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Patent Search

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Abstract:

Systems and techniques for iteratively reconstructing pictures from data captured using a medical imaging system are described in this paper. a. Introduction: The pi reconstruction issue is broken into discrete linear sub-problems, each of which can be handled more efficiently than the previous one. A statistical image reconstruct is split into a statistically-weighted algebraic reconstruction update sequence and a statistically-weighted algebraic reconstruction update sequence. Using a regularizer function, the rebuilt picture is then denoised when this stage is completed.

Complete Specification

- Claims:1. Method for reconstructing an image of a subject using a medical imaging system, the steps of which are as follows: a) collecting data from the subject the medical imaging system; and b) reconstructing an image of the subject from the acquired data using an iterative statistical image reconstruction that is decomp include in each iteration an image reconstruction step without regularization and a denoising step that includes regularization in each iteration.
2. Picture reconstruction step 2 of the method according to claim 1, including constructing a cost function to minimize, choosing an estimate of the image, assess cost function for the estimate, and generating an updated estimate by adding a step value to the estimate.
3. According to claim 2, the step value is calculated as follows: producing synthesized data by applying a system matrix to the estimate; producing difference data calculating a difference between the synthesized data and the acquired data; producing noise-weighted data by applying a noise-weighting matrix to the difference the noise weighting matrix including an estimate of noise; and producing the step value by applying a transpose of the system matrix to the difference data.
4. A method for reconstructing an image of an inspected item from a spiral computed tomography scan includes the steps of creating a radiation source, building detector array, and reconstructing the image of the investigated object.
5. It is claimed that the technique specified in claim 1 comprises the use of a regularize to denoise the picture rebuilt in the image reconstruction step and that that denoising process is included in the image reconstruction phase.

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