



Multi-Angle CT Scanning of Stationary Patients

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Overview

X-ray computed tomography (CT) is an imaging technique that generates cross-sectional images of a patient by combining multiple X-ray images taken at a range of angles. A patient may be physically moved through a gantry structure as the scanner rotates up to 360 degrees.

Conventionally, patients lie on a table during the scan. However, standing may be preferable in some situations (e.g., coughing lung cancer patients, vertebrate fractures). Moreover, positioning large animals like horses on a table is challenging and may require anesthesia.

In such situations a more versatile scanning structure would be highly advantageous.

The Invention

Researchers from UW–Madison and the Morgridge Institute for Research have developed a gantry support structure that uses articulating arms to scan humans or animals sitting, standing or lying down.

Their articulating robotic arm system (called ARMS) controls the motion of a standard high-speed CT scanner. ARMS moves around a patient, producing complex trajectories while allowing the patient to remain stationary.

The articulating arms have motorized shoulder, wrist and elbow joints to support greater motion capabilities. The system is suitable for scanning humans as well as large animals, and may be mounted on the floor, ceiling or wall for added versatility.

Applications

- X-ray CT imaging
- Veterinary medicine
- Potential use in PET, radiotherapy and industrial inspection

Key Benefits

- Uniquely versatile
- Subjects patients to fewer physical constraints
- ARMS is easy to control and manufacture.

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- Works with full function CT system and standard gantry
- Supports fan-beam design for high-resolution imaging

- Works for large animals and unusual trajectories (e.g., the head of a standing horse)



Additional Information

For More Information About the Inventors

- [Peter Muir](#)

Publications

- [Read a news story about this technology.](#)

Tech Fields

- [Medical Imaging : CT](#)

For current licensing status, please contact Jeanine Burmania at jeanine@warf.org or 608-960-9846

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