R-8155

Lead Inventor: Klaus Mueller, Ph.D., Associate Professor, Department of Computer Science

Title: Selection of Optimal Views for CT Reconstruction

Background: The optimized view algorithm proposed uses an approach rooted in information theory. It determines the angular views most promising for the adding of new information within an interactive reconstruction framework. Assuming that, perhaps, a model of the imaged object exists, the entropy for all projections over a spherical grid of possible projection directions (given the imaging configuration at hand) is calculated. The projections are then sorted by their entropy values, or information content, of which only the highest entropy values are used. The proposed scheme includes a variety of advanced entropy measurements which better characterize the information content of the projection in terms of the reconstruction.

Technology Description: This newly developed algorithm is applicable to any imaging scenario in which the number of views that can be acquired is limited or where a reduction in radiation exposure is required (biological specimen, living cells).

Applications: CT Scanner Manufacturers, CT Scanner Software Companies

Advantages: The technology enables a reduction in the number of images needed to be taken on the patient, thereby, minimizing the x-ray exposure.

Patent Number / Publications: Patent Pending.

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