Docket #: S06-144

3-D Adaptive Filtering of Projection Data for Noise Reduction in Low-dose C-arm

CT imaging is enhanced by adaptively filtering x-ray attenuation data prior to image reconstruction. Detected x-ray projection data are adaptively and anisotropically filtered based on the locally estimated orientation of structures within the projection data from an object being imaged at a plurality of rotation positions. The detected x-ray data are uniformly low pass filtered to preserve the local mean values in the data, while the high pass filtering is controlled based on the estimated orientations. The resulting filtered data provide projection data with smoothing along the structures while maintaining sharpness along edges. Image noise and noise induced streak artifacts are reduced without increased blurring along edges in the reconstructed images. The enhanced image allows reduced x-ray dose while maintaining image quality.

Patents

- Published Application: 20080069294
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