XA/CT Imaging System for Osteoporosis Diagnosis

Tech ID: 34119 / UC Case 2024-927-0

BRIEF DESCRIPTION

An innovative imaging system combining X-ray-induced acoustic imaging and CT for enhanced osteoporosis diagnosis.

FULL DESCRIPTION

This technology introduces a novel approach by integrating X-ray-induced acoustic (XA) imaging with X-ray computed tomography (CT) in a single scanner. This integration allows for simultaneous imaging and accurate registration of anatomical structures, facilitating the extraction of bone elasticity information critical for osteoporosis diagnosis. The system's capability to calculate bone elasticity with high precision marks a significant advancement in the field of medical imaging.

SUGGESTED USES

- Clinical diagnosis of osteoporosis and other bone-related conditions.
- Research tool in the development of new treatments for bone diseases.
- Healthcare facilities focused on geriatric and endocrinological disorders.

ADVANTAGES

- Accurate assessment of bone density and elasticity in a single scan.
- Less than 1% error in calculating bone elasticity.
- Provides accurately registered anatomical localization.
- Non-invasive method with potential for quick, clinic-ready evaluations.
- Cost-effective and easy implementation in clinical settings.

PATENT STATUS

Patent Pending

RELATED MATERIALS

- L. Sun, Y. Xu, P. K. Pandey and L. Xiang, "Combined XA/CT Imaging for Bone Density and Elasticity Evaluation: A Simulation Study," in IEEE Transactions on Radiation and Plasma Medical Sciences, doi: 10.1109/TRPMS.2024.3484311.

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OTHER INFORMATION

CATEGORIZED AS

- **Imaging**
  - Medical
- **Medical**
  - Disease: Musculoskeletal Disorders
  - Imaging
- **Research Tools**
  - Other

RELATED CASES

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