Iterative and Bayesian Reconstruction Algorithms in Computed Tomography (CT)

**Zoubeida MESSALI, Nabil CHETIH, Amina Serir, and Abdelwahhab Boudjelal**

**Abstract:** These Images of the inside of the human body can be obtained using tomographic acquisition and processing techniques. In particular, these techniques are commonly used to obtain X-ray images of the human body. The reconstructed images are obtained given a set of their projections, acquired using reconstruction techniques. A general overview of analytical and iterative methods of reconstruction in computed tomography (CT) is presented in this paper, with a special focus on Bayesian algorithms. The simulated results are compared using quality measurements for various test cases and conclusion is achieved. Through these simulated results, we have demonstrated that the Bayesian approach provides the best image quality and the small values of the quality measurements.

**Keywords :** Computed tomography, Bayesian approach, reconstruction techniques.