Patent Search

Invention Title	METHOD AND SYSTEM FOR PROVIDING NEURAL NETWORKS FOR MEDICAL IMAGE PROCESSING TO ACCURATELY ASSESS THE GROWTH OF TUMOR
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Abstract:

METHOD AND SYSTEM FOR PROVIDING NEURAL NETWORKS FOR MEDICAL IMAGE PROCESSING TO ACCURATELY ASSESS THE GROWTH OF TUMOR ABSTRACT The present invention provides a method for providing neural networks for medical image processing to accurately assess the growth of tumor. The disclosed method collects a sample of view-adjacent of a tumor, artifact contaminated cone beam computed tomography projection space images, and a corresponding artifact reduced, central one of the individual of view-adjacent cone beam computed tomography projection space images from each patient in a group of patients. The method using the first of view-adjacent, artifact contaminated cone beam computed tomography projection space images and the corresponding artifact reduced, central one of the first of view-adjacent cone beam computed tomography projection space images collected from each patient in the group of patients to train a deep convolutional neural network (DNN) to reduce one or more artifacts in at least the central one of the projection space images.

Complete Specification

Description:METHOD AND SYSTEM FOR PROVIDING NEURAL NETWORKS FOR MEDICAL IMAGE PROCESSING TO ACCURATELY ASSESS THE GROWTH OF TUMOR

FIELD OF THE INVENTION

[001] The present invention generally relates to medical image processing. More particularly, the invention is related to a method and system for providing neural networks for medical image processing to accurately assess the growth of tumor.

BACKGROUND OF THE INVENTION

[002] Radiation therapy (or "radiotherapy") can be used to treat cancers or other ailments in mammalian (e.g., human and animal) tissue. One such radiotherapy technique is a Gamma Knife, by which a patient is irradiated by a large number of low-intensity gamma rays that converge with high intensity and high precision at a target (e.g., a tumor). In another embodiment, radiotherapy is provided using a linear accelerator, whereby a tumor is irradiated by high-energy particles (e.g., electrons, protons, ions, high-energy photons, and the like). The placement and dose of the radiation beam must be accurately controlled to ensure the tumor receives the prescribed radiation, and the placement of the beam should be such as to minimize damage to the surrounding healthy tissue, often called the organ(s) at risk (OARs). Radiation is termed "prescribed" because a physician orders a predefined amount of radiation to the tumor and surrounding organs similar to a prescription for medicine. Generally

View Application Status