Graphics Hardware Accelerated Reconstruction of Spect with a Slat Collimated Strip Detector

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Abstract - 3D iterative reconstruction of Single Photon Emission Computed Tomography acquisition is widely used but rotating slot collimated system increases the computation time even further, Since the sensitivity profile of such a camera is not constant over the field of view , it is important to include a system model that is as accurate as possible We derived a Monte Carlo Model of the physics of the measurement process . The advances in programmable graphics hardware make it possible to efficiently model the 3D reconstruction algorithm on consumer graphics cards in order to reduce the computation time. This paper describes an implementation of the reconstruction algorithm which is as accurate as the software algorithm while still achieving a 10-fold speed increase over the optimized software version.