



Range Adjusted Dynamic Image Construction Algorithm (RADICAL) Method to Suppress Artifacts in X-Ray Imaging

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WARF: P08010US

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a method to suppress artifacts resulting from metal objects in X-ray images without removing valuable information.

Overview

Computed tomography (CT) is used as a diagnostic imaging modality to generate three-dimensional images of the inside of an object. When a metallic object, such as a surgical clip, is present in a subject being imaged, artifacts generally will appear in the reconstructed image in the form of dark and light streaks emanating from the metal object. These artifacts degrade the overall quality of the image and can confound clinical diagnoses.

Current methods to reduce streak artifacts are of limited effectiveness, as the considerable streaks that form obscure areas that might otherwise be visible if the metal artifact were not present. Therefore, a system and method for controlling the impact of artifact-causing materials that does not result in significant data loss is needed.

The Invention

A UW-Madison researcher has developed a method for substantially suppressing streak artifacts in images produced with an X-ray imaging system without significant loss of information. The Range Adjusted Dynamic Image Construction Algorithm (RADICAL) approach reconstructs an image by weighting the coefficient values of highly attenuating regions so that values above a user specified threshold contribute less to a given location in the image than those below the threshold. This method removes much of the metal artifacts on CT imaging, resulting in a more accurate reconstructed image. In addition, it may limit other inconsistent data artifacts.

Applications

- Suppression of artifacts in images constructed using medical imaging modalities such as computed tomography (CT), positron emission tomography (PET) and single photon emission computed tomography (SPECT)

Key Benefits

- Removes metal artifacts in reconstructed images by preserving important information
- May limit beam hardening artifacts

Tech Fields

- [Medical Imaging : CT](#)
- [Medical Imaging : X-ray](#)

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